

ARGUS® F240

User manual

Version: 4.81 / **EN**

Important note:

The basic package contains at least a selective OPM an a Gigabit-Ethernet interface, which includes 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



<https://www.linkedin.com/company/441568>

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1	Introduction	6
2	Safety information	9
2.1	Safety and transport information for the battery pack	12
3	General technical data	16
4	Quick-start guide	19
5	Configuring accesses	25
5.1	Access wizard	27
5.2	Physical Parameters	31
5.3	Profile	31
5.4	Autostart Access	33
5.5	Notes	33
6	Favourites view	34
7	Physical layer	41
8	Operation on GPON accesses	42
8.1	Configuring a GPON TE	43
8.2	The ARGUS® in Access Mode GPON bridge	47
8.3	The ARGUS® in access mode GPON router	49
9	Operation on the Ethernet access	51
9.1	Configuring Ethernet accesses	52
9.2	Ethernet configuration	53
9.3	Establishing an Ethernet connection	54
10	Virtual lines (VL)	56
10.1	Virtual lines in the status screen	56
10.2	Virtual line profiles (VL profiles)	60
10.3	Virtual line activation	61
	10.3.1 Starting a service	61
	10.3.2 Assigning additional virtual lines	62
10.4	PPP wizard	66
10.5	Virtual line settings	67
10.6	Displaying protocol statistics	68
11	Services + tests	71
11.1	Displaying service statistics	72

12	IP tests	73
12.1	IP ping	73
12.2	Traceroute	80
12.3	Path MTU test	83
12.4	iperf Client	85
12.5	iperf Server	88
12.6	ARGUS® Real Speed Direct (iperf)	91
12.7	ARGUS® Real Speed Formal (RFC6349)	93
12.8	HTTP download	96
12.9	FTP download	101
12.10	FTP upload	104
12.11	FTP server	107
12.12	Web browser	110
13	VoIP tests	112
13.1	Starting VoIP telephony	116
	13.1.1 VoIP back-to-back	123
13.2	VoIP Call Acceptance	124
13.3	VoIP call generator	127
14	IPTV tests	130
14.1	IPTV	130
	14.1.1 Multiple virtual lines	133
14.2	IPTV Zapping Test	138
14.3	IPTV Monitor	143
15	Parallel tests	146
16	Fiber	151
16.1	Selective OPM	151
	16.1.1 Selective OPM configuration	154
	16.1.2 Settings Selective OPM	155
	16.1.3 Starting the measurement	156
	16.1.4 Measurements with the 4-fold or 5-fold OPM	161
16.2	Single Tests	163
	16.2.1 PON Level Check	163
	16.2.2 PON Installation	165
	16.2.3 PLOAM Monitor	168
16.3	Optical Loss Test	170
16.4	Fiber Inspection Tool	173
17	Test results	175
17.1	Saving test results	176
17.2	Sending test results to PC	176

18	WLAN	177
18.1	WLAN Client	177
	18.1.1 WLAN access	177
	18.1.2 Access Point Details	179
	18.1.3 Graphical overview of frequency bands	180
18.2	WLAN spectrum analysis	181
	18.2.1 WLAN in the 2.4 GHz frequency range	181
	18.2.2 WLAN in the 5 GHz frequency range	183
	18.2.3 WLAN in the 6 GHz frequency range	183
18.3	WLAN as a management interface	184
	18.3.1 Switching on WLAN	184
	18.3.2 WLAN Access Point	185
	18.3.3 WLAN Client	185
18.4	Test results via WLAN	186
18.5	WLAN in router mode	187
19	ARGUS® settings	188
19.1	Cloud services	188
	19.1.1 Cloud update	190
	19.1.2 Automatic configuration import	192
	19.1.3 Upload measurement logs	194
	19.1.4 ARGUS® Configuration Tool	195
19.2	Remote access	203
19.3	Device settings	204
19.4	Backing up and restoring settings	206
	19.4.1 Backup/restore	206
	19.4.2 Restoring the factory settings	207
20	Update via PC	208
21	Using the battery pack	212
22	ARGUSpedia	215
23	ARGUS® Mobile App	218
24	Appendix	223
A)	ARGUS® Info	223
B)	Symbols	224
C)	Software licenses	228
D)	Abbreviations	229
E)	Index	234

1 Introduction

ARGUS® F240: the fiber tester

The ARGUS® F240 fiber tester scores with improved performance when testing on mixed fiber optic connections. The high-quality tester is well equipped for the expansion of future networks.

Modern design and new housing concept

With its robust and compact design, the ARGUS® F240 is ideally suited for the demands of daily field use. It is operated primarily via touchscreen, with familiar ARGUS® menu structure.

Tests on mixed optical fiber accesses

The ARGUS® F240 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 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 and Ethernet, the ARGUS® can also perform a complete ONT simulation with IP and performance tests at up to 10 Gbit/s.

Additional features

The ARGUS® F240 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. The SFP slot can be used, among other things, for the deployment of Active Ethernet (AON), as is often the case in FTTH installations. 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**

- 10/100/1000 Base-T
- LAN additionally with 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) (IEEE 802.3ak, IEEE 802.3an)
- SFP: full SFP+ interface (FTTx, PtP, Active Ethernet)
 - 1000 Base-BX/LX/SX/ZX
 - 2.5 GBase-X (IEEE 802.3bz, NBase-T)
 - 10 GBASE-X (10GbE/10GE), 10000 BASEX (IEEE 802.3ae)

Fiber interfaces

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

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, FTTH and WLAN

- Ping and traceroute tests (BRAS information, 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
- Free firmware updates via the **cloud**.
- **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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D-58507 Lüdenscheid
Tel.: +49 (0) 2351 / 9070-0
Fax: +49 (0) 2351 / 9070-70
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® F240 (with USBC connector)

The following mains adaptor is approved for use with the ARGUS®:

HKY Q36MV-Type-C

Contact:

Manufacturer:

Shenzhen Huikeyuan Electronic Technology Co., Ltd.
BLK 3, Guiyue Rd 308
Longhua Shenzhen 518000 CN

Importer:

intec GmbH Lüdenscheid, Germany

No other mains adaptors may be used.

3 General technical data

Device specifications:

Dimensions/weight	Inputs/outputs
Height: 272 mm	- 1x Ethernet: 10/100/1000/2500 base-T
Width: 128 mm	- 1x SFP+ port: 1000 base-SX/LX/ZX/BX, 2.5 GBase-X, 10 GBASE-X
Depth: 79 mm	- 2x SC/APC (OLT/ONT) for PON
Weight: approx. 1200 g (2.65 lbs)	- 1x USB 2.0 client type C, with power delivery (15V, 3A) and for accessing USB mass storage
(incl. battery pack)	- 2X USB 2.0 host type A, for external devices
	- WLAN IEEE802.11a/b/g/n/ac/ax/be
Control panel	
6 keys	
4 cursor keys	
Touch display	
Display	Temperature range
TFT colour display, Touchscreen, illuminated	Temperature range for charging battery pack: 0 °C (+32 °F) to +40 °C (+104 °F)
800 x 400 Pixel	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 USB-C with power delivery (15V, 3A)

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® F240 fulfils the EC directives for the CE mark. We will be happy to provide a detailed declaration of conformity on request.

Supported Standards:

GPON: ITU-T G.984
XGS-PON: ITU-T G.9807.1
Fiber Inspection (USB-A): IEC 61300-3-35
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)
Ethernet (LAN/SFP): IEEE 802.3 - 10 base-T - 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) (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)

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 212).
- 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

Wheel key



- Opens the setup menu

Menu key

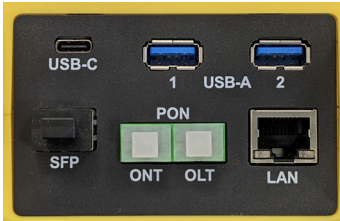


- Opens the quick menu

The ARGUS® can be controlled using the four cursor keys, the Enter key  and the Back key . 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® F240 is mainly 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 be operated 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

USB-C

For external USB-C 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.

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)

LAN

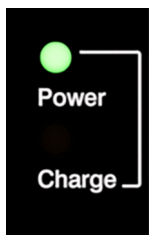
Connection to a PC network card. Connection to the Ethernet interface of a router (IAD) or hub/switch or another Ethernet interface (access: Ethernet).

SFP

Connection of SFP modules from various manufacturers approved for the ARGUS for connection to fiber-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.

Charging the battery in initial operation

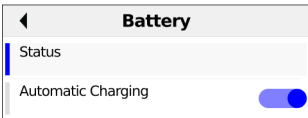
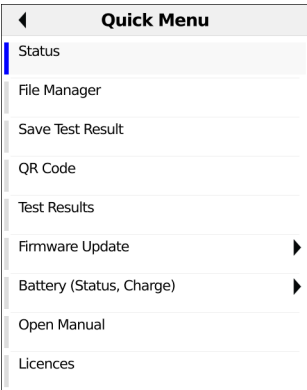
The battery pack compartment is on the rear of the device. Attach the battery back by placing it against the retaining points at the top end and then screwing down the screws. Use only the battery pack supplied with the device. Observe the safety information given on page 12. Now connect your (switched-off)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



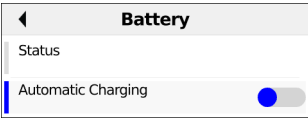
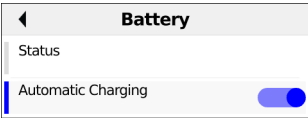
The Accesses display can vary depending on the configuration.

Current assignment of the softkeys



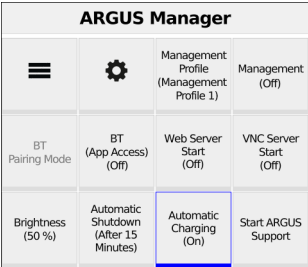
Battery Status	
State	Discharging
Power Supply Plugged In	No
Remaining Charge	96 %
Battery Capacity	100 %
Discharge Cycles	0
Actual Voltage	8171 mV
Actual Current	-466 mA
Temperature	24,4 °C
Battery Type	110
Date (WW/YY)	12/24

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 (page 212, “Using the battery pack”) completely before full capacity is reached.

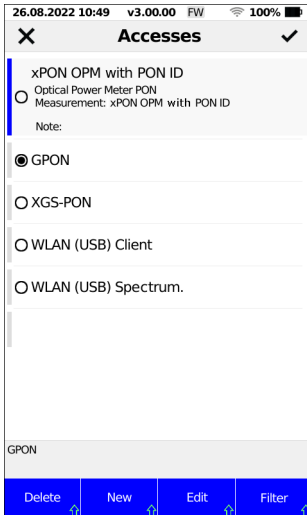
Power-saving mode

 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 GPON is selected. The access xPON OPM with PON ID is highlighted, and a preview of the access settings is displayed.

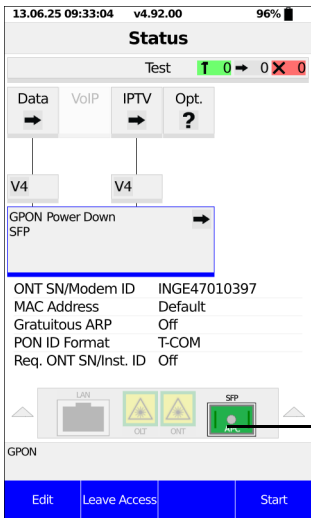


The access GPON is highlighted and selected here.



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

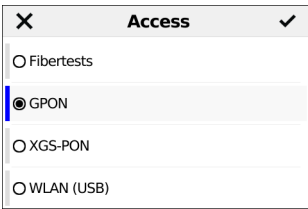
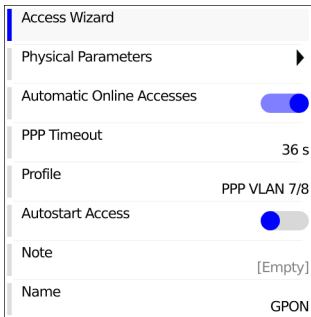
- | | |
|---|--|
| <Delete> | Deletes the selected access. |
| <New> | Creates a new access, see page 27. |
| <Edit> | Edits an access, see page 27. |
| <Filter> | Filter by accesses. |
|  | The access marked in blue also moves when you scroll through the accesses using the ↑ and ↓ keys. In this way, ARGUS® enables you to create a series of configured accesses so that the most commonly required accesses are readily available. |
| <↓
<↓> | |
| <Add as
Favourite>
OR
<Remove as
Favourite> | The access is added or removed 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.



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, WLAN, ...). You can now select the physical interface (see image at right).

5 Configuring accesses

✕

Interface

✓

☒ SFP

Afterwards, the access mode (here: ONT TE, see picture on the left) and the interface (here: SFP, see picture on the right) are selected.

X

Access Name

✓

GPON

4/24 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							?#@	✓	

DeleteAbc>ABC

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.

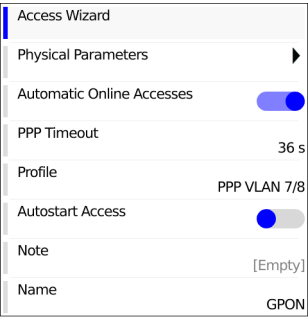
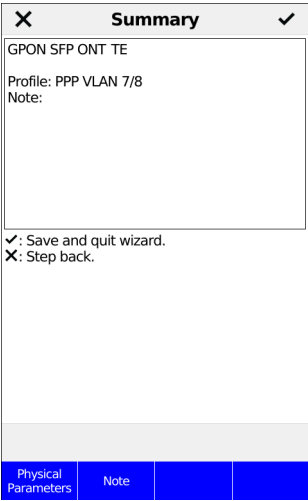
<Abc>ABC> Entry begins with upper-case letters and continues in lower-case.

<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.



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

<Physical Parameters> Edits the physical parameters, see page 31.

<Note> Entry of notes, see page 33.

 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>.

5.2 Physical Parameters

Access Wizard

Physical Parameters

Automatic Online Accesses

PPP Timeout36 s

ProfilePPP VLAN 7/8

Autostart Access

Note[Empty]

NameGPON

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 Profile

Access Wizard

Physical Parameters

Automatic Online Accesses

PPP Timeout36 s

ProfilePPP VLAN 7/8

Autostart Access

Note[Empty]

NameGPON

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 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.



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 92.
Profile name: for entering see Access name, page 28.

5.4 Autostart Access

◀

Fibertests 5x OPM

Access Wizard

Access Parameter

▶

Autostart Access

☐

Note

[Empty]

Name

Fibertests 5x OPM

◀

Fibertests 5x OPM

Access Wizard

Access Parameter

▶

Autostart Access

☒

Note

[Empty]

Name

Fibertests 5x OPM

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

Fibertests 5x OPM

▶▶

☒ Fiber Tests Installation PON

Mode: 5x OPM

Note:

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.

5.5 Notes

◀

Fibertests 5x OPM

Access Wizard

Access Parameter

▶

Autostart Access

☐

Note

[Empty]

Name

Fibertests 5x OPM

Fibertests 5x OPM

☒ Fiber Tests Installation PON

Mode: 5x OPM

Note: T-COM

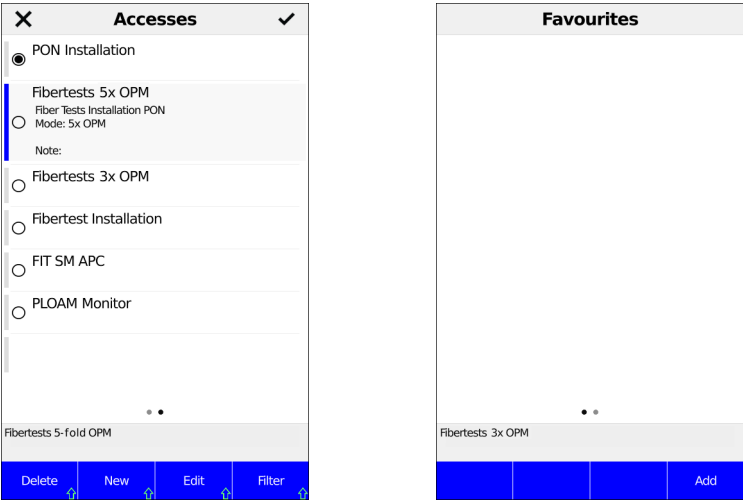
You can also add a note when editing an access. This note can be up to 49 characters long.

In addition to the selected access, the ARGUS® will display, for example, the access mode and a freely editable note in the preview (in this example: T-COM).

For more on entering notices see “Access name” on page 28.

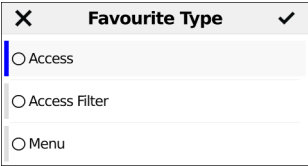
6 Favourites view

With the freely configurable favourites view in the ARGUS F240, 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

X

Access

✓

☐ FIT SM APC

☒ Fibertests 5x OPM
Fiber Tests Installation PON
Mode: 5x OPM
Note:

☐ Fibertest Installation

☐ Fibertests 3x OPM

☐ PLOAM Monitor

X

Short Name

✓

Fibertests

5/10 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 ?#@ ✓

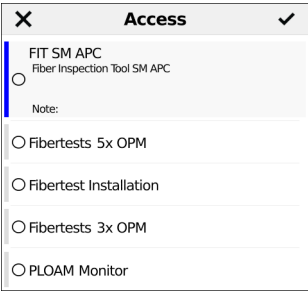
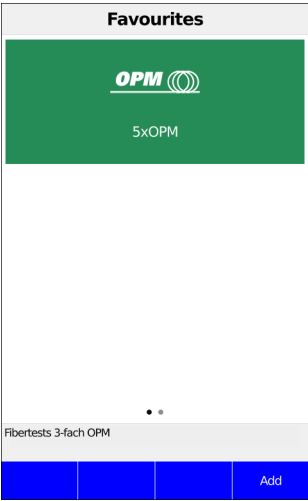
Fibertests 3-fach OPM

Delete

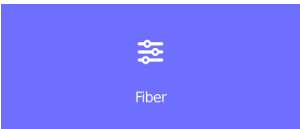
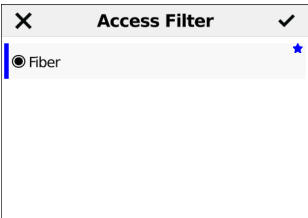
The following accesses can be selected:

- FIT SM APC
- Fibertests 5xOPM
- Fibertest Installation
- Fibertests 3xOPM
- PON Installation Test
- 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.

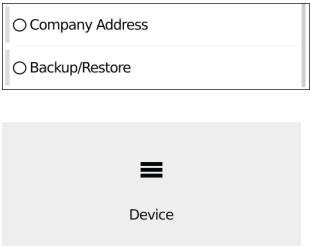
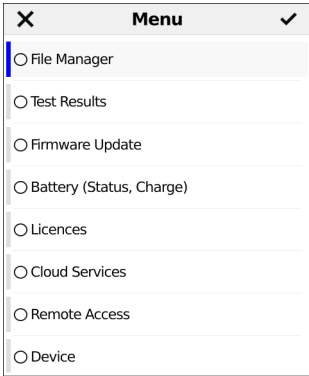


After confirming with the check mark, the access appears in the favourites view. Accesses have a green background color there. The suggested name has been changed to “5xOPM”. Accesses that have already been added disappear from the list of connections to be selected in the favourites types. In this example,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



The following favorites can be selected for the access filters:
- Fiber

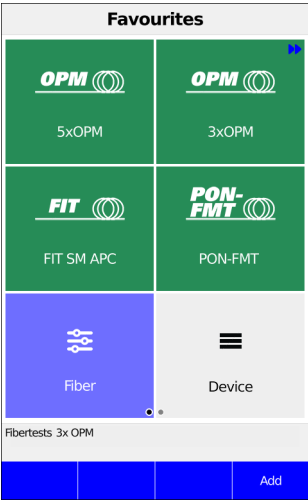
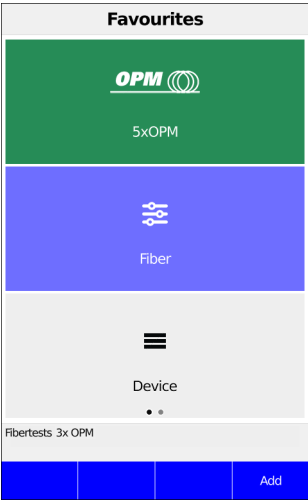
Access filters are displayed with a violet background color in the favourites view.



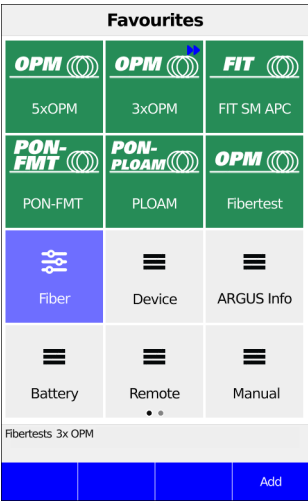
The following favourites can be selected in the Favourites type menu:

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

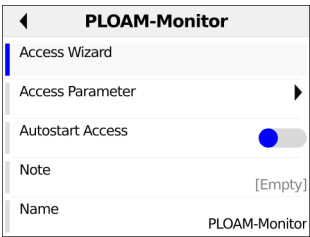
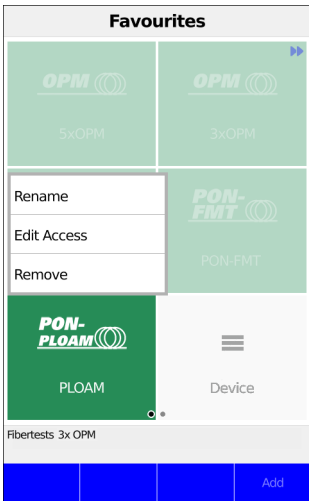
Access filters are displayed with a grey background color in the favourites view.



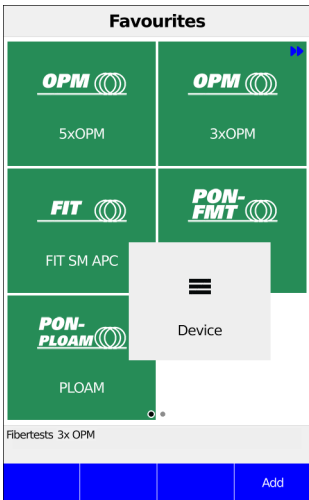
Depending on the number of favourites added, three large, six medium or twelve small tiles are displayed.



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

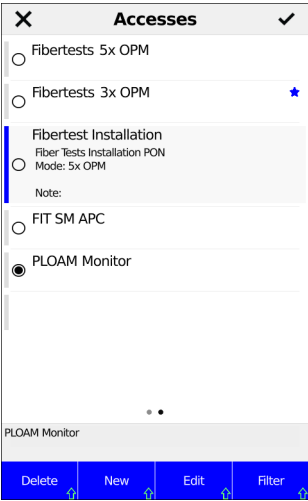


If you hold down one of the tiles, you can rename or remove it. Accesses can also be edited.

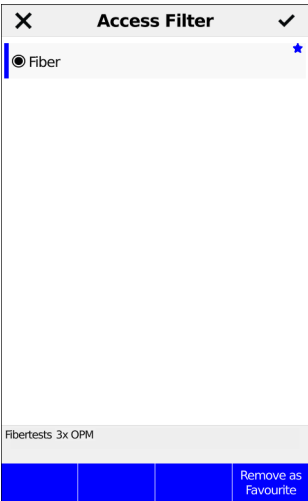
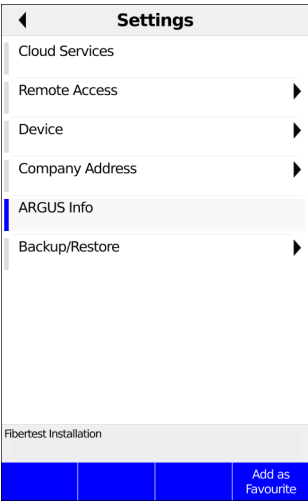


It is also possible to move the tiles. To do this, press and hold a tile and drag it to the desired position. In the example, the “Device” tile has been moved from the bottom right to the bottom left.

6 Favourites view



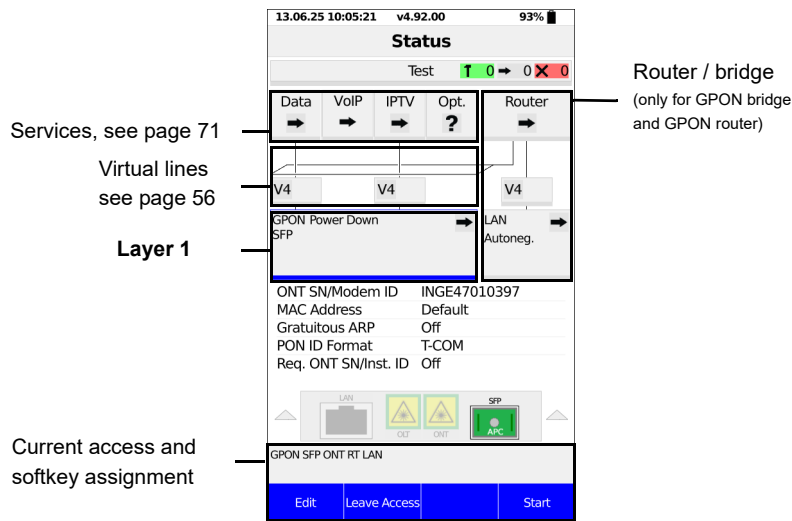
In the access menu, for example, the favourites are marked with a blue star, in this example fiber tests 3-fold OPM.



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 56 (Virtual lines) and page 71 (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>.



- <Edit> Changing GPON settings.
- <Access> Access selection: see page 25
- <Start> Synchronizing: see page 39.

8 Operation on GPON accesses

In conjunction with the 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 47. Connection of the ARGUS® GPON ONT to the optical fiber. The ARGUS® replaces the xDSL modem and the PC.
GPON Router	Router Mode (GPON Router) s. Seite 49. Connection of the ARGUS® GPON ONT to the optical fiber. The ARGUS® replaces the xDSL 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.



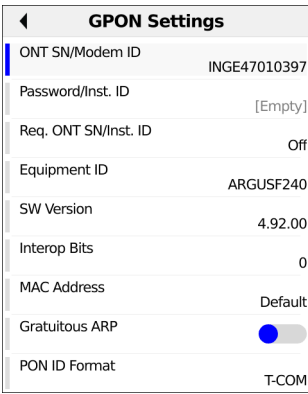
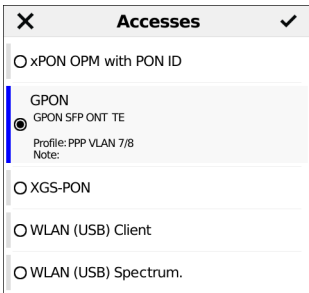
Never connect the GPON transceiver module directly to the OLT (max. -8dBm) without an attenuator. Danger of destruction!



In principle, the operating temperature range set out in "Technical data" (see S. 16) 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
- MAC Address
- Gratuitous ARP
- PON ID Format



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

Establishing the GPON connection

✕

Password/Inst. ID

✓

0/10 Characters

1234567890

qwertyuiop

asdfghjkl

⏏yxcvbnm?#@

123

7#@

✓

Status

Test 1 0 → 0 X 0

Data ? VolP ? IPTV ? Opt. ?

V4

GPON Operation ✓

SFP

PON ID 76G1-01-1

Rx Level -32.2 dBm

Attenua... 35.3 dB

	OLT-FSZ	Slot	Port
Vendor ID	76G1	01	1
Equipm. ID			
ONT ID			44

Level [dBm]

OLT Rx -32.2 Tx 3.1

ONT Rx -32.2 Tx 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

Diagnostic	
Temperature	38,0 °C
Voltage	3366,7 mV
Tx Bias	11,40 mA

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.

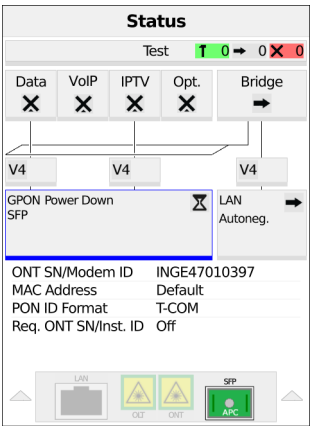
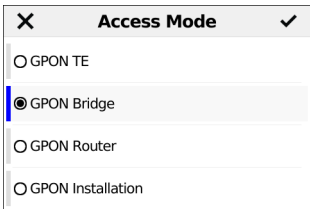
8.2 The ARGUS® in Access Mode GPON bridge

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).

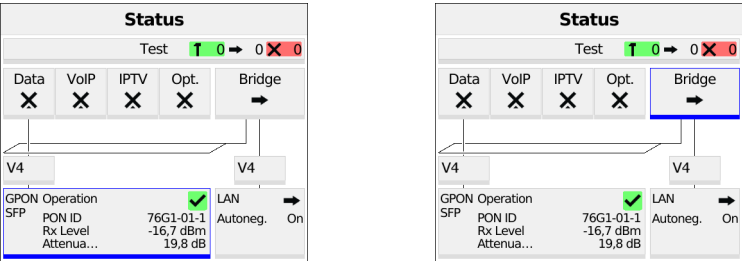


- <Edit> GPON settings
- <Access> Change access
- <Start> Start GPON



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

Establishing the GPON connection

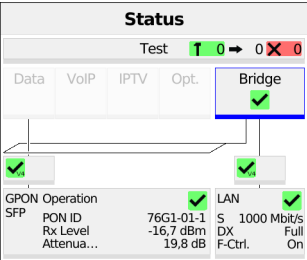


The GPON connection is established (green check mark in Layer 1 box).

<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.

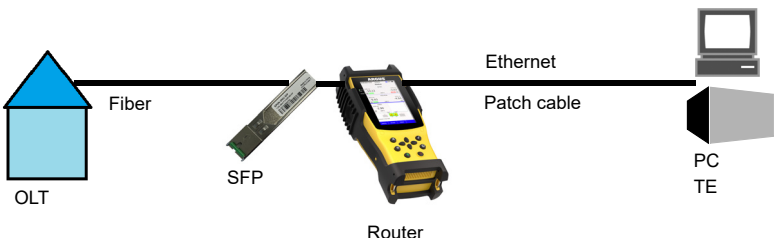
Switches to the layer-1 box and other elements.

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.



The ARGUS® does not have a firewall!



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).

X

Access Mode

✓

☒ GPON TE

☐ GPON Bridge

☐ GPON Router

☐ GPON Installation

Status

Test 1 0 → 0 X 0

Data →	VoIP ?	IPTV ?	Opt. ?	Router →
-----------	-----------	-----------	-----------	-------------

V4

GPON Power Down SFP

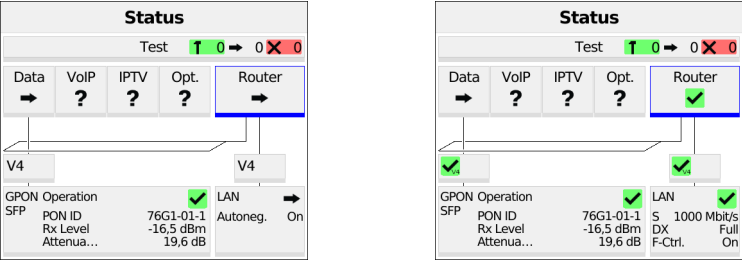
V4

LAN Autoneg. On

<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.

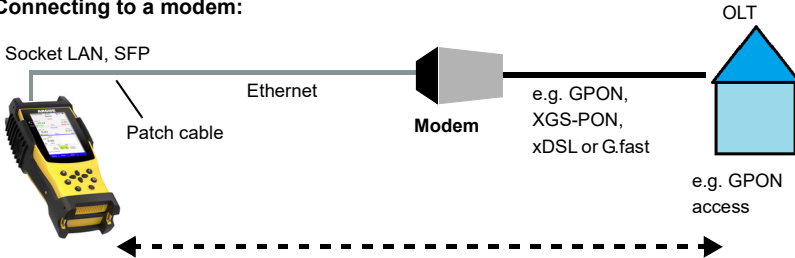
9 Operation on the Ethernet access

The ARGUS® supports the following in Ethernet operation:

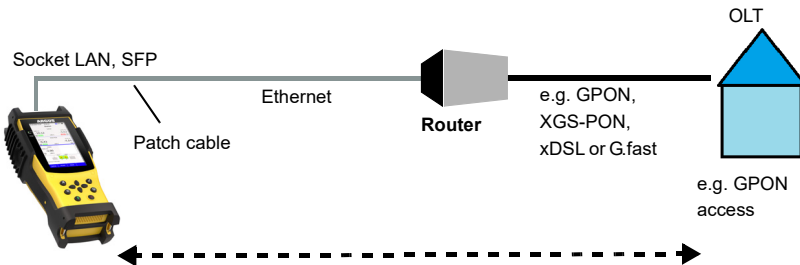


The individual tests acquire and store data. It is the user's responsibility to comply with the applicable legal requirements.

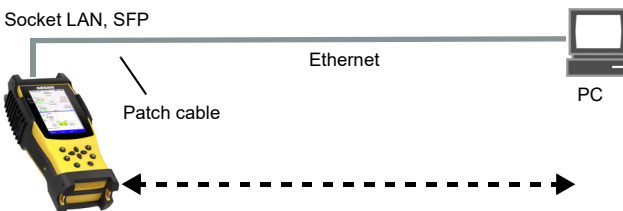
Connecting to a modem:



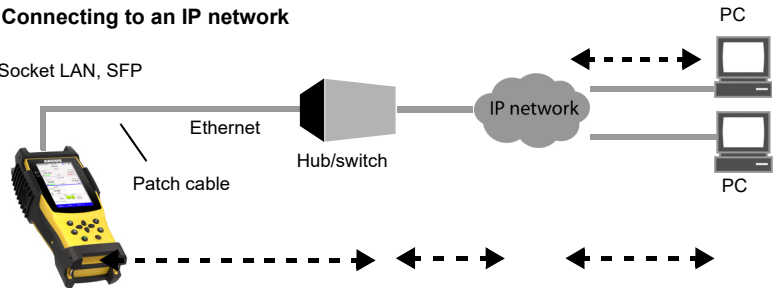
Connecting to a router modem:



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 25).

9.2 Ethernet configuration

You can modify the Ethernet settings as described for GPON, see page 36.

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 or 100 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).

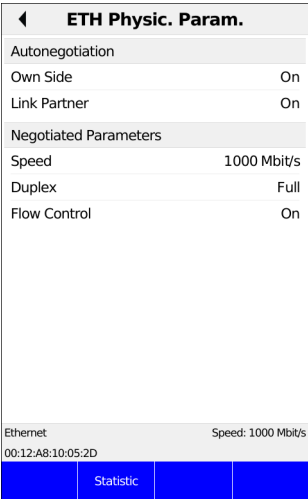
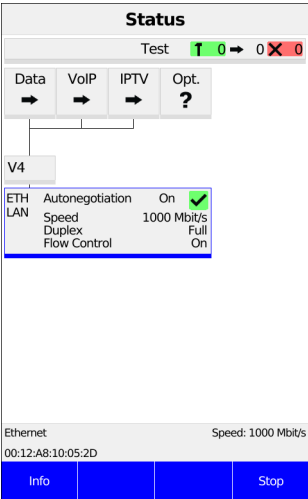
- 10 or 100 Mbit/s, default: **100 Mbit/s**
- Flow control on/off, default: **on**



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 52.

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 54.

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 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 (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

VoIP

IPTV

Opt.

Router

V4

V4

GPON Power Down SFP

U:

VL Profile

Protocol

VLAN Mode

IP Mode

Own IP Address

→

LAN Autoneg. On

→

No VLAN (DHCP)

IP

No VLAN

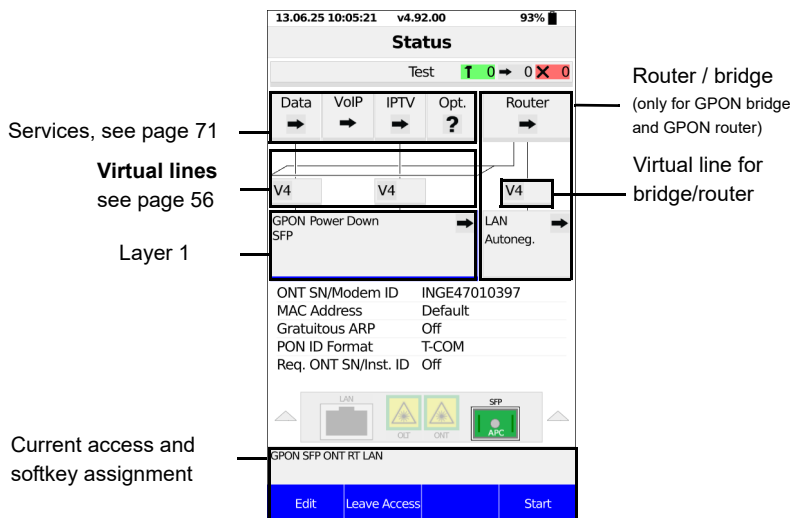
DHCP Client

0.0.0.0

GPON-RT LAN

Edit

Profile

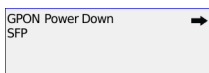


The status screen is divided into three levels that can be individually selected using the cursor keys of the ARGUS® keypad.

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 62.



- 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 31

- 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.

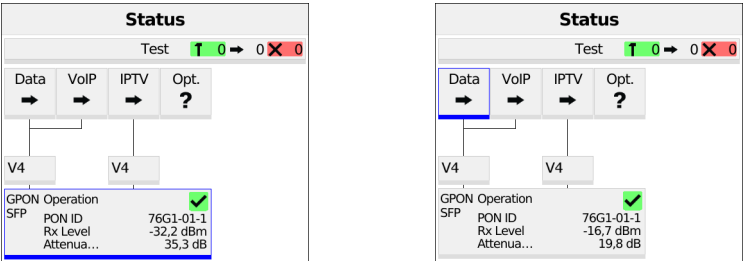
PPP profiles (1 - 20)

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

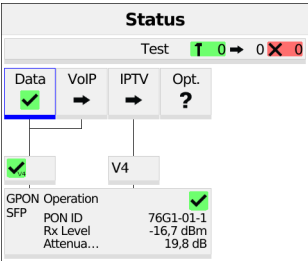
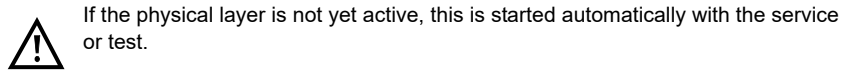
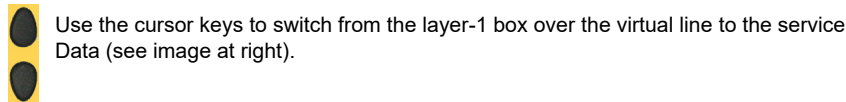
10.3 Virtual line activation

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 left).



<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 71.

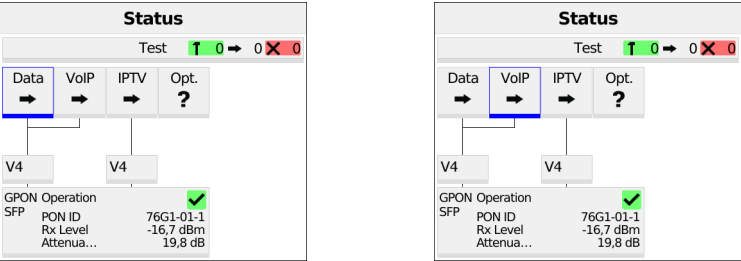
Single Tests	
IP Ping	www.argus.info
Traceroute	www.argus.info
Path MTU	www.argus.info
iperf Client	www.argus.info
iperf Server	Version 3
ARGUS® Real Speed Direct (iperf) ARGUS Server GER [10G]	
ARGUS® Real Speed Formal (RFC 6349) iperf Profile 1	
HTTP Download	Server Profile 1
FTP Download	Server Profile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

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 73.

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> Edit the selected VL profile.



e.g. select PPP

Opens PPP profile selection.

X

PPP Profiles

✓

PPP Profile 1

●

Provider: Manual

Username:

Password:

○

PPP Profile 2

○

PPP Profile 3

○

PPP Profile 4

○

PPP Profile 5

○

PPP Profile 6

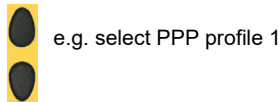
○

PPP Profile 7

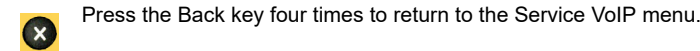
○

PPP Profile 8

Select profile.



Up to 20 PPP profiles can be configured.



Status

Test

1

0

→

0

X

0

Data

VolIP

IPTV

Opt.

→

→

→

?

V4

V4

GPON Operation

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

✓

Status

Test

1

0

→

0

X

0

Data

VolIP

IPTV

Opt.

→

✓

→

?

✓

V4

GPON Operation

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

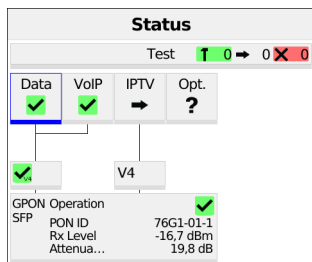
✓

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 another service.

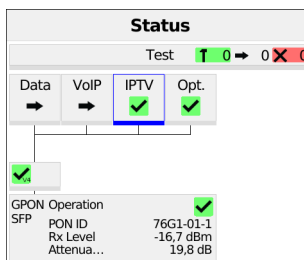
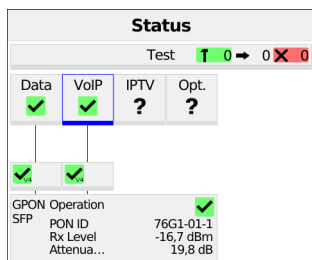


Select Data using the cursor keys and press <start> to activate the service.

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):

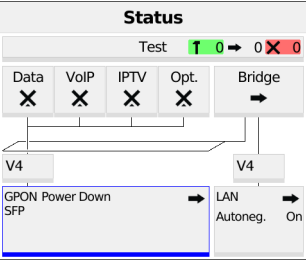
One virtual line is connected with the service Data and another with the service VoIP. The virtual line for VoIP can thus be used for different protocol data than the virtual line for Data.

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.

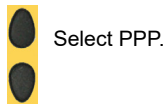
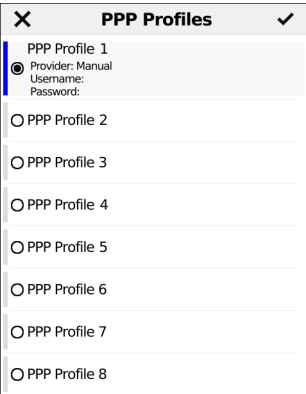
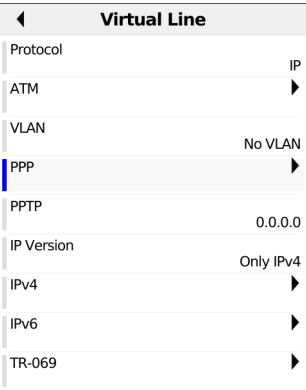


Up to four virtual lines can be established for the service IPTV. However, the ARGUS only displays these as a single composite virtual line. A detailed description is provided in the chapter IPTV, see page 130.



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



Up to 20 PPP profiles can be configured.

10.5 Virtual line settings

The following virtual line settings can be configured:

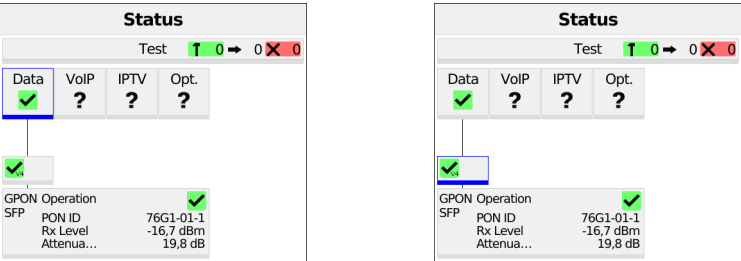
- Protocol
 - IP
 - PPP
 - PPTP
- ATM
 - VPI/VC1
 - Encapsulation
 - ATM with Ethernet
- VLAN
 - no VLAN
 - 1 VLAN tag
 - 2 VLAN tags (QinQ)
- PPP
 - PPP profile 1-20
 - Query of Profile
- PPTP
- IP version
 - Only IPv4
 - Only IPv6
 - Dual Stack IPv4/IPv6
 - Dual Stack Lite
- IPv4
 - IP Mode
 - Own IP Address
 - IP Netmask
 - Gateway
 - DNS Server
 - DHCP Client
 - DHCP Server
- IPv6
 - AFTR
 - IPv6 Mode
 - DHCP Client
 - Own IPv6 Address
 - Prefix
 - Gateway
 - DNS Server
 - DHCP Client
- 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 G.fast and DSL results

<stop> Disable physics, VL and data

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

VLAN 7 (PPP)		
PPP Data Rate	Down	Up
[kbit/s]	n/r	n/r
PPP	Rx	Tx
Packets	40	30
Bytes	2723	1471
Ethernet	Rx	Tx
Frames	57	46
Bytes	4079	3625

When you select “Info”, the ARGUS® displays the IP, PPP and Ethernet information (only for PPP) protocol).

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

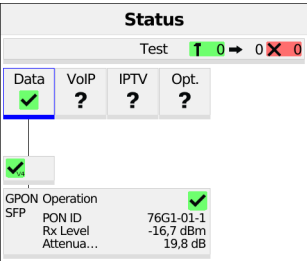
Table of abbreviations:

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 56) 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 224 for an explanation of the symbols.

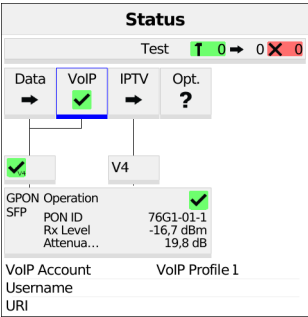
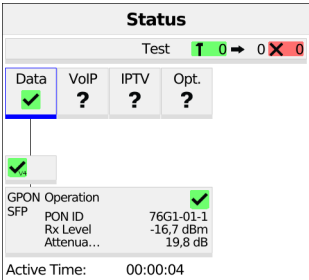
Once a service is activated, a variety of tests can be started using <Test>.

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 - FTP download - FTP upload - FTP server - Web browser - Network Scan - Port Check	- VoIP call acceptance - VoIP call generator - Port Check	- IPTV zapping test - IPTV Monitor - Port Check	- HTTP upload - FTP download - FTP upload - FTP server - Web browser - Video on demand - Port Check
*1 Ethernet and WLAN 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).

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 or GPON 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 25.

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**

✕ 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	:	-	✕
*	0	#	.	ABC	✓

✕ 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	:	-	✕
*	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.

 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 28. 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.

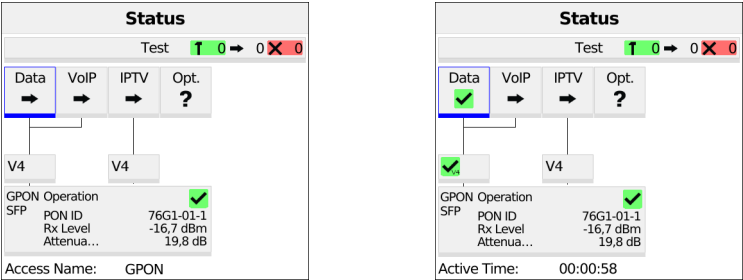
*** or #** Entry of special characters, e.g. @, /, -, ., ...
or
_, :, ~, +, ...

 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 or Ethernet connection is established, ARGUS® automatically connects at this point using the default profile (see page 39).

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

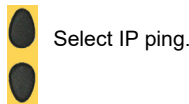
- <Info> Duration of activation
- <Test> Opens test selection
- <Stop> Deactivates the service

◀ **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**

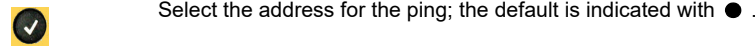
☒ www.argus.info
☐ ipv6.argus.info
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0
☐ 0.0.0.0



Select IP ping.

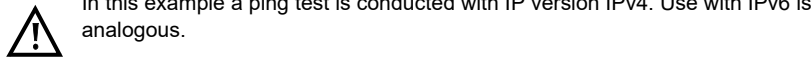
<Setting> Change IP ping parameters, see page 73.

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 73.



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
SFP 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	🟢		
Sent:	2		
Received:	2		
Average:	22 ms		
Maximum:	22 ms		
Data VoIP IPTV Opt.			

Press Back to return to the test overview. You can start a new test as needed by selecting <New>. The 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 25.

The following test parameters can be configured:

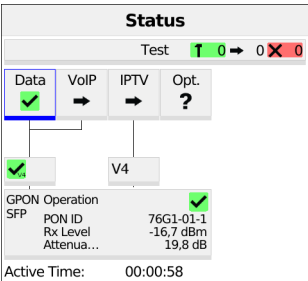
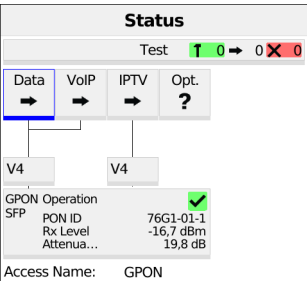
- IP address
- Maximum hops
- Probes
- Timeout



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

Starting traceroute

(Example: access mode GPON, already active)



Connecting the service.

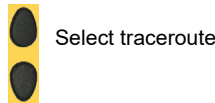
The profile shown in the display (in this example profile 1) is used for the traceroute test.

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

If no GPON or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).
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

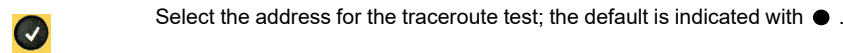


<Setting> Change traceroute parameters, see page 80.

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 73.



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: 217.5.67.162, 0.015 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 78).

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 25.

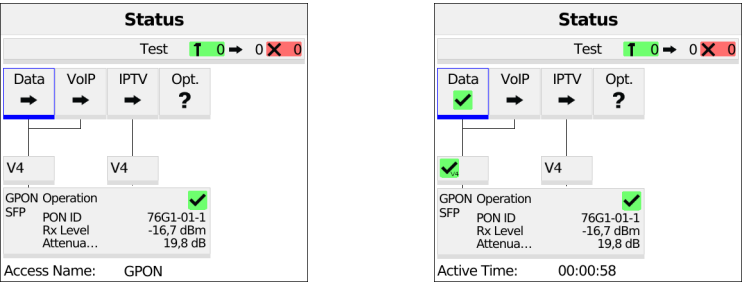
The following test parameters can be configured:

- 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):



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 xDSL or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).

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



Select Path MTU.

- <Setting> Change Path MTU parameters.

The ARGUS® displays the addresses saved in the profile.



Select the address for the Path MTU test; the default is indicated with ●.

- <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	
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 25.

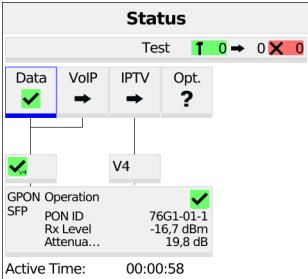
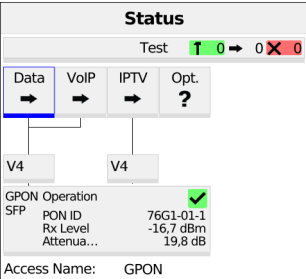
You can configure the following settings in profiles:

- 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 or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).

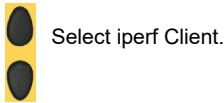
The service Data and the GPON connection are active (see image at right).

- <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-Profil 1



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 ●.

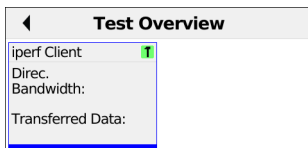
<Edit>

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 25.

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):

Status

Test 1 0 → 0 ✕ 0

Data

VolP

IPTV

Opt.

V4

V4

GPON Operation

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16.7 dBm

19.8 dB

Access Name: GPON

Status

Test 1 0 → 0 ✕ 0

Data

VolP

IPTV

Opt.

V4

GPON Operation

SFP

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 iperf Server.

<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 39).

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

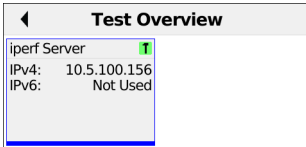
Number of Parallel Streams	3
Bandwidth Limit	No
Test Duration	30 s
Window Size	Standard
Authentication	►
Profile Name	iperf-Profil 1



Select iperf Server.

<Setting> Change iperf Server parameters.

The iperf Server starts automatically.



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 ARGUS® Real Speed 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 25.

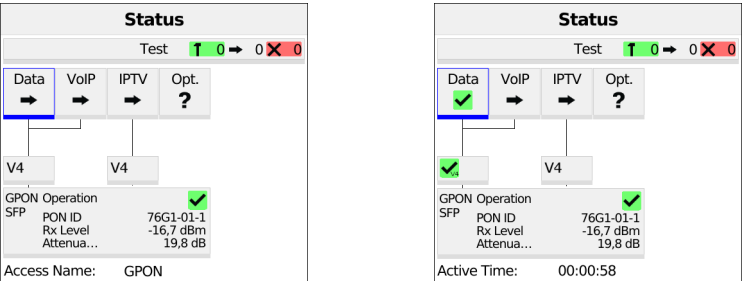
You can configure the following settings:

- IP Address
- Authentication



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

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



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 39).

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 TCP throughput test according to RFC6349 against an ARGUS® Real Speed 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 25.

You can configure the following settings:

- 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 ✓ SFP 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 ✓ SFP 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 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 39).

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-Profil 1



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 1	
Status	Path MTU
t:	00:00:02

Test Overview	
Real Speed Formal 1	
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 25.

The following test parameters can be configured:

- Server Profile
 - Server Address
 - Download Filename
 - Upload Filename
 - Upload Filesize
 - Username
 - Password
 - Number of Up-/Downloads
 - Number of Parallel Downloads
 - 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).

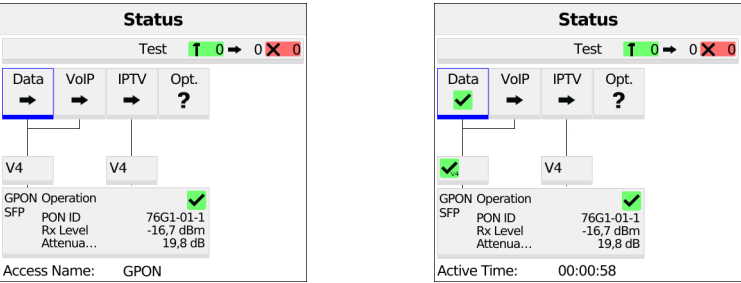


When requesting multiple download components, the ARGUS® may reduce the number of downloads depending on the server support, which can cause deviations from the set parameters. This can occur e.g. as soon as the size of the requested file is unknown.



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)

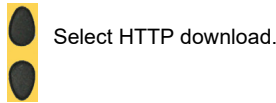
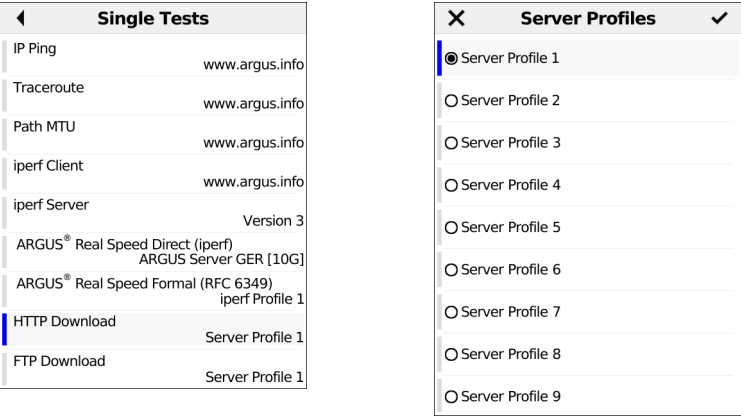


Connecting the service.

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 39).



<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 146.

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

Save HTTP download result, see page 78.

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 25.

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

 Select FTP download

<Profile> Displays the available FTP download profiles.

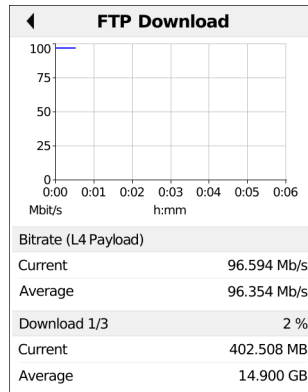
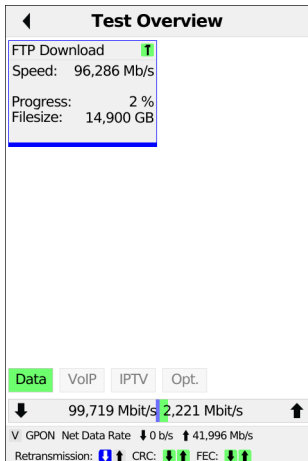
Mark the server profile (default is indicated with ●).

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.



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	iptest.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 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 78.

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 25.

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

☐

Server Profile 4

☐

Server Profile 5

☐

Server Profile 6

☐

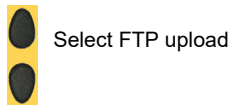
Server Profile 7

☐

Server Profile 8

☐

Server Profile 9

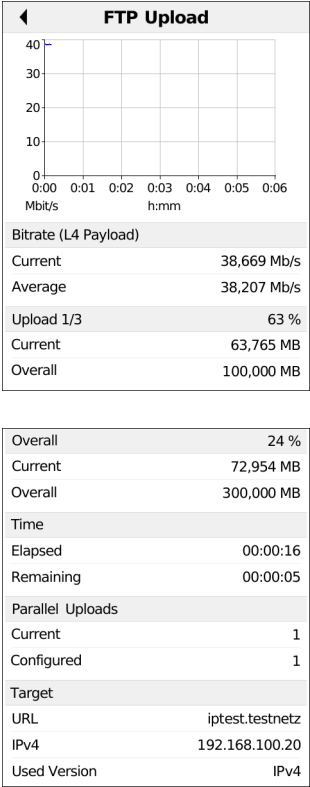
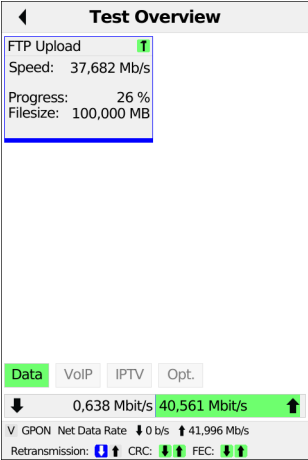


<Profile> Displays the available FTP upload profiles.

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.



- 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 78.

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 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

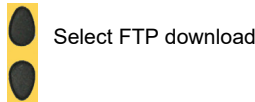
☐ Server Profile 5

☐ Server Profile 6

☐ Server Profile 7

☐ Server Profile 8

☐ Server Profile 9



Select FTP download

<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 102 for displaying the FTP download result during the FTP download.

12.12 Web browser

The web browser can display HTML web pages.

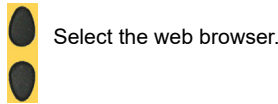
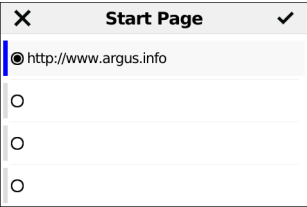
Protocol-independent parameters:

Opening of test parameters is described in the chapter "Configuring accesses", see page 25.

<Setting> The address can be entered as either an IP number or a name (URL), see IP ping/IP address for instructions, page 74.
Default: **www.argus.info**

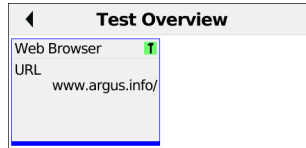
Starting the web browser

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



Select the URL.
You can configure up to 20 URLs; see "Access name", page 28 for instructions.

If no connection is established, ARGUS® automatically connects at this point (see page 39).



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.

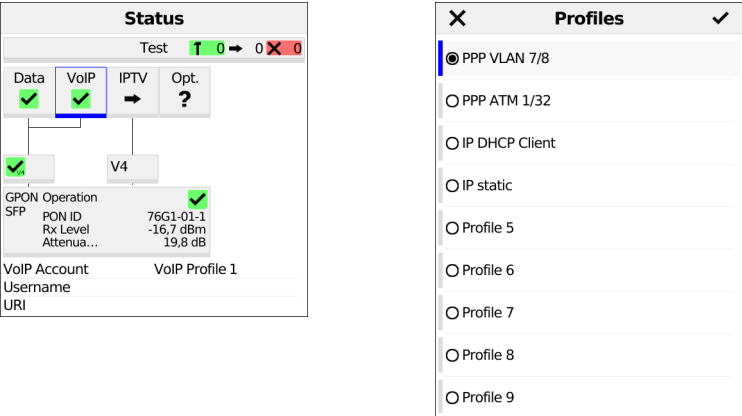
Saving web browser result see also IP ping (see page 78).

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 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).

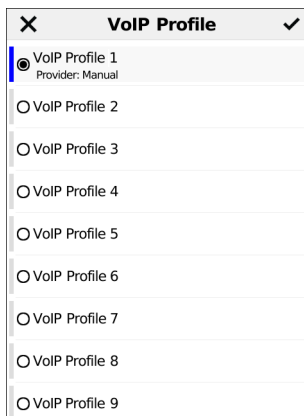
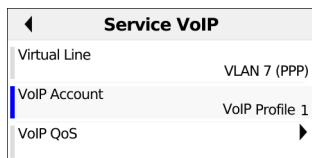
- <Edit> Assigns a virtual line to the service VoIP.
- <Profile> Profile settings, see page 25.
- <Start> Activates the service.



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 or GPON connection and conducting the VoIP test.

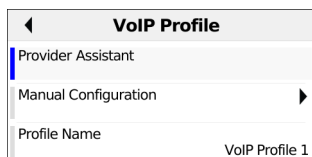


The ARGUS® uses the marked profile as the preset profile and switches to the menu Settings.



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 Settings
 - Username
 - Password
 - Authentication
 - Caller ID

- Registrar Server
 - Use Registrar
 - Registrar Server
- Outbound Proxy
 - Use Proxy
 - Outbound Proxy/SBC
 - Outbound Proxy/SBC Port
- DNS Resolution
- SIP Trunk
 - Use SIP Trunk
 - CLIR
 - P-Preferred Identity Header
 - Own Basic Number
 - Own Extension (DDI)
 - Number Range
 - Use Number Range
 - Number Range
- Transport Protocol
- SIP Domain
- SIP Realm
- Listen Port
- Remote Port
- User Agent
- Qualify
- Registration Expire
- Retry-After
- Delete Existing Registrations
- Via Header IP
- Call Settings
 - CLIP No Screening
 - Use CLIP No Screening
 - CLIP Number
- Phone Settings
 - RTP Port Range
 - Silence Detection
 - Jitter Buffer

- Codecs
- DTMF Settings
 - Mode
 - Duration
- STUN Server
 - Use STUN
 - 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):

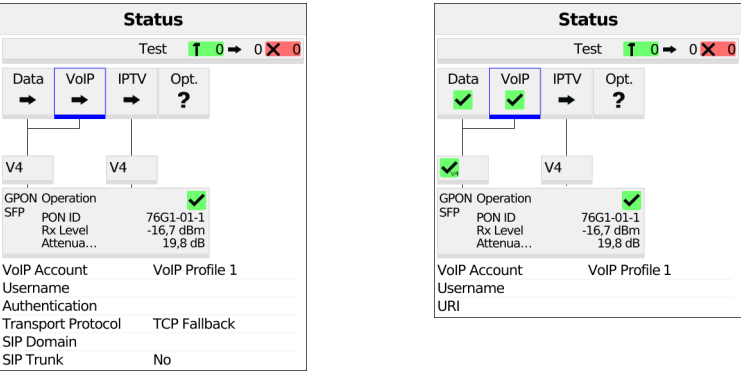
- Layer 3 DiffServ
 - RTP (ToS/DSCP)
 - SIP (ToS/DSCP)
- Layer 2 VLAN Prio
 - RTP VLAN Prio
 - SIP VLAN Prio



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

13.1 Starting VoIP telephony

(Example: GPON access, already active)



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 or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).

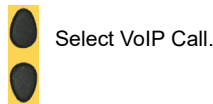
<Info> Duration of activation, see page 120.

<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.

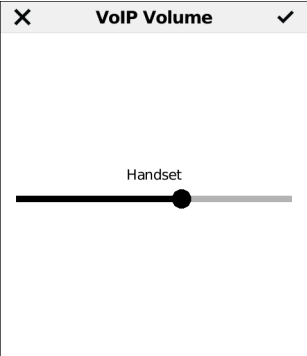
VoIP Overview	
Status	
State	---
Call Info	Connected
From	7089
To	89
Connecting Time	00:00:00
Codec	Unknown

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".

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 (“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 224 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. ?
✓ ✓ V4
GPON Operation ✓
SFP PON ID 76G1-01-1
Rx Level -16.7 dBm
Attenua... 19.8 dB
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 178.

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 228 "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 124.

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

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

VoIP results

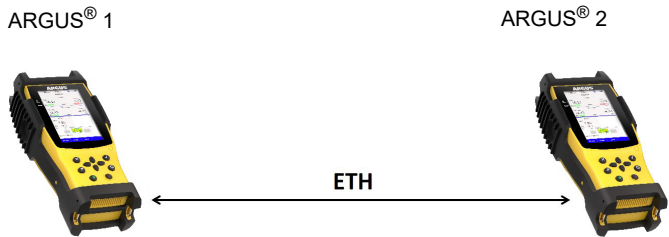


You can obtain further information on the VoIP results in the ARGUSpedia on the instrument.

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 25	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

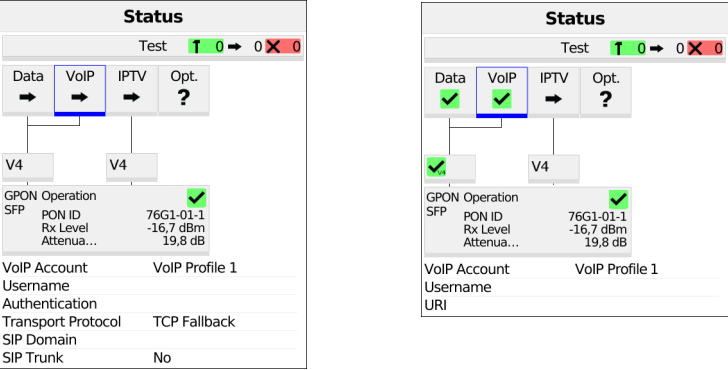


Now enter the IP address of ARGUS 2 in ARGUS 1 as the target telephone number to initiate a VoIP call. The IP address of ARGUS 1 must be entered as the target telephone number in ARGUS 2.

The call is connected just as for VoIP call/VoIP call acceptance, see page 124.

13.2 VoIP Call Acceptance

In the test "VoIP Call Acceptance", the ARGUS® behaves like a VoIP telephone. The VoIP call (see page 117) and the VoIP call acceptance parameters must be configured for the VoIP call acceptance test:



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 or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).

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**



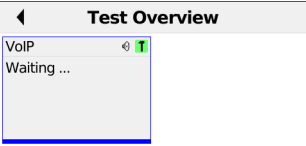
The ARGUS® uses the own number entered under SIP parameters (see page 121) as its own number.

Test Overview	
VoIP	1
Waiting ...	

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

The ARGUS® automatically accepts the call (see page 122) (see image at right). The connection parameters are the same as for VoIP call and are explained on page 117 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

SFP

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

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

✓

VoIP Account

Username

URI

VoIP Profile 1

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 or Ethernet connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39)

<Info> Duration of activation, see page 120.

<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	1
To:	89
Successful 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 or Ethernet connection is already established, the connection parameters, e.g. the target value, are locked):

Protocol-independent parameters:

Status

Test T 0 → 0 X 0

Data

VolIP

IPTV

Opt.

V4

V4

GPON Operation

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

✓

X

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 or GPON connection and conducting the IPTV test.



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

◀

Service IPTV

Virtual Line

No VLAN (DHCP)

IPTV QoS

▶

◀

Status

✓

Test

1 0 → 0 ✗ 0

Data

VoIP

IPTV

✓

Opt.

?

✓

GPON Operation

SFP

PON ID

76G1-01-1

Rx Level

-16,7 dBm

Attenua...

19,8 dB

✓

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

◀

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

✗

IPTV Profile

✓

● IPTV Profile 1

○ IPTV Profile 2

○ IPTV Profile 3

◀

IPTV Test Param.

Channel Selection

Das Erste

IGMP Version

3

Thresholds

▶

Profile Name

IPTV Profile 1

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

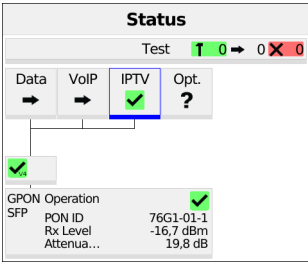
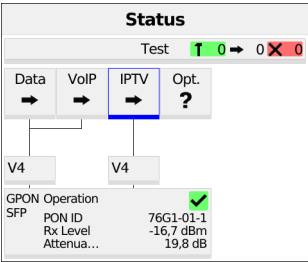
VL 2:

No VL

Adds selected VL profile for the service IPTV.

<Insert>	Inserts a further virtual profile.
<Edit>	Edits the selected virtual profile.
<More>	Opens further selection options.
<Delete>	Deletes the selected virtual profile.
<↓>	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.

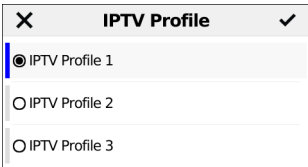
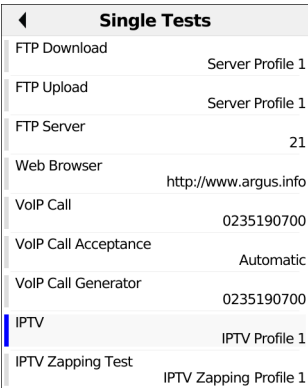
<Edit> Assigns a virtual line is assigned to the service IPTV or edits it.

If no GPON connection is established, the ARGUS® automatically connects at this point using the default profile (see page 39).

<Info> Duration of activation

<Test> Opens test selection

<Stop> Deactivates the service



<Profile> Displays the IPTV profiles, see page 131.

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 146.

<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 results



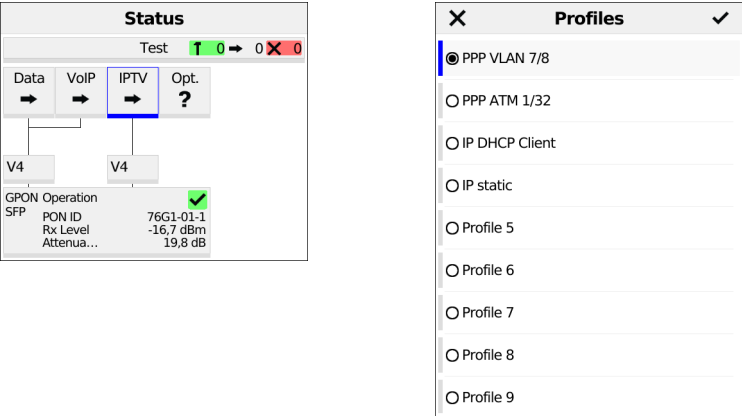
You can obtain further information on IPTV results in the ARGUSpedia on the instrument.

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 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 31.

<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 or GPON connection and conducting the IPTV zapping test.



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

← IPTV Zapping Test

- Channel Selection
- IGMP Version 3
- Maximum Zapping Time 5 ms
- Profile Name IPTV Zapping Profile 1

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

<Edit> Edits the marked zapping profile.

X	Channel List	✓
1:	Das Erste	
2:	ZDF	
3:	WDR	
4:		

X	Channel List	✓
	ZDF HD	
	ZDF infokanal	
	zdf.kultur	
	ZDFneo	
	3sat	
	ARTE HD	
	Ki Ka	
	PHOENIX	
	BR Nord	

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.

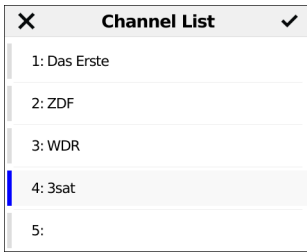
<Insert>	Opens the channel list with the available channels.
----------	---



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

<Edit> Edits the marked channel, see page 131:

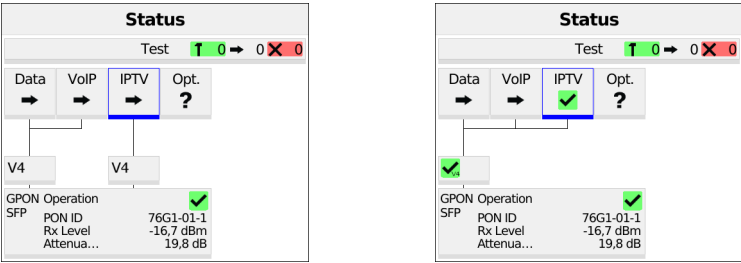
- Enter the address (multicast IP and port number) of the TV channel.
- Enter any alias name for the TV channel (e.g. name of broadcaster).



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 39).

<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 profiles, see page 139.

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.

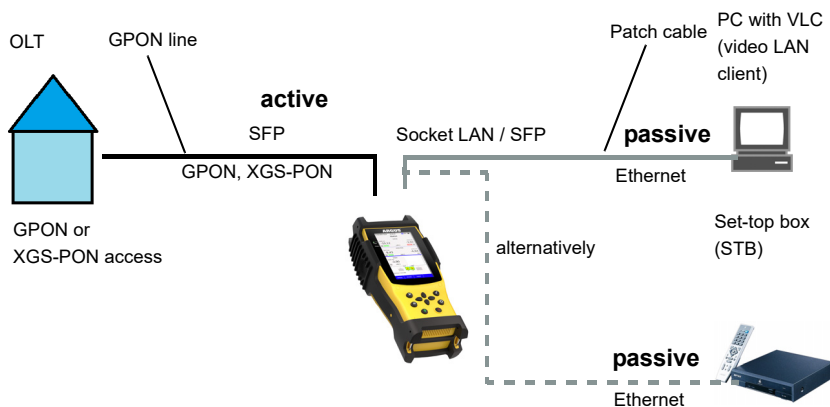
Displays the time needed to switch between channels. If a TV channel cannot be received within the set interval, the ARGUS® displays "Failed".

<Test status> Displays test status without ending the test or starting a new test, see page 146.

For saving results, see IP ping, page 78.

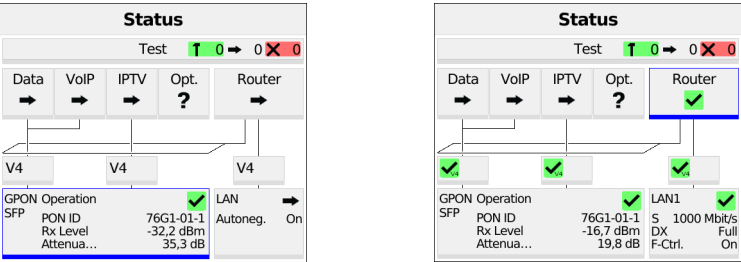
14.3 IPTV Monitor

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



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.

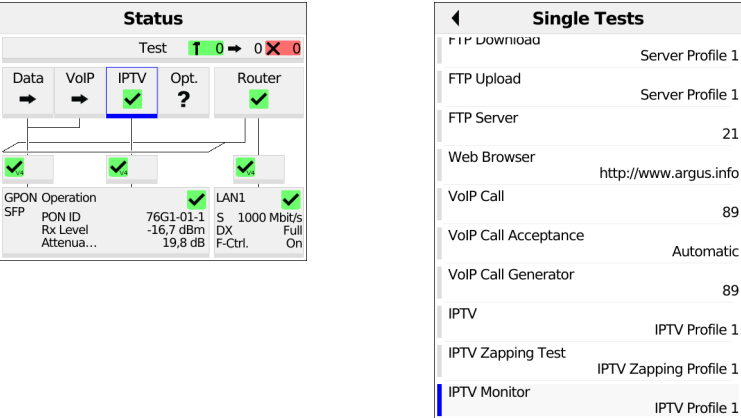
Use the cursor to select the router and start it.

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.

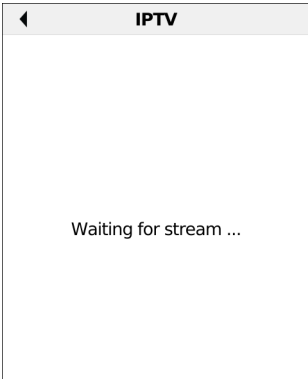
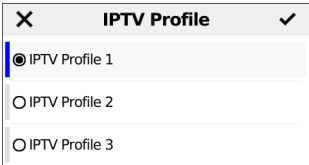


The service IPTV and the router mode are active and the GPON access is synchronous.



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

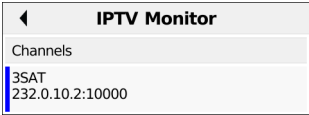
<Profile> Displays the IPTV Monitor settings.



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

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

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



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 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 73	For these tests, up to 10 tests can be conducted concurrently (incl. tests using the other services).
	Traceroute* ¹ , see page 80	
	Path MTU, see page 83	
	iperf Client, see page 85	
	iperf Server, see page 88	
	ARGUS® Real Speed Direct, see page 91	
	ARGUS® Real Speed Formal, see page 93	
	HTTP download, see page 96	
	FTP download, see page 101	
	FTP upload, see page 104	
	FTP server, see page 107	See remark for VoIP
	Web browser, see page 110	
	Network Scan	
	Port Check	
VoIP	VoIP call, see page 117	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 124	
	VoIP call generator, see page 127	
IPTV	IPTV, see page 130	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 138	
	IPTV monitor, see page 143	

Opt.	IP Ping ^{*1} , see page 73	For these tests, up to 10 tests can be conducted concurrently (incl. tests using the other services).
	Traceroute ^{*1} , see page 80	
	Path MTU, see page 83	
	iperf Client, see page 85	
	iperf Server, see page 88	
	HTTP download, see page 96	
	FTP download, see page 101	
	FTP upload, see page 104	
	FTP server, see page 107	See remark for VoIP.
	Web browser, see page 110	
	^{*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.

Status

Test 1 0 0 0

Data

VoIP

IPTV

Opt.

GPON Operation

SFP

PON ID

Rx Level

Attenua...

76G1-01-1

-16,7 dBm

19,8 dB

VoIP Account

Username

URI

VoIP Profile 1

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, see page 96.

148

ARGUS® F240

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

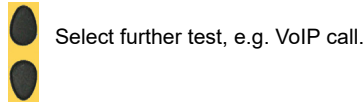
89

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 96.



◀

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

Hang 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® enables a variety of tests at optical fiber interfaces.

16.1 Selective OPM

The ARGUS® F240 has either a selective 3-fold, 4-fold or 5-fold OPM with Through Mode. The Selective Triple OPM for the ARGUS® 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 3xOPM 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. The 4x and 5xOPM do not support broadband measurement.

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
- broadband measurement (3-fold OPM only)
- 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 identification 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.



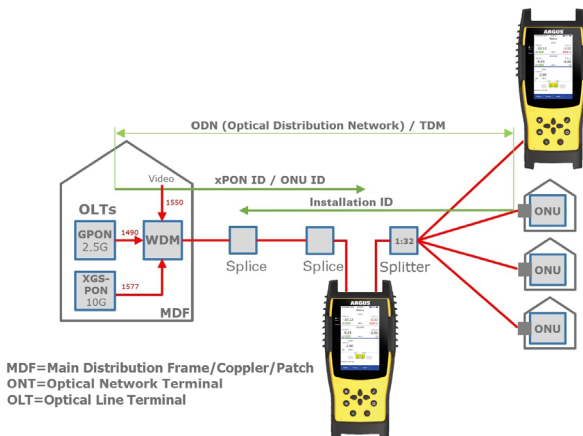
When working on and with optical lines, make sure that they are always plugged in in a perfectly clean condition. Check the cleanliness of your patch cable with an optical microscope, e.g. the Fiber Inspection Tool. Always use dust caps when jacks and cables are not in use.



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 nm (filtered): from -35 to +10 dBm (max. power +18 dBm)
 - 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

Access Mode

✓

☒ Installation

☐ 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

Measurement

✓

☒ 3x OPM

☐ 5 x 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.

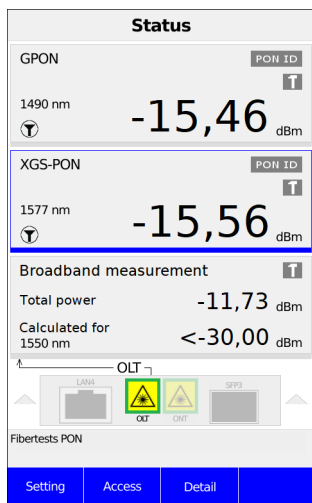
<Delete>	Delete the access
<New>	Create new access
<Edit>	Edit selected access
<Filter>	Filter access list

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 206).

The following settings can be made:

- Reference
- Broadband measurement
- Reference wavelength

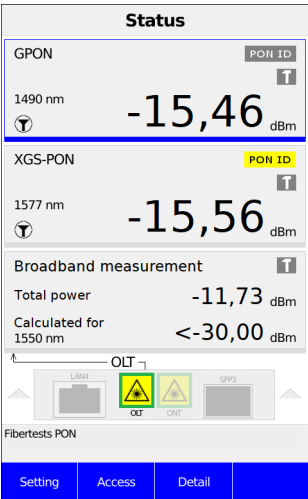
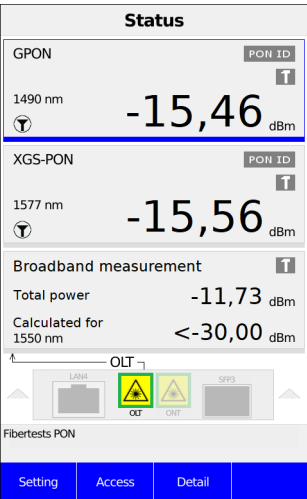


You can obtain further information on settings in the ARGUSpedia on the instrument.

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.

Broadband measurement 	
Total power	-11,73 dBm
Calculated for 1550 nm	<-30,00 dBm

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.

<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).



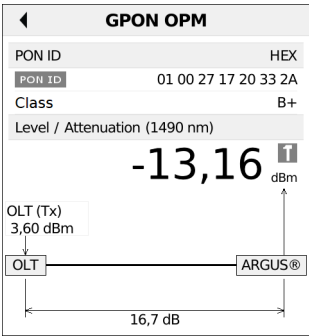
Reference point ARGUS[®]/3x OPM (Sel. OPM): The opt. level shown in large is measured at this point.

Alien Alien ONT detected (red).



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

16,54 dB 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 Format	T-COM
Broadband Measurement	On
Reference Wavelength	1550 nm

Reference Level																									
GPON	0,00 dBm																								
XGS-PON	0,00 dBm																								
Broadband Meas.	0,00 dBm																								
Range: from -40,00 to 10,00 dBm																									
<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	✓																				

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.

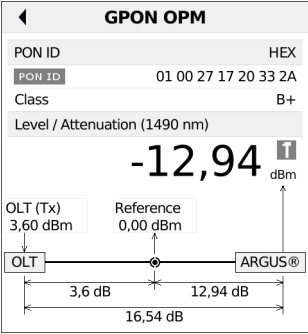
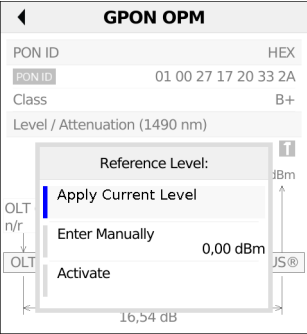
Furthermore, the following GPON PON ID formats can be selected:

- 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.

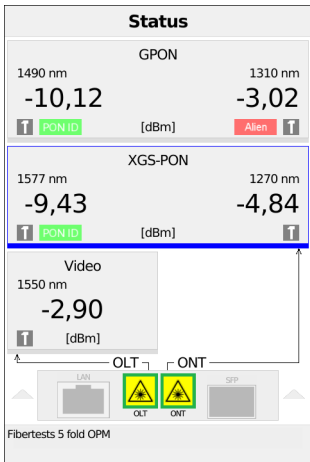
The defined reference level is marked with a point. Now the calculated attenuation between the OLT and the reference point as well as between the reference point and the ARGUS® can be found. Below this, the attenuation between the OLT and the ARGUS® is displayed.

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

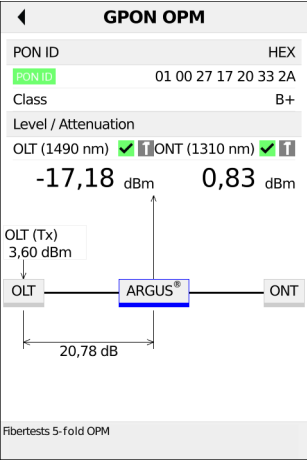
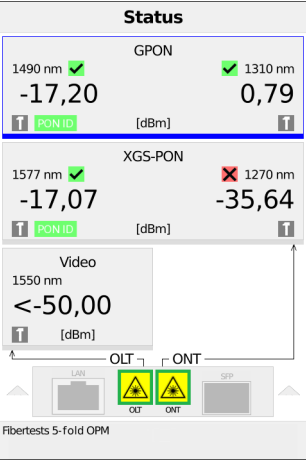
16.1.4 Measurements with the 4-fold or 5-fold OPM

The "4-fold OPM" or "5-fold OPM" connection is configured in the same way as the 3-fold OPM. In contrast to the 4-fold OPM, an additional wavelength of 1550 nm is possible with the 5-fold OPM.

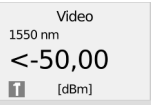
In the upstream, i.e. from the ONT, there is only a response if this was initiated by an OLT. If the line is interrupted in order to measure the downstream level, the ONT also stops transmitting. The only way to reliably measure the upstream level is therefore to loop into the line in a kind of through 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 to a second ARGUS®.



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.

<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 16.1.2 Settings Selective OPM (see page 155).

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

ARGUS



pedia

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.

✕

PON Installation

✓

Job Number

0

Area Code

0

Cabinet

0

Branch

0

AP

0

✕

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).

✕

Max. Allowed Attenuation

✓

28.5

dB

Please enter a value between
0,0 dB and 99,9 dB

123ABC

456DEF

789: - ✕

*0# , ABC ✓

✕

No. of Fibers

✓

1

Please enter a value between
1 and 64

123ABC

456DEF

789: - ✕

*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 PONGPON (1490 nm)
0/1

MeasurementSave

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 scans all ONU IDs and serial numbers of connected ONTs on a PON branch.

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).

X

Single Tests

✓

☐ Only Status (PON Level Check)

☐ PON Installation

☒ PLOAM Monitor

X

Summary

✓

Fiber Tests Installation PON

Mode: 3x OPM

Measurement: PLOAM Monitor

Note:

✓: Save and quit wizard.

X: 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 messages.

◀ PLOAM Monitor		
S/N / Status	Resync	ONT ID
INGE3C011914 Activated	0	11
INGE00000045 Activated	0	12
INGE47010397 Activated	0	13
ONT100000001 Activated	0	14

16.3 Optical Loss Test

With the Optical Loss Test software option and the Optical Light Source, the ARGUS® F240 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® F240 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).

X

Access

✓

☐

Fiber Tests

X

Fiber Mode

✓

☐

Installation

☐

Fiber Inspection Tool

☒

Optical Loss Test

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

X

Interface

✓

☐

SFP1

☒

PON

X

Access Name

✓

Optical Loss Test PON

21/24 Characters

! " # \$ % & ' () * + , - . : ;

1 2 3 4 5 6 7 8 9 0

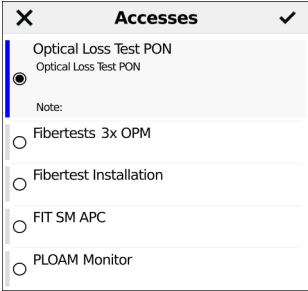
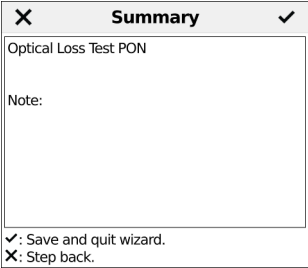
Q W E R T Y U I O P

A S D F G H J K L

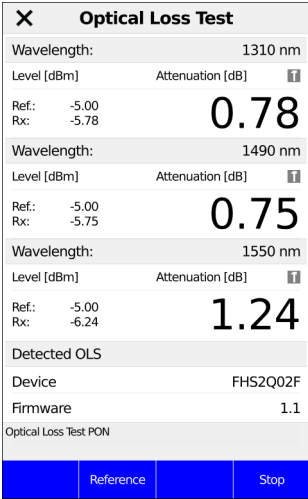
↑ Y X C V B N M ↵

123 ↩ ?#@ ✓

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



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



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.

✕

Access

✓

☒ Fibertests

☐ GPON

☐ XGS-PON

☐ WLAN (USB)

✕

Fiber Mode

✓

☐ Installation

☒ Fiber Inspection Tool

✕

Connector Type

✓

☒ SM PC RL ≥ 45 dB

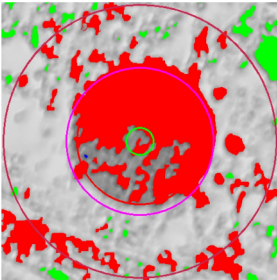
☐ SM APC

☐ SM PC RL ≥ 26 dB

☐ 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 ≥ 45 dB

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 μ m - 25 μ m	0
Not allowed	0
B: Cladding Defect 25 μ m - 115 μ m	2
No limit < 2 μ m	0
5 between 2 μ m and 5 μ m	2
Not allowed > 5 μ m	0
C: Adhesive Defect 115 μ m - 135 μ m	0
No limit	0
D: Contact Defect 135 μ m - 250 μ m	64
Not allowed > 10 μ m	6
A: Core Scratch 0 μ m - 25 μ m	0
Not allowed	0
B: Cladding Scratch 25 μ m - 115 μ m	0
No limit ≤ 2 μ m	0
Not allowed > 3 μ m	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 .

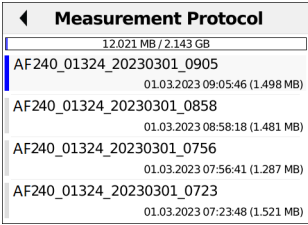
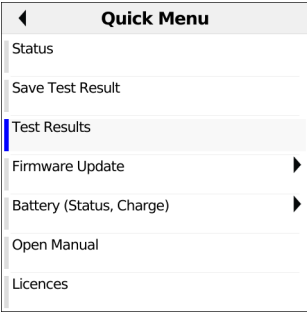


There are different adapters (tips) available for PC, UPC, APC and more, ask our support.

17 Test results

The saved test results are displayed either in the ARGUS® display or on the PC as a detailed measurement log.

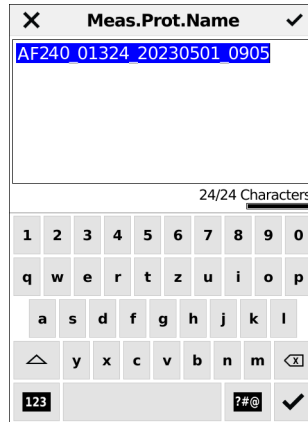
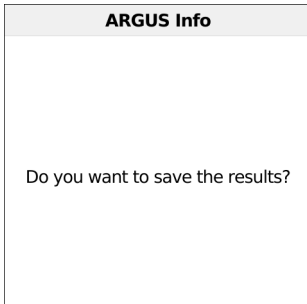
The ARGUS® stores the test results together in 50 definable save slots. The system suggests "New result" as the default save name. The saved test results are also deleted when all configuration settings are reset.



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

17.1 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 AF240)
- Serial number (here 01324)
- Configured date (here 01 May 2023)
- Set time (here 09:05)

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 , see page 28.

<Last name> The ARGUS® suggests the last save name used.

17.2 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 A240 in the Explorer. The "results" folder now contains the test results that can be opened in the browser.

18 WLAN

The ARGUS® has WLAN interfaces.

18.1 WLAN Client

18.1.1 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 <X

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.

X

Summary

✓

WLAN Internal Client

Profile: IP DHCP Client

Note:

✓: Save and quit wizard.

✗: Step back.

X

Accesses

✓

WLAN Intern Client

WLAN Internal Client

○

Profile: IP DHCP Client

Note:

○

Fibertest Installation

○

Optical Loss Test

○

GPON

○

XGS-PON

After confirming the summary with ✓ the access is created.

Status

Test

1 0 → 0 ✗ 0

Data

⇒

VoIP

⇒

IPTV

⇒

Opt.

?

V4

V4

WLAN Scanning

Int. Access Points 2.4 GHz 0

Access Points 5 GHz 0

Access Points 6 GHz 0

WLAN Scanning

WLAN Scanning

MAC 98:FE:3E:A5:80:BB

Info

WPS

Stop

WLAN Networks

Last scan before: 00:00:03

FRITZ!Box 3490

-54 dBm

abcedefghijk

-58 dBm

intec_wlan

-59 dBm

intec_gast

-61 dBm

PQtest2G4

-83 dBm

PQtest5G

-87 dBm

WLAN Scanning

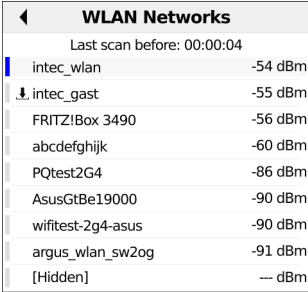
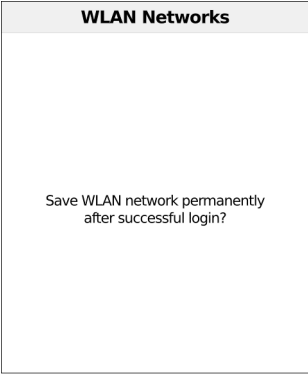
MAC 98:FE:3E:A5:80:BB

Menu ↑

Info

Connect

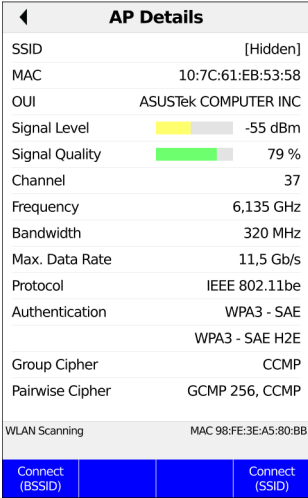
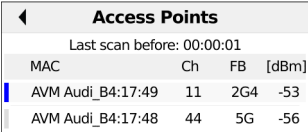
When you start the access, it will search for WLAN networks. Select the <Info> softkey to display the individual WLAN networks. To connect to one of them, select the <Connect> softkey.



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**.

18.1.2 Access Point Details

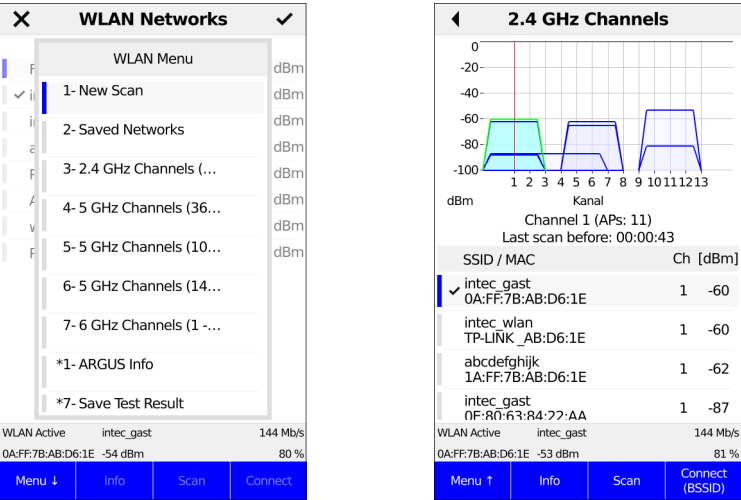
While searching for WLAN networks and when connected to a WLAN network, you can use the **<Info>** softkey to display further details about a WLAN network.



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).

18.1.3 Graphical overview of frequency bands



18.2 WLAN spectrum analysis

18.2.1 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.

✕

Access

✓

☐ Fibertests

☐ GPON

☐ XGS-PON

☐ Ethernet

☒ WLAN

✕

Access Mode

✓

☐ Client

☒ Spectrum Analysis

✕

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.

✕

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

✕

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 <X>

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

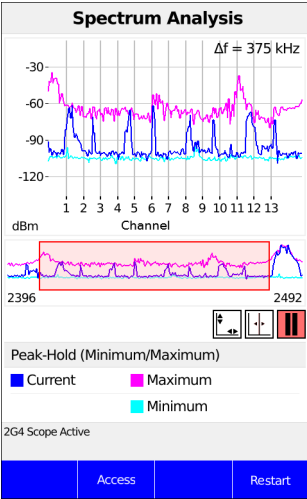
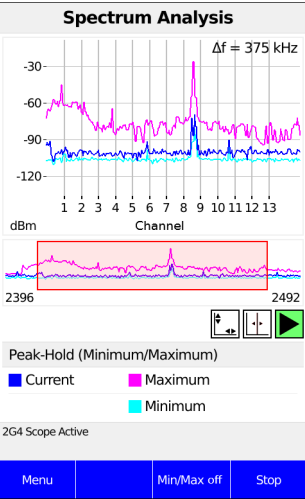
○

GPON

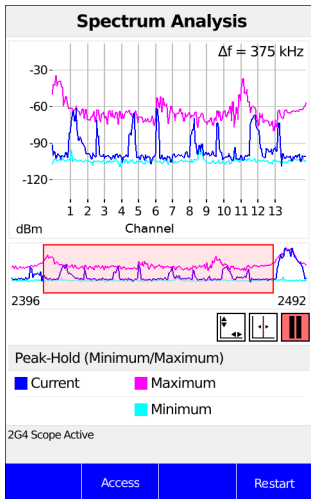
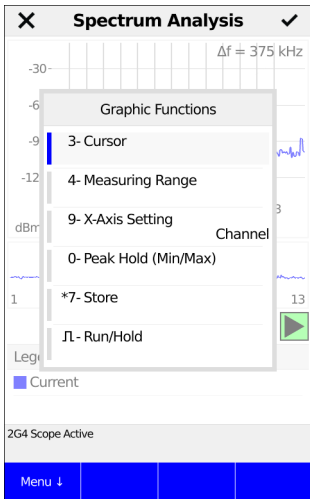
○

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.



Here you can see how a motion detector or microwave interferes with the WLAN.



Various functions can be selected using the <Menu> softkey. An explanation of these can be found under Graphics functions, s. page 195.

18.2.2 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.

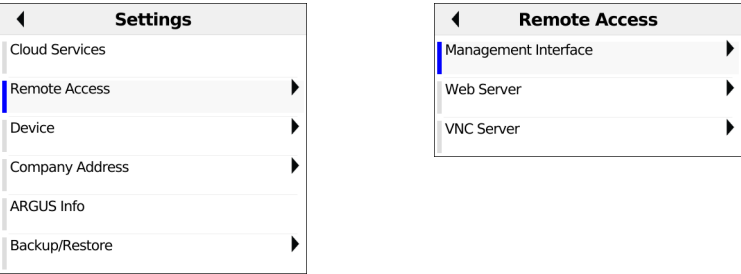
18.2.3 WLAN in the 6 GHz frequency range

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.

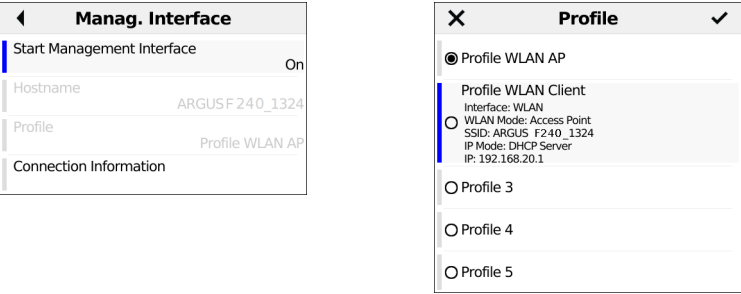
18.3 WLAN as a management interface

In the ARGUS[®], WLAN is also available as a management interface for various functions.

18.3.1 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.

18.3.2 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 "ArgusF240_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.

18.3.3 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.

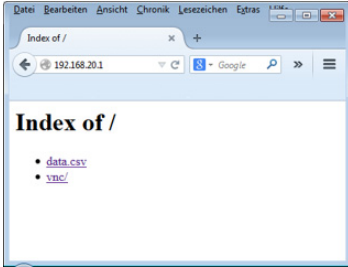
In the connection information, the list of found networks can be displayed using the <WLAN> softkey. Selecting a WLAN network and pressing the <Connect> softkey initiates the connection setup process and the request for the necessary information.

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

18.4 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.



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.

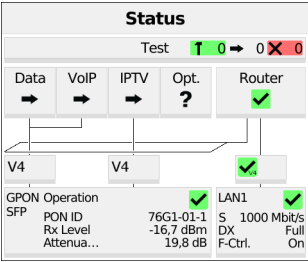


You can also access the ARGUS[®] using WebDAV via myargus.info. By this means, you can download measurement logs in .amp format directly from the ARGUS[®] via Ethernet or WLAN.

18.5 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.

 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.

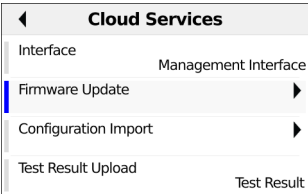
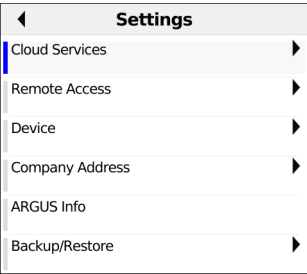
19 ARGUS® settings

The ARGUS® can be custom-configured for special requirements. The default values are restored using "Reset" (see page 207).

19.1 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.

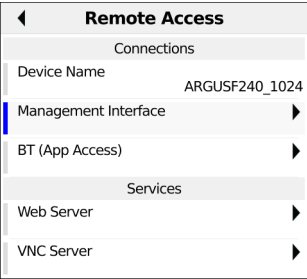
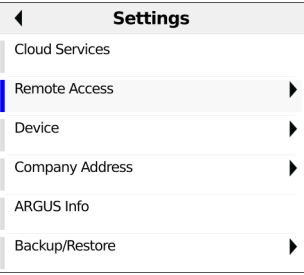


See page 224 for the meanings of all symbols used in the cloud updates.

19.1.1 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 188.

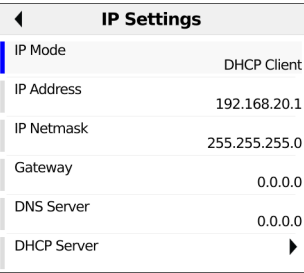
 Never under any circumstances import a configuration when the ARGUS® is operating in battery mode. Connect the ARGUS® to the power adapter before importing a configuration.



First, remote access and then the management interface must be selected in the settings.



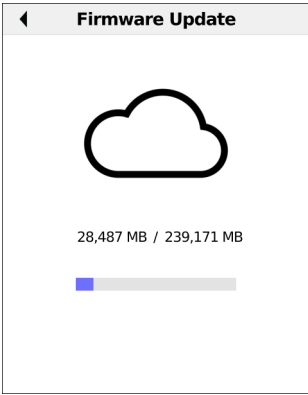
The Managemant profile can now be edited. Now select the client as WLAN mode.



Then select DHCP client as IP mode in the IP settings. If you now start the management interface, you can select the connection information.



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.

19.1.2 Automatic configuration import

This function enables you to read out and adopt the ARGUS® configuration file.

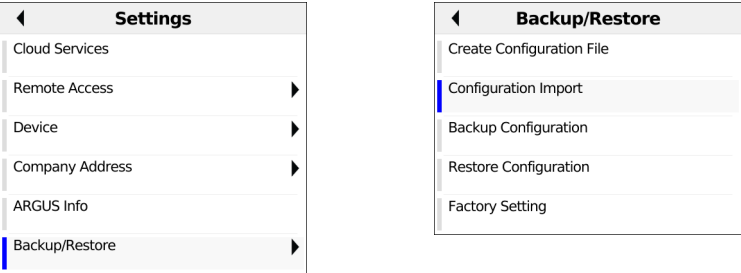
 Never under any circumstances import a configuration when the ARGUS® is operating in battery mode. Connect the ARGUS® to the power adapter before importing a configuration.

Prerequisites:

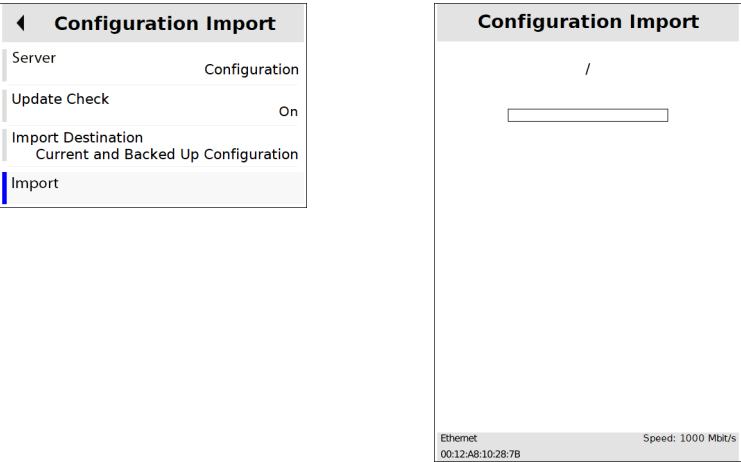
The instrument is connected to the interface (Ethernet or WLAN).

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.

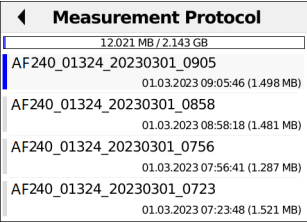
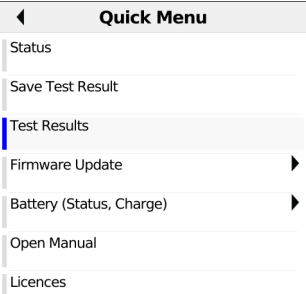


The instrument needs a few seconds before it can be restarted; this is indicated by an hourglass in the top right next to the battery indicator.

<Restart> Restarts device

19.1.3 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.

19.1.4 ARGUS® Configuration Tool

The ARGUS® Configuration Tool is a PC software based on the user surface of the ARGUS® 300, ARGUS® 260, ARGUS® F300, ARGUS® F240 and ARGUS® 300, 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.

08.07.2022 10:07 v2.80.00 100%

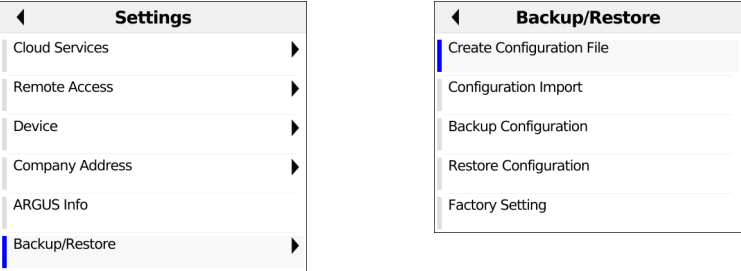
ARGUS Info	
Type:	ARGUS F240
SW Version:	R4.41.00D_ [1042-13]

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.

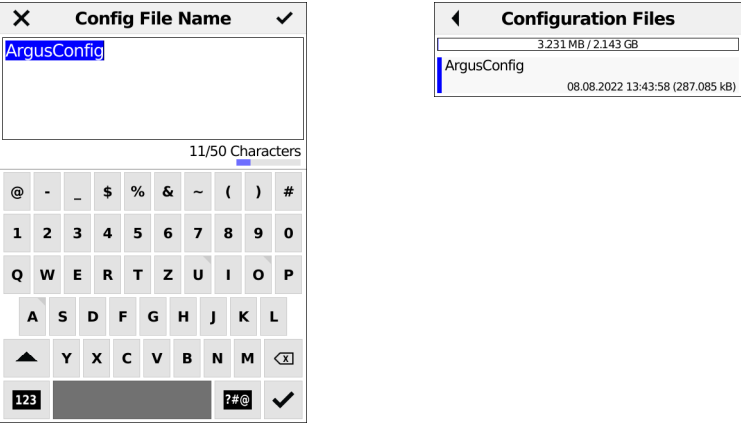
Unzip the file

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



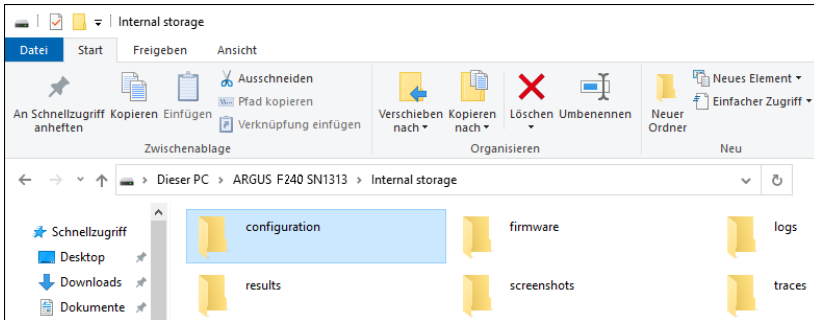
To create a configuration file in the ARGUS®, press the wheel key to access the device settings. Now select "Backup/Restore" and then "Create Configuration File".



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.

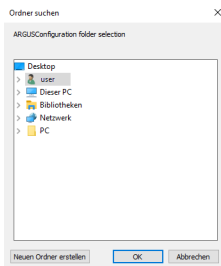


Now copy the desired configuration file from the "configuration" folder to your computer.

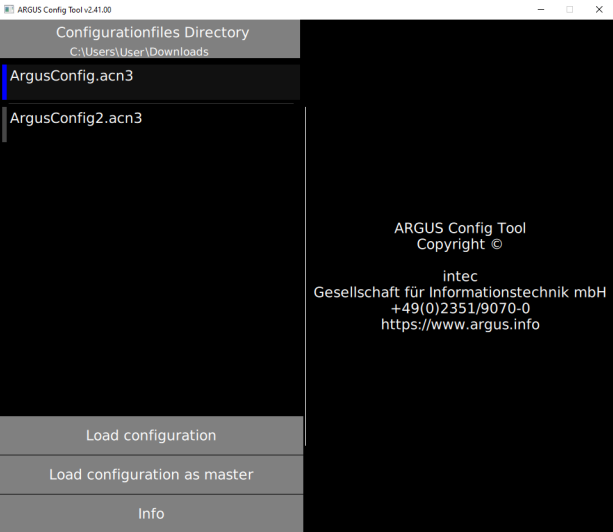


Configurationfiles Directory
C:\Users\User\Desktop

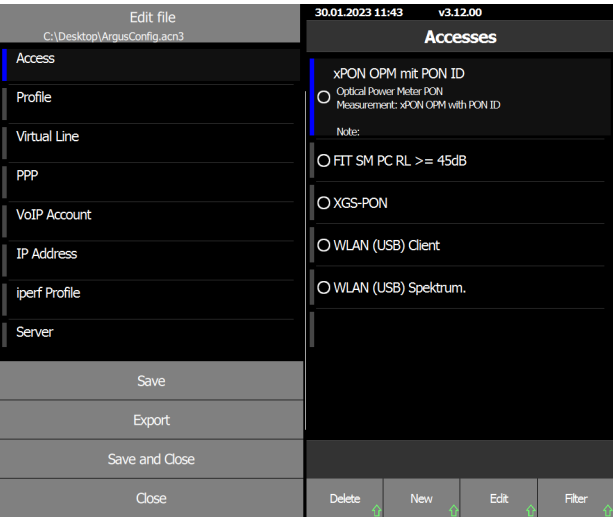
Start the ARGUS® Configuration Tool (left image: application icon) and click on "Configurationfiles Directory".



Now select the folder on your computer to which you previously copied the configuration file.

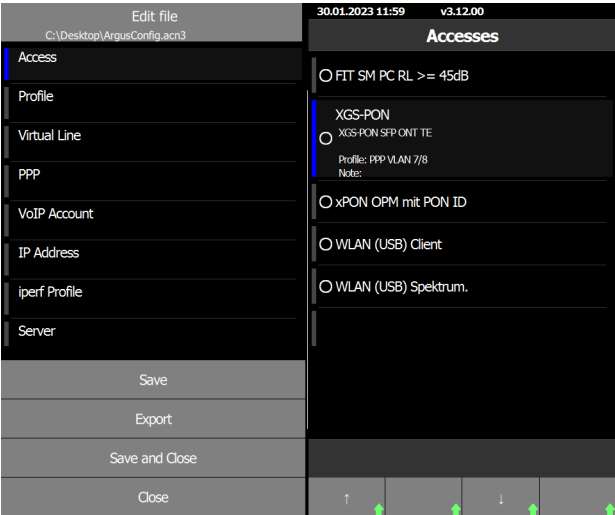


The configurations stored there will now be displayed in the ARGUS® Configuration Tool. Select the configuration that is to be loaded into the ARGUS® Configuration Tool (here: ArgusConfig.acn3). The selected configuration is marked with a blue bar. Click on "Load configuration" to load it.



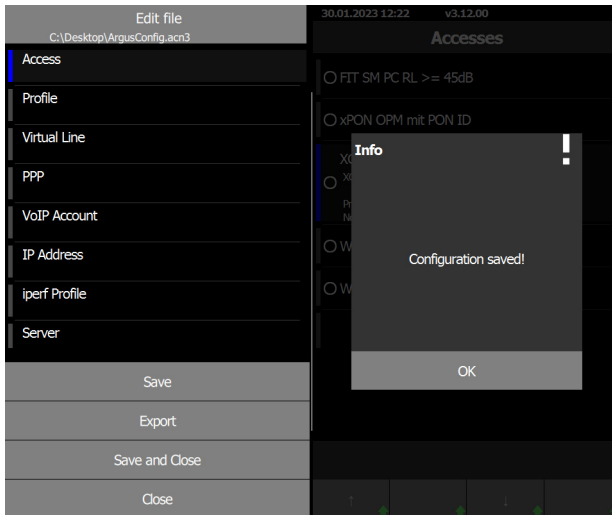
Now the configuration can be edited directly in the ARGUS® Configuration Tool.

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.

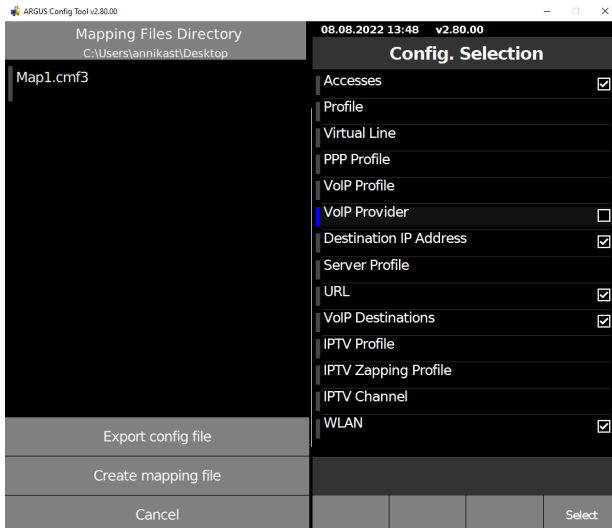


For some functions, it is necessary to press the Shift key in the ARGUS®. This is indicated here by the green arrow. In the ARGUS® Configuration Tool, press the F10 key on the PC keyboard instead.

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.

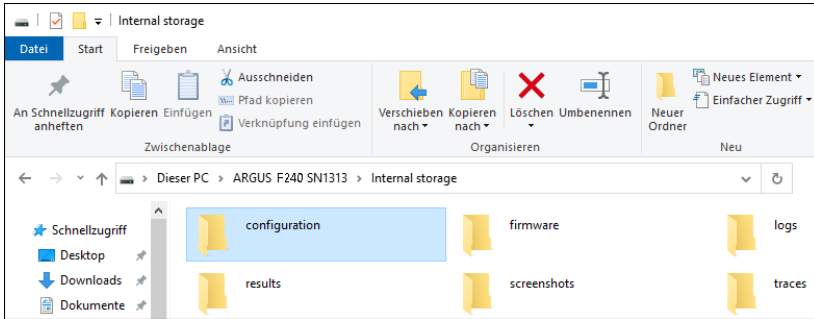


With "Create mapping file" the selection of the configuration points can be saved in a mapping file.

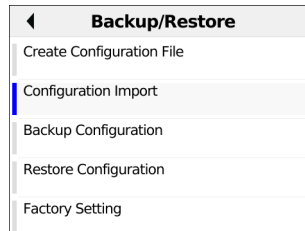
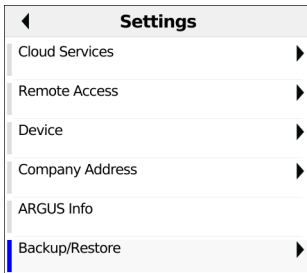
If you click on "Export", you can select or deselect the configurations in the "Config. Selection" to select or deselect the configurations that are to be exported. This is possible

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".

Configuration Files	
3.170 MB / 2.143 GB	
ArgusConfig	08.08.2022 13:43:58 (287.085 kB)
ArgusConfig2	08.07.2022 10:17:38 (287.097 kB)

Configuration Files

3.272 MB / 2.143 GB

ArgusConfig08.08.2022 13:44:34 (287.085 kB)

ArgusConfig208.08.2022 13:43:58 (287.085 kB)

3 Selected Elements

Delete

Order

Apply configuration file 'ArgusConfig'?

NoYes

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.

Configuration Files	
3.231 MB / 2.143 GB	
ArgusConfig	08.08.2022 13:43:58 (287.085 kB)
ArgusConfig2	08.07.2022 10:17:38 (287.097 kB)

Configuration Files

3.272 MB / 2.143 GB

ArgusConfig08.08.2022 13:44:34 (287.085 kB)

ArgusConfig208.08.2022 13:43:58 (287.085 kB)

3 Selected Elements

Delete

Order

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.

XFile Order✓

☐ Name Ascending

☐ Name Descending

☐ Date Ascending

☒ Date Descending

The files can be sorted in ascending or descending order by name or date.

19.2 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:

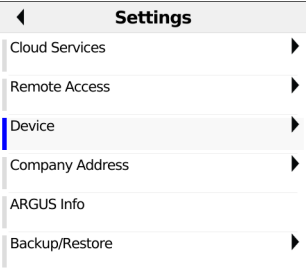
- Management Interface
 - Start Management Interface
 - Interface Selection
- WLAN
 - Mode
 - SSID
 - Password
 - Channel
- IP settings
 - IP Mode
 - IP Address
 - IP Netmask
 - Gateway
 - DNS Server
 - DHCP Server
- Web Server
 - Start Web Server
 - Password Protection
- VNC server
 - Start VNC
 - Password Protection



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

19.3 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:

- Menu Language
- Region
- LCD Brightness

- Date/Time Setting
- Alarm Bell
- Jingle
- Power Management
- Theme
- Touch Sensitivity
- System Volume
- Debug Trace Mode
- Debug Trace Time



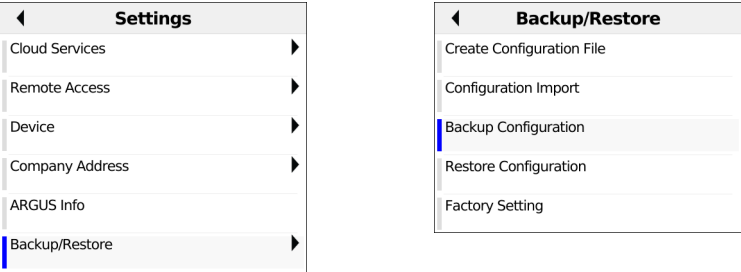
You can obtain further information on settings in the ARGUSpedia on the instrument.

19.4 Backing up and restoring settings

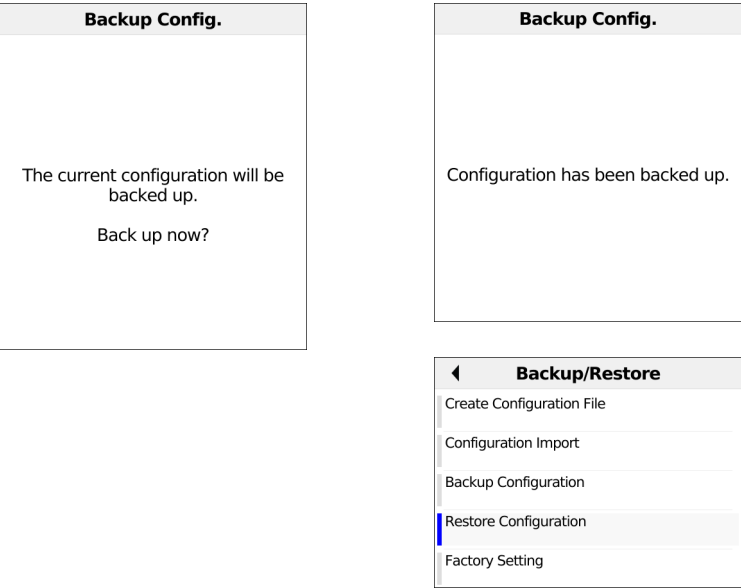
The ARGUS® offers multiple functions for backing up and restoring settings. In addition to the actual backup/recovery of the settings configured in the ARGUS®, these also include the options of restoring the factory defaults and importing configurations to overwrite the current one.

19.4.1 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".



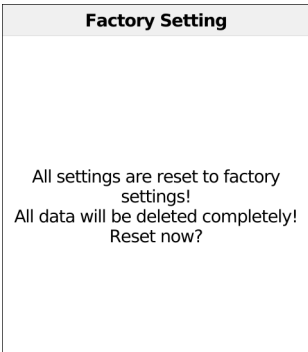
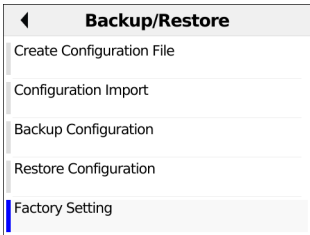
If no settings have been backed up, this function has the same effect as "Restore factory defaults". A security password is not required.

19.4.2 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.



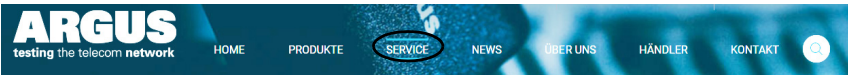
If no settings have been backed up, this function has the same effect as "Restore factory defaults".

20 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.

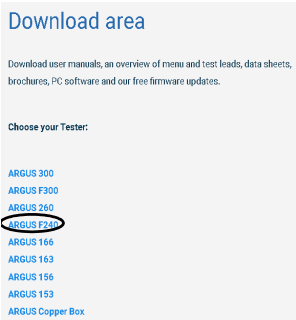
Click the menu option "Service" (highlighted in blue here) in the navigation bar.



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® F240



Overview

Technical Details

Accessories

ARGUS® F240 Enhancements

Datasheet

ARGUS Config. Tool

Firmware

Professional article

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 F240.



ARGUS F240 FIRMWARE INCL MANUAL MENU (4.10 /)
010_ARGUS F240_Firmware Incl Manual Menu_V-4.10.zip (380.40 MB)



ARGUS F240 FIRMWARE (4.10 /)
010_ARGUS F240_Firmware_V-4.10.zip (368 MB)

The ARGUS® F240 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® F240 using the Explorer.

Quick Menu

Status

Save Test Result

Test Results

Firmware Update

Battery (Status, Charge)

Open Manual

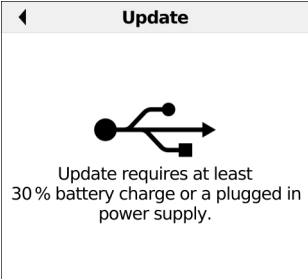
Licences

Firmware Update

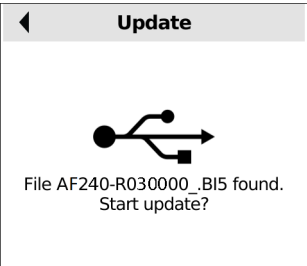
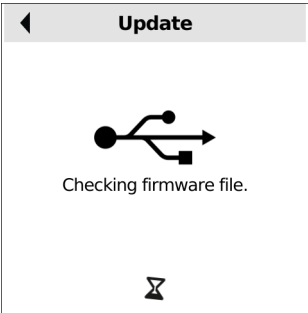
Cloud Update

ARGUS Mass Storage

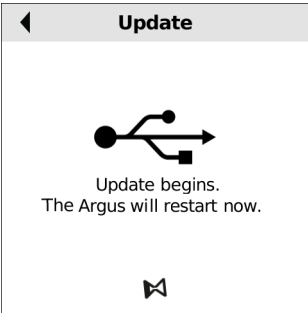
Next, select “Firmware update” in the quick menu (illustration at left). Then select ARGUS® Mass Storage (see image at right).



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 USB-C 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.

21 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® F240. Attempting to connect the power adapter of another device to the ARGUS® F240 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 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 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	Discharging
Power Supply Plugged In	No
Remaining Charge	96 %
Battery Capacity	100 %
Discharge Cycles	0
Actual Voltage	8171 mV
Actual Current	-466 mA
Temperature	24,4 °C
Battery Type	110
Date (WW/YY)	12/24

Battery	
Status	
Automatic Charging	☒

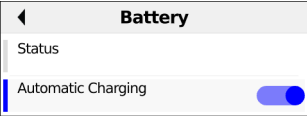
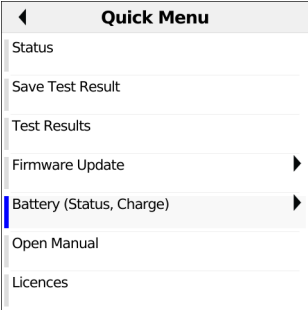
When the power adapter is connected, you can view the battery status in the quick menu. This displays the voltage, current level, temperature and other parameters during the charging process.

Automatic battery charging in the background

ARGUS Manager			
		Management Profile (Management Profile 1)	Management (Off)
BT Pairing Mode	BT (App Access) (Off)	Web Server Start (Off)	VNC Server Start (Off)
Brightness (50 %)	Automatic Shutdown (After 15 Minutes)	Automatic Charging (On)	Start ARGUS Support

Automatic Charging (Off)

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.

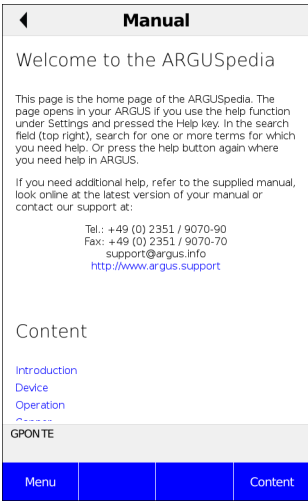
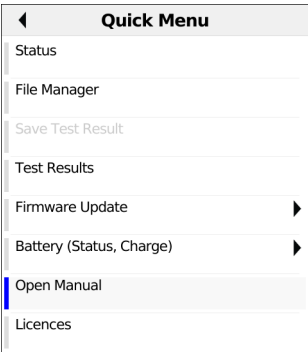


When the ARGUS[®] is disconnected from the power adapter before that battery is completely charged, the ARGUS[®] does not automatically continue charging when it is subsequently reconnected because the charge is no longer below the threshold.

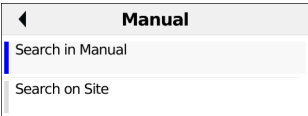
22 ARGUSpedia

The ARGUSpedia is an internal help function with lots of information about the device and settings. It is an important supplement to this manual.

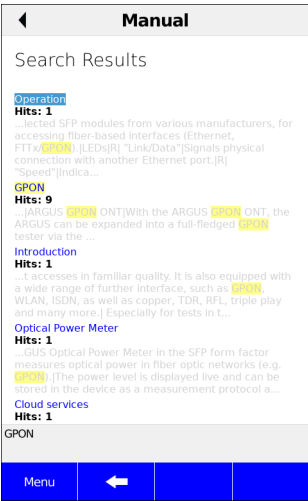
Select “Open Manual” in the Quick Menu to open the ARGUSpedia.



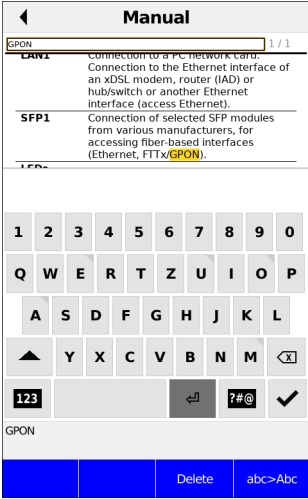
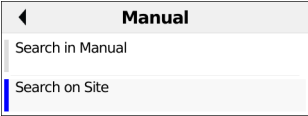
Now you can either navigate via the links in the content menu or search in the Manual or on the site that you are actually on by selecting the Softkey „Menu“.



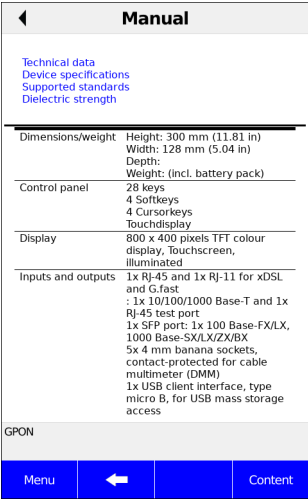
After selecting „Search in Manual“, you can enter a search term.



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.

23 ARGUS® Mobile App

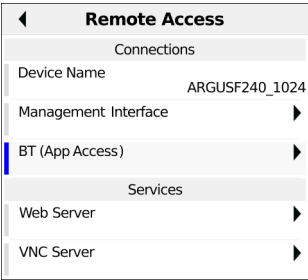
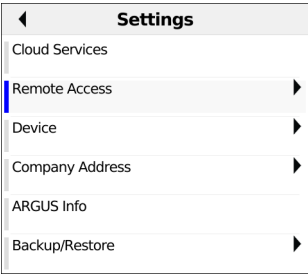
The ARGUS® Mobile app enables quick and easy transfer of measurement logs from the ARGUS® to the app via Bluetooth.



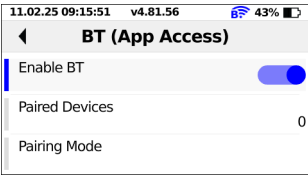
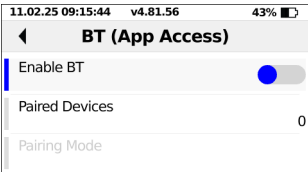
The ARGUS® Mobile App can be downloaded here for free:
<https://play.google.com/store/apps/details?id=info.argus.argusmobile&hl=en-us>



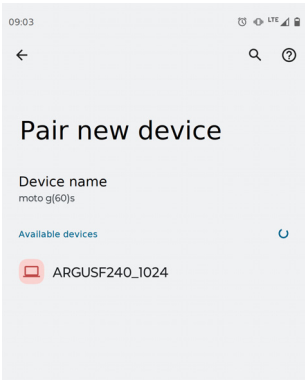
Apple App Store: <https://apps.apple.com/de/app/argus-mobile-app/id6480200403?l=en-GB>



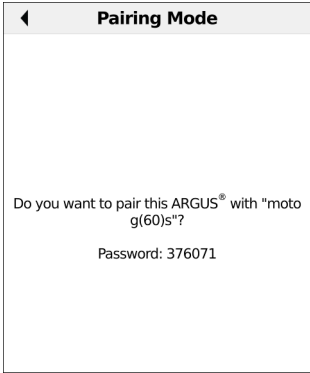
Press the wheel key to access the device settings. First select Remote access, then BT (App Access).



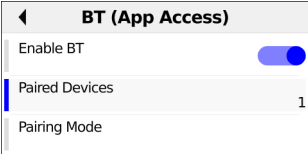
Bluetooth can now be activated there. If Bluetooth is switched on, you can recognize this by the blue symbol in the status bar:  . The pairing mode can only be selected when Bluetooth is switched on.



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: ARGUSF240_1024).

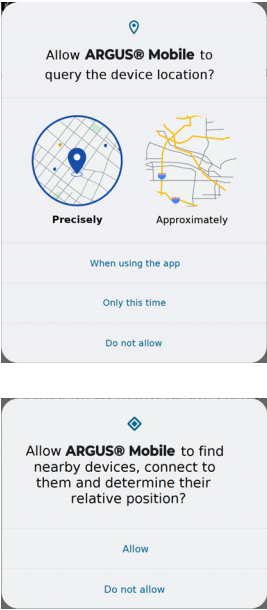
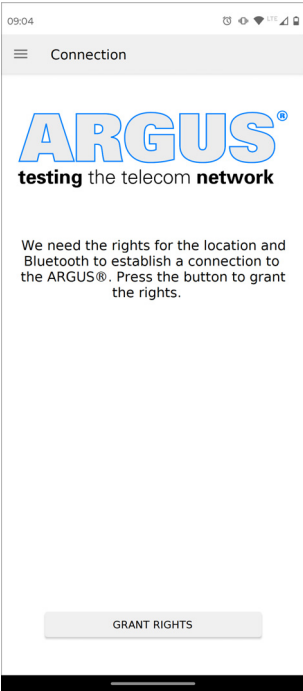


A pairing code appears on both devices, which must be confirmed on both devices.



The paired device is now also visible on the ARGUS®.

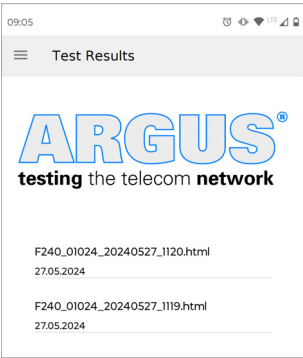
<Delete> Delete paired device.



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.

24 Appendix

A) ARGUS® Info

ARGUS Info	
Type:	ARGUS F240
SW Version:	R4.92.00D_ [1097-14]
Date:	17.04.25
Serial Number:	10397
Line/ETH:	00:12:A8:51:28:9D
2. ETH (BR/RT):	00:12:A8:50:28:9D
SSID:	ARGUSF240_10397
SW Options:	
Ethernet	
Ethernet SFP	
2.5GigE	

10GigE
GPON ONT
XGS-PON ONT
xPON Optical Power Meter
1550 nm OPM
PON ID
VoIP
ARGUS® Real Speed Formal (RFC 6349)
ARGUS® Real Speed Direct (iperf)

Among other details, the ARGUS® info displays the ARGUS® type, the software version, the set software options and the serial number.

PLOAM Monitor
Fiber Inspection Tool (USB)
VoIP
IPTV
ARGUS® Real Speed Formal (RFC 6349)
ARGUS® Real Speed Direct (iperf)
Network Scan
Port Check

X

Option Key

✓

0

Serial Number: 1324

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

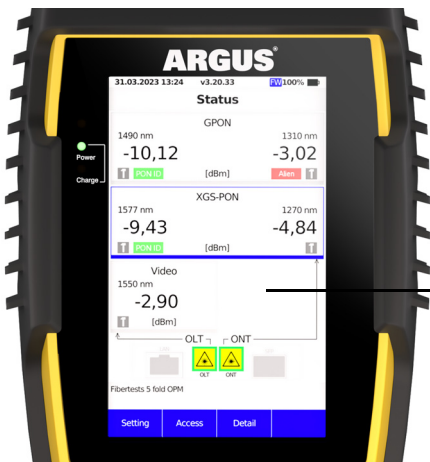
When you select “Option”, you can enter the option key.

B) Symbols



The following symbols can be displayed in the ARGUS® status line.

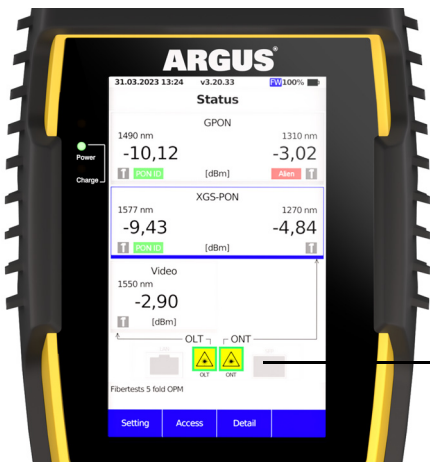
Symbol	Colour	Purpose	Description
	Black	Battery pack	This symbol shows the current battery status.
	Blue	Cloud update	The firmware can now be updated.
	Grey	Cloud update	The update function is active but no update can be found. For example, due to an incorrect server path.
	Blue	Configuration import	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 favourite.
	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	Advanced Encryption Standard
AFTR	Address Family Transition Router
AON	Active Optical Network
AP	Access Point
APC	Angled Physical Contact
ARP	Address Resolution Protocol
ASCII	American Standard Code for Information Interchange
ATM	Asynchronous Transfer Mode
Auto-MDI-X	Automatic Medium Dependent Interface Crossing

B

BASE-T	BASE = Basic band, T = Twisted pair
BGP	Border Gateway Protocol
BNG	Broadband Network Gateway
BR	Bridge
BRAS	Broadband access server

C

C	Celsius
CC	Continuity counter
CLIP	1. Calling Line Identification Presentation 2. Clipping
CLIR	Calling Line Identification Restriction
CRC	Cyclic redundancy check

D

dB	Decibel
dBm/Hz	Decibel milliwatt
DDI	Direct dialling in
DHCP	Dynamic Host Configuration Protocol
DIN	Deutsches Institut für Normung - German Institute for Standardization
DNS	Domain Name System
DS	Downstreamband
DSCP	Differentiated services codepoint
DTMF	Dual Tone Multi Frequency
DX	Full Duplex

E

EMC	Electromagnetic compatibility
EN	European standard
ETH	Ethernet

F	
FAR-MOS	MOS (Mean Opinion Score) of the far site
FEC	Forward error correction
FIT	Fiber Inspection Tool
FTP	File Transfer Protocol
FTPS	File Transfer Protocol Secure
FTTH	Fiber to the home
FTTx	Fiber to the x (x = placeholder)
FW	Firmware
G	
G.fast	G.fast access to subscriber terminal
GB	Gigabyte
GBase-T	Gigabit Ethernet Base-T
Gbit/s	Gigabits per second
GigE	Gigabit Ethernet
GPON	Gigabit Passive Optical Network
H	
hex	Hexadecimal
HTML	HyperText Markup Language
HTTP	Hypertext Transfer Protocol
HW	Hardware
I	
ID	Identifier
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IP	Internet Protocol
IPCP	Internet Protocol Control Protocol
IPTV	Internet Protocol Television
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
IPv6CP	Internet Protocol Version 6 Control Protocol
ISP	Internet service provider
ITU	International Telecommunication Union
K	
K	Kelvin
KB	Kilobyte
kbit/s	Kilobits per second
L	
LAN	Local Area Network
LCD	Liquid crystal display

LCP	Link Control Protocol
LED	Light-emitting diode
M	
mA	Milliampere
MAC	Media Access Control
MB	Megabyte
Mbit/s	Megabits per second
MDF	Main Distribution Frame
MDI	Media Delivery Index (RFC 4445)
MGBASE-T	Multi-Gigabit Base-T
MM	Multi Mode
MOS	Mean opinion score (ITU-T P.800)
MOS/R	Mean Opinion Score / R-Factor
MOS_{CQE}	Mean Opinion Score, Conversational Quality Experience
ms	millisecond
MSA	Multiple source agreement
MTU	Maximum Transmission Unit
mV	Millivolt
mW	Milliwatt
N	
n/a	not available
n/r	not received
n/u	not used
NBASE-T	Multi-Gigabit Base-T (IEEE 802.3bz); 2.5 Gbit/s (2.5GBASE-T) and 5 Gbit/s (5GBASE-T) on existing Cat5e and Cat6 cables
nm	Nanometer
O	
OLS	Optical Light Source
OLT	Optical Line Termination
OLTS	Optical Loss Test Set
ONT	Optical Network Termination
ONU	Optical Network Unit
OPM	Optical Power Meter
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
PAT	Program association table
PC	1. Personal computer 2. Physical contact
PCR	Program clock reference
PLOAM	Physical Layer Operations, Administration and Maintenance
PON	Passive Optical Network
PPP	Point-to-Point Protocol
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
QR	Quick Response
R	
RFC	Request for comments
RL	Return Loss
RT	Router
RTCP	Real-Time Control Protocol
RTP	Real-Time Transport Protocol
Rx	Received
S	
S	Speed
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	
T	Trigger
TCP	Transmission Control Protocol
TE	TErминаl, terminal equipment
ToS	Type of service
Tx	Transceived

U

UPC	Ultra Physical Contact
URI	Uniform Resource Identifier
USB	Universal Serial Bus

V

VLAN	Virtual Local Area Network
VL	Virtual line
VLC	Video LAN client
VoIP	Voice over Internet Protocol
VoP	Velocity of propagation
VPI	Virtual path identifier
V_{pp}	Volt peak-to-peak
VTU-R	VDSL Transceiver Unit - Remote

W

WDM	Wavelength Division Multiplexing
WEEE	Waste Electrical and Electronic Equipment
WLAN	Wireless Local Area Network

X

xDSL	Collective term for different DSL variants
XGS-PON	10 Gigabit Symmetric PON
xPON	GPON and/or XGS-PON

E) Index

A

Abbreviations	229
Access	
Ethernet	21
Access wizard	27
Alias www address	97
Ambient temperature	42
Appendix	223
ARGUS	
Control panel	16
Dimensions	16
Inputs and outputs	16
Settings	188
Weight	16
Automatic charging	10, 12, 212
Automatic configuration import	192

B

Basic package	1
Battery pack	
Active charging	10, 12, 212
Attaching	23
Automatic charging	213
Changing	212
Charge level	212
Charging	23
Charging temperature range	10, 12, 212
Long-term storage	12, 212
Protective functions	12
Storage	212
Transport	12
Transport information	10
Using	212
BRAS statistics	68

C

Charging the battery	10, 12, 23, 212
Checksum errors	77
Configuration import	212
Configuring accesses	25
Conformity declaration	17
Connection type	130
Connections	
Top	21

D

Data	58
Declaration of conformity	17
DIN EN 50419	11

Disposal	11
Download	96
Rate	100, 102

E

Electromagnetic compatibility	10, 17
ElektroG	11
EN62368-1	17
Ethernet	
Establishing connection	53
Mismatch	53
Statistics	68
Transmission speed	21

F

Fiber	151
Firewall	49
FTP download	72, 101
FTP server	72, 107
FTP upload	72

G

GPON	
access mode	49
Bridge	42
Router	42, 49
GPON access	42

H

HTTP download	71, 96
HTTP upload	72
Humidity	16

I

Index	234
Initial operation	23
intec Gesellschaft für Informationstechnik mbH	8
Introduction	6
IP ping	71, 73
Results	77
Test parameters	73
IP tests	73
IPTV	71
Profile	130, 138, 139
Scan	138
Tests	130
IPTV scan	72

K

Key	16
Back	20
Cursor	20
Enter	19
Keypad	19

Power	19
L	
Layer 1	41
Layer 2	56
Layer 2/3 settings	60
Layer 3 parameters	56
LEDs	19
M	
Measurement log	175, 211
MOS	112, 118
N	
Notice	33
O	
Operating temperature	16
P	
Packet response time	77
PADI	70
PADO	70
PADR	70
PADS	70
PADT	70
Parallel tests	146
Physical layer	41
Power supply	16
Power-saving mode	24
PPP	
Profile	60
Statistics	68
Trace	69
PPTP	67
Profile name	206
Profiles	60
Protection functions	42
PWR	21
Q	
Quick-start guide	19
R	
Real-time clock	24
Regulations for hazardous materials	12
Return of old equipment	11
R-factor	112
Rights	2
RoHS conformity	17
RoHS Directive	11
RTP	112, 120
S	
Safety information	9

Save name	175
Saving test results	175
Sending test results to PC	176
Service	
Start	61, 64
Service statistics	72
Services	58, 71
SIP	112
Softkeys	
Dual function	20
Software licenses	228
Standards	18
STB	130, 143
Storage temperature	16
Support	8
Supported standards	18
Symbols	59

T

Temperature range for charging battery pack	16
Test results	175
Tests	71
Traceroute	71, 80

U

Update	208
USB	
Host interface	21
User safety	17

V

Version	1
Virtual lines	56, 57
Activating	61, 66
Additional	62
Examples	65
Multiple	133
Profile	71
VLAN	56
Voice codec	118
Voice quality	118
VoIP	
Call	117, 128
Call acceptance	125
Destination	117
Echo test	125
Results	123, 137
SIP status codes	228
Tests	112
VoIP call	71
VoIP wait	72
Volume	118

VPI/VCI	56
W	
Web browser	72
Website	8
WEEE	11
WLAN	177