

ARGUS® F300

User manual

Version: 4.81 / **EN**

Important note:

The basic package contains different interfaces, which include a variety of functions and tests. All other interfaces and functions are optional (see datasheet). Thus, depending on the scope of function supplied, individual menu options may be hidden.

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ARGUS testing the telecom network



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1 Introduction

ARGUS® F300: the universal fiber tester

The ARGUS® F300 is the only device in the world that combines OTDR and selective OPM and can also determine and display the PON ID and XGS-PON ID. The integrated OTDR automatically detects splices, connectors and cable faults and displays the results clearly. Thanks to automatic measurement configuration, operation is ideal for beginners. At the same time, the expert mode allows precise settings for professional users.

Modern design and intuitive operation

Its robust design combines the requirements for a compact hand-held meter in daily field use with the performance of a highend tester. The ARGUS® tester with touch-screen display enables intuitive navigation of the familiar ARGUS® menu structure. The operation is as easy as with a smartphone and an internal help function supports the rapid and reliable interpretation of test results.

Tests on mixed optical fiber accesses

The ARGUS® F300 reliably tests on GPON and XGS-PON interfaces in the quality you have come to expect. The selective 4-fold power meter can be switched into an existing PON connection in through mode, allowing the optical levels on the different downstream (OLT) and upstream (ONT) wavelengths for GPON and XGS-PON and a video overlay to be determined precisely at the same time. In this process, other transmitters that may be on the line (so-called alien ONT) can be detected. In addition, the PON ID can be read out from the PLOAM message. A PLOAM monitor scans all ONU IDs and serial numbers of connected ONTs on a PON branch. With the 5xOPM, a video overlay via five separate filters is also possible as an option. On GPON as on XGS-PON, the ARGUS® can also perform a complete ONT simulation with IP and performance tests at up to 10 Gbit/s.

Additional features

The ARGUS® F300 also has many other test functions, such as WLAN analyzer, triple play tests such as VoIP, IPTV and data tests in the form of upload/download, ping and traceroute as well as iperf or high-performance IP speed tests directly on the fiber or on Ethernet. In addition, the Fiber Inspection Tool can be connected via USB, which detects scratches and defects on optical fibers and displays them as a video image and in tabular form.

Overview of key ARGUS® functions:**Ethernet interfaces**

- **LAN 100/1000, 2.5 GBase-T (2.5GbE), 2500 BASE-T (IEEE 802.3bz, NBase-T), 5/10 GBase-T**
- **SFP: full SFP+ interface (FTTx, PtP)**
 - **1000 Base-BX/LX/SX/ZX (IEEE 802.3 Clause 38 / 802.3z)**
 - **2.5 GBase-X (2.5GigE/2.5GbE)**
 - **10 GBase-X**

Fiber interfaces

- **GPON and XGS-PON**
- **Selective Optical Power Meter**
- **Selective Through Mode**
- **Fiber Inspection Tool (external via USB)**
- **Optical Time Domain Reflectometer (OTDR)**
- **Visual Fault Locator (external, additional)**
- **Optical Light Source (external, additional); Extension to Optical Loss Test Set**
- **GPON and PON Installation Test**

WLAN interface

- **WLAN Access Point Mode**
- **WLAN AP Scan**
- **WLAN Client**
- **WLAN Spectrum Analysis**
- **WLAN Management**
- **ARGUS® WLAN Analyzer (external via USB)**

IP tests via Ethernet, GPON, XGS-PON, FTTH and WLAN

- **IP tests**
 - **Ping and traceroute tests (PPP trace, VLAN), via IPv4 and IPv6**
 - **Download tests for determining throughput rate (HTTP download, FTP up/download)**
 - **Speed tests ARGUS® Real Speed Direct (iperf), ARGUS® Real Speed Formal (RFC6349)**
 - **FTP server test, up/download from ARGUS® to ARGUS®**
 - **Concurrent testing of multiple services (VoIP, IPTV, data)**

- **VoIP tests**
 - VoIP terminal device simulation, including acoustics (var. codecs), via IPv4 and IPv6
 - OK/FAIL assessment of VoIP speech quality (QoS) according to:
 - MOS_{CQE} (ITU-T P.800), E-model (ITU-T G.107)
- **IPTV tests**
 - Stream request (STB mode), IPTV channel scan, IPTV passive
 - OK/FAIL assessment and display of quality parameters
 - Moving picture mode with live picture

Documentation and analysis

- **Documentation** of data through automatic access tests in access acceptance logs, in device and on PC in HTML format.
- Transmission of results to smart phone using **QR code**.
- Transfer of test results to the ARGUS[®] Mobile App (optional / on request)
- Free firmware updates via the **cloud** or using the **update tool**.
- **WLAN extension** for transferring measurements to systems for electronic job processing, access point mode (browsers, download) or remote control using smart phones.



Note:

You can download the latest manuals at <http://www.argus.info/service/downloads> or simply contact one of our service representatives:

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Tel.: +49 (0) 2351 / 9070-0
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www.argus.info/en
support@argus.info

2 Safety information

The ARGUS® may only be operated using the accessories supplied with the device. The use of other accessories can result in faulty measurements or even damage to ARGUS® and the connected equipment. Only use the ARGUS® according to the instructions contained in this accompanying document. Use in any other manner can cause harm to persons or destroy your ARGUS®.



- Before connecting your ARGUS® to a local access, ensure that the optical output power is not too high for which the ARGUS® or its accessories are not designed, are present. Also keep in mind that the output power can change over the time that the device is connected.
- Use the ARGUS® only according to its intended purpose (standard) at all interfaces and accesses.
- Never conduct measurements without the battery pack!
- The ARGUS® is not waterproof. Therefore, protect the ARGUS® against water penetration.
- Before replacing the battery pack, remove the power supply and all measuring leads and switch off your ARGUS® instrument.
ATTENTION: Never remove the battery pack during operation.
- Remove the power adapter from the mains socket as soon as the ARGUS® is switched off or no longer in use (e.g. after charging the battery pack)!
- The ARGUS® may only be used by trained personnel.
- The ARGUS® may only be operated using the power adapter supplied with the device.
- Only manufacturer-approved USB devices without mains connection may be connected to the USB host interfaces (USB-A). The instrument can be connected to a PC as a mass storage device.
- If external USB devices are used on the USB-host interface (USB-A), no warranty is assumed for occurrences outside the mechanical wear of normal plug-in.
- Only use the SFP slots for SFP types explicitly approved by intec GmbH. Never insert other objects or SFP modules into the SFP slots.
- When the SFP slots are not in use, always make sure that they are sealed using the supplied protective covers.
- When using the SFP slots and SFP modules, always be sure to observe normal cleanliness.
- When using SFP modules, always be sure to observe the module manufacturer's safety information and use them only for their intended purpose.



- The SFP modules typically approved for ARGUS® are generally class 1 laser devices.

Normally, the use of class-1 laser products does not require any special protection measures.

However, for your own safety please note the following:

- Always cover the ends of the optical fibres and the SFP module when the connection is interrupted.
- Always avoid direct eye contact with the emitted laser light. Vision aids and long exposure times can make even low light doses extremely dangerous.
- The equipment may only be used by trained personnel.
- The electromagnetic compatibility (EMC) was tested according to the regulations specified in our declaration of conformity.

Your ARGUS® instrument is a class A device, and can cause radio interference in residential areas. In this case, the user may be required to implement appropriate measures.

- The active charging of the battery pack (charging the battery) and automatic charging (on by default) may only be carried out in a temperature range of 0 °C to +40 °C.
- The device may not be used during thunderstorms.
- If the ARGUS® is operated under extreme conditions, it can be set to energy-saving mode to protect the device and the user; this can interrupt the running test and drop the connection.

To ensure dependable extended operation of the ARGUS®, always make sure that it is optimally protected against high temperatures.

- The device may not be opened.
- Please observe the following safety and transport information when using the lithium-ion battery pack.
- Before starting a test or connecting to an interface, determine how you want to supply power to the ARGUS® (battery pack or power adapter).

The car adapter is only intended for charging the device. When the ARGUS® is connected to this adapter, you should not run any tests.

- The ARGUS® contains extremely sensitive electronic components. Depending on the operating mode selected, an electronic discharge from the user can, in rare cases, result in impairment of device function. The user may need to restart the impaired test or function.

Return and environmentally compatible disposal

Current environmental law restricts the use of certain hazardous substances in electrical and electronic devices, in particular the concentration or use of lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium [Cr(VI)], polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

We hereby confirm that, according to the assurances, marking and documentation of our suppliers, ARGUS® brand measuring products do not contain any substances in concentrations, compounds or applications whose marketing is prohibited according to the valid provisions of the RoHS Directive 2011/65/EU of the European Parliament and Council dated 8 June 2011.

Our registration number issued by the EAR is: WEEE REG. no. DE 92829367.

Since October 2005, we have been marking all our measuring devices with this symbol, in compliance with WEEE 2002/96/EC and the corresponding German statute ElektroG:



() (DIN EN 50419).

In other words, the ARGUS® and its accessories may not be disposed of as household waste. Please consult with our Service department with respect to the return of old devices.

2.1 Safety and transport information for the battery pack

Transport

The battery pack has been tested according to the UN directive (ST/SG/AC.10/11/Rev. 4, part III., subchapter 38.3). Protective functions have been implemented to guard against short-circuit, destruction and dangerous reverse currents. The quantity of lithium contained in the battery pack is below current thresholds, and thus not subject to international regulations governing hazardous materials either as an individual part or mounted in the ARGUS®. When transporting multiple battery packs, however, you may also need to observe these regulations. Further information is available on request.



Failure to observe the following danger and warning information can impair the protective functions of the battery pack. This can cause extremely high voltages and currents which can in turn result in abnormal chemical reactions, acid leaks, overheating, smoke, explosion and/or fire. Additionally, failure to observe this information can negatively impact both the performance capacity and the performance duration.

Hazard information and warnings

1. Do not disassemble or short-circuit the battery pack.
2. Do not throw the battery pack into fire or overheat it ($> 60\text{ °C}$).
3. The battery pack must not become wet or damp.
4. Active charging of the battery pack and automatic charging (on by default) may only be carried out in a temperature range of 0 °C to $+40\text{ °C}$.
5. To maximise battery life, do not store the battery long-term at temperatures above $+50\text{ °C}$.
6. The battery pack may only be charged using the corresponding ARGUS® device.
7. Do not puncture the battery pack with a sharp object.
8. Do not throw the battery pack or expose it to shocks.
9. Do not use battery packs that have become damaged or deformed.
10. The battery pack contacts have a specific polarity (positive and negative); do not insert them in the ARGUS® with reverse polarity.
11. Only connect the battery pack to the corresponding ARGUS® in the intended manner.
12. The battery pack may not be directly connected to electrical outputs such as power adapters, car adapters etc.
13. Only use the battery pack with ARGUS®.
14. Do not attach, transport or store the battery pack together with metallic objects.
15. Do not expose the battery pack to electrostatic charges.
16. The battery pack may not be charged or discharged together with primary batteries or other battery packs.

17. If the battery pack fails to charge by the end of the charging time, it can no longer be recharged.
18. Do not expose the battery pack to excessive pressure.
19. If the battery pack emits odours or heat, becomes discoloured or deformed or otherwise appears different from normal during operation, charging or storage, immediately remove the battery pack from the device and never use it again.
20. 20. In the event that acid leaks and comes in contact with eyes or skin, wash immediately with clean water. Do not rub. In both cases, seek medical attention immediately. Otherwise, permanent injury may occur.
21. Keep the battery pack away from children.
22. Read this manual and the corresponding safety information carefully before using the battery pack.
23. If odours, rust or other abnormalities are detected before the first use, contact intec GmbH to clarify the next steps.

Further details

Battery compartment

The battery pack compartment is on the rear of the device. Generally, you do not need to replace the battery pack.

If this should become necessary, unscrew the two screws of the battery compartment cover and remove the cover. The battery pack inside the compartment can easily be detached from the plug connector and removed. The plug is reverse polarity protected, so that you can insert a new battery pack with no difficulties.

Use only the battery pack supplied with the device.

First-time operation

Connect the switched-off ARGUS® to the supplied plug-in power supply. The ARGUS® will automatically switch on when the power supply is plugged in. After pressing the  key, select the option “Battery (status, charging)”. The option “Status” displays further information, such as voltage and current level.

The Accesses display can vary depending on the configuration. You must first change the battery pack supplied with the device completely before full capacity is reached.

Automatic charging

Select this option to toggle the automatic charging functionality on or off. You can also do this in the ARGUS® Manager, which you can access by swiping down or pressing the power key. Here, automatic charging can be toggled on and off. The ARGUS® charges the battery automatically in the background when the power adapter is connected as soon as the battery status falls below a threshold value (battery symbol in display). When the ARGUS® is disconnected from the power adapter before that battery is completely charged, the ARGUS® does not automatically continue charging when it is subsequently reconnected because the charge is no longer below the threshold.

Power-saving mode

In battery mode, the ARGUS® automatically switches off after five minutes of no activity (interval adjustable). The ARGUS® does not switch off during a test (e.g. loop) or in trace mode. The device can alternatively be operated using the supplied external adapter. When the adapter is connected, power supply via the battery is automatically switched off. The ARGUS® must always be operated with the battery, regardless of the power supply. This ensures e.g. uninterrupted operation of the real-time clock. Remove the power adapter from the mains socket as soon as the ARGUS® is switched off or no longer in use (e.g. after charging the battery pack)!

Handling the battery pack

Power down the ARGUS® and disconnect the power adapter. Then unscrew the screws holding the battery compartment cover. The battery pack inside the compartment can easily be detached from the plug connector and removed. The plug is reverse polarity protected, so that you can insert a new battery pack with no difficulties.

Use only the battery pack supplied with the device.

Attaching any other power supply to the device contacts will damage your ARGUS® instrument.

- Only charge the supplied battery pack in the ARGUS®.
- Do not use the ARGUS® battery pack in other devices.
- Active charging of the battery pack and automatic charging (on by default) may only be carried out in a temperature range of 0 °C to +40 °C.
- The lithium ion battery pack should be stored with a charge of 40 to 60 %. When storing the device for longer periods, you should refresh this charge level every six months. To prevent full discharge, remove the battery pack from the device for long-term storage. To maximise battery life, do not store the battery long-term at temperatures above +50 °C.

Battery indicator

The ARGUS® indicates the current state of the battery graphically in the display when no power adapter is connected. A battery symbol flashes in the display when it is down to a power reserve of approx. 8 minutes (depending on the operating mode). Tone errors, and in extreme cases malfunctions, can occur in this period. Connect the power adapter. The ARGUS® can recharge the battery completely when the power adapter is connected. The ARGUS® power pack does not require manual discharge. A complete charging process can take up to approx. 6 hours.

Mains adaptor

Mains Adaptor for ARGUS 260/300/F300 (with DC connector)

The following mains adaptors are approved for use with the ARGUS:

UMEC UP0301A-12PE60

UMEC EDAC EA1024HR(T03)

Contact:

Importer:

UMEC Europe GmbH

Kreuzenstraße 80

D-74076 Heilbronn

Tel. 07131/7617-0 Fax 07131/761720

E-Mail: info@umec.de

No other mains adaptors may be used.

3 General technical data

Device specifications:

Dimensions/weight	Inputs/outputs
Height: 300 mm Width: 128 mm Depth: 94 mm Weight: < 2 kg (4.41 lbs) (incl. battery pack)	- 1x Ethernet: 1x Ethernet: 100/1000 Base-T, 2,5 GBase-T, 5 GBase-T, 10000 Base-T/10 GigE - 1x SFP+ port: 1000 base-SX/LX/ZX/BX, 2,5 GBase-T, 10 GBase-T/10 GigE - 2x SC/APC (OLT, ONT) for PON - 1x SC/APC for OTDR - 1x USB 2.0 client type micro B , for accessing USB mass storage - 2X USB 2.0 host type A, for external devices - WLAN IEEE802.11a/b/g/n - 1x 12V DC socket
Control panel	
28 keys 4 softkeys 4 cursor keys Touch display	
Display	Temperature range
TFT colour display, Touchscreen, illuminated 800 x 400 Pixel	Temperature range for charging battery pack: 0 °C (+32 °F) to +40 °C (+104 °F) Max. Operating temperature (endurance tests): 0 °C (+32 °F) to +40 °C (+104 °F) Max. Operating temperature (battery mode): 0 °C (+32 °F) to +40 °C (+104 °F) Operating temperature (with power/car adapter): 0 °C (+32 °F) to +40 °C (+104 °F) Storage temperature: -20 °C (-4 °F) up to +60 °C (+140 °F) Humidity: up to 95 % rel. humidity, non-condensing
	Power supply
	Lithium ion battery pack with 7.2 V rated voltage (always observe the safety instructions!) or 12 V/1.5 A ARGUS power adapter

Miscellaneous

ARGUS® user safety tested according to EN62368-1, RoHS conformity according to the WEEE Directive.

The electromagnetic compatibility (EMC) was tested according to the regulations specified in our declaration of conformity.

CE mark



The ARGUS® F300 fulfils the EC directives for the CE mark. We will be happy to provide a detailed declaration of conformity on request.

Supported Standards:

GPON (SFP): ITU-T G.984 PON Installation Test	Ethernet (LAN/SFP+): IEEE 802.3 - 100 base-T - 1000 base-T - 2,5 GBase-T (2,5GbE), 2500 BASE-T (IEEE 802.3bz, NBase-T) - 5/10 GBASE-T (5/10 GbE), 5000/10000 BASE-T, (MGBASE-T) (nur LAN) (IEEE 802.3ak, IEEE 802.3an) - 1000 Base-BX/LX/SX/ZX Active Ethernet (IEEE 802.3 Clause 38 bzw. 802.3z) - 2,5 GBase-X (2,5GigE/2,5GbE) - 10 GBASE-X (10GbE/10GE), 10000 BASE-X (IEEE 802.3ae) - SFP (MSA) Autonegotiation auto-MDI(X)
XGS-PON (SFP): ITU-T G.9807.1	
Fiber Inspection (USB-A): IEC 61300-3-35	
OTDR: SC/APC (8°) IEC 61754-4	
WLAN: IEEE802.11 a/b/g/n/ac/ax/be (WiFi7) IEEE802.11 a/b/g/n/ac (WiFi5) IEEE802.11 ax/be (WiFi6/7 detection)	

4 Quick-start guide



Power key



- Switches on the ARGUS®
- Restart after power down
- Switches on display illumination (also possible with any other key). In battery mode, the display illumination switches off automatically after an interval that can be set in ARGUS®
- Opens the ARGUS® Manager from any point in the menu (press briefly). Return from the ARGUS® Manager to the original menu.
- Switches off the ARGUS® (key must be held down): after an adjustable interval (e.g. after 10 minutes), the ARGUS® automatically shuts down in battery mode (see page 228).
- Emergency switch off if pressed for more than 10 seconds

Enter key



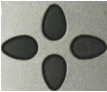
- Opens menu
- Switches to next display
- Starts/opens test
- Accepts setting

Back key



- Switches the ARGUS® back to the previous display without saving current entries, e.g. changes in a configuration parameter
- Exits graphic displays
- After power-up: opens the main menu

Cursor keys



- Browse display lines page by page (vertical cursor keys) Cursor movement within a display line (horizontal cursor keys)
- In the lists of options or statistics, you can use the horizontal cursor keys to browse by pages
- Select a menu, a function or a test
- Move display cursor in graphic displays
- Select functions in graphic status screen

Telephony



WLAN, GPON, XGS-PON and Ethernet

- Starts VoIP telephony
- Accepts an incoming VoIP call

Level key



- Ethernet: opens results

Number pad



- Entry of numerals 0 through 9, letters and special characters
- Direct function call, depending on the selected access (hot key), e.g. page 239

Softkeys



- The function of the four softkeys depends on the respective situation. The currently assigned function appears in the bottom line of the display in the form of four touch areas, e.g.:
<Access> Opens the menu for selecting various accesses
<Start>: establishes a connection or starts a test

Wheel key



- Opens the setup menu

Menu key



- Opens the quick menu

The ARGUS® can be controlled using the four cursor keys, the Enter key , the Back key , the level key  and the four softkeys. The bottom line of the display shows the current assignments of the four softkeys. In the following pages of this manual, only the respective currently valid softkey function is displayed in angle brackets < >, e.g.

<Access>. The softkey  has the same function as the Enter key .

The ARGUS® F300 can also completely be operated using the touchscreen. You can access the next menu and enter and confirm settings by tapping the corresponding screen location. The softkeys displayed at the bottom can also be actuated using the touchscreen. Additionally, you can scroll up and down by swiping and zoom in and out in graphics with two fingers.

Top connections



Yellow LED "Link/data" signals physical connection with another Ethernet port

- LED steadily illuminated: connecting
- Flashing LED: transmitting/receiving

Green LED "Speed" and yellow LED "Link/Data" signal Transmission speed

- LED on: 10/100 base-T
- Green Speed LED indicates transmission speed
- -LED on: 10/100/1000 base-T

PWR

For external power adapter.

When the external power adapter is connected,

The ARGUS® switches off the battery power supply.

USB-A or USB-A 1/2

USB host interface
(WLAN)



The ARGUS® regularly checks whether USB devices are connected.

USB-B (micro USB)

USB client interface (PC connection)

OTDR

Connection of various fiber optic lines via SC/APC

PON (OLT/ONT)

Connection of GPON and/or XGS-PON lines via SC/APC in the direction of the OLT or ONT side (through mode)

LAN4

Connection to a PC network card. Connection to the Ethernet interface of a modem, router (IAD) or hub/switch or another Ethernet interface (access: Ethernet).

SFP3

Connection of selected SFP modules from various manufacturers, for accessing fibre-based interfaces (Ethernet, FTTx/GPON).

LEDs

The LEDs next to the touch display indicate the following:



Power

Lights up green when the device is switched on.

Charge

A flashing green LED indicates that the device is charging.

Alarm

Visualizes configured alarms.

Test

This LED flashes green when a test, e.g. data, is started.

The LED is continuously green when a connection is established.

Protocol 1

This LED flashes green when a test, e.g. data, is started.

The LED is continuously green when a connection is established. If the connection could not be established, the LED is continuously red.

Sync 1

The LED flashes green while connecting.

The LED is continuously green when the connection is established.

Charging the battery in initial operation

The battery pack compartment is on the rear of the device. Attach the battery back by placing it against the retaining points at the top end and then screwing down the screws. Use only the battery pack supplied with the device. Observe the safety information given on page 12. Now connect your (switched-off) ARGUS® to the external power supply supplied with the device.

The ARGUS® switches on automatically. The following display appears (you may first need to acknowledge warnings or messages with <Continue>):



The Accesses display can vary depending on the configuration.

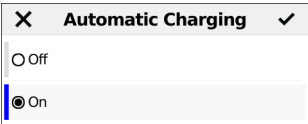
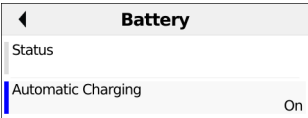
Current assignment of the softkeys

Quick Menu	
Status	
Save Test Result	
Test Results	
Firmware Update	▶
Battery (Status, Charge)	▶
Open Manual	
Licences	

Battery Status	
State	Charging
Remaining Capacity	90 %
Power Supply Plugged In	Yes
Actual Voltage	7994 mV
Actual Current	1754 mA
Average Current	-579 mA
Temperature	21,5 °C
Device should be turned off	No
Learning actual battery capacity	No

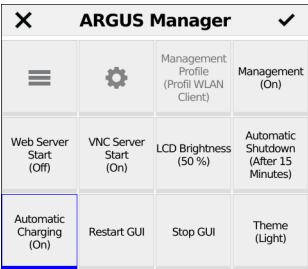
Battery	
Status	
Automatic Charging	On

After pressing the Menu key, select the option “Battery (Status, Charge)” (see image above left). Selecting “Status” (see image below left) displays further information, such as voltage and current level (see image at right).



Select “Automatic charging” to toggle the automatic charging functionality on or off.

You can also do this in the ARGUS[®] Manager, which you can access by pressing the power key or swiping from top to bottom. Here, touch to toggle automatic charging on and off.



You must first change the battery pack supplied with the device (see page 228, “Using the battery pack”) completely before full capacity is reached.

Power-saving mode

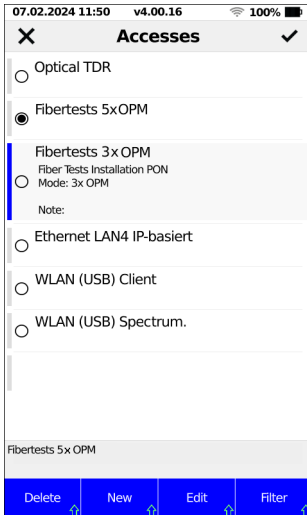
 In battery mode, the ARGUS[®] automatically switches off after five minutes of no activity (interval adjustable).The ARGUS[®] does not switch off during a test (e.g. loop box) or in trace mode.

The device can alternatively be operated using the supplied external adapter. When the adapter is connected, power supply via the battery is automatically switched off.

The ARGUS[®] must always be operated with the battery, regardless of the power supply. This ensures e.g. uninterrupted operation of the real-time clock.

 Remove the power adapter from the mains socket as soon as the ARGUS[®] is switched off or no longer in use (e.g. after charging the battery pack)!

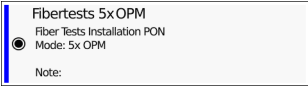
5 Configuring accesses



If an access was selected the last time the instrument was used, the ARGUS® starts in the Access menu.

After selecting <Access>, the ARGUS® displays all configured accesses (up to 100 in all). The accesses most commonly used in Germany are preconfigured by default. When changing accesses, the last access used is indicated on the display with ●. You can select a different access using the cursor keys or the touchscreen. The selected access is marked with a vertical blue line on the left side. Press to confirm your access selection.

The marked accesses also provide a preview of the selected access settings. In the example shown here, the access Fibertests 5xOPM is selected. The access Fibertests 3xOPM is highlighted, and a preview of the access settings is displayed.



The access Fibertests 5xOPM is highlighted and selected here.



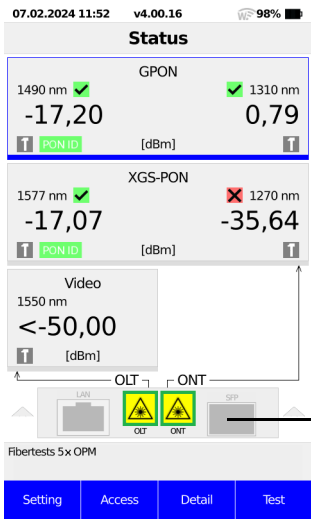
The status line (above the softkeys) displays the selected access.

- <Delete>** Deletes the selected access.
- <New>** Creates a new access, see page 30.
- <Edit>** Edits an access, see page 30.
- <Filter>** Filter by accesses.

 The access marked in blue also moves when you scroll through the accesses using the ↑ and ↓ keys. In this way, ARGUS® enables you to create a series of configured accesses so that the most commonly required accesses are readily available.

- <Add as Favourite>** The access is added or removed as favourite.
- OR
- <Remove as Favourite>**

 Switches to ARGUS® status.



In the status display, the connection sockets that can be used for the selected connection are highlighted in white.

5.1 Access wizard

The access wizard prompts for different information depending on the access/interface. The prompts for the parameters depend on the parameters that were previously selected.

Access Wizard

Physical Parameters

Automatic Online Accesses

PPP Timeout

Profile

Note

Name

36 s

PPP VLAN 7/8

[Empty]

GPON SFP3 ONT TE

Access

☐ Fibertests

☒ GPON

☐ XGS-PON

☐ Ethernet

☐ WLAN (USB)

Once the access has been selected, you can launch the access wizard in the menu using <Edit> (see image at left). The query parameters of the access wizard depend on the selected access (GPON, XGS-PON, ...). You can now select the physical interface (see image at right).

Access Mode

☒ ONT TE

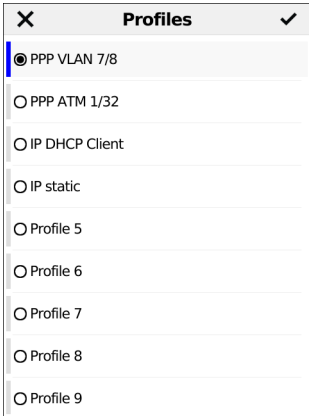
☐ ONT Bridge

☐ ONT Router

Interface

☒ SFP

In this example (GPON access), ONT TE is selected as access mode and SFP is selected as interface.



These preconfigured accesses can be linked to up to 20 profiles. These profiles link the access settings with the access and test parameters. You can set various parameters here including those for service and virtual line. The selected profile appears in the display in blue. The preset profile is indicated in the display with ● (see image at left).

Once you have selected the profile, the ARGUS® suggests an access name, depending on the settings you made previously. You can enter up to 24 characters.

<Delete> Deletes access name



Clears mark and positions cursor keys to the start.



Clears mark and positions cursor keys to the end.

<Abc>ABC> Entry begins with upper-case letters and continues in lower-case.

<ABC>123> Entry of upper-case letters.

<123>abc> Numerical entry.

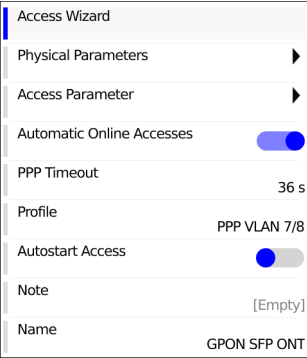
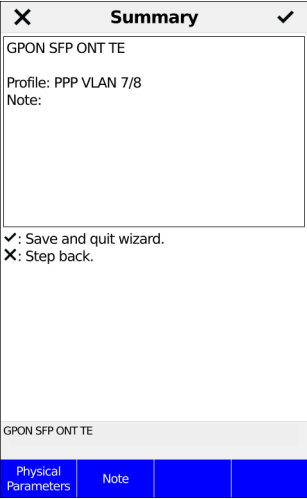
<abc>Abc> Entry of lower-case letters.



Entry of special characters, e.g. @, /, -, ., *, ?, %, =, &, ! etc.



Entry of special characters, e.g. _, :, +, # etc.



The ARGUS displays a summary of the configuration (see image at left).

<Physical Parameters> Edits the physical parameters, see page 33.

<Note> Entry of notes, see page 36.

 Go back one level.

 Save and exit the wizard.

Once you confirm with Enter, the ARGUS® switches to the editing view of the selected access (see image at right). To configure the services or test parameters, select **<Profile>**.

You need to exit the access wizard before the ARGUS® can use the configured access.

5.2 Physical Parameters

Access Wizard	
Physical Parameters	▶
Access Parameter	▶
Automatic Online Accesses	☒
PPP Timeout	36 s
Profile	PPP VLAN 7/8
Autostart Access	☒
Note	[Empty]

Edits the physical parameters of the selected access. The physical parameters can also be opened and edited directly when the access wizard is finished.

5.3 Autostart Access

Access Wizard

Physical Parameters ▶

Access Parameter ▶

Automatic Online Accesses ☒

PPP Timeout 36 s

Profile PPP VLAN 7/8

Autostart Access ☒

Note [Empty]

Name GPON SFP ONT

Access Wizard

Physical Parameters ▶

Access Parameter ▶

Automatic Online Accesses ☒

PPP Timeout 36 s

Profile PPP VLAN 7/8

Autostart Access ☒

Note [Empty]

Name GPON SFP ONT

If the selected access is to be started automatically, this can be activated quickly and easily using a slider.

GPON SFP ONT TE ▶▶

☒ GPON SFP ONT TE

Profile: PPP VLAN 7/8

Note: Dial-up with VLAN

Accesses that are started automatically are marked with a blue double arrow in the access menu. The access is started automatically when the device is switched on.

5.4 Profile

Access Wizard

Physical Parameters ▶

Access Parameter ▶

Automatic Online Accesses ☒

PPP Timeout 36 s

Profile PPP VLAN 7/8

Autostart Access ☒

Note [Empty]

Name GPON SFP ONT

✕ Profiles ✓

☒ PPP VLAN 7/8

☐ PPP ATM 1/32

☐ IP DHCP Client

☐ IP static

☐ Profile 5

☐ Profile 6

☐ Profile 7

☐ Profile 8

☐ Profile 9

The preconfigured accesses can be linked up to 20 profiles. These profiles link the access settings with the access and test parameters. You can set various parameters here including those for service and virtual line.



Select the profile you wish to edit. The selected profile appears in the display highlighted in blue. The default profile is indicated with a ● in the display.

◀ Profile

Services ▶

Router ▶

Bridge ▶

Test Parameters ▶

Profile Name PPP VLAN 7/8

◀ Test Parameters

IP Ping ▶

Traceroute ▶

Path MTU ▶

iperf Client ▶

iperf Server ▶

ARGUS® Real Speed Direct (iperf)
ARGUS Server GER [10G]

ARGUS® Real Speed Formal (RFC 6349)
iperf Profile 1

HTTP Download Server Profile 1

FTP Download Server Profile 1

You can find more detailed explanations of the profiles on the following pages:
Services starting on page 74.
Profile name: for entering see Access name, page 31.

5.5 Notes

Access Wizard

Physical Parameters ▶

Access Parameter ▶

Automatic Online Accesses ☒

PPP Timeout 36 s

Profile PPP VLAN 7/8

Autostart Access ☒

Note [Empty]

Name GPON SFP ONT

GPON SFP ONT TE

GPON SFP ONT TE

Profile: PPP VLAN 7/8

Note: Dial-up with VLAN

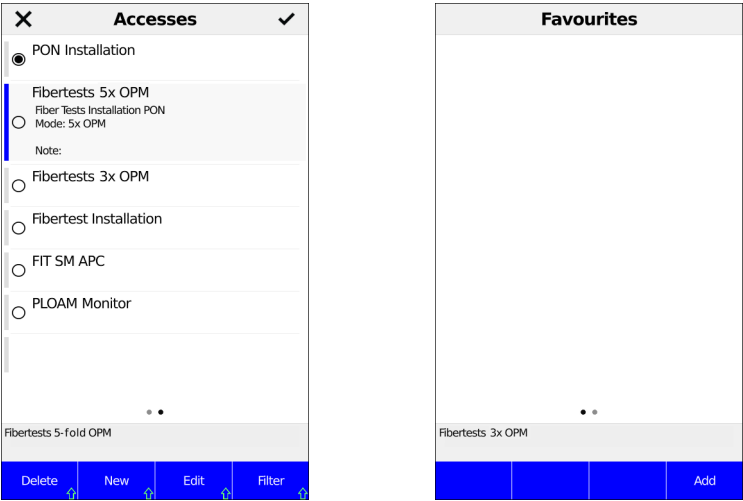
You can also add a note when editing an access. This note can be up to 49 characters long.

In addition to the selected access, the ARGUS® will display, for example, the GPON mode, the access mode and a freely editable note in the preview (in this example: Dialup with VLAN).

For more on entering notices see “Access name” on page 31.

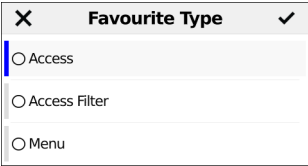
6 Favourites view

With the freely configurable favourites view in the ARGUS F300, the most frequently used functions can be accessed even more quickly.



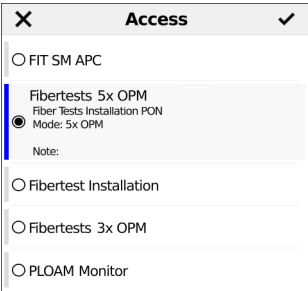
To access the favourites view, swipe from left to right on the display in the access menu. If you have not yet added any favourites, the favourites view is empty.

<Add> Favourites can be added here.



After selecting the <Add> softkey, you can select the following favorite types:

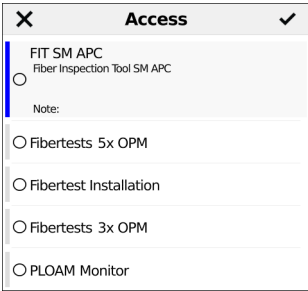
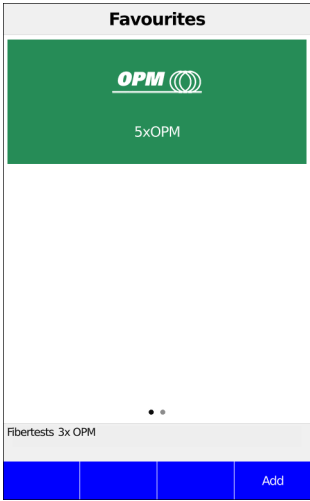
- Access
- Access filter
- Menu



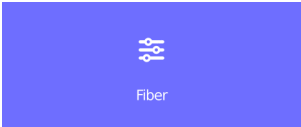
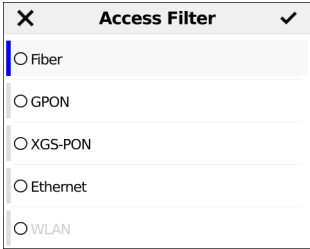
All accesses that have already been created can be selected, here:

- FIT SM APC
- Fibertests 5xOPM
- Fibertest Installation
- Fibertests 3xOPM
- PLOAM Monitor

To select one of the accesses, tap on it and then change the suggested short name if necessary, in this example fiber tests. Up to 10 characters can be entered.



After confirming with the check mark, the access appears in the favourites view. Accesses have a green background color there. The suggested name has been changed to “5xOPM”. Accesses that have already been added disappear from the list of connections to be selected in the favourites types. In this example, the fiber test access has already been added.



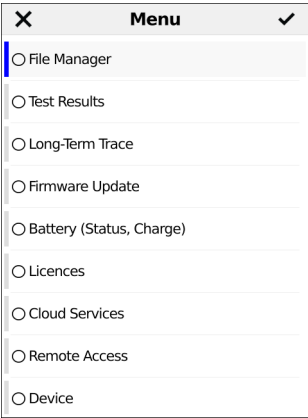
The following favorites can be selected for the access filters:

- Fiber
- GPON
- XGS-PON
- Ethernet
- WLAN

If no access has yet been created with one of these access filters, it is grayed out (here: WLAN).

Access filters are displayed with a violet background color in the favourites view.

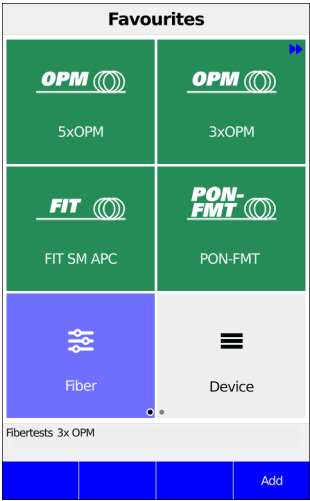
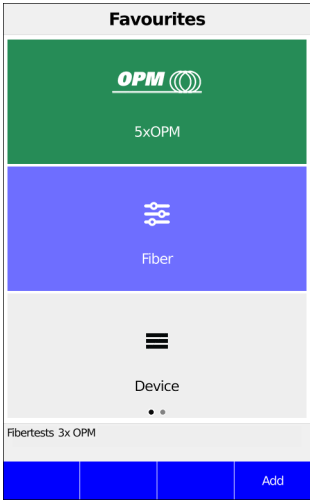
6 Favourites view



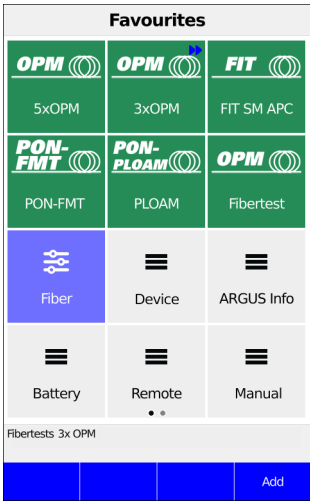
The following favourites can be selected in the Favourites type menu:

- File Manager
- Test Results
- Firmware Update
- Battery (Status, Charge)
- Open Manual
- Licences
- Cloud Services
- Remote Access
- Device
- Company Address
- ARGUS Info
- Backup/Restore

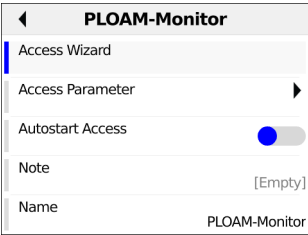
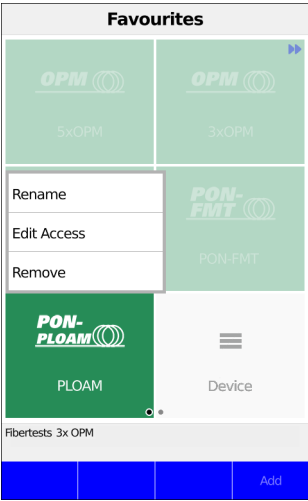
Access filters are displayed with a grey background color in the favourites view.



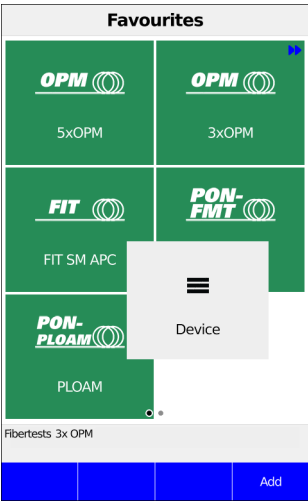
Depending on the number of favourites added, three large, six medium or twelve small tiles are displayed.



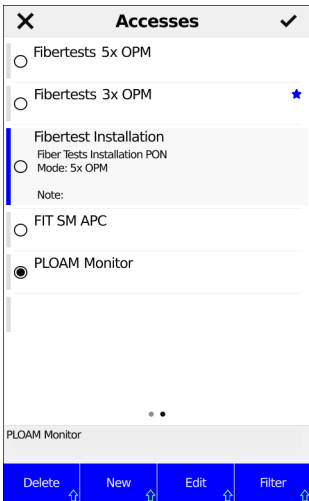
If you have added more than twelve favourites, they become visible when you swipe up from the bottom of the favourites view.



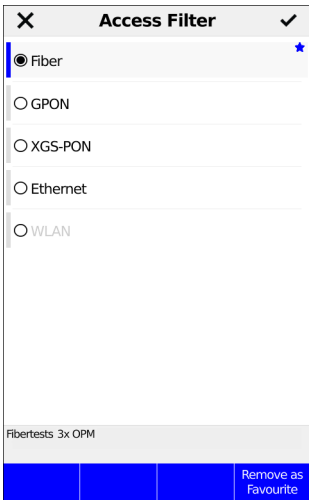
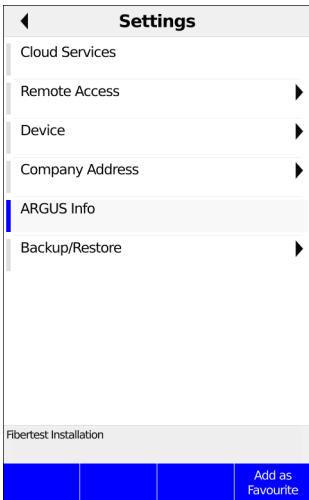
If you hold down one of the tiles, you can rename or remove it. Accesses can also be edited.



It is also possible to move the tiles. To do this, press and hold a tile and drag it to the desired position. In the example, the “Device” tile has been moved from the bottom right to the bottom left.



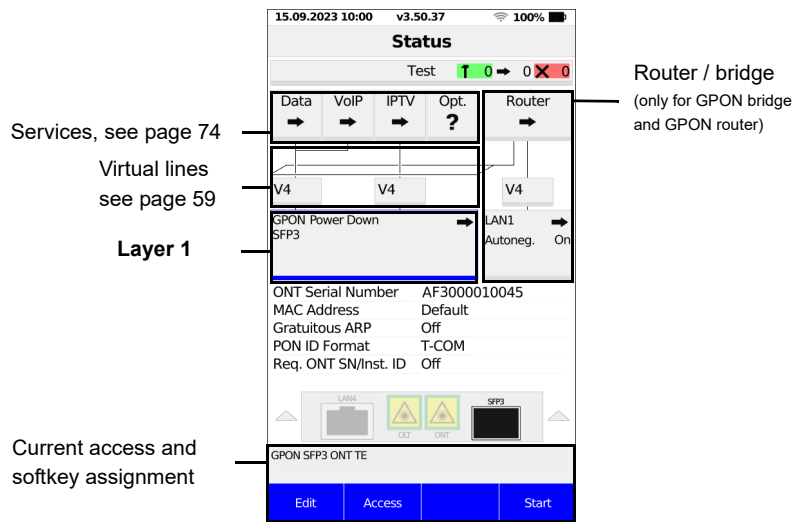
In the access menu, for example, the favourites are marked with a blue star, in this example fiber tests 3-fold OPM.



Favourites can also be added in the settings (accessed via the wheel key) and via the “Filter” softkey in the access menu by selecting the “Add as favourite” softkey. If you select “Remove as favourite”, the favourite is removed again.

7 Physical layer

The physical layer (layer 1) is shown in the status screen with its own graphical element (here GPON). The other elements in the status screen are initially only named. This is explained in more detail on page 59 (Virtual lines) and page 74 (Services). The physical layers for the XGS-PON and Ethernet interfaces are presented in the same way as for GPON. The selection of the GPON access and the access mode GPON Bridge/Router are directly adopted in the status screen. If the defaults are correct, layer 1 (synchronisation on GPON) can be established directly on <start>. The most important information such as different GPON states (power down) are displayed in the layer-1 box (blue). To change the GPON configuration directly, press <edit>. To change the access type directly in the status screen, press the softkey <Leave Access> or the key combination  and .



- <Edit> Changing GPON settings: see page 46
- <Access> Access selection: see page 27
- <Start> Synchronizing: see page 51

8 Operation on GPON accesses

In conjunction with the ARGUS® GPON transceiver module, measurements can be performed directly on the optical fiber.

With an existing IP connection, all important services (including performance, speed and triple play tests) can be tested with the ARGUS®, either via IPv4 or IPv6.

The ARGUS® supports the following access modes:

GPON TE	Registration at the OLT Display of Rx level, PON ID, etc. Service tests such as speed tests, VoIP calls possible
GPON Bridge	Bridge Mode (GPON Bridge) s. Seite 50. Connection of the ARGUS® GPON ONT to the optical fiber. The ARGUS® replaces the modem and the PC.
GPON Router	Router Mode (GPON Router) s. Seite 52. Connection of the ARGUS® GPON ONT to the optical fiber. The ARGUS® replaces the modem and router.



The individual tests record and store data (e.g. traces of IP data). It is the user's responsibility to comply with the applicable legal requirements.



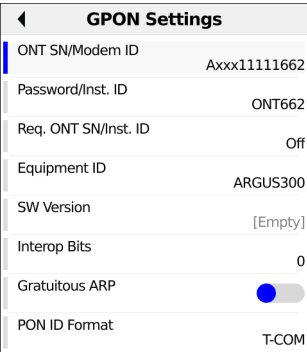
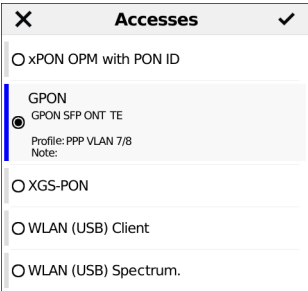
Never connect the GPON Transceiver Module directly to the OLT (max. - 8 dBm) without an attenuator. Danger of destruction!



In principle, the operating temperature range set out in "Technical data" (see S. 17) applies for operation. For ambient temperatures just below +50 °C, extended operation in high-performance modes can trigger the temperature-dependent ARGUS® protection functions described in the safety information (see S. 9).

8.1 Configuring a GPON TE

The setting of the connection type is explained in the chapter Configuring accesses, see page 27.



The following settings can be made under physical parameters:

- ONT SN/Modem ID
- Password/Inst. ID
- Req. ONT SN/Inst.-ID
- Equipment ID
- SW Version
- Interop Bits
- Gratuitous ARP
- PON ID Format



You can obtain further information on settings in the ARGUSpedia on the instrument.

Establishing the GPON connection

X

Password/Inst. ID

✓

0/10 Characters

1

2

3

4

5

6

7

8

9

0

q

w

e

r

t

z

u

i

o

p

a

s

d

f

g

h

j

k

l

△

y

x

c

v

b

n

m

<X

123

?#@

✓

Status

Test

T

 0 → 0

X

 0

Data

VolP

IPTV

Opt.

→ ? ? ?

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-32.2 dBm

35.3 dB

✓

OLT-FSZ

Slot

Port

76G1

01

1

Vendor ID

Equipm. ID

ONT ID

44

Level [dBm]

Rx

Tx

OLT

ONT

-

-32.2

3.1

1.7

After selecting the GPON access, the password or the installation ID is requested. The entry is saved and proposed again at the next startup.



A password or installation ID is required for active registration at the OLT. If necessary, a rediscovery must be performed beforehand so that a "new" ONT can log in.

As soon as the connection is established (LED Sync/1 continuously illuminated and green check mark in the layer-1 box), the ARGUS[®] determines the GPON connection parameters and displays these below the layer-1 box.

The layer-1 box displays the following information:

- Access and access mode
- PON ID
- Rx level
- Attenuation

GPON Phys. Param.			
State		Operation	
	OLT-FSZ	Slot	Port
	76G1	01	1
Vendor ID			
Equipm. ID			
ONT ID			44
ONT	Rx		Tx
Level [dBm]	-32,2		1,8
Power [mW]	0,0		1,5
OLT			Tx
Level [dBm]			3,1
Class			B+
AES			n/r
Line			
Attenuation [dB]			35,3

By selecting the <Info> softkey, the long view (see above) can be opened.

By selecting the <Sniffer> softkey, the logged-in ONTs or the login attempts of other ONTs can be displayed.

Selecting the <SFP> softkey opens a detailed view of the SFP parameters. Swiping up and down on the touchscreen or pressing the up and down cursor keys displays additional parameters.

SFP Parameter	
Vendor	
Name	intec GmbH
OUI (hex)	00 00 00
P/N	ARGUS GPON ONT
Rev.	1.0
S/N	INGE10128A19
Calibration Date	Not Calibrated
Specifics	
Wavelength	1310 nm
Transceiver	GPON
Encoding	NRZ
Medium	optical

GPON Info	
Detected Serial Numbers	
A16x111111144	ONT ID: 44

Selecting the <Trace> softkey opens a detailed view of the GPON Status Trace.

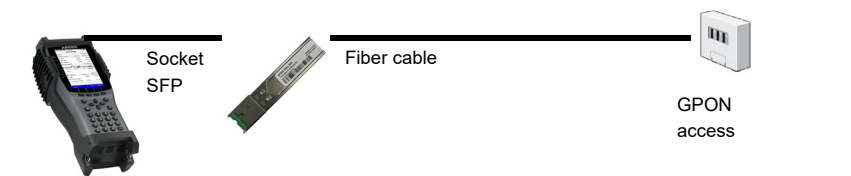
◀ Trace		
Time		Info
10:50:00:000	--	Detecting
10:50:27:390	--	Initial
10:50:27:880	--	Standby
10:50:33:370	--	Serial Number
10:50:34:260	--	Ranging
10:50:34:460	--	Operation
10:50:34:510	--	Standby
10:50:39:440	--	Serial Number
10:50:40:330	--	Ranging
10:50:40:530	--	Operation



You can obtain further information on settings in the ARGUSpedia on the instrument.

8.2 The ARGUS® in Access Mode GPON bridge

In this case, the ARGUS® replaces the modem and the PC. It establishes a GPON connection and determines all relevant GPON connection parameters. The ARGUS® shows the GPON connection parameters on the display and optionally saves them after the connection is terminated.



Configuring the access mode GPON bridge

In the example, the GPON bridge mode was configured and selected as described in chapter "5 Configuring accesses" (see page 27).

X

Access Mode

✓

☐ GPON TE

☒ GPON Bridge

☐ GPON Router

☐ GPON Installation

Status

Test 1 0 → 0 X 0

Data X

VoIP X

IPTV X

Opt. X

Bridge →

V4

V4

GPON Power Down SFP1 →

LAN2 Autoneg. → On

ONT Serial Number A16x111111144

MAC Address Default

PON ID Format T-COM

Req. ONT SN/Inst. ID Off

SFP1

LAN1

LAN2

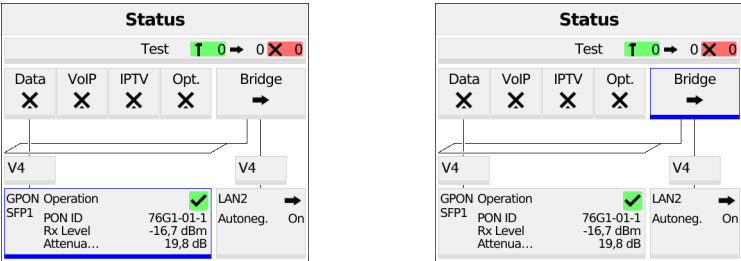
LAN3

- <Edit> GPON settings
- <Access> Change access
- <Start> Start GPON



Use the cursor keys or the touch display to switch to Bridge.

Establishing the GPON connection

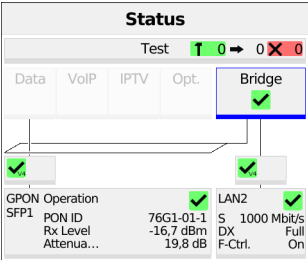


The GPON connection is established (green check mark in Layer 1 box).

<Edit> Bridge/Router parameter settings

The bridge can also be activated directly. If layer 1 has not yet been set up, it is automatically set up as well.

Establishing the GPON bridge



<Stop> Deactivates bridge mode.

<Info> Displays the activity of bridge mode.



Displays the connection parameters.

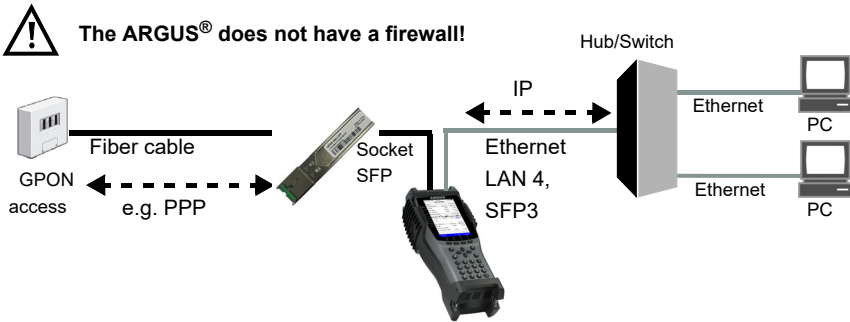


No tests are available when bridge mode is active.

Switches to the layer-1 box and other elements.

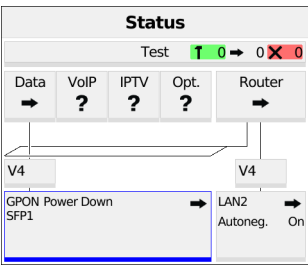
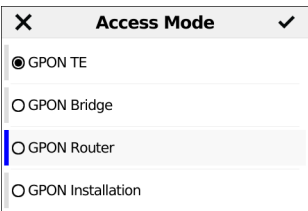
8.3 The ARGUS® in access mode GPON router

In router mode, the ARGUS® replaces both the modem and the router, so that multiple PCs can access a network connection (via a hub/switch). The IP addresses of the network are either issued statically or the ARGUS® is designated the DHCP server and assigns IP addresses to the connected PCs.

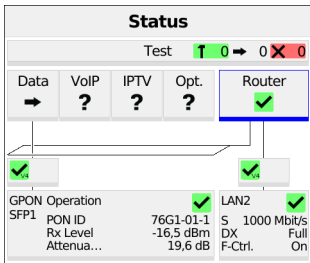
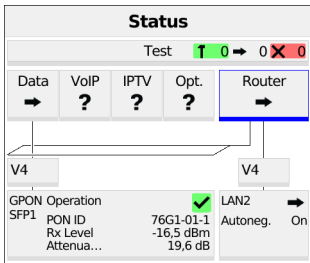


Settings in access mode GPON router

In this example, GPON router mode is configured and selected as described in Chapter 5, “Configuring accesses” (see page 27).



- <Edit> GPON settings
- <Access> Change access
- <Start> Start GPON



The GPON connection is established (see picture on the left).



Switch to router with the cursor keys or using the touch screen.



No tests are available when router mode is active.

The router can also be activated directly. If layer 1 has not yet been set up, it is automatically set up as well.

<Info>

Display of the router mode activity.

<Stop>

Deactivate router mode.



Display of connection parameters

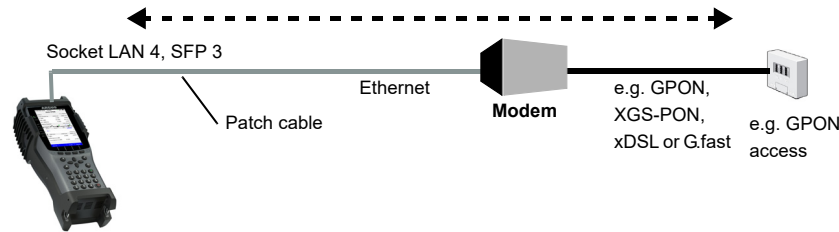
9 Operation on the Ethernet access

The ARGUS® supports the following in Ethernet operation:

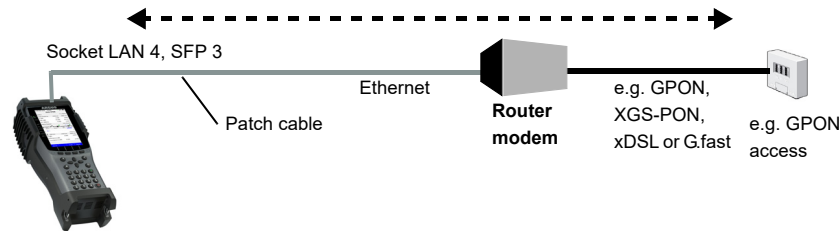


The individual tests acquire and store data. It is the user's responsibility to comply with the applicable legal requirements.

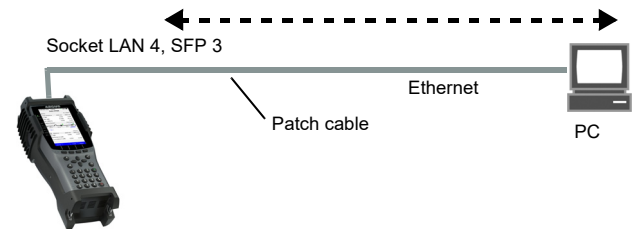
Connecting to a modem:



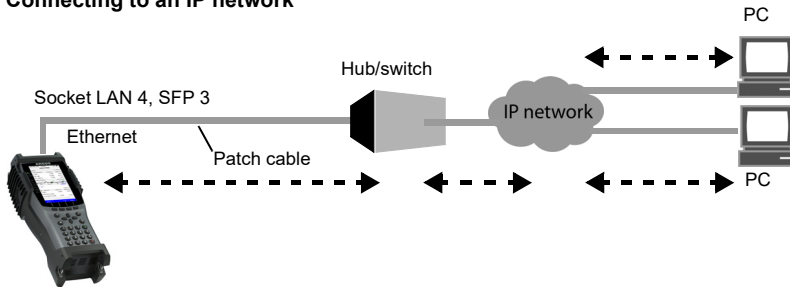
Connecting to a router modem:



Connecting to a PC via IP



Connecting to an IP network



9.1 Configuring Ethernet accesses

Configuring the Ethernet interface is described in Chapter 5, “Configuring accesses” (see page 27).

Note: accessing functions via number keys/key combinations

You can call important functions/tests directly using the keys of the ARGUS® keypad. You can find an overview of these key combinations on page 239.

9.2 Ethernet configuration

You can modify the Ethernet settings as described for GPON, see page 37.

You can configure the following settings:

- Autonegotiation
- MAC address
- Gratuitous ARP
- Traffic Shaping (US)



You can obtain further information on settings in the ARGUSpedia on the instrument.

Autonegotiation/Ethernet link parameters

Ethernet link autonegotiation is supported by default! Setting: autonegotiation "on"

When negotiating the link parameters, ARGUS[®] informs the remote station that the following is supported (these settings are fixed and cannot be configured):

- Speed: 10, 100, 1000, 2500, 5000, 10000 Mbit/s
- Pause (symmetrical + asymmetrical) Full duplex

Manually configuring the Ethernet link parameters: autonegotiation "off"

When autonegotiation is deactivated, the speed and the flow control ("pause" method) can be configured in the profile (see above).

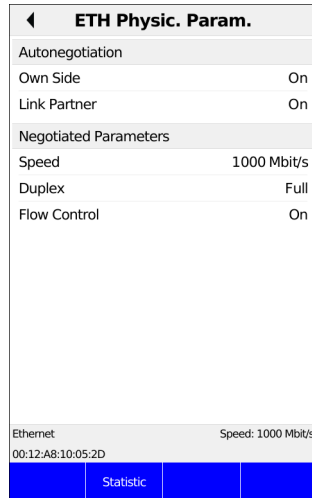
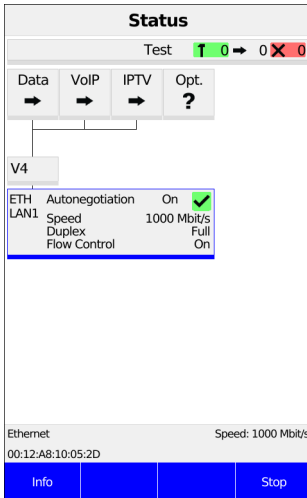
- 10 or 100 Mbit/s, default: **100 Mbit/s**
- Flow control on/off



Unilateral autonegotiation

When an end user device with autonegotiation "on" encounters a device without autonegotiation, no information is sent by the remote station. Even without autonegotiation, the speed is determined using the pulse method/idle pattern. In this case, the terminal device with autodetection generally drops back to half duplex (duplex mismatch possible), which can result in a duplex mode conflict with "poor throughput".

9.3 Establishing an Ethernet connection



The ARGUS® uses the default profile to establish an Ethernet connection.

<Info> Displays Ethernet connection parameters

<Stop> Terminates Ethernet connection

Display (see image at right):

- Autonegotiation setting
- Autoneg. at other end
- Negotiated speed
- Type of duplex mode
- Flow control setting

<Statistic> Opens Ethernet statistics

<Statistic> Opens Ethernet statistics

Statistics		
Ethernet	Rx	Tx
Frames	509	0
Bytes	39243	0
Errors	0	0
Collisions		0

Statistic display:

- Received (Rx) and transmitted (Tx) internet frames
- Received (Rx) and transmitted (Tx) bytes
- Number of errors on the receiver (Rx) and transmitter (Tx) side
- Number of collisions

Disconnecting the Ethernet connection and saving the results

You can disconnect and save the results from an Ethernet connection as described for GPON, see page 54.

Saving the results without disconnecting from the Ethernet connection

You can save your results for an Ethernet connection without disconnecting in the same way as for GPON, see page 56.

10 Virtual lines (VL)

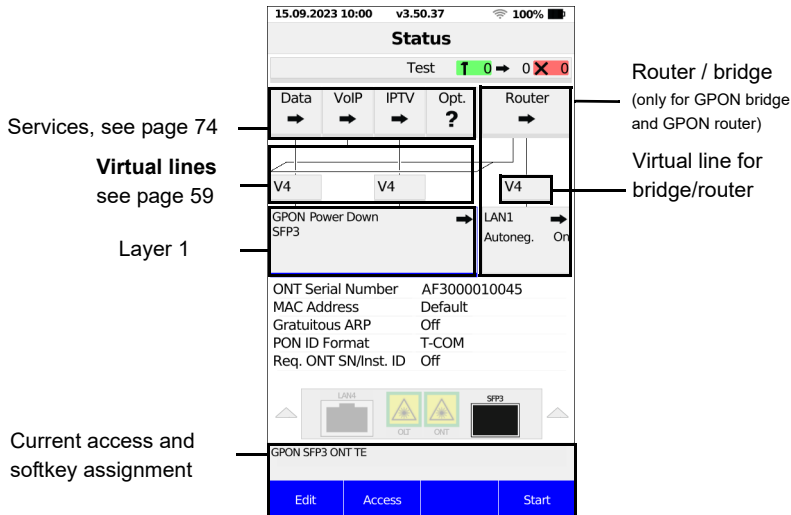
Virtual lines (VL) compile the configurations of layer 2 and layer 3 into profiles, called VL profiles. These profiles contain e.g. information on protocols, VLANs and PPP data (stored in their own subordinate PPP profiles). Virtual lines can be used to conduct tests across multiple or VLANs and across different protocols.

The ARGUS® allows you to define up to 20 such VL profiles. In a VL profile, you can edit e.g. the protocol configuration. The VL profiles can be assigned to one or more services independently of the state of the physical layer (layer 1). Thus, a data test (e.g. IP-ping) and a VoIP test (e.g. VoIP call) can be performed on a single active access without having to re-establish layer 1 (GPON, XGS-PON, Ethernet) in spite of differing protocols.

10.1 Virtual lines in the status screen

The virtual lines in the status screen are explained using the access GPON router as an example:

Status	
Test ↑ 0 ⇨ 0 ✕ 0	
Data ⇨	VolP ⇨
IPTV ⇨	Opt. ?
Router ⇨	
V4 V4	
GPON Power Down SFP	LAN1 Autoneg. On
VL Profile	no VLAN (DHCP)
Protocol	IP
VLAN Mode	no VLAN
IP Mode	DHCP Client
Own IP Address	0.0.0.0
GPON-RT LAN	
Edit	Profile

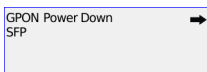


The status screen is divided into three levels that can be individually selected using the cursor keys of the ARGUS® keypad.

The status screen is described in greater detail using three display examples.

Level 1: physical layer (see image at left)

- <Edit> Configure physical layer
- <Access> Access selection
- <Start> Establishes physical layer of the selected access.



Level 2: Virtual lines (see middle illustration)

- <Edit> Configure virtual line, see page 65.



- Possible configurations:
 - Protocol (IP, PPP, PPTP)
 - ATM
 - VLAN
 - PPP (PPP profiles)
 - PPTP
 - IP version (IPv4, IPv6, dual)

- IPv4
- IPv6
- BGP
- Data log (for this VL)
- Profile name

<Profile> Configures the profile.



You can obtain further information on settings in the ARGUSpedia on the instrument.

Level 3: Services (see illustration at right)

<Edit> Assign a VL to a service and configure it

<Profile> Configure profile

<Start> Start service



The virtual line and the physical layer also start automatically when you press the softkey <Start>.

Depending on the status of the physical layer, the virtual lines or the services, the ARGUS® displays a variety of symbols in the status screen.

-  This service has not yet been assigned to a virtual line.
-  This service, VL or physical layer is idle.
-  This service is not available (bridge mode only).
-  Preparing activation of physical layer, VL or service.
-  Activating the physical layer, VL or service.
-  Physical layer, VL or service deactivated due to an unexpected occurrence.
-  Deactivating.
-  Synchronisation achieved (physical layer) or a VL or service was activated successfully without errors.
-  A test is currently running in this service.
-  An error occurred here. Reset with <Reset> to continue with the VL.

10.2 Virtual line profiles (VL profiles)

The various profile types are explained below:

Profiles (1 - 20), see page 35

- These contain the assignments of the services (Data, VoIP, IPTV, Opt.) to one or more virtual lines.
- In addition to the services, the settings for the bridge/router and the test parameter can be found here as well.
- Each profile can be assigned an individual profile name.

VL profiles (Virtual lines 1 - 20)

- These contain the layer 2/3 settings.
- VL profiles are assigned to services.
- One VL can be assigned to multiple services.
- PPP profiles can be assigned to the VL profiles.

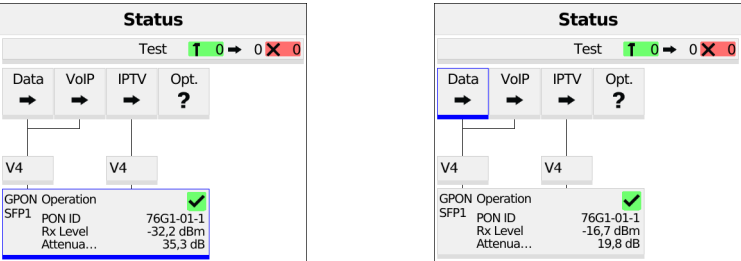
PPP profiles (1 - 20)

- They contain all relevant data for dialling.
- PPP profiles are assigned to VL profiles.
- A PPP profile can be assigned to multiple VL profiles.

10.3 Virtual line activation

A service or test must be started in order to activate a virtual line. To enable a test to be started, a service must be configured, and a virtual line assigned to it. In this example, the service Data is configured and assigned to a virtual line.

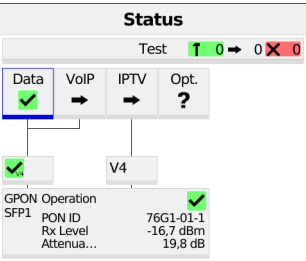
10.3.1 Starting a service



The GPON connection is active (see image at right).

Use the cursor keys to switch from the layer-1 box over the virtual line to the service Data.

If the physical layer is not yet active, this is started automatically with the service or test.



<Start> Starts the service.

The physical layer (GPON), the virtual line and the service Data are now active. This is indicated by a green check mark.

<Info> Displays service Data information (e.g. duration of activity).

<Stop> Terminates service Data.

For an explanation of the services, see page 74.

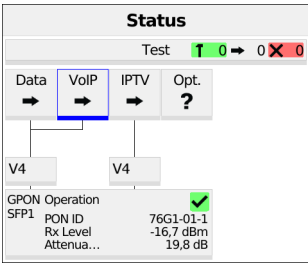
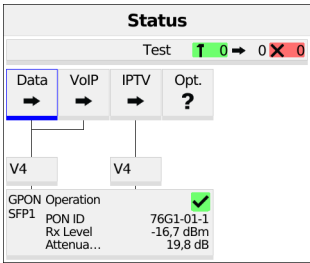
Test Parameters	
IP Ping	▶
Traceroute	▶
Path MTU	▶
iperf Client	▶
iperf Server	▶
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

The tests that can be run using the service Data are displayed.

<Setting> Configures the respective test (in this example IP ping). You can find a detailed description starting on page 76.

10.3.2 Assigning additional virtual lines

The ARGUS® can use multiple services concurrently (e.g. Data and VoIP) via a single virtual line. In this example, GPON is active. The service Data is selected. The following explains how multiple services can be connected via a single virtual line.



 To configure a virtual line (in this example for the service Data) for other services, you must first stop the service. The physical layer remains active.

 The service VoIP is greyed out when the VoIP option is not set.

 Using the cursor keys, select the service VoIP.

◀

Service VoIP

Virtual Line	VLAN 7 (PPP)
VoIP Account	VoIP Profile 1
VoIP QoS	▶

<Edit> Opens the configuration of the selected service (in this example VoIP).

Select "Virtual line".

✕

Virtual Line

✓

☐ No Virtual Line
☐ PPP ATM 1/32
☒ VLAN 7 (PPP)
☐ VLAN 8 (DHCP)
☐ No VLAN (DHCP)
☐ No VLAN (IP static)
☐ Virt. Profile 6
☐ Virt. Profile 7
☐ Virt. Profile 8

◀

Virtual Line

Protocol	IP
ATM	▶
VLAN	No VLAN
PPP	▶
PPTP	0.0.0.0
IP Version	Only IPv4
IPv4	▶
IPv6	▶
TR-069	▶

Select the virtual profile you wish to edit. The selected profile appears in the display in blue.

Unavailable elements are greyed out, for instance when they are currently active.

<Edit> Edits the settings.

Edit the selected VL profile.

e.g. select PPP

Opens PPP profile selection.

✕

PPP Profiles

✓

PPP Profile 1

☒

Provider: Manual

Username:

Password:

☐

PPP Profile 2

☐

PPP Profile 3

☐

PPP Profile 4

☐

PPP Profile 5

☐

PPP Profile 6

☐

PPP Profile 7

☐

PPP Profile 8

Select profile.



e.g. select PPP profile 1

←

PPP Settings

Username

[Empty]

Password

[Empty]

Set IP

No

Activation Delay

2 s

Up to 20 PPP profiles can be configured.



Press the Back key four times to return to the Service VoIP menu.

Status

Test

1 0 → 0 ✕ 0

Data

→

VoIP

→

IPTV

→

Opt.

?

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

✓

Status

Test

1 0 → 0 ✕ 0

Data

→

VoIP

→

IPTV

→

Opt.

?

✓

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

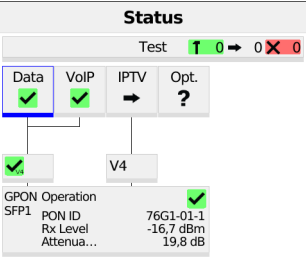
19,8 dB

✓

The services Data and VoIP are now connected to the physical layer (GPON access) via a virtual line (see image at right).

<start> Starts the service VoIP

The service VoIP is now active (see image at right). You can now run a variety of tests via the service VoIP.
In the next step, you can activate a further service.

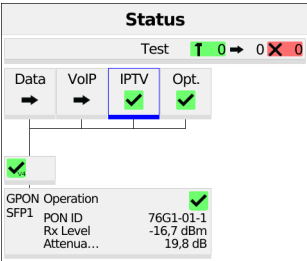
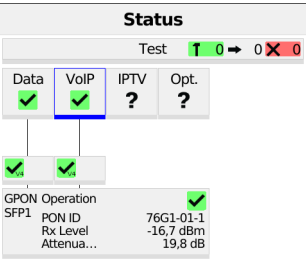


Select Data using the cursor keys and press <start> to activate the service.

The services Data and VoIP are active. You can now run a variety of tests via the services Data and VoIP.

The display and operation for IPTV and Opt. are the same as for VoIP.

Further examples of different virtual-line assignments:



Example 1 (illustration at left):

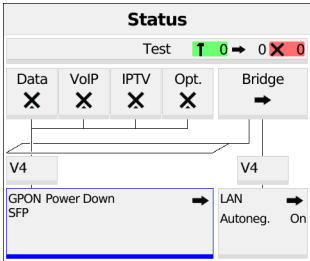
One virtual line is connected with the service Data and another with the service VoIP. The virtual line for VoIP can thus be used for different protocol data than the virtual line for Data.

Example 2 (illustration at right):

One virtual line was configured for the services VoIP, IPTV and Opt. In this example, the services IPTV and Opt. are active.



Up to four virtual lines can be established for the service IPTV. However, the ARGUS® only displays these as a single composite virtual line. A detailed description is provided in the chapter IPTV, see page 133.



Example 3:

In this example, each service was assigned a virtual line.
The services are unavailable because the ARGUS® is in bridge mode.

10.4 PPP wizard

Virtual Line	
Protocol	IP
ATM	▶
VLAN	No VLAN
PPP	▶
PPTP	0.0.0.0
IP Version	Only IPv4
IPv4	▶
IPv6	▶
TR-069	▶

PPP Profiles	
☒	PPP Profile 1 Provider: Manual Username: Password:
☐	PPP Profile 2
☐	PPP Profile 3
☐	PPP Profile 4
☐	PPP Profile 5
☐	PPP Profile 6
☐	PPP Profile 7
☐	PPP Profile 8



Select PPP.

Up to 20 PPP profiles can be configured.

<Edit> Edit the selected PPP profile.

10.5 Virtual line settings

The following virtual line settings can be configured:

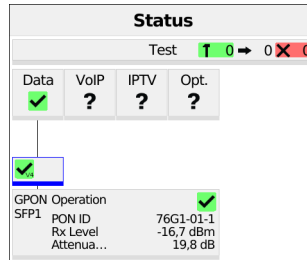
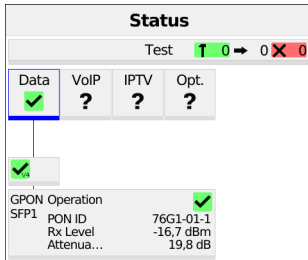
- Protocol
 - IP
 - PPP
 - PPTP
- ATM
 - VPI/VCI
 - Encapsulation
 - ATM with Ethernet
- VLAN
 - no VLAN
 - 1 VLAN tag
 - 2 VLAN tags (QinQ)
- PPP
 - PPP profile 1-20
 - Profile name
- PPTP
- APN
- IP version
 - IPv4 only
 - IPv6 only
 - Dual stack IPv4/IPv6
 - Dual stack lite
- IPv4
 - IP mode
 - Own IP address
 - Netmask
 - Gateway
 - DNS server
 - DHCP client
 - DHCP server
- IPv6
 - AFTR
 - DHCP client
- BGP
- Data log
- Profile name



You can obtain further information on settings in the ARGUSpedia on the instrument.

10.6 Displaying protocol statistics

Depending on the access mode and the protocol, the ARGUS® displays IP, PPP, ATM or Ethernet statistics.



The physical layer, the virtual line and the service Data are now active.

<Info> Shows GPON and XGS-PON results

<Stop> Disable Physical layer, VL and Data



Switches to the virtual line (VL) using the cursor keys or the touch screen.

When you select "Info", the ARGUS® displays the IP, PPP and Ethernet information.

PPP information:

The ARGUS® displays the received (Rx) and transmitted (Tx) PPP packets and the bytes.

Ethernet information:

The ARGUS® displays the received (Rx) and transmitted (Tx) Ethernet frames and the bytes.

IPv6 Configuration	
Global Unicast Address	
1	FD00:DB8:1:4030:6D0D:37D3:D590:1B2F
Link Local Address	
1	FE80::6D0D:37D3:D590:1B2F
DNS Server Address	
1	2001:DB8:1:200::300

Assigned PPP Configuration	
IP	10.5.108.113
Gateway	10.5.108.90
DNS 1	192.168.100.10
DNS 2	192.168.100.10

IP information:

The ARGUS® displays the IP information as a function of the IP version.

IPv6 (illustration at left): The ARGUS® displays the IP configuration assigned by the server:

- Global unicast address
- Link local address
- DNS address

IPv4 (illustration at right): The ARGUS® displays the IP configuration assigned by the server:

- Received IP address
- Gateway IP address
- Available DNS servers

PPP Trace	
Info	Time
> PADO rec.	11:57:00:010
< PADR sent	11:57:00:010
> PADS rec.	11:57:00:020
< LCP conf. req.	11:57:00:030
< LCP conf. req.	11:57:03:030
> LCP conf. req.	11:57:03:040
< LCP conf. ack.	11:57:03:040
> LCP conf. ack.	11:57:03:040
< LCP echo req.	11:57:03:050
< PAP auth. req.	11:57:03:060
> LCP echo req.	11:57:03:060
< LCP echo rep.	11:57:03:060
> LCP echo rep.	11:57:03:060

> PAP auth. ack.	11:57:03:070
SRD: n/r	
SRU: n/r	
< IPV6CP conf. req.	11:57:03:080
> IPCP conf. req.	11:57:03:090
< LCP prot. rej.	11:57:03:090
> IPV6CP conf. req.	11:57:03:090
< IPV6CP conf. ack.	11:57:03:090
> IPV6CP conf. ack.	11:57:03:090

<Trace> Opens a PPP trace, which displays the PPP login process. It also assigns the individual messages to times according to the ARGUS® system clock.

Display of commands

- < = Command sent by ARGUS®
- > = Command sent by OLT
- PADI: PPPoE Active Discovery Initiation
- PADO: PPPoE Active Discovery Offer
- PADR: PPPoE Active Discovery Request
- PADS: PPPoE Active Discovery Session Confirmation
- PADT: PPPoE Active Discovery Termination
- IPv6 CP: IPv6 Control Protocol
- LCP: Link Control Protocol
- IPCP: Internet Protocol Control Protocol
- PAP: Password Authentication Protocol

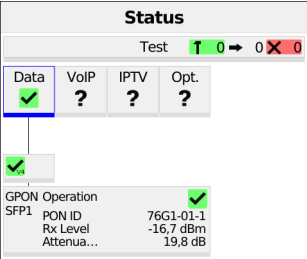
Table of abbreviations:

Abbreviation	Meaning
ack.	acknowledge
auth.	authentication
conf.	configuration
nak.	not acknowledge
prot.	protocol
rec.	received
rep.	reply
req.	request
rej.	rejected

11 Services + tests

The status screen (see explanation on page 59) shows four services. Each service can be used to conduct an entire suite of IP tests (see list below). It is also possible to start and stop each service independently of the others.

Example screen with the possible services:



- <Edit> Assigns the service a VL profile and configures the service.
- <Profile> Configures the profile.
- <Start> Activates the service. If virtual lines and the physical layer are not active, they are also automatically started.

See page 240 for an explanation of the symbols.

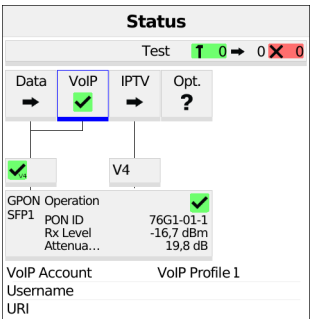
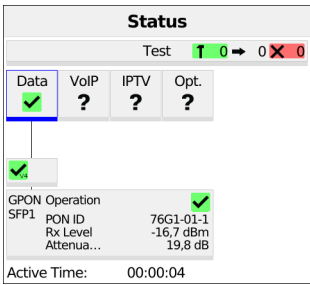
Once a service is activated, a variety of tests can be started using <Test>.

Services:			
Data ✓	VoIP ✓	IPTV ✓	Opt. ✓
- IP ping	- IP ping	- IP ping	- IP ping
- Traceroute	- Traceroute	- Traceroute	- Traceroute
- Path MTU	- Path MTU	- Path MTU	- Path MTU
- iperf-Client	- iperf-Client	- iperf-Client	- iperf-Client
- iperf-Server	- iperf-Server	- iperf-Server	- iperf-Server
- ARGUS® Real Speed Direct (iperf)	- ARGUS® Real Speed Direct (iperf)	- ARGUS® Real Speed Direct (iperf)	- ARGUS® Real Speed Direct (iperf)
- ARGUS® Real Speed Formal (RFC6349)	- ARGUS® Real Speed Formal (RFC6349)	- ARGUS® Real Speed Formal (RFC6349)	- ARGUS® Real Speed Formal (RFC6349)
- HTTP download	- VoIP call	- IPTV	- HTTP download
- HTTP upload	- VoIP call acceptance	- IPTV zapping test	- HTTP upload

- FTP download	- VoIP call generator	- IPTV Monitor	- FTP download
- FTP upload	- Port Check	- Port Check	- FTP upload
- FTP server			- FTP server
- Web browser			- Web browser
- Network Scan			- Video on demand
- Port Check			- Port Check
*1 Ethernet only			

Possible tests that can be executed using the various services.

11.1 Displaying service statistics



The ARGUS[®] in the status screen. The physical layer, VL and service are active. The duration of the activity is shown beneath the physical layer (see image at left).

The VoIP call parameters are displayed here in the service VoIP (see image at right), see page 125.

12 IP tests

12.1 IP ping

In IP ping, the ARGUS® tests whether a connection to the internet service provider (ISP) or another computer or server address is possible via Ethernet, GPON or XGS-PON using an OLT and the IP network. The ARGUS® sends a test packet to a specified IP address (remote station) and waits for a response packet. On the basis of the received response packet, it is possible to draw conclusions as to the availability and delay of the IP network. It is also possible to measure the maximum data packet size of the path.

The IP ping needs the following parameters:

Protocol-independent parameters

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

You can configure the following settings:

- IP address
- Number of pings
- Pause
- Packet size
- Fragmentation



You can obtain further information on settings in the ARGUSpedia on the instrument.

← IP Address
☒ www.argus.info
☐ ipv6.argus.info
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0

✕ IP Address ✓
☐ As IPv4 Address 0.0.0.0
☐ As IPv6 Address ::
☒ As Domain Name www.argus.info

The ARGUS® displays the ten available slots for IP addresses. Mark the line with the IP address you wish to edit using the cursor keys or the touch screen (in this example the first slot is marked, see image at left).

<Edit> Edits the selected IP address.

The address can be saved in the form of an IPv4 number, IPv6 number or a name (see image at right).

Default: **www.argus.info**

X

IPv4 Address

✓

0.0.0.0

Please enter an address between 0.0.0.0 and 255.255.255.255

1	2	3	A	B	C
4	5	6	D	E	F
7	8	9	:	-	<X>
*	0	#	.	ABC	✓

X

IPv6 Address

✓

::

Please enter an address between :: and FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF

*1=A *2=B *3=C *4=D *5=E *6=F

1	2	3	A	B	C
4	5	6	D	E	F
7	8	9	:	-	<X>
*	0	#	.	ABC	✓

Enter the IPv4 (see left image) or IPv6 address (see right image) in numerical form. The editable area is highlighted in blue. Enter the address using the number keys.

<Delete> Deletes the place in front of the cursor.

  When entering an IPv6 address, the letters A-F are available.

to



 Adopts the marked IP address as the default.

Toggle entry using the softkey (right softkey changes the meaning when pressed).
Enters the address as name, see Access name, page 36. You can also enter the name by tapping characters on the touch screen.

<Abc>ABC> Entry begins with upper-case letters and continues in lower-case.

<ABC>123> Entry of upper-case letters.

<123>abc> Numerical entry.

<abc>Abc> Entry of lower-case letters.



Entry of special characters, e.g. @, /, -, ., ...



or _ , ; , ~ , + , ...

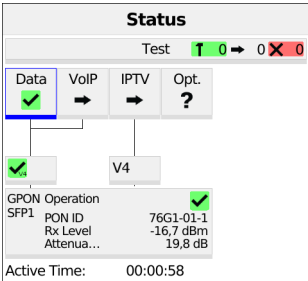
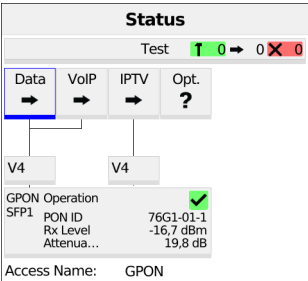


Moves the cursor in the display line.



For IPv6 addresses, you can use square brackets to include port information with IPv6 addresses in "IP address as name".

Starting IP ping (example access mode GPON, already active):



Connecting the service:

The profile shown in the display (in this example PPP VLAN 7/8) is used for IP ping.

<Edit> Assign a virtual line to the service Data.

If no GPON, XGS-PON or Ethernet connection is established, ARGUS® automatically connects at this point using the default profile (see page 40).

The service Data and the GPON connection are active (see image at right).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

◀ **Single Tests**

IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

◀ **IP Address**

☒ www.argus.info
☐ ipv6.argus.info
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0



Select IP ping.

<Setting> Change IP ping parameters.

The ARGUS® displays the addresses stored in the protocol.



Select the address for the ping; the default is indicated with ● .

<Edit> Edit address, see page 76.



In this example a ping test is conducted with IP version IPv4. Use with IPv6 is analogous.

Status

Test ↑ 1 → 0 ✖ 0

Data	VoIP	IPTV	Opt.
✓	?	?	?

✓

GPON Operation
SFP1 PON ID 76G1-01-1
Rx Level -16,7 dBm
Attenua... 19,8 dB

IP-Ping ↑

◀ **Test Overview**

IP Ping	↑
Sent:	6
Received:	6
Current:	23 ms
Maximum:	23 ms

◀ **Test Overview**

IP Ping	→
Sent:	10
Received:	10
Average:	22 ms
Maximum:	23 ms

Pressing OK automatically starts the IP ping.

In the status screen, you can select <Test> (at the top) to see which IP ping is currently running (see image at left).

Selecting <Test> again opens the test overview. During the IP ping test, a green hammer can be seen to the right of "IP ping" (see top right image), and an arrow appears there after the IP ping test is complete (see bottom right image).

Display during the IP ping test:

- Number of test packets sent
- Number of response packets
- Current time in ms
- Maximum time in ms

Display after the IP ping test:

- Number of test packets sent
- Number of response packets
- Average time in ms
- Maximum time in ms

IP Ping	
Pings	
Sent	10
Received	10
Repeated	0
Checksum Error	0
Error	0
Times	
Minimum	22,595 ms
Maximum	23,838 ms
Average	22,910 ms
Configuration	
Packet Size	84 Byte

Target	
URL	www.argus.info
IPv4	185.224.154.37
Used Version	IPv4

<Detail> Opens a detailed overview of the test results.

The ARGUS® displays the results when the test is finished:

- Number of packets sent
- Number of packets received
- Number of packets repeated
- Checksum errors
- Number of packets received with error
- Minimum packet response time in ms

- Maximum packet response time in ms
- Average packet response time in ms
- Selected packet size in bytes
- Display of destination URL
- Display of IPv6 address
- Display of IPv4 address
- Indication whether IPv4 or IPv6 is used

<Restart> Starts a new IP ping test.

<stop> Stops the IP ping test with the option to save.

Test Overview			
IP Ping		IP Ping	
Sent:	10	Sent:	7
Received:	10	Received:	7
Average:	22 ms	Average:	22 ms
Maximum:	23 ms	Maximum:	23 ms

IP Ping		1	
Sent:	2		
Received:	2		
Average:	22 ms		
Maximum:	22 ms		

Press Back to return to the test overview. You can start a new test as needed by selecting <New>. The GPON link and the service are still connected (the connection can be disconnected in the status screen with <Stop>).

The test overview displays multiple active and completed tests (see image).

Status

Test

↑ 0 ⇌ 0

✖ 1

Data

✖

VoIP

?

IPTV

?

Opt.

?

✖

GPON Operation

✓

SFP1

PON ID76G1-01-1

Rx Level-16,7 dBm

Attenua...19,8 dB

IP-Ping

✖

←

Error Details

This test was stopped due to an error

Origin of the error

PPP Layer

Error messages in IP ping

ARGUS® displays an X in a red field in the status for data and VL as soon as an error occurs (see image at left). Clicking "Info" displays the error message (see image at right).

←

Test Overview

IP Ping

✖

Unexpected test end

Origin of the error

PPP Layer

Open the test overview to obtain more detailed information on the source of the error (see image).

12.2 Traceroute

In IP traceroute, the ARGUS® sends test packets and displays all hops and their response times on the way to the destination address. This data enables precise localisation of possible delays in the network.

The following parameters must be saved in the profile for the IP traceroute:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

The following test parameters can be configured:

- IP address
- Maximum hops
- Probes
- Timeout

ARGUS



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting traceroute

(Example: access mode GPON, already active)

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt. ?

V4

V4

GPON Operation

SFP1

PON ID 76G1-01-1

Rx Level -16,7 dBm

Attenua... 19,8 dB

Access Name: GPON

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt. ?

GPON Operation

SFP1

PON ID 76G1-01-1

Rx Level -16,7 dBm

Attenua... 19,8 dB

Active Time: 00:00:58

Connecting the service.

The profile shown in the display (in this example profile 1) is used for the traceroute test.

<Edit> Assign a virtual line to the service Data.

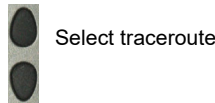
84

ARGUS® F300

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).
The service Data and the GPON connection are active (see image at right).

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

Traceroute	
IP Address	www.argus.info
Maximum Hops	25
Probes	3
Timeout	3,000 s

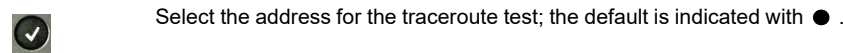


<Setting> Change traceroute parameters, see page 84.

IP Address
☒ www.argus.info
☐ ipv6.argus.info
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0

Test Overview	
Traceroute	
Hops:	9

The ARGUS® displays the IP addresses or URLs saved in the protocol (see image at left).



<Edit> Edit address, see page 76.



In this example a traceroute test is conducted with IP version IPv4.
Use with IPv6 is analogous.

The traceroute test starts automatically.

Display during the traceroute test (see image at right):

- Current hop and probe, in this example:
7 - 1: i.e. 7th hop and 1st probe
- Response time of hop for current attempt (0.000 seconds)
- IP address of the current hop, with name if applicable

Traceroute		
Hop	Target	Time
1	10.5.100.1	0,005 s

2	192.168.100.1	0,006 s

3	62.155.244.90	0,010 s
	p3e9bf45a.dip0.t-ipconnect.de	
4	217.5.67.162	0,015 s
	f-ed12-i.F.DE.NET.DTAG.DE	

Target	
URL	www.argus.info
IPv4	185.221.105.52
Used Version	IPv4

Open “Details” to display the IP addresses of the individual hops and any names as well as their response times, for example: 217.5.90.126, 0.013 s.
This also shows the destination URL and the IP address as well as the IP version used.



Cancels test
Displays the test results up to this point, with possibility of saving
(automatic prompt).

Saving traceroute result see also IP ping (see page 82).

12.3 Path MTU test

The Path MTU test is a standalone part of ARGUS® Real Speed (RFC6349). The test determines the maximum packet size that can reach a destination without fragmenting packets.

The Path MTU test needs the following parameters:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

The following test parameters can be configured:

- IP Address
- Pause
- Timeout
- Number of Packets



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting Path MTU (Example: access mode GPON, already active):

Status

Test 1 0 → 0 X 0

Data

VolP

IPTV

Opt. ?

V4

V4

GPON Operation

SFP1

PON ID 76G1-01-1

Rx Level -16,7 dBm

Attenua... 19,8 dB

Access Name: GPON

Status

Test 1 0 → 0 X 0

Data ✓

VolP →

IPTV →

Opt. ?

✓

V4

GPON Operation

SFP1

PON ID 76G1-01-1

Rx Level -16,7 dBm

Attenua... 19,8 dB

Active Time: 00:00:58

Connecting the service.

The profile shown in the display is used for the Path MTU test.

<Edit> Assign a virtual line to the service Data.

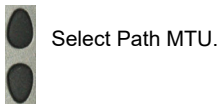
If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

The service Data and the GPON connection are active (see image at right).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

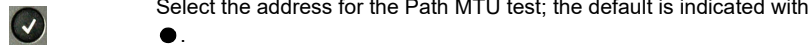
Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

Path MTU	
IP Address	www.argus.info
Pause	1,000 s
Timeout	1 s
Number of Packets	3

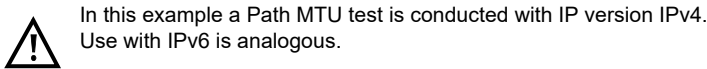


- <Setting> Change Path MTU parameters.

The ARGUS® displays the addresses saved in the profile.



- <Edit> Edit the address.



In this example a Path MTU test is conducted with IP version IPv4.
Use with IPV6 is analogous.

Test Overview	
Path MTU	750 Byte
Current Size	750 Byte
t:	00:00:03

Test Overview	
Path MTU	→
Determined Size	1492 Byte

The Path MTU test starts automatically.
In the test overview you can observe the running test.

12.4 iperf Client

The iperf client is a data throughput test against an iperf server.

The iperf client needs the following parameters:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

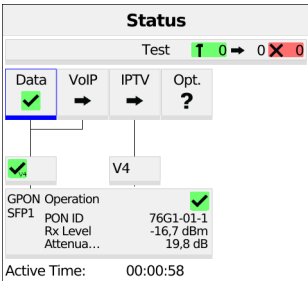
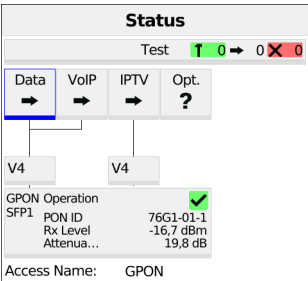
You can configure the following settings in profiles:

- IP Address
- Version
- Test Direction Version 2
- Test Direction Version 3
- Port Version 2
- Port Version 3
- Protocol
- Number of parallel Streams
- Bandwidth Limit
- Test Duration
- Window Size
- Authentication
- Profile Name



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting iperf Client (Example: access mode GPON, already active):



Connecting the service.

The profile shown in the display is used for the iperf Client.

<Edit> Assign a virtual line to the service Data.

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

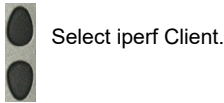
The service Data and the GPON connection are active (see image at right).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	ARGUS Server GER [10G]
ARGUS® Real Speed Formal (RFC 6349)	iperf Profile 1
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

iperf Profile	
IP Address	77.162.61.39
Version	Version 3
Test Direction Version 2	Send
Test Direction Version 3	Send
Ports Version 2	5001
Ports Version 3	5201
Server Port Version 2	5001
Server Port Version 3	5301
Protocol	TCP

Number of Parallel Streams	3
Bandwidth Limit	No
Test Duration	30 s
Window Size	Standard
Authentication	►
Profile Name	iperf Profile1



Select iperf Client.

<Setting> Change iperf Client parameters.

The ARGUS® displays the addresses saved in the profile.



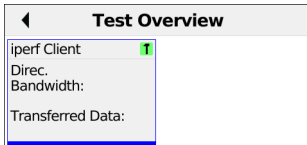
Select the address for the iperf Client; the default is indicated with ●.

<Edit> Edit the address.



In this example an iperf Client is conducted with IP version IPv4.
Use with IPv6 is analogous.

The iperf Client test starts automatically.



In the test overview you can observe the running test.

12.5 iperf Server

The iperf server is the remote station for a data throughput test with an iperf client.

The iperf server needs the following parameters:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

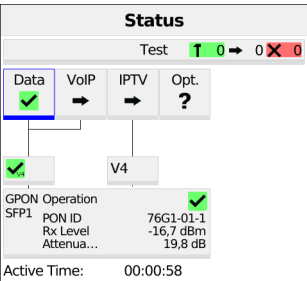
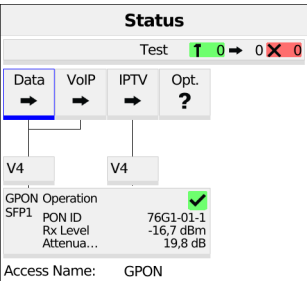
You can configure the following settings in profiles:

- IP Address
- Version
- Test Direction Version 2
- Test Direction Version 3
- Port Version 2
- Port Version 3
- Protocol
- Number of parallel Streams
- Bandwidth Limit
- Test Duration
- Window Size
- Authentication
- Profile Name



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting iperf Server (Example: access mode GPON, already active):



Connecting the service.

The profile shown in the display is used for the iperf Server.

<Edit> Assign a virtual line to the service Data.

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

The service Data and the GPON connection are active (see image at right).

- <Info>** Duration of activation
- <Test>** Opens test selection
- <Stop>** Deactivates the service

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	ARGUS Server GER [10G]
ARGUS® Real Speed Formal (RFC 6349)	iperf Profile 1
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

iperf Profile	
IP Address	77.162.61.39
Version	Version 3
Test Direction Version 2	Send
Test Direction Version 3	Send
Ports Version 2	5001
Ports Version 3	5201
Server Port Version 2	5001
Server Port Version 3	5301
Protocol	TCP

Number of Parallel Streams	3
Bandwidth Limit	No
Test Duration	30 s
Window Size	Standard
Authentication	►
Profile Name	iperf Profile 1



Select iperf Server.

<Setting> Change iperf Server parameters.

The iperf Server starts automatically.

Test Overview	
iperf Server	1
IPv4:	10.5.100.156
IPv6:	Not Used

In the test overview you can observe the running test.

12.6 ARGUS® Real Speed Direct (iperf)

ARGUS® Real Speed is a test in client/server mode against an iperf server.

The ARGUS® Real Speed Direct needs the following parameters:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 35.

You can configure the following settings:

- IP Address
- Authentication
- Pofile Name



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting ARGUS® Real Speed Direct (Example: access mode GPON, already active):

Status

Test 1 0 → 0 X 0

Data

VolP

IPTV

Opt.

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

Access Name:

GPON

Status

Test 1 0 → 0 X 0

Data

VolP

IPTV

Opt.

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

Active Time:

00:00:58

Connecting the service.

The profile shown in the display is used for the ARGUS® Real Speed Direct.

<Edit> Assign a virtual line to the service Data.

If no GPON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 51).

The service Data and the GPON connection are active (see image at right).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

Real Speed Direct Profiles	
☒	ARGUS Server GER [10G]
☐	RealSpeedDirect Pr: 2
☐	RealSpeedDirect Pr: 3



Select ARGUS® Real Speed Direct.

- <Setting> Change ARGUS® Real Speed Direct parameters.

The ARGUS® will display the addresses saved in the profile.



Select the address for the ARGUS® Real Speed Direct; the default is indicated with ●.

- <Edit> Edit address.



In this example an ARGUS® Real Speed Direct is conducted with IP version IPv4.
Use with IPv6 is analogous.

ARGUS® Real Speed Direct starts automatically.

Test Overview	
Real Speed Direct	
Status	Path MTU
t:	00:00:02

Test Overview	
Real Speed Direct	
Status	TCP Throughput Search free port
t:	00:00:22

In the test overview you can observe the running test.

12.7 ARGUS® Real Speed Formal (RFC6349)

ARGUS® Real Speed Formal is a throughput test according to RFC6349 against an iperf server.

The ARGUS® Real Speed Formal needs the following parameters:

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 35.

You can configure the following settings in profiles:

- IP Address
- Version
- Test Direction Version 2
- Test Direction Version 3
- Port Version 2
- Port Version 3
- Protocol
- Number of parallel Streams
- Bandwidth Limit
- Test Duration
- Window Size
- Authentication
- Profile Name



You can obtain further information on settings in the ARGUSpedia on the instrument.

Starting ARGUS® Real Speed Formal (Example: access mode GPON, already active):

Status

Test 1 0 → 0 X 0

Data

VolP

IPTV

Opt.

→

→

→

?

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

Access Name:

GPON

Status

Test 1 0 → 0 X 0

Data

VolP

IPTV

Opt.

✓

→

→

?

✓

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

Active Time:

00:00:58

Connecting the service.

The profile shown in the display is used for the ARGUS® Real Speed Formal.

<Edit> Assign a virtual line to the service Data.

If no GPON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 51).

The service Data and the GPON connection are active (see image at right).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	ARGUS Server GER [10G]
ARGUS® Real Speed Formal (RFC 6349)	iperf Profile 1
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

iperf Profile	
IP Address	77.162.61.39
Version	Version 3
Test Direction Version 2	Send
Test Direction Version 3	Send
Ports Version 2	5001
Ports Version 3	5201
Server Port Version 2	5001
Server Port Version 3	5301
Protocol	TCP

Number of Parallel Streams	3
Bandwidth Limit	No
Test Duration	30 s
Window Size	Standard
Authentication	►
Profile Name	iperf Profile1



Select ARGUS® Real Speed Formal.

<Setting> Change ARGUS® Real Speed Formal parameters.

The ARGUS® will display the addresses saved in the profile.



Select the address for the ARGUS® Real Speed Formal; the default is indicated with ●.

<Edit> Edit address.



In this example an ARGUS® Real Speed Formal is conducted with IP version IPv4.
Use with IPv6 is analogous.

ARGUS® Real Speed Formal starts automatically.

Test Overview	
Real Speed Formal	▶
Status	
Path MTU	
t:	00:00:02

Test Overview	
Real Speed Formal	▶
Status	
TCP Throughput	
Search free port	
t:	00:00:22

In the test overview you can observe the running test.

12.8 HTTP download

In HTTP download, the ARGUS® downloads the data of a website or file. The ARGUS® displays the current "net download rate", the usable data of the IP packets, and following conclusion of HTTP download the average speed (for multiple download attempts).

The following parameters must be saved in the profile for the HTTP download:



No meaningful evaluations are possible for download tests with a duration of less than 10 seconds.

Therefore, the download file should be as large as possible (depending on the access speed). If the duration of the test is less than 10 seconds, the ARGUS® does not display any data rate or time.

Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

The following test parameters can be configured:

- Server Profile
 - Server Address
 - FTP Port
 - Download Filename
 - Upload Filename
 - Upload Filesize
 - Username
 - Password
 - Number of Up-/Downloads
 - Number of Parallel Downloads
 - Number of Parallel Uploads
 - Profile Name



You can obtain further information on settings in the ARGUSpedia on the instrument.



If a www alias address is entered as the "Source/destination address", the ARGUS® downloads "only" the HTML page in HTML download. The ARGUS® does not evaluate the HTML code, so that any link to a "real" www address is not considered. In this case, the ARGUS® does not indicate an error, as the HTML page of the specified "Source/destination address" was loaded without error.



Be sure to enter the "source" address (server address and download file name) precisely as set out (upper/lower case). Otherwise the ARGUS® will return error 301 (Moved Permanently) or 404 (Not Found).

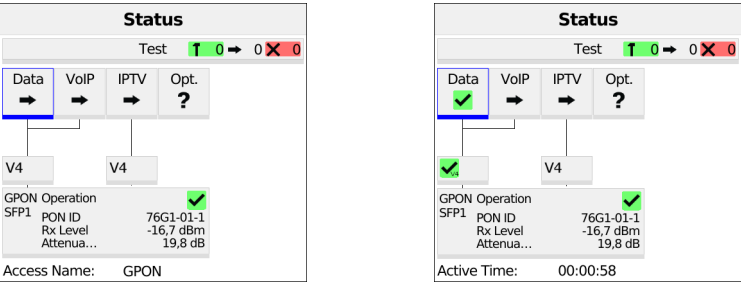


When requesting multiple download components, the ARGUS® may reduce the number of downloads depending on the server support, which can cause deviations from the set parameters. This can occur e.g. as soon as the size of the requested file is unknown.



If the download file name exceeds the maximum permissible length, you can work around this limit by fragmenting the address and additionally using the "Server" field. The server name may be up to 80 characters long, the file name 60 characters long.

Starting HTTP download (example: access mode GPON, already active)

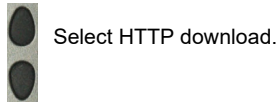
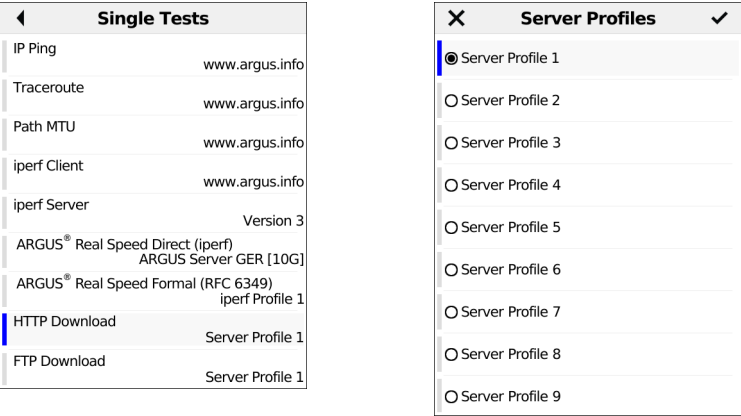


Connecting the service.

The profile shown in the display (in this example profile 1) is used for HTTP download.

<Edit> Adds a virtual line to the service Data.

If no connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).



<Profile> Displays the available HTTP download profiles (see image at left).

Mark the server profile:
(default is indicated with ●).

The server profiles are also used for HTTP upload, FTP download and FTP upload.

<Edit> Edits the marked profile, changes the individual settings.

HTTP download starts automatically.

Test Overview

HTTP Download 1

Speed: 70,717 Mb/s

Progress: 44 %

Filesize: 95,367 MB

HTTP Download 1

Speed: 43,613 Mb/s

Progress: 33 %

Filesize: 47,683 MB

Data

VolP

IPTV

Opt.

99,767 Mbit/s

2,066 Mbit/s

V

GPON

Net Data Rate

102,772 Mb/s

41,998 Mb/s

Retransmission:

1

CRC:

1

FEC:

1

HTTP Download

60

40

20

0

0:00

0:01

0:02

0:03

0:04

0:05

0:06

Mbit/s

h:mm

Bitrate (L4 Payload)

Current

43,970 Mb/s

Average

43,970 Mb/s

11 %

Current

5,666 MB

Overall

47,683 MB

Overall

37 %

Current

80,337 MB

Overall

143,050 MB

Time

Elapsed

00:00:04

Remaining

00:00:02

Parallel Downloads

Current

3

Configured

3

Target

URL

ip test.testnetz

IPv4

192.168.100.20

Used Version

IPv4

You can observe the running test in the test overview. You can access the long-term view (see images at right) via "Details".

Display during HTTP download:

- Current download/total number of downloads.
- Status
- Current net average download rate
- Current net average download rate
- Bytes transferred so far
- Size of downloaded file
- Data transferred so far
- Total data transferred
- Transfer time so far in h:min:s
- Remaining transfer time in h:min:s
- Number of parallel downloads
- Destination URL
- IP version and IP address used

Test overview display:

You can observe the running test or start a new test here, see page 150.

- <New> Selects a new single test.
- <Stop> Stops the HTTP download test.

Save HTTP download result, see page 82.

12.9 FTP download

In FTP download, the ARGUS® downloads data in the form of a file. The ARGUS® displays the current net download rate, the usable data of the IP packets, and following conclusion of the test the average speed (for multiple download attempts).

 No meaningful evaluations are possible for download tests with a duration of less than 10 seconds. Therefore, the download file should be as large as possible (depending on the access speed). If the duration of the test is less than 10 seconds, the ARGUS® does not display any data rate or time.

Protocol-independent parameters:
Opening of test parameters is described in the chapter "Configuring accesses", see page 27. See HTTP download for an explanation of the test parameters.

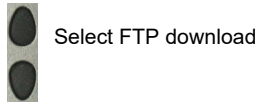
Starting FTP download
The service Data is started in the same way as for HTTP upload.

Single Tests

IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

Server Profiles

☒ Server Profile 1
☐ Server Profile 2
☐ Server Profile 3
☐ Server Profile 4
☐ Server Profile 5
☐ Server Profile 6
☐ Server Profile 7
☐ Server Profile 8
☐ Server Profile 9



<Profile> Displays the available FTP download profiles.

Mark the server profile (default is indicated with ●).

The server profiles are also used for HTTP download, HTTP upload and FTP upload.

<Edit> Edits the marked profile, changes the individual settings.

FTP download starts automatically.

Test Overview

FTP Download

Speed: 96,286 Mb/s

Progress: 2 %

Filesize: 14,900 GB

Data

VoIP

IPTV

Opt.

↓

99,719 Mbit/s

2,221 Mbit/s

↑

V

GPON

Net Data Rate

↓ 0 b/s

↑ 41,996 Mb/s

Retransmission:

↓

↑

CRC:

↓

↑

FEC:

↓

↑

FTP Download

100

75

50

25

0

0:00

0:01

0:02

0:03

0:04

0:05

0:06

Mbit/s

h:mm

Bitrate (L4 Payload)

Current96.594 Mb/s

Average96.354 Mb/s

Download 1/3

Current402.508 MB

Average14.900 GB

Current80,337 MB

Overall143,050 MB

Time

Elapsed00:00:04

Remaining00:00:02

Parallel Downloads

Current3

Configured3

Target

URLiptest.testnetz

IPv4192.168.100.20

Used VersionIPv4

You can observe the running test in the test overview. You can access the long-term view (see images at right) via “Details”.

Display during FTP download:

- Current download/total number of downloads
- Files already transferred (current/overall)
- Current net download rate
- Average download rate
- Currently transferred bytes
- Total file size to transfer
- Data transferred in test (current and total)

- Total data transferred
 - Current download time in h:min:s
 - Remaining transfer time
 - Number of parallel downloads
- <New> Select a new single test.
- <Stop> Stop the FTP download test.
- <Detail> Open the long-term view.

For saving results, see IP ping, page 82.

12.10 FTP upload

In FTP upload, the ARGUS® sends the data of a file to a server. The ARGUS® displays the current net upload rate, the usable data of the IP packets, and following conclusion of test, the average net speed (for multiple download attempts).



No meaningful evaluations are possible for upload tests with a duration of less than 10 seconds. Therefore, the upload file should be as large as possible (depending on the access speed). If the duration of the test is less than 10 seconds, the ARGUS® does not display any data rate or time.

Protocol-independent parameters:
Opening of test parameters is described in the chapter "Configuring accesses", see page 27. See HTTP download for an explanation of the test parameters.

Starting FTP upload
The service Data is started in the same way as for HTTP upload.

◀

Single Tests

ip ring	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	ARGUS Server GER [10G]
ARGUS® Real Speed Formal (RFC 6349)	iperf Profile 1
HTTP Download	Server Profile 1
FTP Download	Server Profile 1
FTP Upload	Server Profile 1

✕

Server Profiles

✓

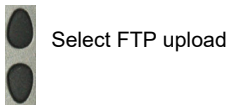
☒

Server Profile 1

☐

Server Profile 2

☐

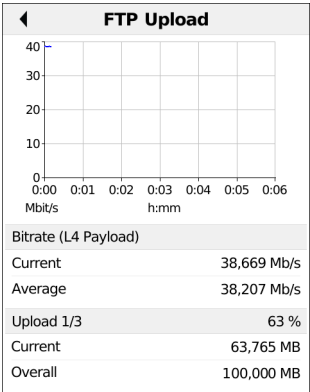
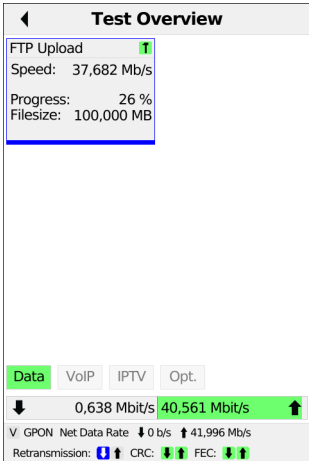
Server Profile 3☐☐☐☐☐☐

<Profile> Displays the available FTP upload profiles.

Mark the server profile (default is indicated with ●).
The server profiles are also used for HTTP download, HTTP upload and FTP download.

<Edit> Edits the marked profile, changes the individual settings.

FTP upload starts automatically.



Overall	24 %
Current	72,954 MB
Overall	300,000 MB
Time	
Elapsed	00:00:16
Remaining	00:00:05
Parallel Uploads	
Current	1
Configured	1
Target	
URL	ip test.testnetz
IPv4	192.168.100.20
Used Version	IPv4

You can observe the running test in the test overview. You can access the long-term view (see images at right) via “Details”.

Display during FTP upload:

- Current upload
- Data already transferred (current/total)
- Current net upload rate
- Average net upload rate
- Currently transferred bytes
- Total file size
- Data transferred
- Total data to be transferred

- Current upload time in h:min:s
- Remaining transfer time

<New> Selects a new single test.
<stop> Stops the HTTP upload test.
<Detail> Opens the long-term view.

For saving results, see IP ping, page 82.

12.11 FTP server

In FTP server mode, the ARGUS® behaves like a server for FTP requests. In this mode, the ARGUS® serves FTP download and FTP upload requests. These requests can be sent from a second terminal device (e.g. another ARGUS® unit) via a GPON, XGS-PON or Ethernet access. This makes it possible to test end-to-end throughput and determine the maximum possible data rate for this access.

In the following, the throughput test is explained using the Ethernet interface as an example. This example uses two ARGUS® units: one as the FTP, one to send the FTP download request.

ARGUS® 1 - FTP server

No settings need to be configured on the ARGUS® used as the FTP server. The FTP server test just needs to be started on the selected interface.

Starting FTP server (example: Ethernet, already active)

The service Data is started in the same way as for HTTP upload.

Single Tests	FTP Server
Path MTU	Status
www.argus.info	StatusActive
iperf Client	IPv410.5.100.188
www.argus.info	Port21
iperf Server	
Version 3	
ARGUS® Real Speed Direct (iperf)	
ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349)	
iperf Profile 1	
HTTP Download	
Server Profile 1	
FTP Download	
Server Profile 1	
FTP Upload	
Server Profile 1	
FTP Server	
21	
Web Browser	
http://www.argus.info	

The ARGUS® uses the IP address configured under "own IP address" as the destination address (server) for the second ARGUS® unit.

ARGUS® 1 now waits for an FTP request from a second terminal device (in this example the 2nd ARGUS® instrument). The IP mode in this example is "static", the default IP netmask configuration is used.

ARGUS® 2 - FTP down/upload

In principle, you can adopt the same configuration for the ARGUS® unit sending the FTP request (FTP download in this example) as in an FTP download test.

The netmask and IP address (IP mode: static) should match the settings on ARGUS® 1.

Starting FTP download:

The service Data is started in the same way as for HTTP upload.

Single Tests

IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	ARGUS Server GER [10G]
ARGUS® Real Speed Formal (RFC 6349)	iperf Profile 1
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

Server Profiles

☒ Server Profile 1

☐ Server Profile 2

☐ Server Profile 3

☐ Server Profile 4

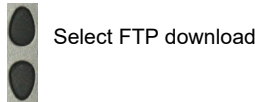
☐ Server Profile 5

☐ Server Profile 6

☐ Server Profile 7

☐ Server Profile 8

☐ Server Profile 9



<Profile> Displays the available FTP download profiles.

Mark the server profile (default is indicated with ●).
The server profiles are also used for HTTP download, HTTP upload and FTP download.

<Edit> Edits the marked profile, changes the individual settings.

◀

Server Profile

Server Address	192.168.178.5
FTP Port	21
Download Filename	file
Upload Filename	file
Upload Filesize	100 MByte
Username	[Empty]
Password	[Empty]
Number of Up-/Downloads	1
Number of Parallel Downloads	3

Number of Parallel Uploads	1
Profile Name	Serverprofil 1



You can obtain further information on settings in the ARGUSpedia on the instrument.

Only enter the address of ARGUS® 1 in the server profile of ARGUS® 2 as the server IP address.

In this case too, the download file name is the size of file to be downloaded.



No meaningful evaluations are possible for download tests with a duration of less than 10 seconds. Therefore, the upload file should be as large as possible (depending on the access speed). If the duration of the test is less than 10 seconds, the ARGUS® does not display any data rate or time.

See page 106 for displaying the FTP download result during the FTP download.

12.12 Web browser

The web browser can display HTML web pages.

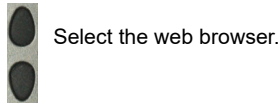
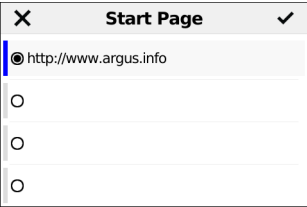
Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 27.

<Setting> The address can be entered as either an IP number or a name (URL).
Default: **www.argus.info**

Starting the web browser

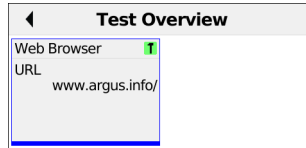
The service Data is started in the same way as for HTTP upload.



Select the web browser.

Select the URL.
You can configure up to 20 URLs; see "Access name", page 31 for instructions.

If no connection is established, ARGUS® automatically connects at this point (see page 40).



The selected website opens (see image at left). You can view the destination URL in the test overview.

<New> Selects a new single test.

<Stop> Cancels the web browser.

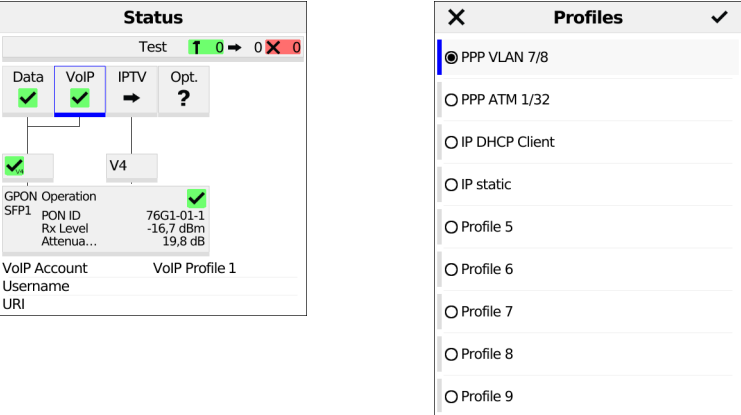
Saving web browser result see also IP ping (see page 82).

13 VoIP tests

The ARGUS® operates as a VoIP terminal device with active acoustics, enabling voice links. Session Initiation Protocol (SIP) is available as a VoIP signalling protocol. Calls can be established both with and without registrar/proxy. The ARGUS® can be used to establish VoIP connections via GPON, XGS-PON and Ethernet. To assess voice quality, the ARGUS® determines and displays the MOS/R-factor and the RTP datastream.

You can configure ten VoIP "accounts" (profiles):

Protocol-independent parameters:



The ARGUS® status screen (see image at left).

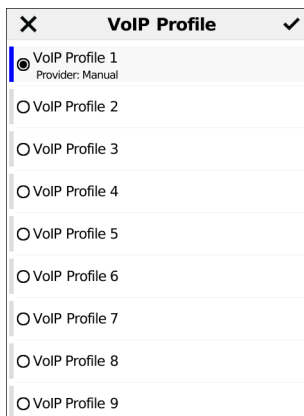
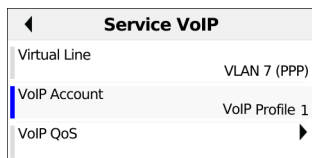
- <Edit> Assigns a virtual line to the service VoIP.
- <Profile> Profile settings, see page 35.
- <Start> Activates the service.



Select the profile you wish to edit (see image at right). The selected profile appears in the display in blue. The default profile is indicated with a ● in the display. The ARGUS® adopts the parameters from the default profiles for establishing the Ethernet, GPON or XGS-PON connection and conducting the VoIP test.

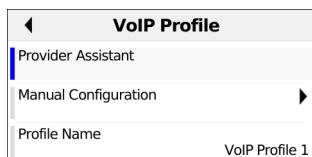


The ARGUS® uses the marked profile as the preset profile and switches to the menu Settings.



The "Edit" softkey takes you to the Service VoIP menu (see picture on the left). Once you have selected the option VoIP account, you can edit the VoIP profiles (see image at right). A total of ten user-defined VoIP profiles are available.

<Edit> Edits the VoIP profile (see image at left).



You first need to decide whether you want to configure this using the wizard or manually.



The wizard only prompts for a subset of all configuration settings.

The following test parameters can be configured for the VoIP account:

- VoIP
 - Provider Assistant
- Manual Configuration
 - SIP
 - User name
 - Password
 - Authentication
 - Caller ID

- Registrar Server
- Outbound Proxy / SBS
- DNS resolution
- SIP trunk
 - Trunk used
 - CLIR
 - own trunk number
 - own direct dial-in (DDI)
- Transport protocol
- SIP domain
- Listen port
- Remote port
- User agent
- Qualify
- Reg. expire
- Retry-after
- Delete current registration
- Telephone setup
 - RTP port range
 - Silence detection
 - Jitter buffer
 - Codecs
 - DTMF settings
- STUN server
 - STUN used
 - STUN server
- Rated / threshold values
 - MOS rated value
 - Jitter threshold
 - RTP loss threshold
- Profile name

You can configure the following settings for VoIP QoS (quality of service):

- Layer 3 DiffServ
 - RTP (ToS/DSCP)
 - SIP (ToS/DSCP)
- Layer 2 VLAN Prio
 - RTP VLAN Prio
 - SIP VLAN Prio



You can obtain further information on settings in the ARGUSpedia on the instrument.

13.1 Starting VoIP telephony

(Example: GPON access, already active)

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt.

→

→

→

?

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

VoIP Account

Username

Authentication

Transport Protocol

SIP Domain

SIP Trunk

VoIP Profile 1

TCP Fallback

No

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt.

✓

✓

→

?

✓

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

VoIP Account

Username

URI

VoIP Profile 1

Connecting the service.

The profile selected for GPON connection is also used for VoIP telephony.

<Edit> Edits the default virtual line profile.



The service VoIP is greyed out when the VoIP option is not set.

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

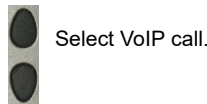
<Info> Duration of activation, see page 124.

<Test> Opens test selection.

<Stop> Deactivates the service.

Single Tests	
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1
FTP Upload	Server Profile 1
FTP Server	21
Web Browser	http://www.argus.info
VoIP Call	89

VoIP Destinations	
	☐ 0235190700
	☒ 89
	☐
	☐
	☐
	☐
	☐
	☐
	☐



Marks the VoIP destination (default is indicated with ●).

Scroll down with the cursor, mark a blank line and add a new VoIP destination using <Edit>.

<Edit> Edits the VoIP number.

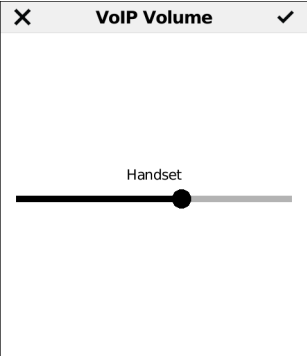
VoIP Overview	
Status	
State	---
Call Info	Connected
From	7089
To	89
Connecting Time	00:00:00
Codec	Unknown

Test Overview	
VoIP	
Outgoing To	89
MOS:	4,3
Jitter:	0 ms

Connecting.

The ARGUS® displays its "own number" (from: 7089) and the number of the called subscriber (to: 89). The called subscriber has not yet accepted the call: call info "Connected" and yellow telephone handset symbol.

VoIP Overview		
Status		
State	Ok	
Call Info	Outgoing Call	
From	7089	
To	89	
Connecting Time	00:00:11	
Codec	G.711 A-law	
Overview	Tx	Rx
MOS (G.107)	4,3	4,3
Jitter	0 ms	0 ms
LOSS	0,00 %	0,00 %
VLAN (Priority)	---	---
ToS	00 _{hex}	B8 _{hex}



The called subscriber has accepted the call (status “OK” and green check mark). The ARGUS® determines the MOS value and displays whether the voice quality attains the target MOS voice quality value (see page 216) (“OK” or “FAIL”). The ARGUS® also displays the classification of the MOS value according to ITU-T P.800 (in this example “good”). The duration of the call and the currently used voice codec (in this example G.711 A-law) are additionally displayed along with the RTP loss rate.

VoIP overview display (for transmitted and received packets including assessment)

- Status
- MOS value (FAR-MOS/MOS)
- Jitter in ms
- RTP loss rate
- VLAN (Prio) in hexadecimal
- TOS (hex) in hexadecimal

The FAR-MOS value is only displayed when the remote station supports RTCP.

See page 240 for the meanings of the symbols displayed.

- <Detail>

Displays the VoIP parameters
- <Volume>

Opens the volume control

MOS Info		
MOS (G.107)	Tx	Rx
Current	4,3	4,3
Average	4,3	4,3
Minimum	4,3	4,3
Maximum	4,3	4,3
Ideal	4,3	4,3
R-Factor	Tx	Rx
Current	91	90
Average	91	90

RTP Info	
Packets	
Received	1551
Sent	1549
Error Counter	
RTP Drop	0
RTP Error	0
RTP Jitter Rx	
Current	0 ms
Average	0 ms
Minimum	0 ms
Maximum	1 ms

RTP Packet Loss Rx	
Current	0,00 %
Average	0,00 %
Minimum	0,00 %
Maximum	0,00 %
Total	0

Display of MOS info (for transmitted and received packets):

- Current MOS
- Average MOS
- Min./max. MOS value
- Ideal MOS (possible MOS without interference, codec-dependent)

Display of further VoIP results:

Packet statistics:

- Received packets (Rx)
- Transmitted packets (Tx)
- Error counter:
 - RTP drop
 - RTP error
- RTP jitter Rx:
 - Current jitter
 - Average jitter
 - Minimum jitter
 - Maximum jitter
- Lost RTP packets (Rx)
 - Current, average, min. and max., total

RTCP content

Displays the statistics returned by the remote station.

- Current jitter of remote station Rx (far)
- Average jitter at remote station
- Maximum and minimum jitter of remote station
- Lost RTP packets at remote station
 - Rx (far): Total, current, average, min. and max.

- Network delay calculated from the transmission time of RTCP packets: current, average, min. and max.



If the message "no data" appears, that means that the remote station does not support RTCP.

◀ VoIP Codec
Codec
G.711 A-law
G.711 μ-law

◀ QoS Info		
QoS Information		
VLAN ID	---	---
VLAN Priority RTP	---	---
VLAN Priority SIP	---	---
RTP TOS	00 _{hex}	B8 _{hex}
SIP TOS	00 _{hex}	---

The ARGUS® displays the available codecs of the remote station.

Display of QoS info (for transmitted and received packets including assessment)

- VLAN ID
- VLAN Prio RTP
- VLAN Prio SIP
- RTP ToS in hexadecimal
- SIP ToS in hexadecimal

Status
Test ↑ 0 → 0 ✗ 0
Data ✓ VoIP ✓ IPTV → Opt. ?
✓ GPON Operation SFP1 PON ID 76G1-01-1 Rx Level -16.7 dBm Attenua... 19.8 dB V4
VoIP Account VoIP Profile 1
Username
URI

◀ Service VoIP	
Active	00:00:11
Profile	VoIP Profile 1
Protocol	SIP
Username	7089

When you select “Info” in the status screen, the ARGUS® displays the duration of the active VoIP service, the protocol used and the user name.

<SIP> Displays registration details: status codes, registrar IP, registrar used, outbound proxy/SBC and URI used and more.

<Log.> Displays the VoIP service SIP commands, see page 125.

Service VoIP		
	Info	Time
>	SIP Register	12:08:00:000
<	401 Unauthorized	12:08:00:090
>	SIP Register	12:08:00:190
<	200 Ok	12:08:00:350
>	SIP Register	12:08:00:560
<	401 Unauthorized	12:08:00:920
>	SIP Register	12:08:01:250
<	SIP Options	12:08:01:670
>	200 Ok	12:08:02:090
<	200 Ok	12:08:02:560

Service VoIP	
Register State	Registered
SIP Code	Ok
Registrar	
URL	_sip_udp.ipptest.testnetz
DNS Resolution	
IPv4	192.168.100.20
Received Reg.	192.168.100.20
URI	sip:7089@iptest.testnetz
Realm	iptest.testnetz

Before, during and after the connection, the ARGUS® displays the registration details. The setting "Use registrar" must be set to "yes" (see image at left).

The ARGUS® displays the SIP commands in the service VoIP (see image at right). A timestamp is added for all events.



The timestamp is generated using the ARGUS®-internal system time.

For further information, see page 244 "Software licenses".

Incoming call:

◀ VoIP Overview	
Status	
State	----
Call Info	Connected
From	7089
To	89
Connecting Time	00:00:00
Codec	Unknown

The ARGUS® can be called while the service VoIP is active. An incoming call is indicated by the yellow CALL symbol. The call can be accepted or refused.

For automatic call acceptance, you need to start the specific test "VoIP call acceptance", see page 128.

<Refuse> Refuses the call. Switches to status screen.

<Accept> Accepts the call. Switches to ARGUS® status.

VoIP results



You can obtain further information on the VoIP results in the ARGUSpedia on the instrument.

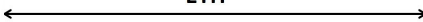
13.1.1 VoIP back-to-back

The ARGUS[®] permits a VoIP call to a second terminal device, e.g. another ARGUS[®] unit. To enable calling, both ARGUS[®] instruments must be configured as follows:

	ARGUS [®] 1	ARGUS [®] 2
Access, see page 27	Ethernet IP-based	
Protocol	IP	
IP version	IPv4	
IP mode	Static IP	
Own IP address	In this example 10.0.0.1	In this example 10.0.0.2

ARGUS[®] 1ARGUS[®] 2

ETH



Now enter the IP address of ARGUS[®] 2 in ARGUS[®] 1 as the target telephone number to initiate a VoIP call. The IP address of ARGUS[®] 1 must be entered as the target telephone number in ARGUS[®] 2.

The call is connected just as for VoIP call/VoIP call acceptance, see page 128.

13.2 VoIP Call Acceptance

In the test "VoIP Call Acceptance", the ARGUS® behaves like a VoIP telephone. The VoIP call (see page 121) and the VoIP call acceptance parameters must be configured for the VoIP call acceptance test:

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt.

→

→

→

?

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

VoIP Account

VoIP Profile 1

Username

Authentication

Transport Protocol

SIP Domain

SIP Trunk

TCP fallback

No

Status

Test 1 0 → 0 X 0

Data

VoIP

IPTV

Opt.

✓

✓

→

?

✓

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

VoIP Account

VoIP Profile 1

Username

URI

Connecting the service.

The profile selected for connection (in this example profile 1) is also used for VoIP call acceptance.

<Edit> Edits the default virtual line profile.

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

Single Tests

IP Ping

www.argus.info

Traceroute

www.argus.info

Path MTU

www.argus.info

VoIP Call

0235190700

VoIP Call Acceptance

Automatic

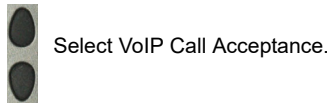
VoIP Call Generator

0235190700

Call Accept. Mode

Automatic

Echo Test



Select VoIP Call Acceptance.

<Setting> Opens call acceptance mode for VoIP Call Acceptance.

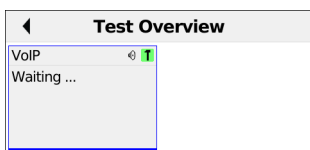
The test VoIP wait offers the following configuration options (see image bottom left):

- Automatic
- Echo test

Default: **Automatic**



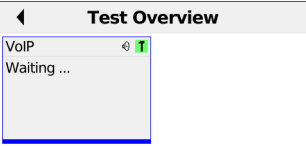
The ARGUS® uses the own number entered under SIP parameters (see page 125) as its own number.



VoIP Overview	
Status	
State	---
Call Info	Connected
From	7089
To	89
Connecting Time	00:00:00
Codec	Unknown

The ARGUS® waits for a VoIP call (see image left).

<Detail> Opens further information (see image right).



VoIP Overview		
Status		
State	Ok	
Call Info	Incoming Call	
From	89	
To	7089	
Connecting Time	00:00:10	
Codec	G.711 A-law	
Overview	Tx	Rx
MOS (G.107)	4,3	4,3
Jitter	0 ms	0 ms
LOSS	0,00 %	0,00 %
VLAN (Priority)	---	---
ToS	00 _{hex}	B8 _{hex}

The ARGUS® waiting for a VoIP call (see image at left).

The ARGUS® automatically accepts the call (see Setting page 129) (see image at right). The connection parameters are the same as for VoIP call and are explained on page 121 and following.

Disconnecting:



The connection is terminated as for IP ping.

However, pressing "Cancel" initially only disconnects (if a connection existed). The ARGUS® remains registered with the registrar (service VoIP active) and remains available for the caller (an incoming call can be refused or accepted). Deactivate the service VoIP to terminate registration. However, the established access remains active.

13.3 VoIP call generator

(Example: GPON access, already active)

Status	
Test 1 0 → 0 X 0	
Data →	VoIP →
IPTV →	Opt. ?
V4	V4
GPON Operation	✓
SFP1 PON ID	76G1-01-1
Rx Level	-16,7 dBm
Attenua...	19,8 dB
VoIP Account	VoIP Profile 1
Username	
Authentication	
Transport Protocol	TCP fallback
SIP Domain	
SIP Trunk	No

Status	
Test 1 0 → 0 X 0	
Data ✓	VoIP ✓
IPTV →	Opt. ?
✓	V4
GPON Operation	✓
SFP1 PON ID	76G1-01-1
Rx Level	-16,7 dBm
Attenua...	19,8 dB
VoIP Account	VoIP Profile 1
Username	
URI	

The profile selected for connection (in this example PPP VLAN 7/8) is also used for the VoIP call generator.

<Edit> Edits the default virtual line profile.



The service VoIP is greyed out when the VoIP option is not set.

If no GPON, XGS-PON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

<Info> Duration of activation, see page 124.

<Test> Opens test selection.

<Stop> Deactivates the service.

Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
VoIP Call	0235190700
VoIP Call Acceptance	Automatic
VoIP Call Generator	0235190700

VoIP Destinations	
☐	0235190700
☒	89
☐	
☐	
☐	
☐	
☐	
☐	
☐	



Selects VoIP call generator

Marks the VoIP destination
(default is indicated with ●).

Scroll down with the cursor, mark a blank line and add a new VoIP destination using <Edit>.

<Edit> Edits the VoIP number.

VoIP Call Generator	
Call 1	Connected
Call 2	Connected
Call 3	Connected
Call 4	Connected
Call 5	Connected
Call 6	Connected
Call 7	Connected
Call 8	Connected
Call 9	Connected
Call 10	Connected
Call 11	Connected
Call 12	Connected
Call 13	Connected
Call 14	Connected

Test Overview	
VoIP Call Generator	11
To:	89
Successfull Calls	30

Up to 30 consecutive VoIP calls to a configured VoIP destination are established. The connection is maintained until the test is stopped.

As soon as a call is refused, the ARGUS® stops establishing further calls. Existing calls remain connected. If the remote station hangs up a call, this is indicated for that call. The test remains active until you press the “Stop” softkey – even if the remote station has terminated all calls.

<Stop> Closes the call generator.

The number of successful calls is displayed. These are the calls that were still connected when the test was stopped. Calls that were refused or terminated by the remote station are not displayed.

<Restart> Restarts the VoIP call generator.

14 IPTV tests

14.1 IPTV

The ARGUS® requests a data stream from a server (depending on the access type, the ARGUS® replaces the set-top box (STB) or modem plus STB) and checks the regularity of the incoming packets, packet loss and the switch-on/switch-over time of the program. You can configure three user-defined IPTV profiles (where the GPON, XGS-PON or Ethernet connection is already established, the connection parameters, e.g. the target value, are locked):

Protocol-independent parameters:

Status

Test 1 0 0 0

Data

VolP

IPTV

Opt.

V4

V4

GPON Operation

SFP1

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

✓

✕

Profiles

✓

☒ PPP VLAN 7/8

☐ PPP ATM 1/32

☐ IP DHCP Client

☐ IP static

☐ Profile 5

☐ Profile 6

☐ Profile 7

☐ Profile 8

☐ Profile 9

The IPTV-STB emulation is realised using the service IPTV.
The following example illustrates the procedure and its special features.

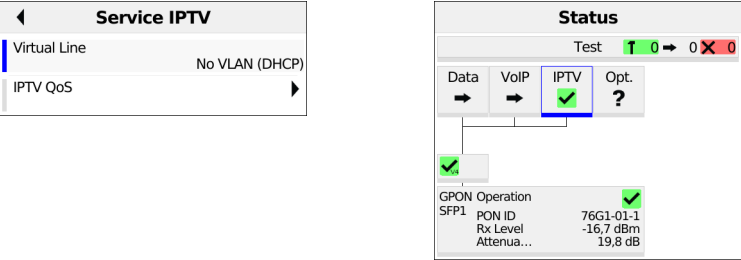
- <Edit>

Assigns virtual lines to the service IPTV.
- <Profile>

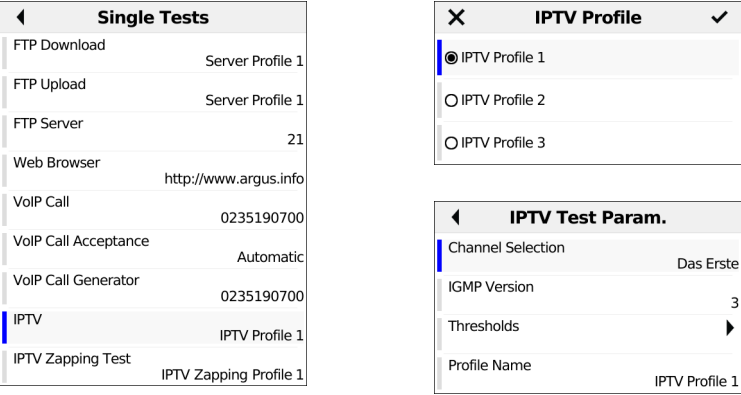
Profile settings, see page 35.
- <Start>

Activates the service.

- Select the profile you wish to edit. The selected profile appears in the display in blue. The default profile is indicated with a ● in the display. The ARGUS® adopts the parameters from the default profiles for establishing the Ethernet, GPON or XGS-PON connection and conducting the IPTV test.
- The ARGUS® uses the marked profile as the preset profile and switches to the menu setting.



Press the softkey “Edit” to configure the VL profile, then start the service IPTV.



Now you can select a single test, e.g. IPTV. A total of three user-defined IPTV profiles are available (see image at right). You can edit and modify the marked parameters.

You can configure the following settings for IPTV:

- Channel selection
- Multicast address
- Port
- Broadcaster name
- IP version
- Limit values
 - IGMP latency
 - Sync error
 - PCR jitter
 - Error indication
 - CC error
 - CC error rate
 - Audio bytes
 - Video bytes
 - RTP jitter
 - RTP sequence error
 - Current RTP loss rate
 - Total RTP loss rate
- Profile name

You can configure the following settings for IPTV QoS (quality of service):

- Layer 3 DiffServ
 - RTP (ToS/DSCP)
- Layer 2 VLAN Prio
 - VLAN Prio



You can obtain further information on settings in the ARGUSpedia on the instrument.

14.1.1 Multiple virtual lines

The ARGUS® can use up to 4 virtual lines for the service IPTV. The IGMP virtual lines are used for transmission of the IGMP protocol and virtual lines 1-3 for receiving the video/ audio streams.

X

Virtual Line

✓

☐ No Virtual Line

☐ PPP ATM 1/32

☐ VLAN 7 (PPP)

☐ VLAN 8 (DHCP)

☐ No VLAN (DHCP)

☐ No VLAN (IP static)

☒ Intec VL PPP

☐ Virt. Profile 7

☐ Virt. Profile 8

X

Virtual Line

✓

IGMP VL: intec VL PPP

VL 1:

No VL

<Edit>

Edits the selected virt. profile (in this example virt. profile 1).

<More VLs>

Opens virtual line selection for the service IPTV.

<Insert>

Inserts further virtual profiles.

X

Virtual Line

✓

PPP ATM 1/32

VLAN 7 (PPP)

VLAN 8 (DHCP)

No VLAN (DHCP)

No VLAN (IP static)

☒ Virt. Profile 7

☐ Virt. Profile 8

☐ Virt. Profile 9

☐ Virt. Profil 10

X

Virtual Line

✓

IGMP VL: intec VL PPP

VL 1:

Virt. Profile 7

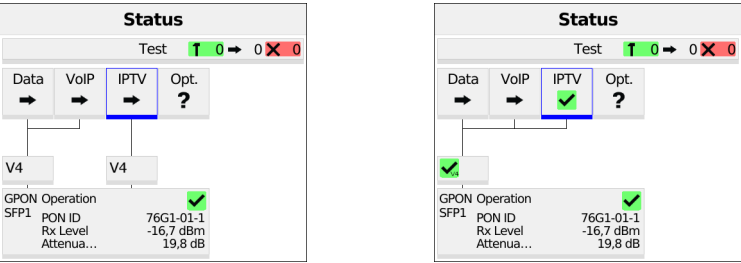
VL 2:

No VL

Adds selected VL profile for the service IPTV.

<Insert>	Inserts a further virtual profile.
<Edit>	Edits the selected virtual profile (in this example profile 3).
<More>	Opens further selection options.
<Delete>	Deletes the selected virtual profile (in this example profile 3).
<↓>	The marked profile is moved down one place in the list.
<↑>	The marked profile is moved up one place in the list.

Starting IPTV



Connecting the service.

The profile selected for GPON connection is also used for IPTV.

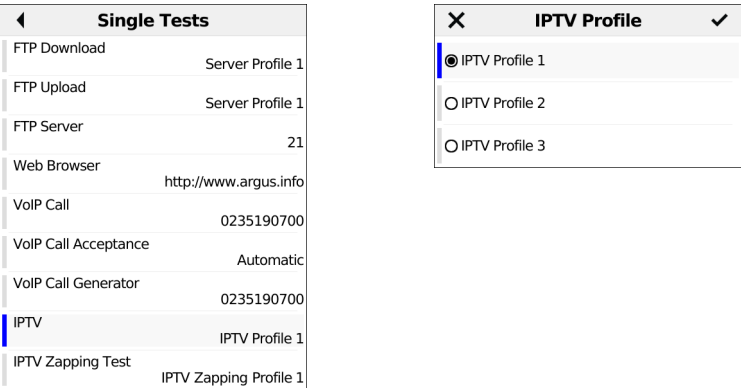
<Edit> Assigns a virtual line is assigned to the service IPTV or edits it.

If no GPON connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

<Info> Activation duration

<Test> Opens test selection

<Stop> Deactivates the service



<Profile> Displays the IPTV profiles, see page 142.

IPTV test

Test Overview	
IPTV	1
Das Erste	
Bitrate:	3,415 Mb/s
Loss:	0
Rate:	0,00 %

IPTV	
Bitrate	
Current	3,390 Mb/s
Packet Loss	
Sum	0
Packet Loss Rate	
Average	0,00 %
Delay Factor	
Current	9 ms
Minimum	8 ms
Maximum	18 ms
Average	11 ms
Media Loss Ratio	
Sum	0,00000 %

During the test, the ARGUS® displays the selected IPTV channel, the duration of the test and the current bitrate. If the set limits are exceeded, the IPTV test shows "FAIL" in the display, otherwise "OK".

The ARGUS® displays "FAIL" until the values fall below the threshold again.

<Channel> Selects a new channel.

<Test status> Displays test status without ending the test or starting a new test, see page 150.

<Total> Displays all IPTV statistics.



Cancels test.

Display:

- Current bitrate
- Number of packets lost during the test
- Display of packet loss rate in percent
- Display of delay (current, minimum, maximum, average)
- Display of media loss rate



The IPTV test runs until a new channel is selected.

<OK/FAIL> OK/FAIL overview of the IPTV test..

◀ IPTV Ok/Fail		
IPTV Ok/Fail		
Current Loss Rate	0,00	Ok
Full Loss Rate	0,00	Ok
Sequential Error	0	Ok
RTP jitter	-	Ok
Latency	36	Ok
Audio Bytes	24472	Ok
Video Bytes	281152	Ok
Sync Errors	0	Ok
Error Indications	0	Ok
PCR jitter	1	Ok
CC Error	0	Ok
CC Error Rate	0,00	Ok

Display:

- Current loss rate in %
- Total loss rate in %
- Sequence errors
- RTP jitter
- Latency (in ms)
- Audio bytes (in Byte)
- Video bytes (in Byte)
- Sync error
- Error indication
- PCR jitter (in ms)
- CC errors
- CC error rate (in %)

IPTV-Ergebnisse



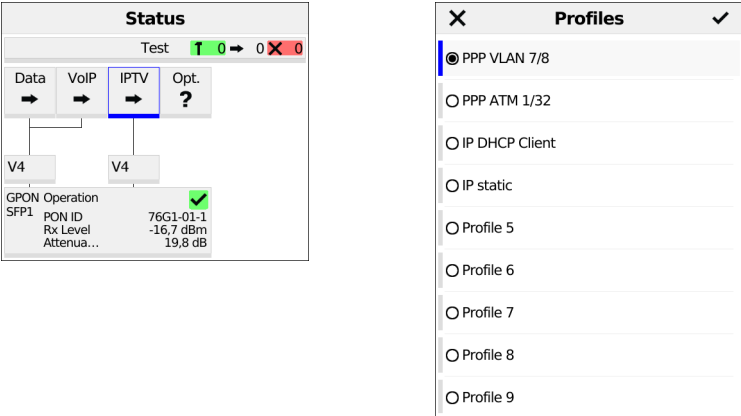
You can obtain further information on IPTV results in the ARGUS[®]pedia on the instrument.

14.2 IPTV Zapping Test

The ARGUS[®] checks the availability of TV channels. Additionally, the ARGUS[®] displays the switchover time between TV channels.

You can create three user-defined scan profiles. The following settings must be saved in the profile for the IPTV zapping test (when the GPON, XGS-PON or Ethernet connection is already established, the connection parameters, e.g. target value, are locked):

Protocol-independent parameters:



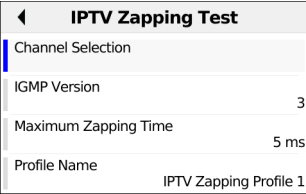
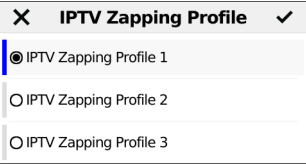
- <Edit> Assigns virtual lines to the service IPTV.
- <Profile> Profile settings, see page 35.
- <Start> Starts the service.



Select the profile you wish to edit. The selected profile appears in the display in blue. The default profile is indicated with a ● in the display. The ARGUS[®] adopts the parameters from the default profiles for establishing the Ethernet, GPON or XGS-PON connection and conducting the IPTV scan.

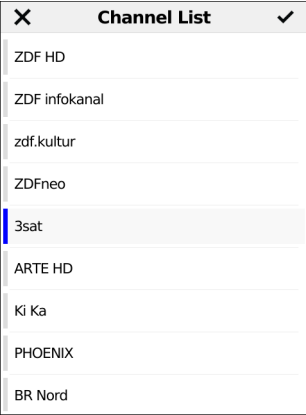


The ARGUS[®] uses the marked profile as the preset profile and switches to the menu setting.



A total of three user-defined zapping profiles are available.

<Edit> Edits the marked zapping profile.



In the channel selection menu, the ARGUS® initially displays the TV channels already selected in the set order that was tested for the IPTV zapping test. If no channels have been selected yet, the list is empty.

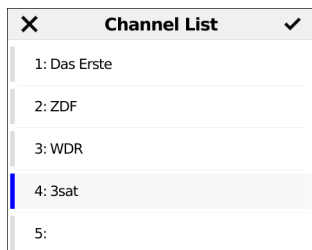
The list slots can be filled one after another. You can select up to 250 channels.

<Insert> Opens the channel list with the available channels.



Marks the channel
Channels already selected do not appear in the channel list (see image at right).

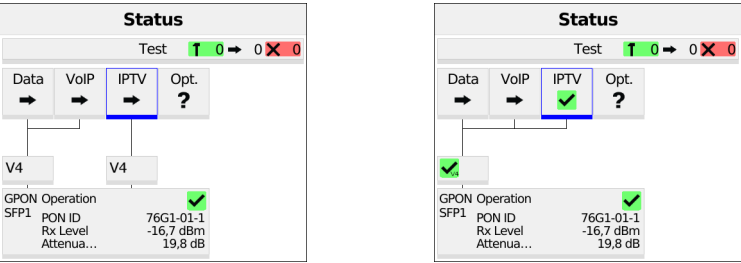
<Edit> Edits the marked channel:
- Enter the address (multicast IP and port number) of the TV channel.
- Enter any alias name for the TV channel (e.g. name of broadcaster).



Add the marked TV channel (in this example 3sat), then add the next channel. If at least two channels have been added to the list, you can change their position in the list using the following softkeys:

- <Delete>** Deletes the marked TV channel from the selection list.
- <Insert>** Opens the channel list with the available channels.
- <↓>** Moves the marked channel down one place in the list.
- <↑>** Moves the marked channel up one place in the list.

Starting the IPTV zapping test



Connecting the service.

The profile selected for GPON connection is also used for IPTV..

<Edit> Assigns a virtual line to the service IPTV or edits it.

Activating the service IPTV.

If no GPON connection is established, the ARGUS® automatically connects at this point using the default profile (see page 40).

- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

Single Tests	
FTP Download	Server Profile 1
FTP Upload	Server Profile 1
FTP Server	21
Web Browser	http://www.argus.info
VoIP Call	0235190700
VoIP Call Acceptance	Automatic
VoIP Call Generator	0235190700
IPTV	IPTV Profile 1
IPTV Zapping Test	IPTV Zapping Profile 1

<Profile> Displays the IPTV zapping test profiles, see page 142.

Test Overview	
IPTV Zapping Test	T
Current Channel	
Das Erste	
Last Channel	
3SAT:	47 ms

IPTV Zapping Test	
Zapping Time	
Minimum	16 ms
Maximum	47 ms
Average	30 ms

The IPTV zapping test starts automatically.

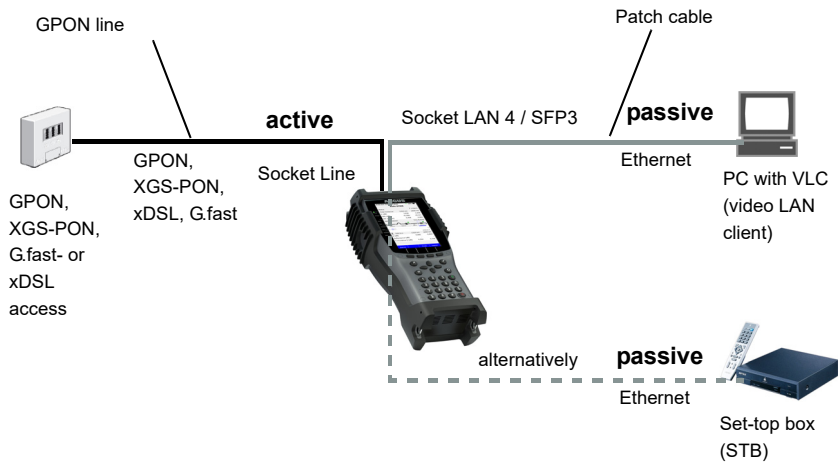
Displays the time needed to switch between channels. If a TV channel cannot be received within the set interval, the ARGUS® displays "Failed".

`<Test status>` Displays test status without ending the test or starting a new test, see page 150.

For saving results, see IP ping, page 82.

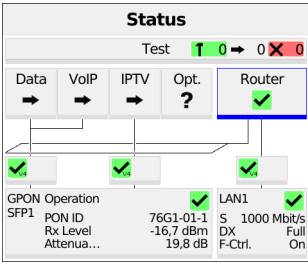
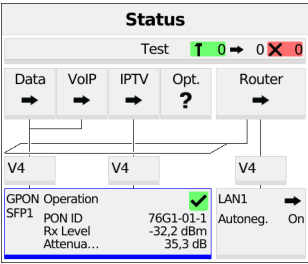
14.3 IPTV Monitor

ARGUS® checks for transmitted TV channels without requesting a channel. ARGUS® lists the TV channels it detects in a list of multicast IPs and/or channel names.



A second ARGUS® in STB mode can be connected in place of a PC or STB.

Starting IPTV Monitor



Aufbau des Services.

Connecting the service.

The profile shown in the display is used for the IPTV Monitor.



IPTV Monitor can also be run in bridge mode. However, the bridge must be activated first.

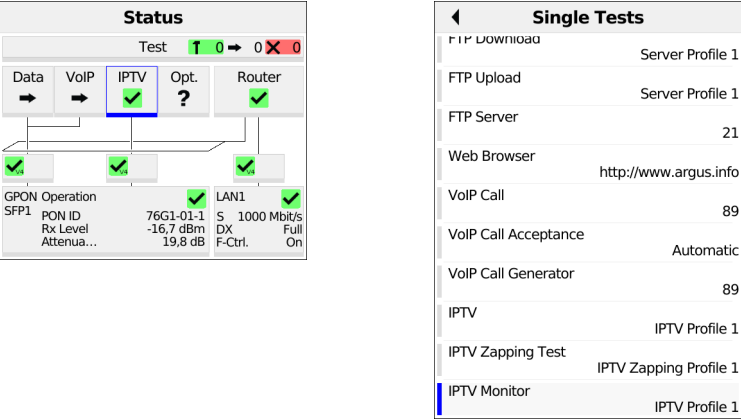
Use the cursor to select the router and start it.

Router mode is started (see picture on the right).

<Info> The duration of router activity is displayed.

<Stop> Stops router mode.

Use the cursor to select and activate the IPTV service.



The service IPTV and the router mode are active and the GPON access is synchronous.



To access the softkey **<Test>** in bridge mode, switch to the bridge box and activate it.
The services are not available in bridge mode.

<Profile> Displays the IPTV Monitor settings.



◀

IPTV

Waiting for stream ...

Marks the IPTV profile
(default is indicated with ●).

<Edit> Edits the marked profile, changing of individual parameters.

ARGUS® automatically checks whether IPTV streams are available and displays these.

IPTV Monitor	
Channels	
3SAT	232.0.10.2:10000

In this example, one possible stream is displayed.

<Refresh>	Updates the channel list.
<Test status>	Displays test status without ending the test or starting a new test.
<IP>	Displays the multicast IP of the selected channel.

15 Parallel tests

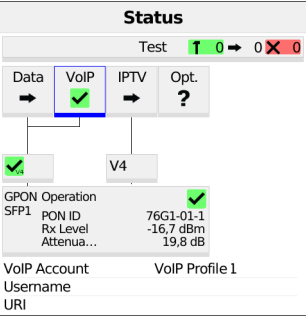
The ARGUS® permits parallel testing of different IP-based services (data, VoIP, IPTV and opt.) running on GPON, XGS-PON or Ethernet interfaces. The settings for each test are described in the respective chapters.

The following tests can be run in parallel. Any combination of the tests listed here is possible. Up to ten tests can be conducted concurrently.

Service	Test	Remark
Data	IP Ping* ¹ , see page 76	For these tests, up to 10 tests can be conducted concurrently (incl. tests using the other services).
	Traceroute* ¹ , see page 84	
	Path MTU, see page 87	
	iperf Client, see page 89	
	iperf Server, see page 92	
	ARGUS® Real Speed Direct, see page 95	
	ARGUS® Real Speed Formal, see page 97	
	HTTP download, see page 100	
	FTP download, see page 105	
	FTP upload, see page 108	
	FTP server, see page 111	See remark for VoIP
	Web browser, see page 114	
	Network Scan	
	Port Check	
VoIP	VoIP call, see page 121	These tests can be combined with any other test. Please note that a total of ten simultaneous VoIP connections are possible.
	VoIP call acceptance, see page 128	
	VoIP call generator, see page 131	
IPTV	IPTV, see page 133	These tests can be combined with any other test. Note that only one IPTV test can be active at any time.
	IPTV zapping test, see page 141	
	IPTV monitor, see page 146	

Opt.	IP Ping ^{*1} , see page 76	For these tests, up to 10 tests can be conducted concurrently (incl. tests using the other services).
	Traceroute ^{*1} , see page 84	
	Path MTU, see page 87	
	iperf Client, see page 89	
	iperf Server, see page 92	
	HTTP download, see page 100	
	FTP download, see page 105	
	FTP upload, see page 108	
	FTP server, see page 111	See remark for VoIP.
	Web browser, see page 114	
	^{*1} Also possible via the services VoIP and IPTV	

The possibility of parallel testing is illustrated using HTTP download and VoIP via the services Data and VoIP. Display and operation for further parallel tests, e.g. IPTV, is performed in the same way as for Data and VoIP.



Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf)	
ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349)	
iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile 1

ARGUS® status screen.

The GPON access shown in the example and the services Data and VoIP are active.

- <Info> Duration of activation.
- <Test> Opens test selection.
- <Stop> Deactivates the service.



Select e.g. HTTP download.

<Profile> Displays the available HTTP download profiles.

X

Server Profiles

✓

●

Server Profile 1

Server Profile 2

Server Profile 3

Server Profile 4

Server Profile 5

Server Profile 6

Server Profile 7

Server Profile 8

Server Profile 9

◀

Single Tests

iperf Client

www.argus.info

iperf Server

Version 3

ARGUS® Real Speed Direct (iperf)

ARGUS Server GER [10G]

ARGUS® Real Speed Formal (RFC 6349)

iperf Profile 1

HTTP Download

Server Profile 1

FTP Download

Server Profile 1

FTP Upload

Server Profile 1

FTP Server

21

Web Browser

http://www.argus.info

VoIP Call

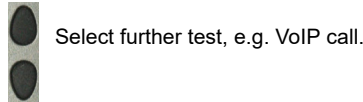
89

Mark the server profile:
(default is indicated with ●).

<Edit> Edits the marked profile, changes the individual parameters.

HTTP download starts automatically.

Display during HTTP download and test status: see “HTTP download” on page 100.



◀

Test Overview

HTTP Download

Speed: 94,201 Mb/s

Progress: 24 %

Filesize: 47,683 MB

VoIP

Outgoing To 89

MOS: 4,3

Jitter: 0 ms

Data

VoIP

IPTV

Opt.

99,705 Mbit/s

2,052 Mbit/s

V

GPON

Net Data Rate

↓ 102,772 Mb/s

↑ 41,998 Mb/s

Retransmission:

0

CRC:

0

FEC:

0

◀

Test Overview

HTTP Download

Speed: 94,201 Mb/s

Progress: 24 %

Filesize: 47,683 MB

VoIP

Hung Up

Hang-up on near end

Data

VoIP

IPTV

Opt.

99,705 Mbit/s

2,052 Mbit/s

V

GPON

Net Data Rate

↓ 102,772 Mb/s

↑ 41,998 Mb/s

Retransmission:

0

CRC:

0

FEC:

0

The ARGUS® executes an HTTP download and a VoIP call in parallel.



When more than one test is executed, you can select the tests with the left and right cursor keys or by tapping the touchscreen.

For more than six tests, the test rows expand downwards.

- <New>** Selects a new single test.
- <Stop>** Stops the test, in this example VoIP call. Depending on the test, you can subsequently re-initialise it with **<New>**. The configuration remains unchanged.
- >Details>** More information on the selected test.
- <Finish>** Deletes the selected test. Prior to this action, tests can be saved.

The VoIP call is stopped (see image at right).

16 Fiber

The ARGUS® F300 combines numerous fiber test options such as OTDR and selective OPM as well as PON ID detection and performance tests in one device and enables various tests on fiber optic interfaces.

16.1 Selective OPM

The ARGUS® F300 has either a selective 3-fold, 4-fold or a 5-fold OPM with Through Mode. The Selective Triple OPM filters the downstream wavelengths of GPON (ITU-T G.984.3) at 1490 nm and XGS-PON (ITU-T G.9807.1) at 1577 nm and measures them simultaneously on a fiber optic line with high accuracy and unaffected by other light. Despite this filtering, the OPM can also be used to determine other wavelengths on the line, e.g. 1550 nm, by means of broadband measurement without having to change the plug. For this purpose, it offers the wavelength spectrum from 1270 to 1625 nm, which is common for standard OPMs, for measurement, which also covers the upstream wavelengths 1310 (GPON) and 1270 nm (XGS-PON). The 4- or 5-fold OPM, on the other hand, measures the downstream (1490, 1577) and upstream (1270, 1310) wavelengths filtered in through mode. The 5-fold OPM has an additional optional 1550 nm filter for video overlay measurements.

In order to be able to correctly assign the data streams for each subscriber, the OLT on the exchange side provides each ONT with a so-called PON ID. This ID and the transmission power of the OLT are read out without reconnection, and the insertion loss is also calculated directly.

The following important values are available:

- the filtered measurement of the optical power
- the broadband measurement (only 3xOPM)
- the optical attenuation of the line
- the xPON ID

In order to fully test a GPON or XGS-PON access in the event of a fault or to transfer it to continuous operation after rollout, it is necessary to set up the protocol, carry out the authentication process, check services such as VoIP or IPTV for functionality and simulate high-performance speed tests via FTP/HTTP upload and download or iperf in the same way as for other accesses.

To perform ONT simulation, see Operation on GPON or XGS-PON connection, and for IP and speed tests, see IP, VoIP and IPTV tests.



The Selective OPM must not be exposed to optical power levels greater than +18 dBm. Higher optical levels can lead to the destruction of the HW.



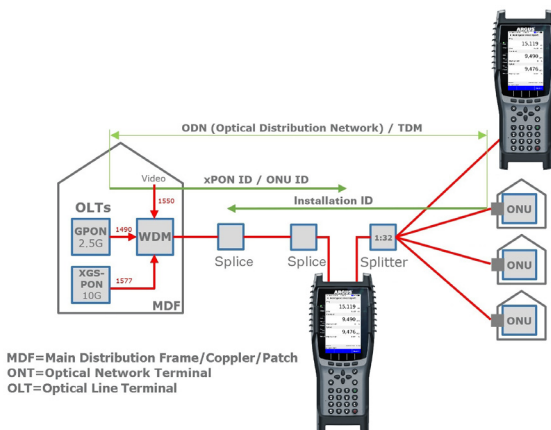
When working on and with optical lines, make sure that they are always plugged in in a perfectly clean condition. Check the cleanliness of your patch cable with an optical microscope, e.g. the Fiber Inspection Tool. Always use dust caps when jacks and cables are not in use.



When handling fiber optic cables, it is essential to observe the applicable occupational health and safety regulations.

Connection scenario Selective Optical Power Meter (5x OPM):

Connection of the ARGUS® to a PON branch



The following specifications apply to the Selective 3xOPM:

- Measuring range:
 - 1577 & 1490 nm (filtered): from -40 to +6 dBm (max. power +18 dBm)
 - 1270, 1300, 1310, 1550, 1610, 1625 nm (broadband): from -50 to +13 dBm
- Accuracy: ± 0.5 dB
- Calibration conditions: -20 dBm, 23°C ± 5 K
- Connector: SC/APC
- Readout of PON ID and XGS-PON ID* via SC/APC, detection up to:
 - GPON ≥ -29 dBm
 - XGS-PON ≥ -30 dBm

The following specifications apply to the Selective 4x or 5xOPM with Through Mode:

- Measuring range:
 - Downstream (OLT socket):
 - 1577 & 1490 nm (filtered): from -40 to +9 dBm (max. power +18 dBm)
 - 1550 nm (filtered): from -40 to +16 dBm (max. power +18 dBm) (**only 5xOPM**)
 - Upstream (ONT socket):
 - 1310 & 1270 nm (filtered): from -35 to +10 dBm (max. power +18 dBm)
- Accuracy: filtered ± 0.5 dB
- Insertion loss: 1.5 dB
- Alien ONT detection (burst + permanent)
- Calibration conditions: -20 dBm, 23°C ± 5 K
- Connector: 2x SC/APC (ONT + OLT)
- Readout of PON ID and XGS-PON ID* via SC/APC, detection up to:
 - GPON ≥ -30 dBm
 - XGS-PON ≥ -29 dBm

* The network must provide the ID for this.

16.1.1 Selective OPM configuration

The setting of the connection type is explained in the chapter Configuring accesses, see page 27.

X

Access

✓

☒ Fibertests

☐ GPON

☐ XGS-PON

☐ WLAN (USB)

X

Fiber Mode

✓

☒ Installation

☐ Optical Power Meter

☐ OTDR

☐ Fiber Inspection Tool

If no "3x OPM" access is preconfigured, a new access can be created via <New>. Select "Fiber tests" and then "Installation".

X

Interface

✓

☒ PON

X

Mode

✓

☒ 3x OPM

☐ 5x OPM

After confirming the interface "PON" you can select the 3x OPM.

X

Access Name

✓

3x OPM

5/24 Characters

! " \$ % & / () =

1 2 3 4 5 6 7 8 9 0

Q W E R T Z U I O P

A S D F G H J K L

▲ Y X C V B N M ↵ ?#@ ✓

123

X

Accesses

✓

Fibertests PON

☒ Fibertests PON

Note:

☐ xPON OPM with PON ID

☐ GPON

☐ XGS-PON

☐ Ethernet TE DHCP

☐ Ethernet TE static

☐ WLAN (USB) Client

☐ WLAN (USB) Spectrum.

Fibertests PON

Delete

New

Edit

Filter

After confirming or changing the access name, it can be opened via the access menu. An access with the name "Fiber tests PON" has been created here.

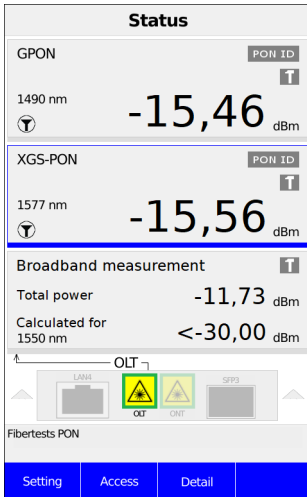
<Delete>	Delete the access
<New>	Create new access
<Edit>	Edit selected access
<Filter>	Filter access list

Note: Calling up functions via numeric keys/key combinations

Important functions/tests can be called up directly using the keys on the ARGUS® key-board. An overview of possible key combinations can be found on page 223.

16.1.2 Settings Selective OPM

Opening the 3x OPM (selective OPM) access starts the measurement immediately. If nothing is connected yet, no or very low optical levels (e.g. <-40 dBm or <-30 dBm for broadband measurement) are displayed.



<Setting>	Change settings
<Access>	Change access
<Detail>	Open details

The ARGUS[®] saves all relevant settings for a test with the accesses. Depending on the test situation, only the relevant settings are used. The default settings can be restored at any time (see page 223).

The following settings can be made:

- Reference
- Broadband measurement
- Reference wavelength

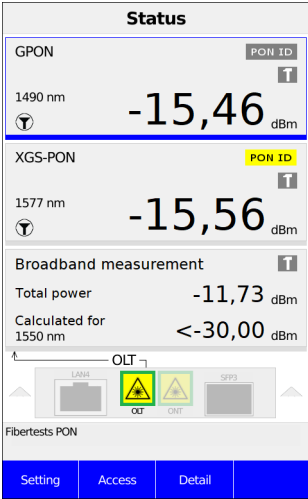
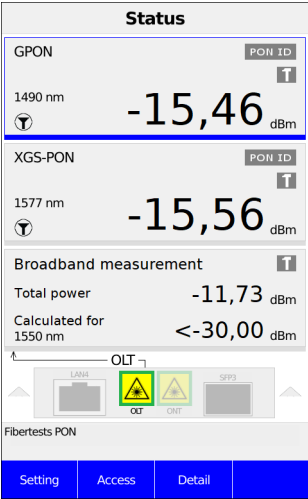


You can obtain further information on settings in the ARGUSpedia on the instrument.

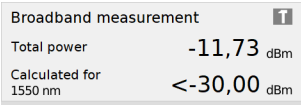
16.1.3 Starting the measurement

The measurement begins as soon as a fiber optic patch cable is plugged into the PON socket (SC/APC) at the foot end of the ARGUS®. First, the total light power (total power) is measured and displayed unfiltered using a broadband diode (broadband measurement). For the selected wavelength, a value is calculated from this and displayed (in the ex. for 1550 nm).

If an OLT, a PON remote station, is connected on the far side, it transmits at the corresponding wavelengths into the connected PON branch. This light then passes the corresponding filters for 1490 nm (GPON) and/or 1577 nm (XGS-PON).



The filtered optical level in dBm (indicated by a funnel symbol) then appears in the corresponding tile marked in blue.



Total optical power in dBm. The value includes the opt. levels for 1490 and 1577 nm. No value could be calculated for 1550 nm in this example.

For ARGUS OPM and 3xOPM:

The total power displayed corresponds to the sum of all optical signals on the line. The ARGUS converts this value to the wavelength set by the user (e.g. 1550 nm).

As the diode used measures all light components together, the result is only correct if only light of the set wavelength is actually present. If there are several wavelengths on the line, the result may be falsified.

Additionally for 3xOPM:

With the ARGUS 3xOPM, the levels for 1490 and 1577 nm can be measured separately (filtered) in addition to the broadband (unfiltered) measurement. If only these three or two of these three wavelengths are active on the fiber, the proportion for 1550 nm can be calculated by subtracting the others. The accuracy of this calculation depends on how accurate the individual values are - small measurement errors can have a greater influence on the result if large values are subtracted from each other.

<Setting>	Change settings
<Access>	Change access
<Detail>	Open details

 No PON ID found (grey).

 Readout of a PON ID has started (yellow).

 The read out PON ID is available (green).



Stylized PON socket. Attention laser radiation.



No query of the values from the OLT (grey).



Query of values at OLT in progress (blue).



Measurement filtered.



Reference point OLT, if necessary with a transmission level transmitted by the OLT (Tx) (e.g. 3.60 dBm).



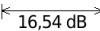
Reference point ARGUS®/3x OPM (Sel. OPM): The opt. level shown in large is measured at this point.



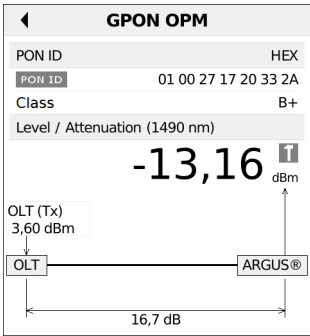
Alien ONT detected (red).



Reference point: Appears only when the reference level is set. Set reference level is displayed above.



Attenuation calculated between the reference points in dB. Red = negative.



If you select the GPON tile by touch or via the <Detail> softkey, the GPON measurement details open (the XGS-PON tile behaves identically).

Here, a PON ID was read out and displayed in hexadecimal format (other formats can be selected via the <Setting> softkey).

An ODN class could be read from the OLT, in the example B+.

At the reference point "ARGUS®", the following optical level was measured (in the example -13.16 dBm).

The OLT has communicated a transmit level (OLT (Tx)) of 3.60 dBm.

An attenuation of 16.7 dB is calculated from this between the OLT and the ARGUS®.

<Setting>

Further settings possible (see below).

<Reference
Level>

Setting a reference value (see below).

Settings

Reference Level

GPON PON ID FormatT-COM

Broadband MeasurementOn

Reference Wavelength1550 nm

Reference Level

GPON0,00dBm

XGS-PON0,00dBm

Broadband Meas.0,00dBm

Range: from -40,00 to 10,00 dBm

1	2	3	A	B	C
4	5	6	D	E	F
7	8	9	:	-	<X
*	0	#	,	ABC	✓

In the settings, the reference levels for GPON, XGS-PON and the broadband measurement can be defined at the same time. These must be in the value range from -40.00 to 10.00 dBm.

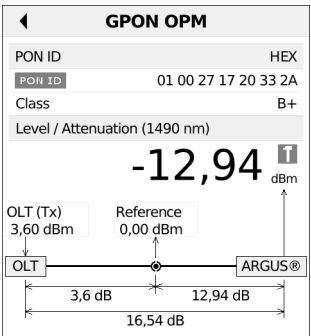
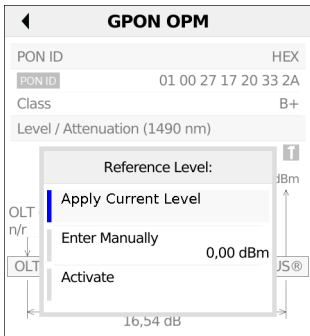
Furthermore, the following GPON PON ID formats can be selected:

- HEX
- ASCII
- T-COM
- KPN

If the broadband measurement is switched off in the settings, the corresponding tile is hidden in the status view.

The following reference wavelengths can be selected:

- 1270 nm
- 1300 nm
- 1310 nm
- 1550 nm
- 1610 nm
- 1625 nm



To set a reference value, select the <reference level> softkey. Here you can either accept the current level, enter a reference level manually (value between -40.00 dBm and 10.00 dBm) or activate / deactivate the reference level.

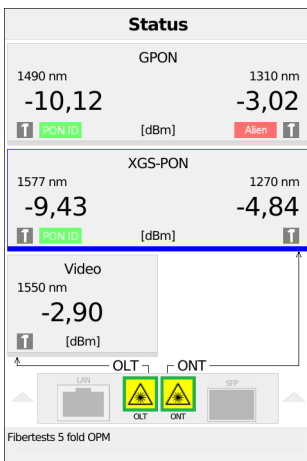
The defined reference level is marked with a point. Now the calculated attenuation between the OLT and the reference point as well as between the reference point and the ARGUS® can be found. Below this, the attenuation between the OLT and the ARGUS® is displayed.

The settings for XGS-PON are made in the same way as for GPON.

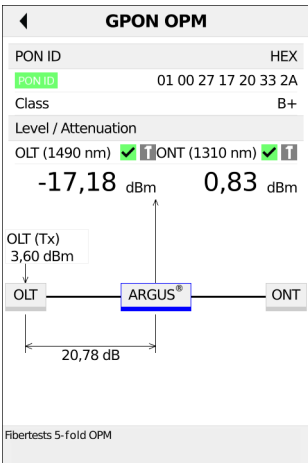
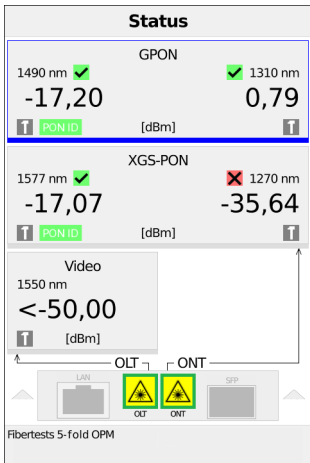
16.1.4 Measurements with the 4-fold or 5-fold OPM

The configuration of the “4-fold OPM” or “5-fold OPM” connection is the same as for the 3-fold OPM. In contrast to the 4-fold OPM, a wavelength of 1550 nm is also possible with the 5-fold OPM.

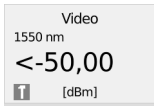
In the upstream, i.e. from the ONT, there is only a response if this was initiated by an OLT. If the line is interrupted in order to measure the downstream level, the ONT is simultaneously disconnected and silenced. The only way to reliably measure the upstream level is therefore to loop into the line in a kind of through mode. This requires two PON ports on the measuring device: one for the OLT side (down) and one for the ONT side (up). It is particularly important to influence the signal as little as possible. If possible, the insertion loss (IL) should not exceed 1.5 dB. For measurements with the 5-fold OPM, the OLT socket must therefore be connected to the fiber optic connection; the ONT socket is connected e.g. to a second ARGUS® or an ONT.



If an unauthorized terminal device that interferes with the entire PON line (so-called Alien-ONT) is found during the measurement (here: with the 5x OPM), this is indicated by the display of the word "Alien" highlighted in red.



When measuring (here: with the 5-fold OPM), the values for OLT and ONT are displayed separately.



In contrast to broadband measurement with the 3-fold OPM, a video overlay can be provided via broadcast signal for TV applications, for example, with the 5-fold OPM over 1550 nm - only in the downstream direction.

16.2 Single Tests

16.2.1 PON Level Check

The PON level check is a quick test for 1 fiber without necessary entries. There is no login to the OLT. The measured values are continuously updated.

Settings in access mode PON level check:

In the example, the PON level check was configured and selected as described in chapter "15.1.2 Settings Selective OPM" (see page 150).

X

Access

✓

☐ Fiber Tests

☐ GPON

☐ XGS-PON

☐ Ethernet

☐ WLAN (USB)

X

Interface

✓

☒ PON

X

Mode

✓

☒ 3x OPM

☐ 5x OPM

X

Fiber Mode

✓

☒ Installation

☐ Optical Power Meter

☐ OTDR

☐ Fiber Inspection Tool

X

Single Tests

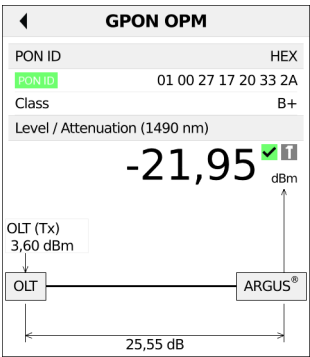
✓

☒ Only Status (PON Level Check)

☐ PON Installation

☐ PLOAM Monitor

If the access is now started, the level is automatically displayed:



<Access Parameters>

Set PON ID format

The following PON ID formats can be selected under Access parameters:

- HEX
- ASCII
- T-COM
- KPN



You can obtain further information on the settings in the ARGUSpedia on the instrument.

The PON level check displays the following PON ID / port information:

- Rx Level
- Tx Level of the OLT
- Attenuation
- Class

16.2.2 PON Installation

The PON installation test is a guided measurement sequence with calculation of the set-point attenuation, automatic OK/n.OK evaluation and storage as a PDF measurement report.

Settings in access mode PON Installation:

In the example, the access PON Installation was configured and selected as described in chapter "15.1.2 Settings Selective OPM" (see page 150).

X

Single Tests

✓

☐ Only Status (PON Level Check)

☒ PON Installation

☐ PLOAM Monitor

X

Summary

✓

Fiber Tests Installation PON

Mode: 3x OPM

Measurement: PON Installation

Note:

✓: Save and quit wizard.

X: Step back.

<Access Parameters> Set PON ID Format

The following PON ID formats can be selected under Access parameters:

- HEX
- ASCII
- T-COM
- KPN



You can obtain further information on the settings in the ARGUSpedia on the instrument.

◀

PON Installation

✓

Installer Last Name

D

Installer First Name

A

Company Name

Intec

Street

[Empty]

ZIP/City

[Empty]

Phone Number

[Empty]

X

Wavelength

✓

☒ GPON (1490 nm)

☐ XGS-PON (1577 nm)

When you start the PON installation test, you first enter the employee name and the company address. Then select the wavelength.

X PON Installation ✓	
Job Number	0
Area Code	0
Cabinet	0
Branch	0
AP	0

X Transmit Power ✓	
☒	Auto OLT
☐	User/Manual

The customer-specific data can now be entered: job number, area code, cabinet, branch and AP. For the transmit power, you can choose between Auto OLT and user/manual (a value between 0.0 dBm and 9999.9 dBm is possible here).

X Max. Allowed Attenuation ✓																									
28,5 dB																									
Please enter a value between 0,0 dB and 99,9 dB																									
<table border="1"> <tbody> <tr> <td>1</td><td>2</td><td>3</td><td>A</td><td>B</td><td>C</td></tr> <tr> <td>4</td><td>5</td><td>6</td><td>D</td><td>E</td><td>F</td></tr> <tr> <td>7</td><td>8</td><td>9</td><td>:</td><td>-</td><td><X></td></tr> <tr> <td>*</td><td>0</td><td>#</td><td>,</td><td>ABC</td><td>✓</td></tr> </tbody> </table>		1	2	3	A	B	C	4	5	6	D	E	F	7	8	9	:	-	<X>	*	0	#	,	ABC	✓
1	2	3	A	B	C																				
4	5	6	D	E	F																				
7	8	9	:	-	<X>																				
*	0	#	,	ABC	✓																				

X No. of Fibers ✓																									
1																									
Please enter a value between 1 and 64																									
<table border="1"> <tbody> <tr> <td>1</td><td>2</td><td>3</td><td>A</td><td>B</td><td>C</td></tr> <tr> <td>4</td><td>5</td><td>6</td><td>D</td><td>E</td><td>F</td></tr> <tr> <td>7</td><td>8</td><td>9</td><td>:</td><td>-</td><td><X></td></tr> <tr> <td>*</td><td>0</td><td>#</td><td>.</td><td>ABC</td><td>✓</td></tr> </tbody> </table>		1	2	3	A	B	C	4	5	6	D	E	F	7	8	9	:	-	<X>	*	0	#	.	ABC	✓
1	2	3	A	B	C																				
4	5	6	D	E	F																				
7	8	9	:	-	<X>																				
*	0	#	.	ABC	✓																				

The maximum permissible attenuation is then entered (a value between 0.0 dB and 99.9 dB is possible here). Finally, enter the number of fibers (1 to 64 fibers are possible).

← PON Ready	
Are all fibers properly connected?	

← PON Installation	
Target Attenu. to 28,5 dB	
Fiber 1	- dB
PON ID	---
PON-Installation PON GPON (1490 nm) 0/1	
Measurement Save	

After checking whether all fibers are properly connected, the measurement can be started.

<Measurement>

Measurement is started.

◀

PON Installation

OLT port / PON ID correct?

01 00 27 17 20 33 2A

◀ PON Installation		
Target Attenu. to 28.5 dB		
Fiber 1		24,90 dB
PON ID	01	00 27 17 20 33 2A

After querying whether the OLT port / PON ID are correct, the measurement result is displayed.

16.2.3 PLOAM Monitor

The PLOAM monitor allows you to read out the PLOAM message from the PON ID.

Settings in access mode PLOAM Monitor:

In the example, the access PLOAM Monitor was configured and selected as described in chapter "15.1.2 Settings Selective OPM" (see page 150).

✕ ✓ Single Tests	✕ ✓ Summary
☐ Only Status (PON Level Check) ☐ PON Installation ☒ PLOAM Monitor	Fiber Tests Installation PON Mode: 3x OPM Measurement: PLOAM Monitor Note: ✓: Save and quit wizard. ✕: Step back.

<Access Parameters> Set PON ID format

The following PON ID formats can be selected under physical parameters:

- HEX
- ASCII
- T-COM
- KPN



You can obtain further information on settings in the ARGUSpedia on the instrument.

X PLOAM Monitor		
Time	Info (DS)	
11:54:10:900	No Message	
11:54:10:970	PON ID	
11:54:13:290	No Message	
11:54:13:310	PON ID	
11:54:13:320	No Message	
11:54:13:330	PON ID	
11:54:13:340	No Message	
11:54:13:350	Upstream Overhead	
11:54:15:710	Extended Burst Length	
11:54:15:730	No Message	
11:54:15:740	PON ID	
11:54:15:750	No Message	
11:54:15:770	PON ID	
11:54:15:780	No Message	
GPON (1490 nm)	Level:	-17 dBm
PON ID: 01 00 27 17 20 33 2A	Class:	B+

Video

1550 nm

<-50,00

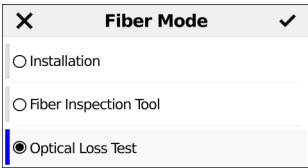
 [dBm]

The PLOAM monitor displays the PLOAM message from the PON ID.

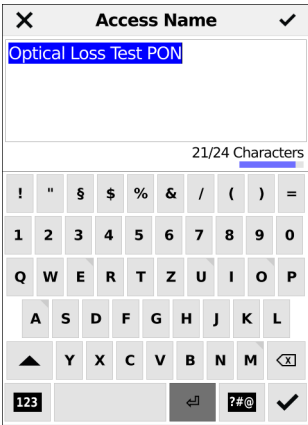
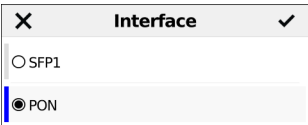
16.3 Optical Loss Test

With the Optical Loss Test software option and the Optical Light Source, the ARGUS® F300 can be upgraded to an Optical Loss Test Set (OLTS). An OLTS calculates the signal loss (attenuation) in fiber optic cables and evaluates the quality of data transmission. It enables precise calculations of optical attenuation in both directions to support installation, maintenance and troubleshooting in fiber optic networks.

The Optical Loss Test Set is available for the ARGUS® F300 with 3xOPM. With the OLTS, a level measurement for an adjustable wavelength with attenuation calculation in relation to a reference value is possible. The Optical Light Source is available with either two (1310 & 1550 nm) or four wavelengths (1310, 1490, 1550 & 1625 nm).



First, a new access is created in the connection menu by first selecting Fibertests and then Optical Loss Test.



After selecting the PON interface, an access name is suggested, in this case Optical Loss Test PON.

X

Summary

✓

Optical Loss Test PON

Note:

✓

: Save and quit wizard.

X

: Step back.

X

Accesses

✓

Optical Loss Test PON

Optical Loss Test PON

Note:

Fibertests 3x OPM

Fibertest Installation

FIT SM APC

PLOAM Monitor

Once you have confirmed the name and saved the access, the access is created and can be selected in the access menu.

X

Optical Loss Test

Wavelength: 1550 nm

Level [dBm] Attenuation [dB]

Ref: -5.00

Rx: <-50.00

n/a

No OLS found!

LAN

OLS

ONT

SFP

Optical Loss Test PON

Reference

Wavelength

Stop

X

Optical Loss Test

Wavelength: 1310 nm

Level [dBm] Attenuation [dB]

Ref: -5.00

Rx: -5.78

0.78

Wavelength: 1490 nm

Level [dBm] Attenuation [dB]

Ref: -5.00

Rx: -5.75

0.75

Wavelength: 1550 nm

Level [dBm] Attenuation [dB]

Ref: -5.00

Rx: -6.24

1.24

Detected OLS

Device FHS2Q02F

Firmware 1.1

Optical Loss Test PON

Reference

Stop

The Optical Light Source must first be connected to the ARGUS® using a patch cable. Now press the  key on the OLS.

The optical light source has been recognized. It transmits an identifier that the ARGUS® can recognize and evaluate. The OLS always transmits with the same fixed transmission power (-5 dBm ±0.5 dB). The ARGUS® automatically recognizes the wavelength at which it is transmitting and displays the attenuation. The OLS can switch through the wavelengths one after the other.

X

Reference Level

✓

1310 nm

-5.00

dBm

1490 nm

-5.00

dBm

1550 nm

-5.00

dBm

Range: from -50.00 to 10.00 dBm

1	2	3	A	B	C
4	5	6	D	E	F
7	8	9	:	-	<X>
*	0	#	.	ABC	✓

<Reference>

Accept current reference level, enter manually or deactivate.
A value range from -50.00 to 10.00 dBm can be set.

16.4 Fiber Inspection Tool

The Fiber Inspection Tool (FIT) is a USB video microscope for optical fiber inspection that detects scratches and defects on optical fibers.

X

Access

✓

Fibertests

GPON

XGS-PON

WLAN (USB)

X

Fiber Mode

✓

Optical Power Meter

Optical TDR

Fiber Inspection Tool

X

Connector Type

✓

SM PC RL >= 45dB

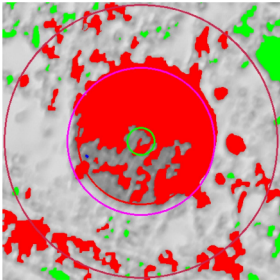
SM APC

SM PC RL >= 26dB

MM PC

Select new fiber access and then Fiber Inspection Tool. Now select the connector type (here SM PC RL >= 45 dB).

Fiber Inspection Tool



Result

SM PC RL >= 45dB

Fail

Zone

Scratch

Defect

A:Core

0

1

B:Cladding

0

5

D:Contact

0

52

Detail

Access

Save

Video

Fiber Inspection Tool

A: Core Defect 0 μm - 25 μm

0

Not allowed

0

B: Cladding Defect 25 μm - 115 μm

2

No limit < 2 μm

0

5 between 2 μm and 5 μm

2

Not allowed > 5 μm

0

C: Adhesive Defect 115 μm - 135 μm

0

No limit

0

D: Contact Defect 135 μm - 250 μm

64

Not allowed > 10 μm

6

A: Core Scratch 0 μm - 25 μm

0

Not allowed

0

B: Cladding Scratch 25 μm - 115 μm

0

No limit <= 2 μm

0

Not allowed > 3 μm

0

Image

If the Fiber Inspection tool is now selected in the access menu, the measurement starts immediately. The current video image is automatically analyzed and the number of defects and scratches is displayed in an overview table sorted by zones (core, cladding, adhesive, contact).

<Details> Detailed display of defects and scratches (see image on the right).



Pass/fail evaluation is performed according to IEC 61300-3-35. The minimum particle size is 0.5 μm .



There are different adapters (tips) available for PC, UPC, APC and more, ask our support.

17 OTDR

An OTDR (Optical Time Domain Reflectometer) is the most accurate instrument for detecting fiber defects. It measures line and event attenuation, and from this, together with the propagation time of the reflected pulse, can determine the line length, splices and connectors. When measuring with two wavelengths, a bending radius violation (macro bend) can be detected and localized. The OTDR in the ARGUS® F300 is available with 1310 + 1650 nm or with 1310 + 1550 nm.

Using our event table, events are not only precisely characterized (connector, splice, bend, etc.), but also localized to within a few centimetres. A list of alarms shows quickly detected problems on the line. Simplified graphical operation allows each individual event to be selected by touch.

Other important parameters are also provided for the overall and partial path, such as the optical return loss (ORL) and the insertion loss (IL). The former provides information on how well the connector attenuates unwanted reflections - the value should be as high as possible. The second value indicates how well the useful signal can be inserted into the fiber - this value should be as low as possible.

The low dead zone of 3.5 m (attenuation dead zone) also allows events to be determined at close range. By using a leading fiber, events within the dead zone can also be determined. Low (0.9 m) event dead zones (distance between two events) allow the detection of many events in short succession on cable lengths of up to 240 km*.



When working on and with optical cables, make sure that they are always plugged in in a perfectly clean condition. Check the cleanliness of your patch cable with an optical microscope, e.g. the Fiber Inspection Tool from ARGUS®. Always use dust caps when sockets and cables are not in use.



When handling fiber optic cables, it is essential to observe the applicable health and safety regulations.



Measuring at a wavelength of 1310 nm must not be carried out in a live system with the same wavelength. In live systems, you should always work with 1650 nm.



The OTDR from ARGUS® is supplied with a portsaver, which protects the actual socket of the OTDR. If the portsaver (0 dB attenuator) is worn, it can be easily replaced. Replacing the actual OTDR socket is time-consuming and requires the device to be sent in.



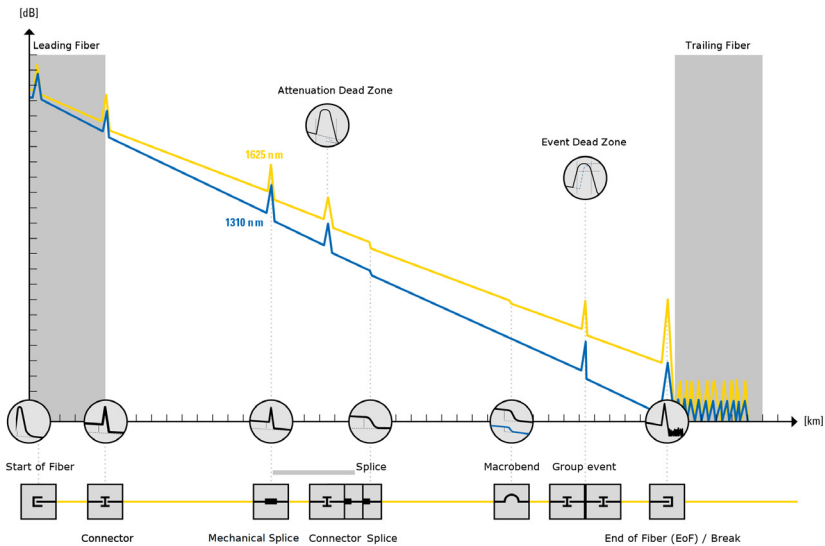
We generally recommend always working with an appropriate leading fiber in order to be able to recognize events reliably and well, especially at the start of routes. Trailing fibers can also be useful. Leading and trailing fibers can be supplied on request.

The following specifications apply to our OTDR:

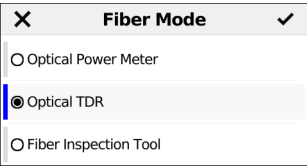
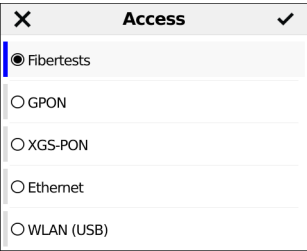
- Smart Auto, Expert or Real Time Mode (up to 4 Hz)
- Wavelengths: 1310 and 1650 nm (± 20 nm) or 1310 and 1550 nm (± 20 nm)
- Dynamic range: 20 dB at 100 ns; 37 dB at 1310 nm, 20 μ s; 35 dB at 1650 nm, 20 μ s
- Event dead zone: 0.9 m
- Attenuation dead zone: 3,5 m
- PON dead zone: ≤ 25 m; typical 20 m
- Pulse width: 3, 5, 10, 20, 30, 50, 100, 200, 300, 500 ns; 1, 2, 3, 5, 10, 20 μ s
- Range settings: 250, 500 m; 1, 2, 5, 10, 15, 20, 40, 80, 160, 240 km*
- Data points: up to 300,000 points
- Data point spacing: 5 cm to 32 m
- Distance accuracy: $\pm (1 \text{ m} + 0.003 \% * \text{distance} + \text{resolution})$
- Linearity: $\pm 0.05 \text{ dB/dB}$

* Max. range depends on fiber type (attenuation/km)

Example graph of an OTDR measurement:

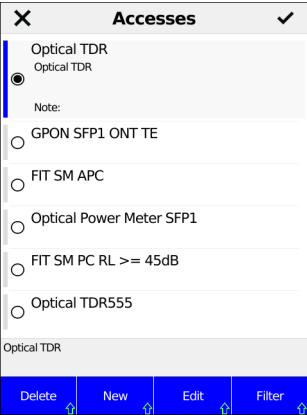


17.1 Create an OTDR access



If no "OTDR" connection is preconfigured, a new connection can be created via <New>.

Select new Fibertests access and then Optical TDR.



Once the access has been created, it can be opened via the access menu. An access with the name "Optical TDR" has been created here.

- <Delete> Delete access
- <New> Create new access
- <Edit> Edit selected access
- <Filter> Filter access list

Note:

Calling up functions via numeric keys/key combinations.

Important functions/tests can be called up directly using the keys on the ARGUS® keypad. An overview of possible key combinations can be found on page 239.

17.2 OTDR settings

After opening the OTDR access, one of three different OTDR tests can be selected, configured and started.

The following tests can be selected:

Auto. OTDR

With the automatic OTDR, the ARGUS® does everything automatically. Tests are carried out on all wavelengths and with all pulse widths. This test takes the longest, but delivers the best results. An event table and a graph are available.

Manual OTDR

The Manual OTDR is a freely configurable OTDR. Pulse width, fiber length, averaging time and much more can be configured individually. This allows you to work in a targeted and time-saving manner. An event table and a graph are available.

Real-Time OTDR

Real-time OTDR measures in real time. There is only one graph that shows changes on the fiber in real time. This makes it possible to detect temporary events or changes, for example. It can also be used to identify which fiber you are on.

OTDR

Auto. OTDR

Launch Quality Check: Aus
Fiber Type: G.652.A/B
Pass/Fail: ITU-T G.671

Manual OTDR

Wavelength: 1310/1650 nm
Pulse Width: 5 ns (0,5 m)
Average Time: 5 s
Trace Length: 1 km

Real-Time OTDR

Wavelength: 1650 nm
Pulse Width: 10 ns (1 m)
Trace Length: 1 km
Refresh Rate: 1 Hz

OTDR

Optical TDR Active

OTDR-Profil 1

1.2

In this example, the Auto OTDR test was selected.

Auto. OTDR	
Fiber Type	G.652.A/B
Pass/Fail	ITU-T G.671
Launch Quality Check	☒
Launch Fiber	0,000000 km
Tail Fiber	0,000000 km

Fiber Types	
☒	G.652.A/B
☐	G.652.C/D
☐	G.653.A/B
☐	G.654.B/C
☐	G.655.C/D/E
☐	G.656
☐	G.657.A1/A2
☐	G.657.B2/B3
☐	Fiber Profile 9

If you now select the <Settings> softkey, you can change the fiber type, for example.

<Settings> Change settings
 <Access> Change access

The ARGUS® saves all relevant settings for a test with the connections. Depending on the test situation, only the relevant settings are used. The default settings can be restored at any time (see page 224).

The following OTDR settings can be made:

- Wavelength (Manual OTDR & Real-Time OTDR only)
- Trace Length (Manual OTDR & Real-Time OTDR only)
- Pulse Width (Manual OTDR & Real-Time OTDR only)
- Averaging Time (Manual OTDR only)
- Refresh Rate (Real-Time OTDR only)
- Fiber type
- Pass/Fail (Auto OTDR & Manual OTDR only)
- Launch Quality Check
- Launch fiber
- Tail fiber
- Profile name



You can obtain further information on settings in the ARGUSpedia on the instrument.

17.3 Starting the OTDR measurement

After opening the OTDR connection, one of three different OTDR tests can be started.

Launch Quality Check

The launch quality is poor:

- Is the launch fiber plugged in correctly?
- Are the connectors clean?
- Do the connector types (APC/UPC) match?

Optical TDR Active

2.2

Launch Quality Poor

If the launch quality check has been activated in the settings, a notification appears if the launch quality is poor. Once the problem has been successfully resolved, the selected OTDR test can be started.

Auto. OTDR

Status

! 5 Alarms

Total Distance for	1310 nm	1650 nm
IL [dB]	8,442	6,871
ORL [dB]	35,010	39,674
Att. [dB/km]	0,512	0,417

Start Connector

1/13 Events

0 m

5085 m

5085 m

344 m

5429 m

16459,5 m

0 m

1310 nm

1650 nm

IL [dB]	0,878	0,833
Reflectance [dB]	-99,999	-99,999
Cumulative IL [dB]	0,878	0,833

Optical TDR Active

The example shows an automatic OTDR measurement (Auto. OTDR).

The overall status shows the number of invalid events on the line (here: 5 alarms). The measurement results of the total distance per wavelength are displayed below:

ARGUS® F300

185

- IL [+dB]: Insertion Loss
- ORL [+dB]: Optical return loss
- Att. [+dB/km]: Ø attenuation per kilometer

The graphical line visualization indicates the type and number of the event (here: start: connector, 1/13 events) and displays these using symbols. This is followed by a classification in the line context.

The following symbols can be displayed:

	Start connector The connection between OTDR and patch cable or launch cable.
	Fiber section between two events.
	Fusion splice: Fusion between two fibers by heat. Gainer: Signal amplification at the splice due to different backscatter coefficients.
	Connector Connects two fibers together mechanically.
	Macrobend Physical load on the fiber. The attenuation caused increases with the wavelength. In order to distinguish a splice from a bend, measurements must be taken with 2 different wavelengths.
	Macrobend on the connector
	Splitter, here: 1:8.
	Fiber end/break End point of the fiber. The end reflection depends on the fiber, the break shape and the ambient conditions.
	Evaluation ok.
	First threshold value exceeded.
	Second threshold value exceeded.
	Evaluation ok.
	First threshold value exceeded.
	Second threshold value exceeded.

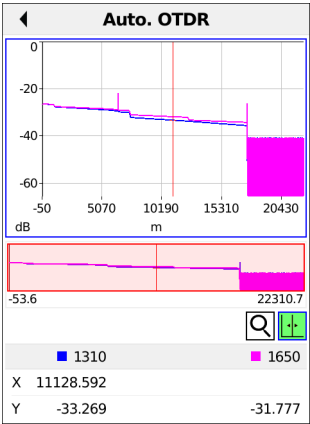
	Selected event.
	Unmarked event.
	Length of section.
	Position in relation to the total distance.
	Position.

The last section displays the measurement results per wavelength for the selected track event:

- IL [dB]: Insertion Loss
- Reflectance [-dB]: Reflection of the selected event
- Cumulative IL [dB]: Cumulative insertion loss

- <Alarms> Change to detailed view of critical events
- <Graph> Display of the graphical evaluation
- <Restart> Restart measurement
- <Finish> Finish measurement

Alarms			
1: Start Connector			
	0 m	1310 nm	1650 nm
IL [dB]	0,878	!	0,833
Reflectance [dB]	-99,999	✓	-99,999
7: Splice			
	6439,22 m	1310 nm	1650 nm
IL [dB]	2,078	✗	1,753
Reflectance [dB]	n/r	n/r	n/r
9: Macrobend			
	11444,3 m	1310 nm	1650 nm
IL [dB]	0,029	✓	1,153
Reflectance [dB]	n/r	n/r	n/r



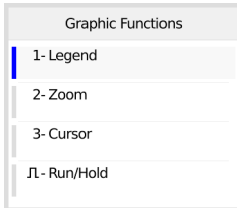
After selecting the <Alarms> softkey, the alarms that have occurred are displayed in the detailed view (see image on the left). The pass/fail evaluation of the events is carried out per event and per wavelength 1310nm/1650nm. Different results may occur due to the threshold values.

After selecting the <Graph> softkey, the graphical evaluation is displayed (see image on the right).

Display of dB per meter:

- X-axis: dB

- Y-axis: meters



Graphic functions:

The graphic functions such as zoom and cursor are used to analyze the graphs in detail :



Exit menu without making changes.



This numeric key displays the legend.



This number key can also be used to switch the zoom function on and off within a graph.



This number key can be used to switch the cursor function on and off.



Run/Hold function for real-time analyses (Real-Time OTDR).



Automatically switches the view to the next graph and applies all the settings already made for these graphs.



If the symbol marked on the display is black and white (see image on the left), it has not yet been zoomed. If it has been zoomed, the symbol is green and black (see image on the right).

<Zoom (y) +> Magnifies the center section of the graph (100%).

<Zoom (y) -> Reverses <Zoom(y)+> and undoes the magnification.



The zoomed area can be scrolled through horizontally using the cursor keys or by tapping on the bottom graphic.

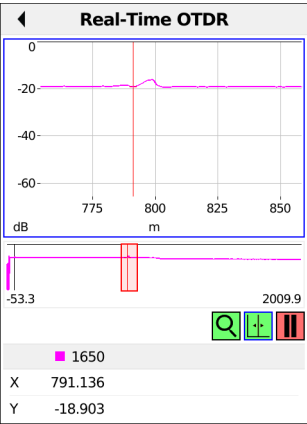


The zoomed area can be scrolled through vertically using the cursor keys or by tapping on the bottom graphic.



Press the X button to return to the unzoomed view.

The cursor function is used to precisely measure the graphs.



Display cursor directly.

After starting the cursor function, a red cursor line is displayed in the middle of the graphic.

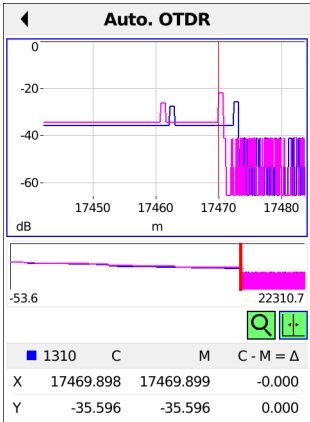
<Cursor> The cursor softkey can be used to switch the cursor on and off as required once it has been activated via the menu.



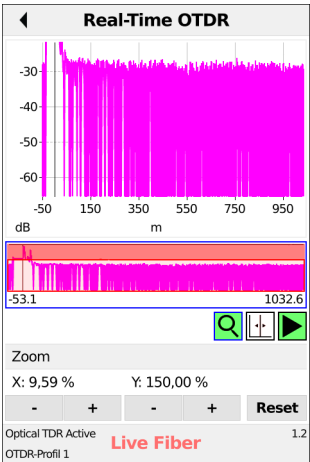
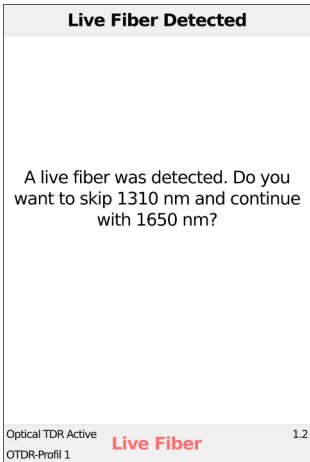
Use the "left" and "right" cursor keys to move the cursor to any point on the graph to measure it. To do this the upper graph must be marked with a blue frame. A short pressing of the cursor key moves the cursor one position further in the graph. If you hold down the cursor key, the steps that the cursor moves along the graph become larger and larger.



Use the vertical cursor keys to move the blue frame to the lower or upper graphic.



The zoom function and the cursor function can also be used in combination. However, the starting position of the cursor can vary. The graphic functions are available for all graphs. If the cursor is displayed and the zoom is used at the same time, both symbols are highlighted in green.

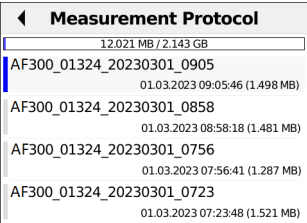
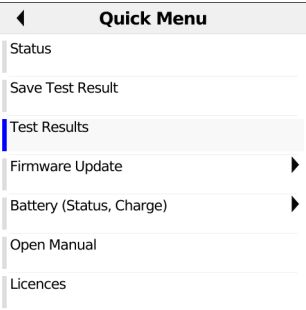


If a live fiber is detected, this is displayed in red. This measurement is only possible with a wavelength of 1650 nm.

18 Test results

The saved test results are displayed either in the ARGUS® display or on the PC as a detailed measurement log.

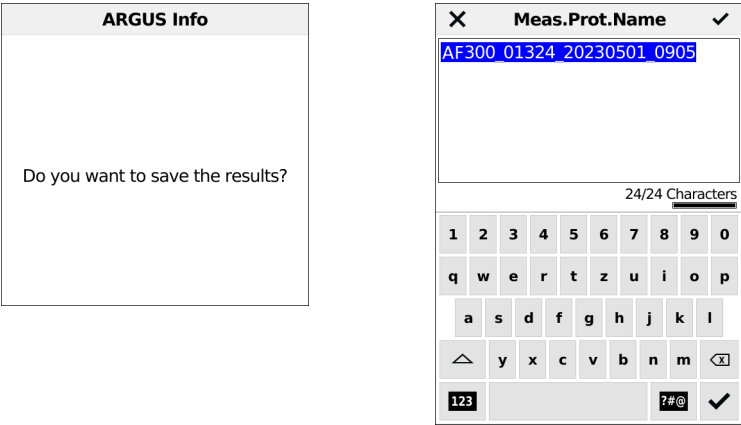
The ARGUS® stores the test results together in 50 definable save slots. The system suggests "New result" as the default save name. The saved test results are also deleted when all configuration settings are reset.



The test results can be selected in the Quick Menu. By selecting a test result and then pressing the confirmation key, the test results are displayed.

- <More> The "Sort" and "Rename" softkeys are displayed.
- <Sort> Sorting:
 - Ascending by name
 - Descending by name
 - Ascending by date
 - Descending by date
- <Rename> Changes the name
- <Select all> Selects all test results
- <Delete all> Deletes one or all test results

18.1 Saving test results



You can save the result after the end of a test or after disconnecting a connection. The ARGUS® saves the test result in the first free slot. If all slots are occupied, you need to manually select a slot to overwrite

The ARGUS® automatically suggests a save name. The name is made up of:

- Device Type (here AF300)
- Serial number (here 01324)
- Configured date (here 01 May 2023)
- Set time (here 09:15)

You can accept the displayed save name or enter a new one using the number keys. You can enter up to 24 characters. The ARGUS® displays the number of characters used so far.

Save name: Input see Access name page 31.

<Last name> The ARGUS® suggests the last save name used.

18.2 Sending test results to PC

The test results can be sent to the PC for visualization and archiving. Connect the ARGUS® (ARGUS® socket "USB-B") to the interface of your PC using the cable supplied and select AF300 in the Explorer. The "results" folder now contains the test results that can be opened in the browser.

19 WLAN

The ARGUS® has WLAN interfaces.

19.1 WLAN Client

19.1.1 WLAN access

To view the surrounding WLAN networks, you must first create a WLAN access.

X

Access

✓

☐ Fibertests

☐ GPON

☐ XGS-PON

☐ Ethernet

☒ WLAN

X

Access Mode

✓

☒ Client

☐ Spectrum Analysis

X

Interface

✓

☐ USB 1/2

☒ Internal

To do this, select “WLAN” and then ‘Client’ from the access menu. If the device has an internal WiFi7 module, then select ‘Internal’. Otherwise, select the corresponding USB port where the WLAN stick is connected.

X

Profile

✓

☐ PPP VLAN 7/8

☐ PPP ATM 1/32

☒ IP DHCP Client

☐ IP static

☐ IP Profile 5

☐ IP Profile 6

☐ IP Profile 7

☐ IP Profile 8

☐ IP Profile 9

X

Access Name

✓

WLAN Internal Client

20/24 Characters

! " \$ % & / () =

1 2 3 4 5 6 7 8 9 0

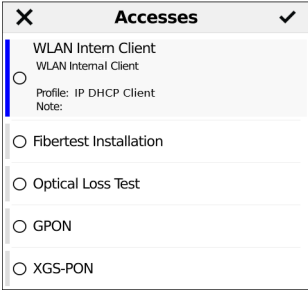
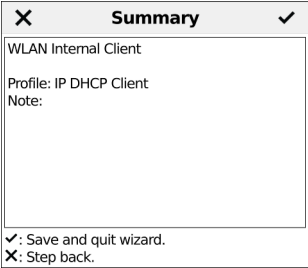
Q W E R T Z U I O P

A S D F G H J K L

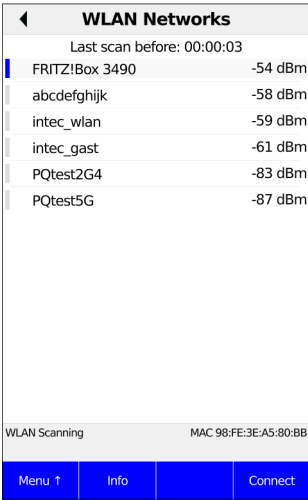
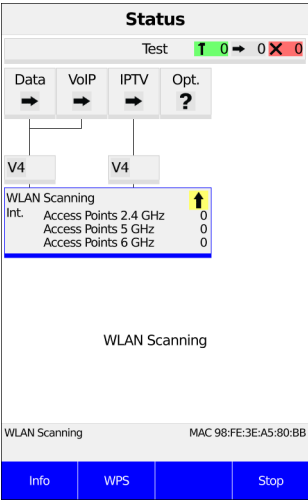
▲ Y X C V B N M ↵

123 ↩ ?#@ ✓

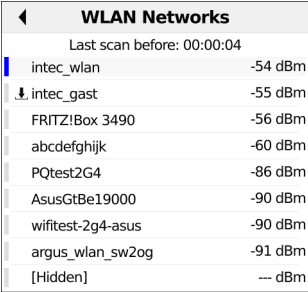
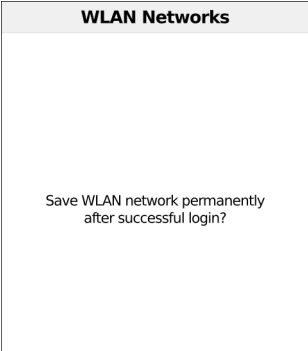
Now select the profile and enter the access name or accept the access name suggested by the ARGUS®, in this case WLAN Internal Client.



After confirming the summary with ✓ the access is created.



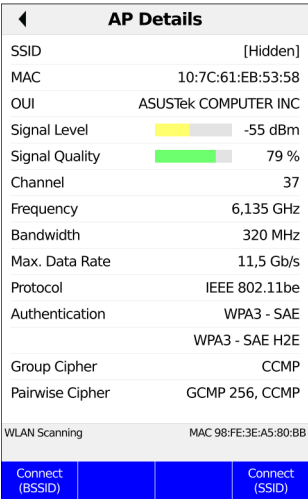
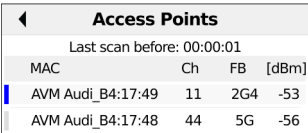
When you start the access, it will search for WLAN networks. Select the <Info> softkey to display the individual WLAN networks. To connect to one of them, select the <Connect> softkey.



After entering your username and password, if required, depending on the network properties, you will be asked whether you want to permanently save the WLAN network after successfully establishing a connection. If you confirm this with **<Yes>**, the symbol  will appear next to the WLAN network, in this case next to **intec_gast**.

19.1.2 Access Point Details

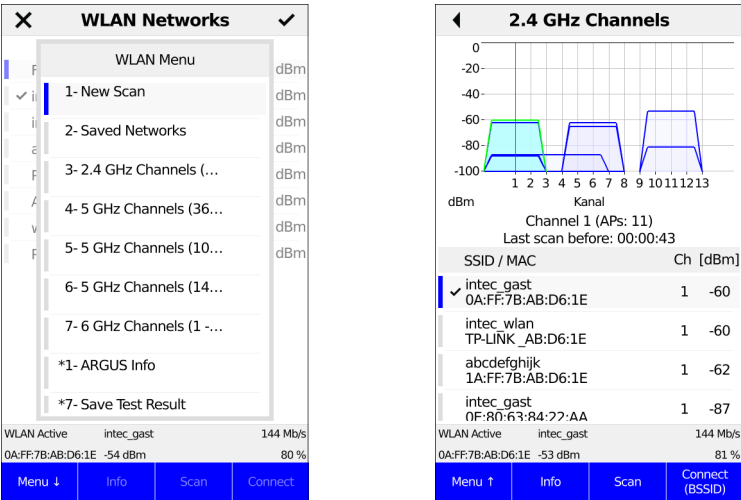
While searching for WLAN networks and when connected to a WLAN network, you can use the **<Info>** softkey to display further details about a WLAN network.



Selecting the **<Info>** softkey displays a list of individual access points for WLAN networks with multiple access points.
Selecting the **<Info>** softkey again displays the AP details of the selected access point. If a WLAN network is provided by only one access point, selecting the **<Info>** softkey will display the AP details directly. The color of the bar varies depending on the signal strength

and signal quality (green = good, yellow = fair, red = poor).

19.1.3 Graphical overview of frequency bands



19.2 WLAN spectrum analysis

19.2.1 WLAN in the 2.4 GHz frequency range

Many WLAN networks and electrical devices such as motion detectors, baby monitors, and microwaves use the 2.4 GHz frequency band equally and thus interfere with each other. With the ARGUS® 2G4 Scope (WLAN spectrum analysis), these interference signals can be found in real time. The ARGUS® 2G4 Scope is a passive application and does not affect the WLAN. In addition to the typical sources of interference (see above), it is also possible to identify which channel existing routers are currently using. In the case of a permanent, irreparable interference source, it is possible to determine which WLAN channel is “furthest” away from the interference source and thus causes the least interference to your own WLAN.

X

Access

✓

☐ Fibertests

☐ GPON

☐ XGS-PON

☐ Ethernet

☒ WLAN

X

Access Mode

✓

☐ Client

☒ Spectrum Analysis

X

Interface

✓

☒ USB 1/2

To perform a WLAN spectrum analysis, you must first create a WLAN access. To do this, select “WLAN” from the access menu and then “Spectrum Analysis.” Next, select the USB interface.

X

Profile

✓

☐ PPP VLAN 7/8

☐ PPP ATM 1/32

☒ IP DHCP Client

☐ IP static

☐ IP Profile 5

☐ IP Profile 6

☐ IP Profile 7

☐ IP Profile 8

☐ IP Profile 9

X

Access Name

✓

WLAN USB 1/2 Spectr. A.

23/24 Characters

! " \$ % & / () =

1 2 3 4 5 6 7 8 9 0

Q W E R T Z U I O P

A S D F G H J K L

▲ Y X C V B N M ↵

123 ↩ ?#@ ✓

Now select the profile and enter the access name or accept the access name suggested by the ARGUS®, in this case WLAN USB 1/2 Spectrum A.

X

Summary

✓

WLAN USB 1/2 Spectrum Analysis

Note:

✓

: Save and quit wizard.

X

: Step back.

X

Accesses

✓

WLAN USB 1/2 Spectr. A.

WLAN USB 1/2 Spectrum Analysis

Note:

●

WLAN Internal Client

○

Fibertest Installation

○

Optical Loss Test

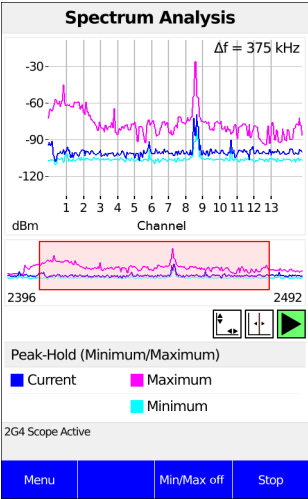
○

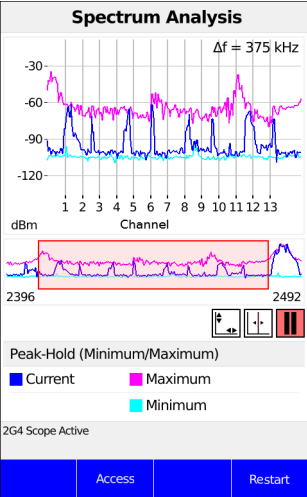
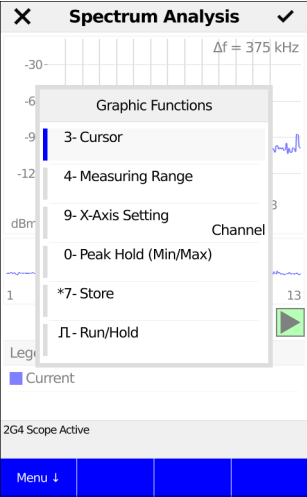
GPON

○

XGS-PON

After confirming the summary with the Checkmark key, the access is created. Once you have connected the ARGUS® 2G4 Scope to the USB interface, you can start the access.





Various functions can be selected using the <Menu> softkey. An explanation of these can be found under Graphics functions, s. page 188.

19.2.2 WLAN in the 5 GHz frequency range

In the 5 GHz frequency range, there is a prioritization of permitted applications. WLAN has the lowest priority and must take other applications such as RADAR (weather stations, airports) into account. Due to the regulations in the 5 GHz frequency range, a spectrum analysis to search for interference is not necessary.

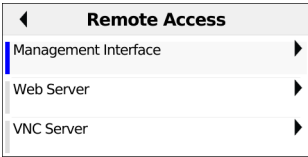
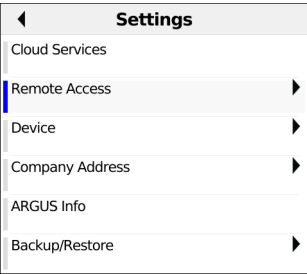
19.2.3 WLAN in the 6 GHz frequency range

There are regional differences in regulations governing the 6 GHz frequency range. In the EU, the range from 5945 to 6425 MHz (480 MHz) is reserved exclusively for WLAN. Spectrum analysis to locate interference is therefore not necessary.

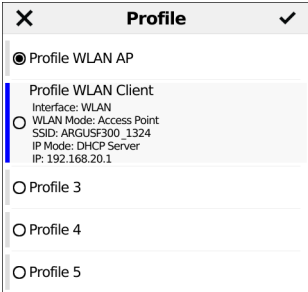
19.3 WLAN as a management interface

In the ARGUS[®], WLAN is also available as a management interface for various functions.

19.3.1 Switching on WLAN



After pressing the gear button, you reach the instrument settings. After selecting Remote Access, select Management Interface.



Here you can start the management interface and edit the profile.

 For editing the profile, the Management Interfaced must be switched off.

 Either ETH or WLAN can be selected as the management interface; the default setting is WLAN.
You can change this under “Device settings/Management interface/Interface”. This is only possible when the management interface is greyed out under “Start/Management interface”; if WLAN or Interface is greyed out, switch off the management interface first.

19.3.2 WLAN Access Point

The WLAN interface is activated directly as an access point. ARGUS® is in access point mode (ARGUS®-AP). The WLAN icon in the status bar is green .

Select the WLAN named "ArgusF300_serial number" on a smartphone, tablet, or laptop and enter the password entered in ARGUS® to establish a WLAN connection with ARGUS®.

 You can also access ARGUS® via WLAN and retrieve measured values using electronic order processing applications. Please contact our support team for more information.

19.3.3 WLAN Client

In WLAN client mode, the ARGUS® can be connected to an existing WLAN network.

 In the IP settings, the IP mode "DHCP client" should be selected in order to automatically obtain an IP address from the WLAN network and not to integrate another DHCP server into the existing WLAN network.

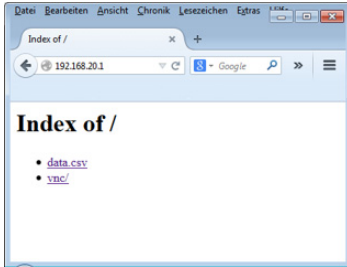
In the connection information, the list of found networks can be displayed using the <WLAN> softkey. Selecting a WLAN network and pressing the <Connect> softkey initiates the connection setup process and the request for the necessary information.

The status bar displays the following statuses with the Wi-Fi icon:

Symbol	Colour	Description:
	flashing gray	search for WLAN networks
	flashing yellow	Connect to a WLAN network
	green	Connected to WLAN network
	red	Connection to WLAN network failed / Aborted due to error

19.4 Test results via WLAN

If for example a laptop has a working WLAN connection with the ARGUS[®], you can open the Web server by entering the IP address of the ARGUS[®] unit or myargus.info in your browser's address bar.



The measurement log with the name data.csv can be opened directly or saved on the laptop.

You can also use this functionality to save, delete and rename measurement logs. For this, you require a WebDAV application/app on your PC/laptop or smart phone/tablet.



The connection data of the last measurement are saved in the .csv file.

The command “VNC” lets you control the ARGUS[®] remotely via your browser.



You may first need to activate the VNC server on the ARGUS[®].



Further information regarding the VNC server is available on request.



The ARGUS[®] Web server has its own SSL certificate (myargus.info), which permits https:// access.

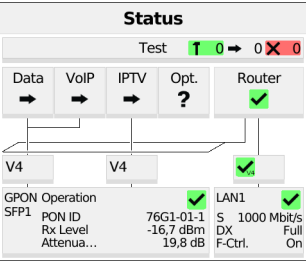


You can also access the ARGUS[®] using WebDAV via myargus.info. By this means, you can download measurement logs in .amp format directly from the ARGUS[®] via Ethernet or WLAN.

19.5 WLAN in router mode

If the WLAN interface in the ARGUS® is active, it is directly connected to the ARGUS® router.

If you want to use ARGUS® as a genuine WLAN access point (ARGUS®-AP) and use it as a gateway, for example, to start a download from a smartphone, the first step is to start a router access. In the example, a GPON router access is used for this purpose. An XGS-PON or ETH router connection is also possible.



If the router (see diagram) has been started, both WLAN and LAN1 are connected to the ARGUS® router.

The smart phone, tablet or laptop can use the ARGUS® as an access point. All applications such as data, VoIP or video that can be run e.g. on a smart phone can now be executed for testing via ARGUS® - thus replacing all customer devices.

Devices connected to the ARGUS® router via LAN or WLAN can also communicate with each other. For example, if an FTP server is running on a client ARGUS® connected to the LAN, the FTP server can be accessed via WLAN management using a device. The devices can be reached via ping.

 WLAN and LAN are not linked via an Ethernet bridge. Each requires its own configuration. They may not be configured identically.
A test from WLAN to LAN or vice-versa is not possible.

20 ARGUS® settings

The ARGUS® can be custom-configured for special requirements. The default values are restored using "Reset" (see page 224).

20.1 Cloud services

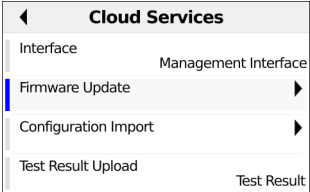
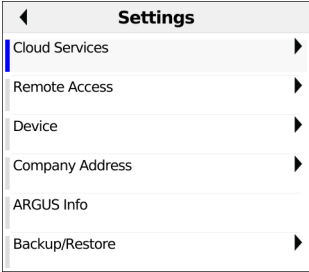
The ARGUS® supports cloud services for communicating with its environment. These services enable the ARGUS® to share data with other systems via its test interface. The ARGUS® offers test interfaces for Ethernet, GPON, XGS-PON and WLAN. When connected via these interfaces and with the data service running, the ARGUS® can download firmware updates, import a configuration and upload measurement logs.

- 

The cloud services are deactivated by default.
- 

At a minimum, the data service must be connected and successfully started via a VL using the corresponding test interface.
- 

The instrument only checks whether there is a different firmware on the server than the one it has loaded. Be aware of this if you have your own update server. Downgrades are possible, and can result in a loss of configuration data.



After pressing the gear button, you reach the instrument settings. After selecting the cloud services, select e.g. firmware update.

Select the cloud service you wish to configure and open it with  .
You must agree to the privacy policy before use.

The following cloud service parameters can be configured:

- Firmware update
 - Server
 - FTP Server address
 - User name
 - Password
 - Profile name
 - Check for updates
 - Updating
- Importing configurations
 - Server
 - FTP Server address
 - User name
 - Password
 - Profile name
 - Test
 - Import destination
 - Import
- Upload measurement log
 - Server
 - FTP Server address
 - User name
 - Password
 - Profile name



You can obtain further information on settings in the ARGUSpedia on the instrument.



Three server profiles are offered for server selection. All three profiles are identical, and differ only in their profile names:

- Server profile 1: Firmware
- Server profile 2: Configuration
- Server profile 3: Measurement log

You can also assign any name to the server profiles (Profile name) for your use, e.g. you can create two different profiles for importing configurations if measurement log uploading is not needed.



Only the server profile “Firmware” is preconfigured. When the server specified in this profile is used, the ARGUS® always looks for a new firmware version on intec’s server. The ARGUS® instrument logs onto the server with its serial number and IP address.

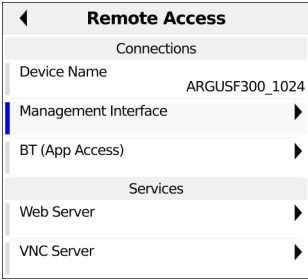
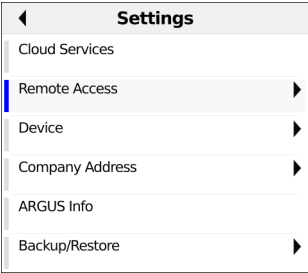


See page 240 for the meanings of all symbols used in the cloud updates.

20.1.1 Cloud update

The following describes how the cloud update is carried out via WLAN management. For details on configuring the firmware updates, see the chapter “ARGUS® settings”, page 205.

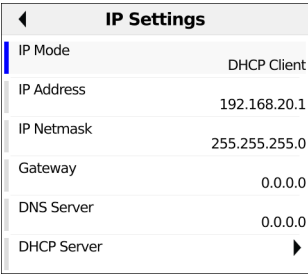
 Never under any circumstances import a configuration when the ARGUS® is operating in battery mode. Connect the ARGUS® to the power adapter before importing a configuration.



First, remote access and then the management interface must be selected in the settings.

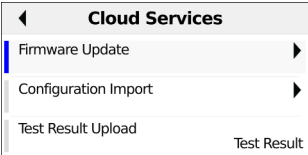


The Management profile can now be edited. Now select the client as WLAN mode.

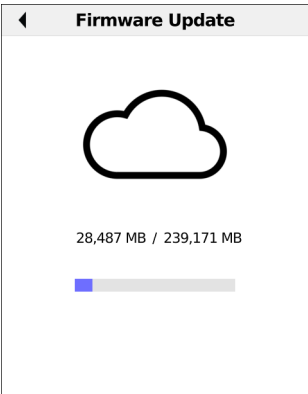


Then select DHCP client as IP mode in the IP settings. If you now start the management interface, you can select the connection information.

- <WLAN> Selecting the WLAN network
- <Info> Information on the configuration of the management profile and the data sent and received



Once you have selected the WLAN network and connected the ARGUS® to it, a blue FW symbol will appear next to the green WLAN symbol if new firmware is available. In the settings, select the cloud services and then the firmware update.



If you now select the update, the firmware update is started.

After a successful firmware update, the ARGUS® will restart automatically.

20.1.2 Automatic configuration import

This function enables you to read out and adopt the ARGUS® configuration file.

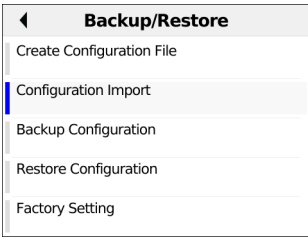
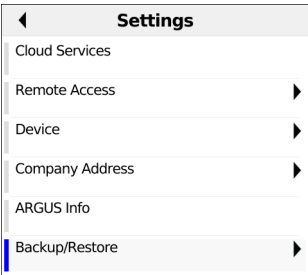
 Never under any circumstances import a configuration when the ARGUS® is operating in battery mode. Connect the ARGUS® to the power adapter before importing a configuration.

Prerequisites:

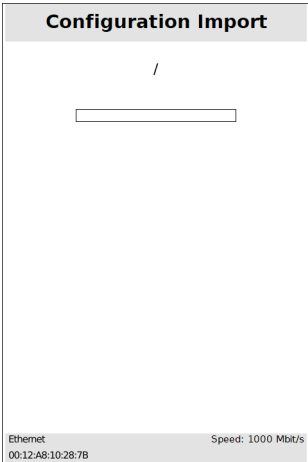
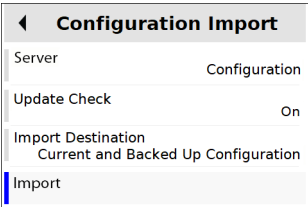
The instrument is connected to the interface (GPON, XGS-PON, Ethernet or WLAN).

The instrument must connect with the server, and a suitable configuration file for this instrument must be available.

If the configuration is not imported immediately, the instrument will display a corresponding message each time the instrument is powered up.



In the settings, select "Backup/Restore" and then "Configuration Import".



A new configuration file is available.
The configuration file is downloaded.

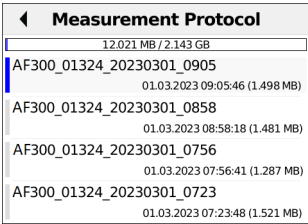
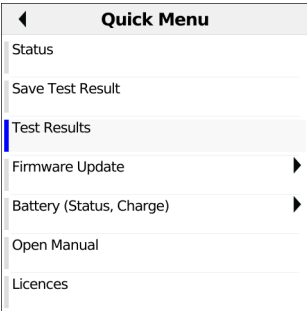


The instrument needs a few seconds before it can be restarted; this is indicated by an hourglass in the top right next to the battery indicator.

<Restart> Restarts device

20.1.3 Upload measurement logs

This function enables you to upload test results to an external server and download them again at a later date.



- <Order> Sorts test results by name or date (ascending or descending).
- <Select all> Selects all test results.
- <Delete> Deletes test result.

20.1.4 ARGUS® Configuration Tool

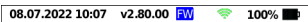
The ARGUS® Configuration Tool is a PC software based on the user surface of the ARGUS® 300, ARGUS® F300, ARGUS® 260, ARGUS® F240 and ARGUS® 200, allowing configuration files for these devices to be configured easily and intuitively.



The ARGUS® Configuration Tool supports the following operating systems (64-bit only): Windows 8, Windows 10 and Windows 11.



Please use only the version of the ARGUS® Configuration Tool that is identical to your firmware version. Other versions are not compatible.



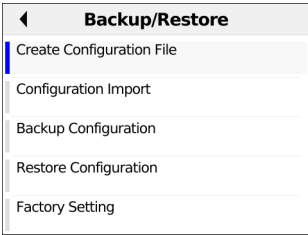
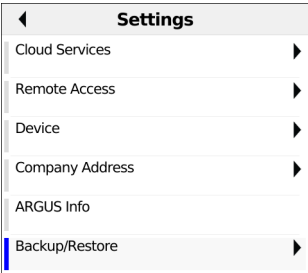
ARGUS Info	
Type:	ARGUS F300
SW Version:	B3.00.00D_ [906-5]

You can read the firmware version of your ARGUS® in the status bar at the top. In addition, it will be displayed in the ARGUS® Info after entering *1.

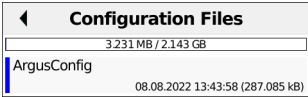
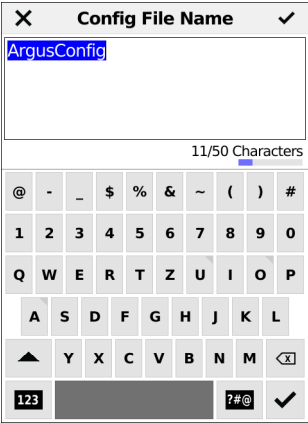
Unzip the file

Please unzip the file to start. The downloaded ZIP file is located in the "Downloads" folder on your computer. To extract the file, right-click on it and select "Extract All". After the files have been extracted, you can start the "ArgusConfigTool" application in the corresponding folder, e.g. "001_ArgusConfigTool_Software_-_V_3_00".

Creating a configuration file



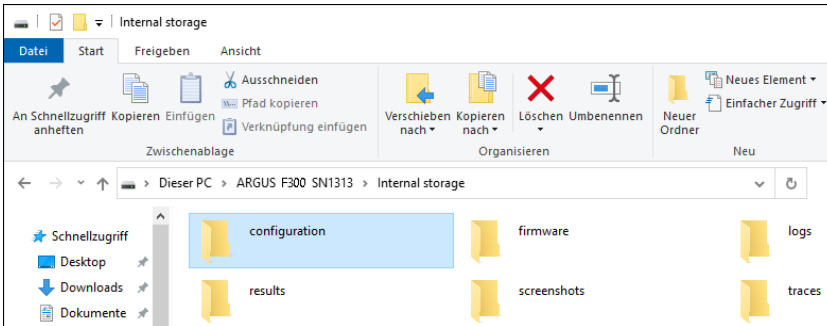
To create a configuration file in the ARGUS®, press the wheel key to access the device settings. Now select "Backup/Restore" and then "Create Configuration File".



The configuration file can now be saved. A file name of up to 50 characters can be entered for this purpose.

Loading a configuration into the ARGUS® Configuration Tool

To load a configuration from the ARGUS® into the ARGUS® Configuration Tool, connect the ARGUS® to your computer via USB.

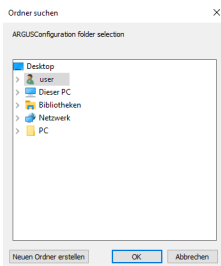


Now copy the desired configuration file from the "configuration" folder to your computer.

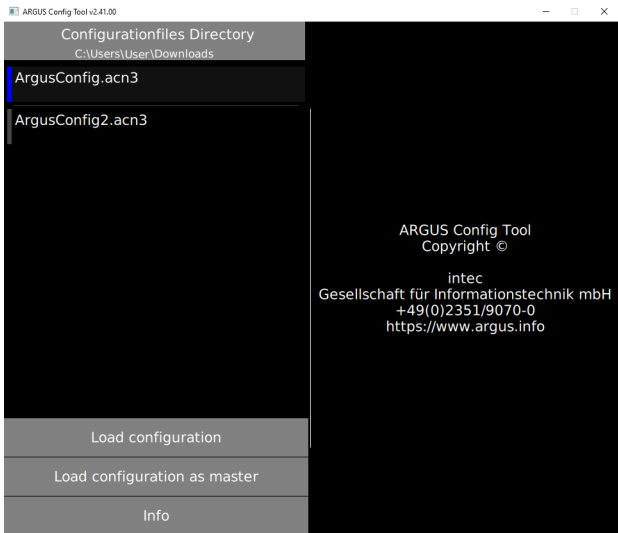


Configurationfiles Directory
C:\Users\User\Desktop

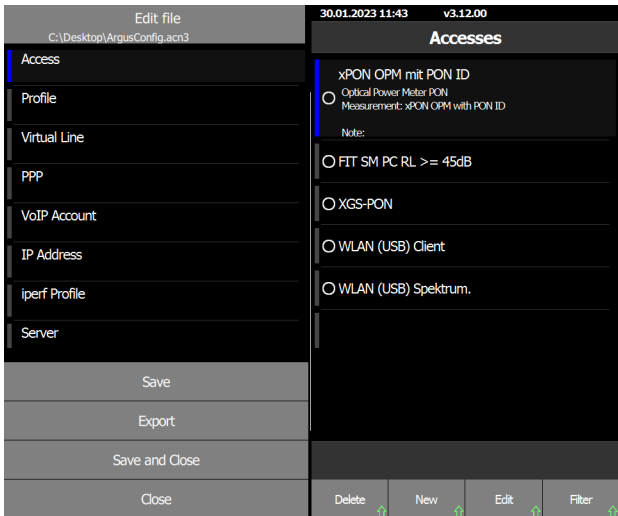
Start the ARGUS® Configuration Tool (left image: application icon) and click on "Configurationfiles Directory".



Now select the folder on your computer to which you previously copied the configuration file.

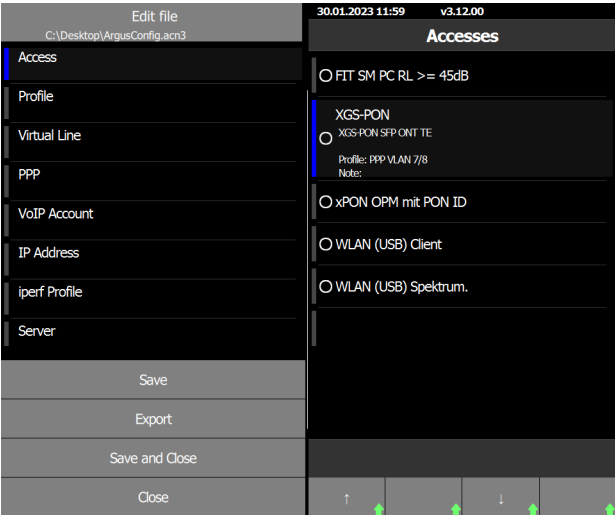


The configurations stored there will now be displayed in the ARGUS® Configuration Tool. Select the configuration that is to be loaded into the ARGUS® Configuration Tool (here: ArgusConfig.acn3). The selected configuration is marked with a blue bar. Click on "Load configuration" to load it.



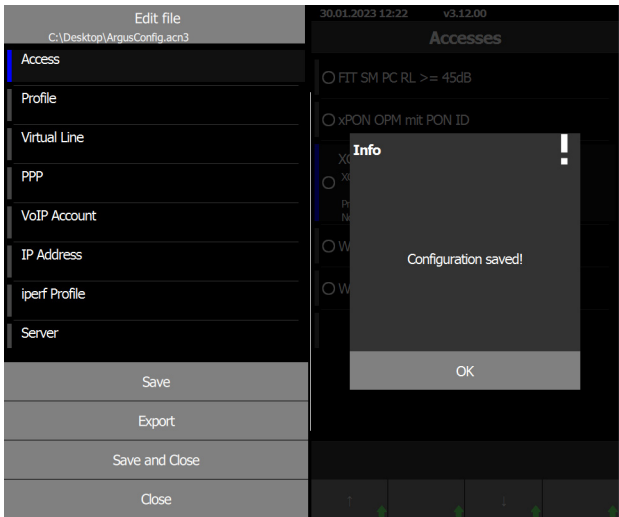
Now the configuration can be edited directly in the ARGUS® Configuration Tool.

If you select "Load configuration as master", the configuration is loaded as master configuration. All possible combinations of SW options and modules can be configured in it.

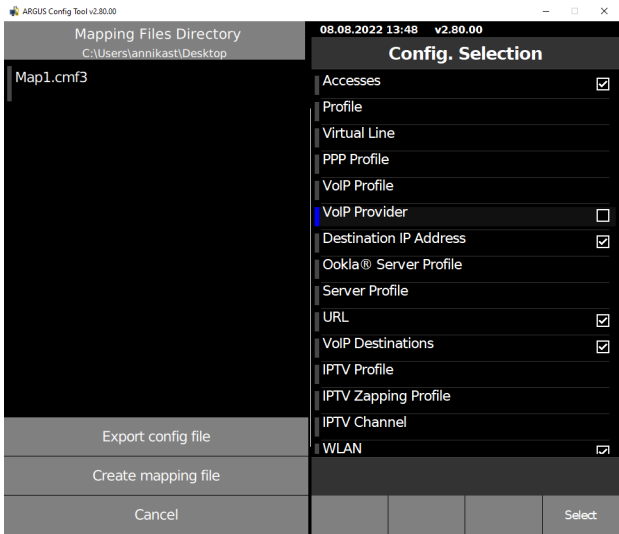


For some functions, it is necessary to press the Shift key in the ARGUS®. This is indicated here by the green arrow. In the ARGUS® Configuration Tool, press the F10 key on the PC keyboard instead.

The green arrows are now filled in (=activated shift key) and further functions are possible, in this example you can move up and down via the now displayed arrows.



The configuration can be saved via "Save". The message "Configuration saved!" then appears.

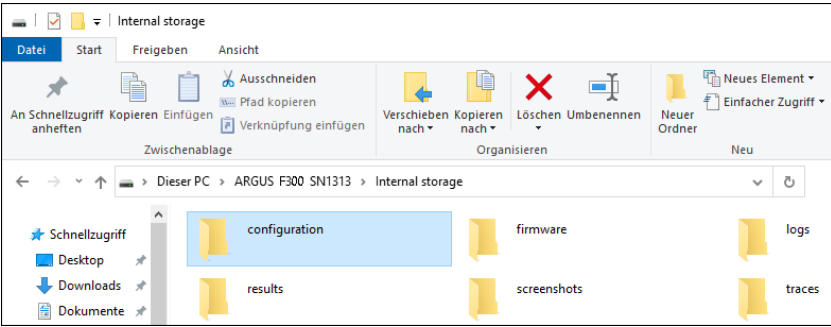


With "Create mapping file" the selection of the configuration points can be saved in a mapping file.

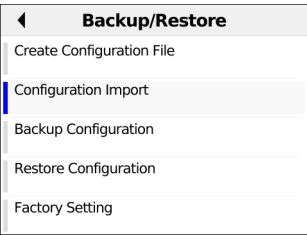
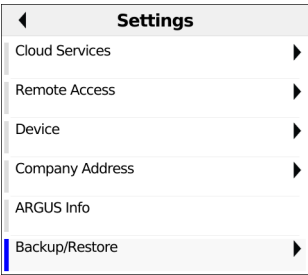
If you click on "Export", you can select or deselect the configurations in the "Config. Selection" to select or deselect the configurations that are to be exported. This is possible

either by clicking on the "Select" or "Deselect" softkey, or by clicking on the box where the check mark is removed or added.

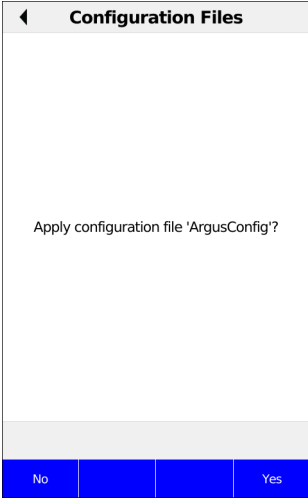
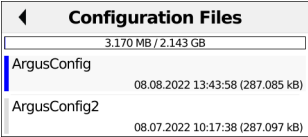
By clicking on "Export config file" you can select the location where the file should be saved.



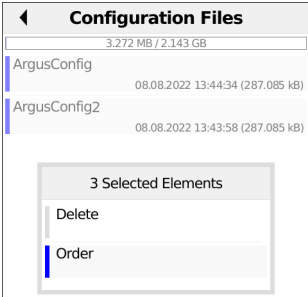
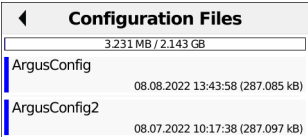
It can then be imported back into the ARGUS® by connecting it to the computer via USB and copying the configuration file into the "configurations" folder.



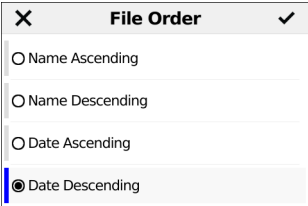
In the ARGUS®, press the wheel key to access the settings. There, select "Backup/Restore" and then "Configuration Import".



The available configuration files are now displayed. After selecting the "Apply" softkey, it must be confirmed that the configuration file is to be applied. The ARGUS® is then restarted and the configuration is applied.



If you select the "Select all" softkey, both configuration files are marked with a blue bar. Using the "Menu" softkey, you can now either delete or sort the files.



The files can be sorted in ascending or descending order by name or date.

20.2 Remote access

The ARGUS® offers a wide variety of remote control functions. For instance, it can connect to a mobile end-user device (smart phone or tablet) via the WLAN interface, and can be remotely controlled from the mobile device.

The following test parameters can be configured for remote access:

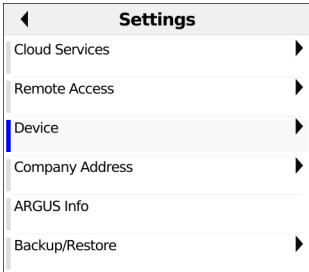
- Management interface
 - Start management interface
 - Select interface
 - WLAN
 - SSID
 - Password
 - Channel
 - DHCP server
- IP settings
 - IP address
 - Netmask
 - Gateway
- Webserver
 - Start webserver
 - Password protection
- VNC server
 - Start VNC
 - Password protection
 - VNC scaling



You can obtain further information on settings in the ARGUSpedia on the instrument.

20.3 Device settings

Changing a device setting is described using the setting "Design" as an example.



After pressing the gear button, you reach the instrument settings. After selecting Device, select e.g. Design.



The default is indicated with a ● in the display.



Mark the desired setting. The marked setting is highlighted in blue in the display.



Return to next-higher level menu without saving setting change.



Saves the setting change.

The following device parameters can be configured:

- Operating language
- LCD brightness
- Set date/time
- Ring volume
- Alarm tone
- Power-up tone
- Power-saving mode
- Software option
- Licenses
- Company address



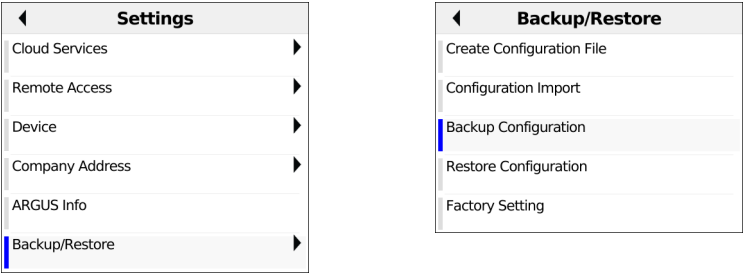
You can obtain further information on settings in the ARGUSpedia on the instrument.

20.4 Backing up and restoring settings

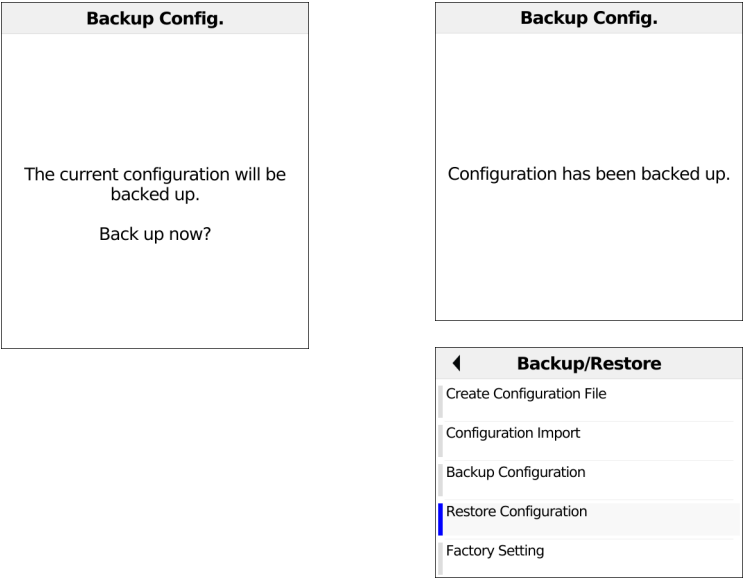
The ARGUS® offers multiple functions for backing up and restoring settings. In addition to the actual backup/recovery of the settings configured in the ARGUS®, these also include the options of restoring the factory defaults and importing configurations to overwrite the current one.

20.4.1 Backup/restore

With the ARGUS®, you can back up all settings (call numbers, PPP user name, PPP password, IP addresses, profile names and more) and restore them if needed.



All settings made in the ARGUS® are backed up unchanged and can thus be restored later.



The settings are now backed up and can be restored as necessary. Select "Restore Configuration".

 and  Restores the saved test settings.



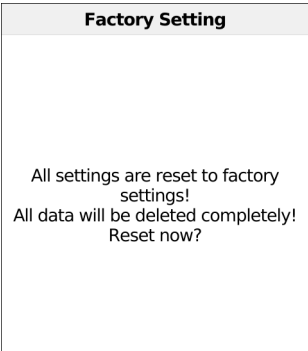
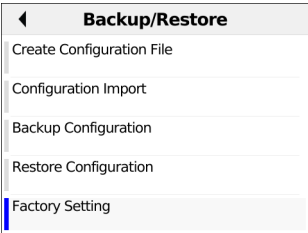
If no settings have been backed up, this function has the same effect as "Restore factory defaults". A security password is not required.

20.4.2 Restoring the factory settings

The ARGUS® resets all settings to the factory defaults.



The call numbers, PPP user name, PPP password, IP addresses, profile names and all test results stored in the ARGUS® are deleted



All parameters are reset to the factory defaults.



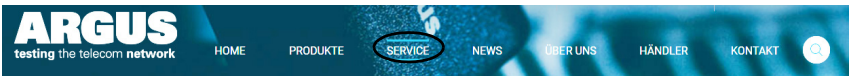
If no settings have been backed up, this function has the same effect as "Restore factory defaults".

21 Update via PC

You can download firmware files online free of charge at www.argus.info/service and then upload them to the ARGUS®.

Go to the web page www.argus.info.

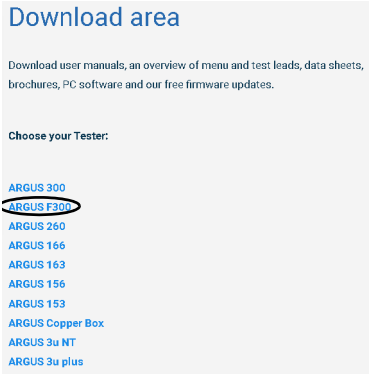
Click the menu option "Service" (highlighted in blue here) in the navigation bar.



In the drop-down Service menu, click the option "Downloads".



This opens up a product overview.



Select your ARGUS® instrument.

Once you select your device, you are automatically taken to the firmware updates.

ARGUS® F300

Overview

Technical Details

Accessories

ARGUS® F300 Enhancements

Datasheet

ARGUS® Config. Tool

Firmware

Please download only the version in your device, which is exclusively provided for your model. Otherwise you can cause damage, that will lead to a repairing with costs. The firmware must be unpacked beforehand when updating via the mass storage.

Please use only the version of the ARGUS® Configuration Tool that is identical to your firmware version. Other versions are not compatible. You can find the third-party components and license informations in the PDF for the ARGUS® F300.

PDF

PDF

ARGUS F300 FIRMWARE (3.50 /)

010_ARGUS F300_Firmware_-_V_3_50.zip (319.57 MB)

The ARGUS® F300 functions as a mass storage device and is connected to the PC via a USB cable. After downloading the firmware, load it onto your ARGUS® F300 using Windows Explorer.

Quick Menu

Status

Save Test Result

Test Results

Firmware Update

Battery (Status, Charge)

Open Manual

Licences

Firmware Update

Cloud Update

ARGUS Mass Storage

Next, select “Firmware update” in the quick menu (illustration at left). Then select ARGUS® Mass Storage (see image at right).

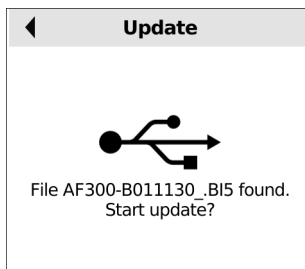
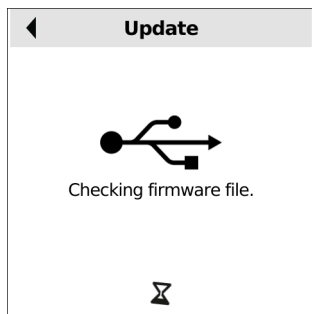
Update

Update requires at least 30% battery charge or a plugged in power supply.

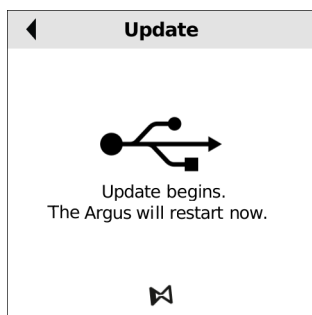
Update

Please connect the ARGUS as USB mass storage device and copy the BI5 file into the folder: "firmware"

When updating the firmware the ARGUS® instrument must be charged to at least 30 % capacity or connected to a power adapter. You are prompted to confirm the ARGUS® connecting to the PC as a USB mass storage device (see image at right).



Once the ARGUS[®] is connected to the PC, the firmware file is displayed when you press Start.



The update is now started. This requires a restart of the ARGUS[®].

Important information on updating your ARGUS[®] firmware:



- An ARGUS[®] USB cable is required for updating (USB cable with mini-USB plug).
- You should back up the configuration and measurement logs to a PC before performing an update.
- Do not switch off the ARGUS[®] during the update.
- Be sure to observe the messages in the ARGUS[®] display.



If problems occur because of a failure to follow these safety instructions, repeat the update process up to three times.
Each repetition makes it possible to overwrite further faulty software components.

22 Using the battery pack

Changing the battery pack

Power down the ARGUS® and disconnect the power adapter. Then release the two screws securing the battery pack.

Handling the battery pack



The ARGUS® may only be operated using the battery pack supplied with the device; connecting other power supply units to the contacts of the device will damage the ARGUS®.

- Only charge the supplied battery pack in the ARGUS®.
- Do not use the ARGUS® battery pack in other devices.
- Power adapters from other ARGUS® instruments are not compatible with the ARGUS® F300. Attempting to connect the power adapter of another device to the ARGUS® F300 can damage the socket.
- Active charging of the battery pack and automatic charging (on by default) may only be carried out in a temperature range of 0 °C to +40 °C.
- Charge the battery pack completely at least once a month (even if the device has not been used for a longer period!).
- The lithium ion battery pack should be stored with a charge of 40 to 60 %. When storing the device for longer periods, you should refresh this charge level every six months. To prevent full discharge, remove the battery pack from the device for long-term storage.
To maximise battery life, do not store the battery long-term at temperatures above +50 °C.
- See the chapter Safety information (page 9) for detailed information on using and transporting the lithium ion battery pack safely.

Status

The ARGUS[®] indicates the current state of the battery graphically in the display when no power adapter is connected. A battery symbol flashes in the display when it is down to a power reserve of approx. 8 minutes (depending not the operating mode). Tone errors, and in extreme cases malfunctions, can occur in this period. Connect the power adapter. The ARGUS[®] can recharge the battery completely when the power adapter is connected. The ARGUS[®] power pack does not require manual discharge. A complete charging cycle can take up to approx. 6 hours.

Quick Menu	
Status	
Save Test Result	
Test Results	
Firmware Update	▶
Battery (Status, Charge)	▶
Open Manual	
Licences	

Battery Status	
State	Charging
Remaining Capacity	90 %
Power Supply Plugged In	Yes
Actual Voltage	7994 mV
Actual Current	1754 mA
Average Current	-579 mA
Temperature	21,5 °C
Device should be turned off	No
Learning actual battery capacity	No

Battery	
Status	
Automatic Charging	On

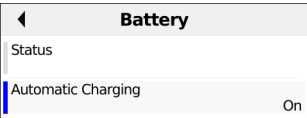
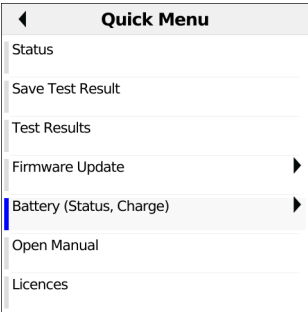
When the power adapter is connected, you can view the battery status in the quick menu. This displays the voltage, current level, temperature and other parameters during the charging process.

Automatic battery charging in the background

X ARGUS Manager ✓			
☰	⚙	Management Profile (Profil WLAN Client)	Management (On)
Web Server Start (Off)	VNC Server Start (On)	LCD Brightness (50 %)	Automatic Shutdown (After 15 Minutes)
Automatic Charging (On)	Restart GUI	Stop GUI	Theme (Light)

X ARGUS Manager ✓			
☰	⚙	Management Profile (Profil WLAN Client)	Management (On)
Web Server Start (Off)	VNC Server Start (On)	LCD Brightness (50 %)	Automatic Shutdown (After 15 Minutes)
Automatic Charging (Off)	Restart GUI	Stop GUI	Theme (Light)

In the ARGUS[®] Manager, you can toggle “Automatic charging (on)” to “Automatic charging (off)” and back by tapping this option. When automatic charging is on, the ARGUS[®] charges the battery automatically in the background when the mains adapter is connected as soon as the battery status falls below a threshold value (battery symbol in display).



You can also toggle automatic charging on and off in the quick menu.

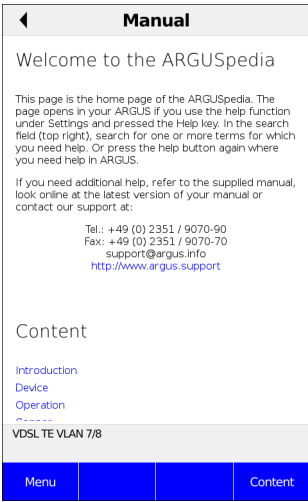
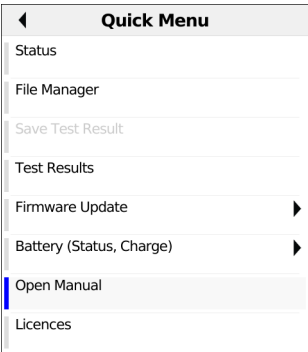


When the ARGUS[®] is disconnected from the power adapter before that battery is completely charged, the ARGUS[®] does not automatically continue charging when it is subsequently reconnected because the charge is no longer below the threshold.

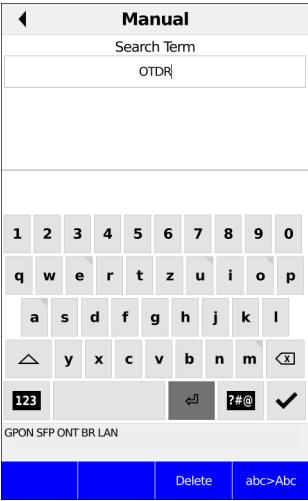
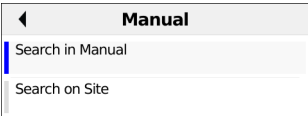
23 ARGUSpedia

The ARGUSpedia is an internal help function with lots of information about the device and settings. It is an important supplement to this manual.

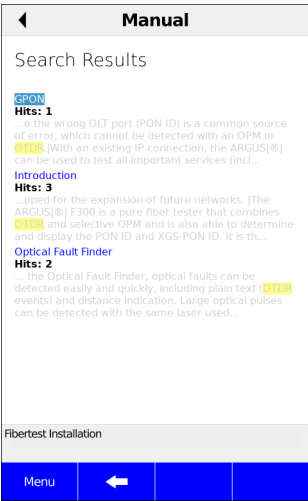
Select “Open Manual” in the Quick Menu to open the ARGUSpedia.



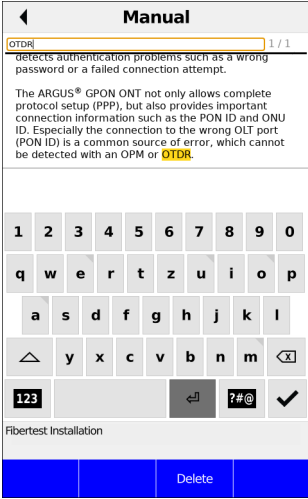
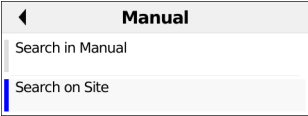
Now you can either navigate via the links in the content menu or search in the Manual or on the site that you are actually on by selecting the Softkey „Menu“.



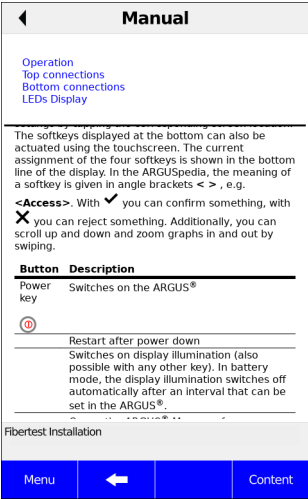
After selecting „Search in Manual“, you can enter a search term.



Now you get a list of search results. The search term is highlighted in yellow. In addition, it is indicated how many hits there are on the respective pages.



After selecting „Search on Site“, you can enter a search term. All results on this page are highlighted in yellow.



On many pages, you can jump to specific sections. These sections are shown on the top of the page after using the softkey „Content“. Just tap on them or use the cursor keys to jump to one of these sections.

24 ARGUS® Mobile App

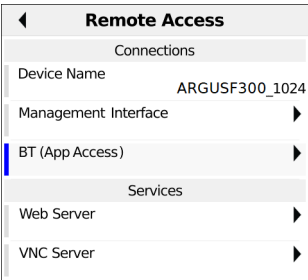
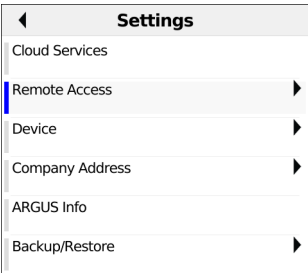
The ARGUS® Mobile app enables quick and easy transfer of measurement logs from the ARGUS® to the app via Bluetooth.



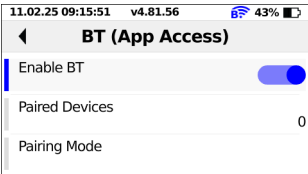
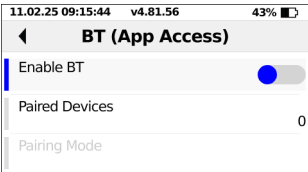
The ARGUS® Mobile App can be downloaded here for free:
<https://play.google.com/store/apps/details?id=info.argus.argusmobile&hl=en-us>



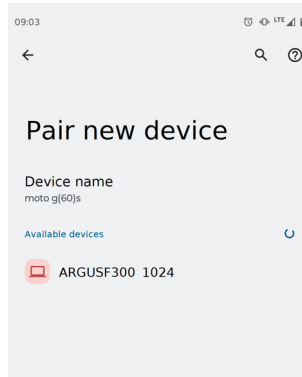
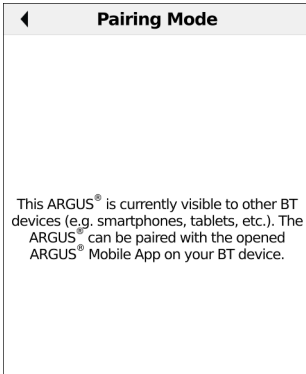
Apple App Store: <https://apps.apple.com/de/app/argus-mobile-app/id6480200403?l=en-GB>



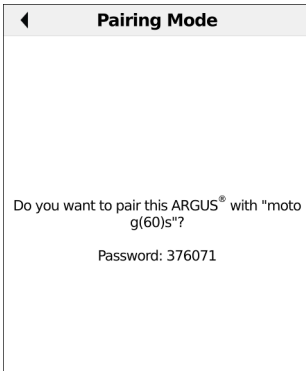
Press the wheel key to access the device settings. First select Remote access, then BT (App Access).



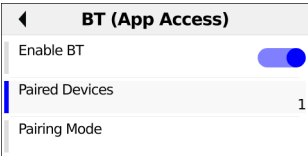
Bluetooth can now be activated there. If Bluetooth is switched on, you can recognize this by the blue symbol in the status bar: . The pairing mode can only be selected when Bluetooth is switched on.



The pairing mode in the ARGUS® must be open so that it can pair with the ARGUS® Mobile app. Bluetooth must also be activated on the smartphone or tablet. Then select "Pair new device" and select the corresponding ARGUS® (here: ARGUSF300_1024).

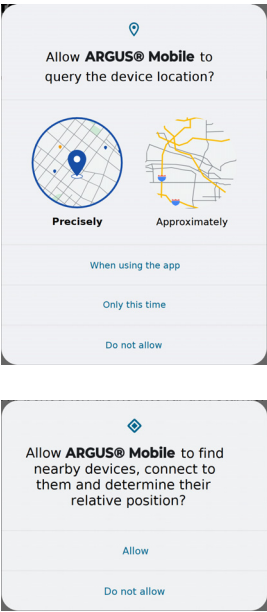
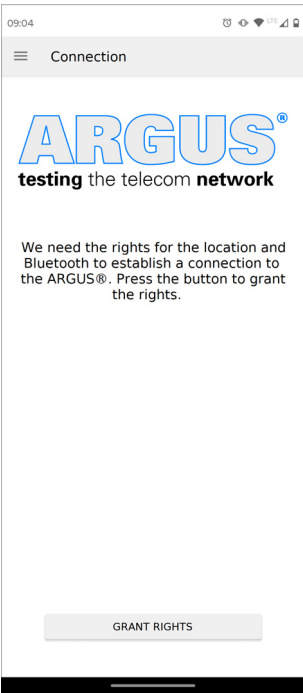


A pairing code appears on both devices, which must be confirmed on both devices.

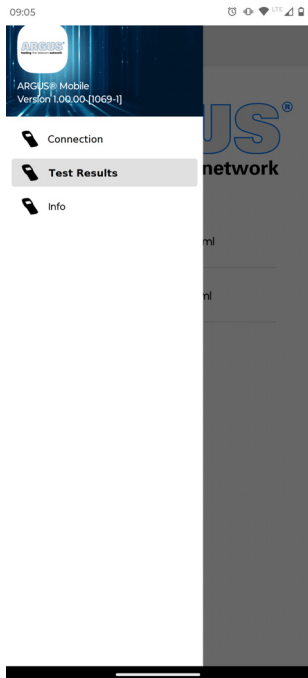


The paired device is now also visible on the ARGUS®.

<Delete> Delete paired device.



When using the ARGUS® Mobile app for the first time, you must grant it rights to the device location and to connect to nearby devices.



The ARGUS® Mobile app displays the ARGUS® to which it is currently connected. Another ARGUS® in the nearby area can be selected via “Change ARGUS®”. After selecting the menu icon, you can display the test results that are on the ARGUS®.



Display of the available test results. After selecting one of the test results, the data will be downloaded from the ARGUS®. They can then either be viewed or shared.



Display of a test result.

25 Appendix

A) Hotkeys

Hotkey assignment

You can call important functions/tests directly using the keys of the ARGUS® keypad. Depending on the selected access type (GPON and Ethernet in this example), different hotkeys can be used:

Hotkey	Service	ADSL	VDSL/ G.fast	SHDSL	ETH
	Status screen	x	x	x	x
	VoIP call	x	x	x	x
Press one after another  and 	Displays ARGUS®-specific information such as ARGUS® type, software version, serial number, own MAC address, software options, user information (see below)	x	x	x	x

B) Symbols



The following symbols can be displayed in the ARGUS® status line.

Symbol	Colour	Purpose	Description
	Black	Battery pack	This symbol shows the current battery status.
	Blue	Cloud update	The firmware can now be updated.
	Grey	Cloud update	The update function is active but no update can be found. For example, due to an incorrect server path.
	Blue	Configuration import	A configuration file has been found.
	Grey	Configuration import	The configuration check is active but no configuration can be found. For example, due to an incorrect server path.
	Grey	Variable	Importing a configuration or executing a test.
	Green	WLAN	WLAN is active. ARGUS® is now in access-point mode.
	Grey	WLAN	WLAN is not active.
	Grey	Ethernet	The management interface Ethernet is selected.
	Green	Ethernet	The management interface Ethernet is active.
	Black	Volume	Signal tone deactivated.
	Black	Volume	Signal tone activated.



The following symbols can appear in the ARGUS® main display area.

Symbol	Colour	Description
	Grey	The service is not yet assigned to a virtual line.
	Grey	This service, VL or physical layer is idle.
	Grey	The service is unavailable.
	Yellow	Activating the physical layer, VL or service.
	Yellow	Physical layer, VL or service deactivated due to an unexpected occurrence.
	Yellow	Deactivating.
	Green	Synchronisation achieved (physical layer) or a VL or service was activated successfully.
	Green	A test is currently running in this service.
	Red	An error has occurred.
	Grey	Preparing activation of physical layer, VL or service.
	Orange	The Tx and Rx values are not equal in the VoIP QoS test.
	Green	Test running.

	Red	Test stopped.
	Green	Graphs are zoomed.
	White	Graphs are not zoomed.
	Green	Cursor is activated.
	White	Cursor is deactivated.
	Blue	Access, access filter or menu entry has been added as a favorite.
	Blue	Autostart: Selected access starts immediately.



The following symbols
are displayed in this
field.

Symbol	Colour	Description
	Green	No CRC errors occurred in the last second.
	Red	No FEC errors occurred in the last second in upstream and downstream.
	Green/ Red	No upstream CRC errors occurred in the last second in upstream.
	Red/ Green	No FEC errors occurred in the last second in downstream.
	Blue/ Grey	Retransmission configured but not active.
	Blue	Retransmission active.
	Red	Retransmission active; errors occurring.

C) Software licenses

The ARGUS® firmware contains code from open-source packages published under a variety of licenses (GPL, LGPL, MIT, BSD, etc.).

Additional information can be found on the internet at: <http://www.argus.info/en/service/downloads>. After selecting your device type, you can download a PDF with the software licenses.

If you are interested in the sources listed under GPL/LGPL, please contact support@argus.info. intec Gesellschaft für Informationstechnik mbH will provide you with a machine-readable copy of the source texts for a nominal fee to defray the costs of the physical copying process. This offer is valid for 3 years.

D) Abbreviations

A

ACS	Auto Configuration Server
AES	
AFTR	Address Family Transition Router
AMP	ARGUS® measurement protocol
APC	Angled Physical Contact
ARP	Address Resolution Protocol
ASB	
ATM	Asynchronous Transfer Mode

B

BGP	Border Gateway Protocol
BNG	Broadband Network Gateway
BR	Bridge

C

CC	Continuity counter
CLIP	1. Calling Line Identification Presentation 2. Clipping
CLIR	Calling Line Identification Restriction
Codec	Coder decoder
CRC	Cyclic redundancy check

D

dB	Decibel
dBm	Decibel-milliwatts
DC	Direct Current
DDI	Direct dialling in
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DTMF	Dual Tone Multi Frequency
DX	

E

EMC	Electromagnetic compatibility
ETH	Ethernet

F

FEC	Forward error correction
FIT	Fiber Inspection Tool
FTP	File Transfer Protocol
FTTH	Fiber to the home
FTTx	Fiber to the x (generic term for the different variants of the fiber access; x = corresponding end point of the fiber cable)
FW	Firmware

	G
GB	Gigabyte
Gbit/s	Gigabits per second
G.fast	G.fast access to subscriber terminal
GigE	Gigabit Ethernet
GPON	Gigabit Passive Optical Network
GUI	Graphical User Interface
	H
hex	Hexadecimal
HTTP	Hypertext Transfer Protocol
Hz	Hertz
	I
ID	Identifier
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IL	Insertion Loss
IP	Internet Protocol
IPCP	Internet Protocol Control Protocol
IPTV	Internet Protocol Television
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
ISP	Internet service provider
ITU	International Telecommunication Union
	K
KB	Kilobyte
kbit/s	Kilobits per second
	L
LAN	Local Area Network
LCD	Liquid crystal display
LCP	Link Control Protocol
LED	Light-emitting diode
LOSS	
	M
mA	Milliampere
MAC	Media Access Control
MB	Megabyte
Mbit/s	Megabits per second
MDF	Main Distribution Frame
MM	Multi Mode
Modem	Modulator-demodulator
MOS	Mean opinion score (ITU-T P.800)

MTU	Maximum Transmission Unit
mV	Millivolt
N	
n/a	not available
n/r	not received
n/u	not used
nm	Nanometer
O	
ODN	Optical Distribution Network
OLS	Optical Light Source
OLT	Optical Line Termination
ONT	Optical Network Termination
ONU	Optical Network Unit
OPM	Optical Power Meter
ORL	Optical Return Loss
OTDR	Optical Time Domain Reflectometer
OUI	Organizationally Unique Identifier
P	
P/N	Part number
PADI	PPPoE active discovery initiation
PADO	PPPoE active discovery offer
PADR	PPPoE active discovery request
PADS	PPPoE active discovery session confirmation
PADT	PPPoE active discovery termination
PAP	Password Authentication Protocol
PCR	Program clock reference
PLOAM	Physical Layer Operations, Administration and Maintenance
PON	Passive Optical Network
PPP	Point-to-Point Protocol
PPPoE	Point-to-Point Protocol over Ethernet
PPTP	Point-to-Point Tunneling Protocol
PtP	Point-to-Point
PWR	Power
Q	
Q in Q	IEEE 802.1.ad, S-VLAN
QoS	Quality of service
R	
RFC	Request for Comments
RoHS	Restriction of hazardous substances
RT	Router
RTCP	Real-Time Control Protocol

RTP	Real-Time Transport Protocol
Rx	Received
S	
S/N	Serial number
SBC	Session Border Controller - Outbound Proxy
SC	Subscriber Connector
SFP	Small form factor pluggable
SFP+	Small Form-factor Pluggable Plus
SIP	Session Initiation Protocol
SM	Single Mode
SSID	Service Set Identifier
STB	Set-top box
STUN	Session Traversal Utilities for NAT
SW	Software
T	
TCP	Transmission Control Protocol
TDM	Time division multiplex
TE	TErминаl, terminal equipment
ToS	Type of service
Tx	Transceived
U	
UPC	Ultra Physical Contact
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
US	Upstream
USB	Universal Serial Bus
V	
V	Volt
VCI	Virtual channel identifier
VFL	Visual Fault Locator
VL	Virtual line
VLAN	Virtual Local Area Network
VLC	Video LAN client
VNC	Virtual Network Computing
VoIP	Voice over Internet Protocol
VPI	Virtual path identifier
W	
WDM	Wavelength Divison Multiplexing
WLAN	Wireless Local Area Network
WLAN AP	Wireless Local Area Network Access Point

	X
xDSL	Collective term for different DSL variants
XGS-PON	10 Gigabit Symmetric PON
xPON	GPON and/or XGS-PON

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