ARGUS® 260

BROADBAND TESTER

GPON
XGS-PON
xPON-ID
FTTH
PON installation
Sel. OPM
OFF
FIT
OLS
VFL
G.fast
VDSL
ADSL
Bonding
2.5GigE
SFP
WLAN
POTS
ISDN
Cu
Data 10110101011
TDR
IP TV
RFL
VoIP
Remote kit
Speed test
Line Scope
RFC 6349

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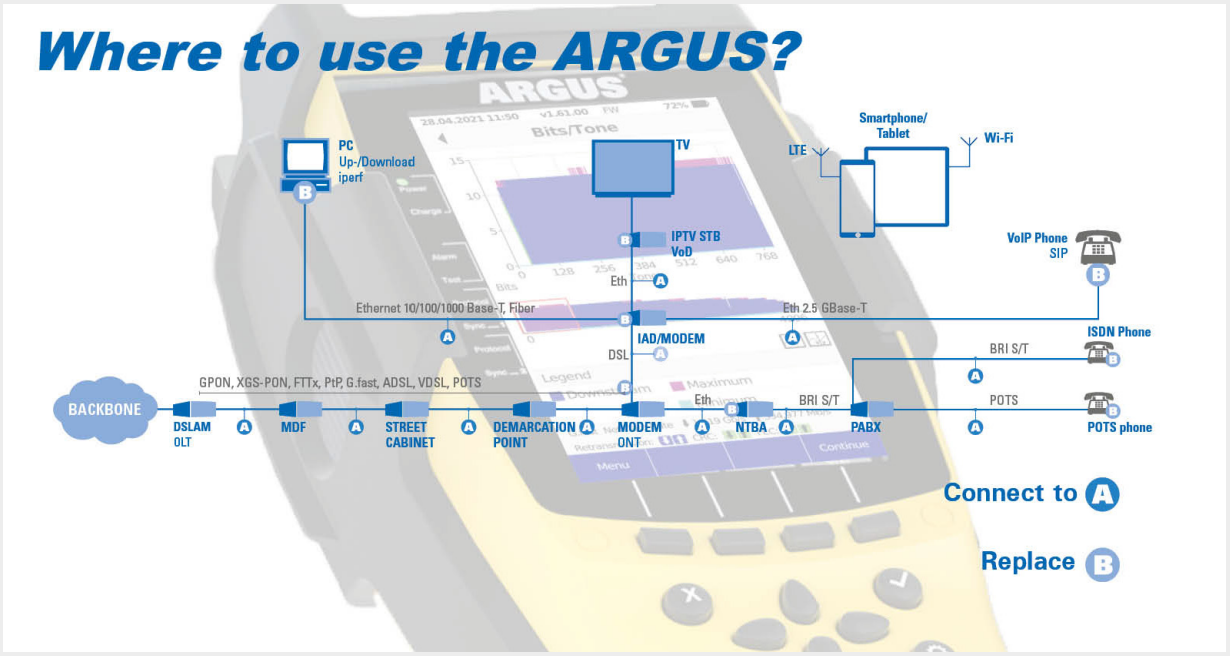

ARGUS® 260: The broadband tester

The new ARGUS® 260 all-in-one tester delivers improved performance for testing broadband interfaces. The high-quality multifunction tester is ideally equipped for the expansion of future networks.

Modern design and new housing concept

Its robust design combines the requirements for a compact hand-held meter in daily field use with the performance of ahigh-end tester. As the first ARGUS® tester with touch-screen display, it enables intuitive navigation of the familiar ARGUS® menu structure. Thanks to the use of numerous graphical elements, the redesigned GUI makes this sophisticated multifunction tester as easy to use as a smartphone. A new, innovative internal help function supports rapid, reliable interpretation of test results.

All necessary broadband interfaces

The ARGUS® 260 reliably tests all broadband interfaces, from GPON, XGS-PON and G.fast (106 + 212 MHz) to super vectoring, Bonding, ADSL and VDSL accesses, in the uncompromising quality you have come to expect. It is also equipped with a wide range of further interfaces and test functions, such as 2.5 Gigabit Ethernet, WLAN, copper, TDR, RFL, triple play and many more.

Additional features

The integrated WIFI interface enables the ARGUS® 260 to communicate with its environment directly - a PC link is no longer required.
Once integrated in your job management system, the ARGUS® 260 marks the advent of a new generation of broadband testing.

intec Gesellschaft für Informationstechnik mbH

intec Gesellschaft für Informationstechnik mbH has been successfully developing products for the international telecom markets for more than 30 years. Meanwhile specialized in highquality telecommunication measuring devices, we belong to the leading suppliers of fiber optic, G.fast, xDSL and IP measuring technology in Europe and beyond.

Our ARGUS® testers are ideal for developing and documenting new fiber optic infrastructure for the rapid expansion of modern optical networks. They simplify day-to-day work in the maintenance and testing of modern copper-based broadband interfaces as well as in the fiber-optic sector and support troubleshooting and fault location.

Our customers have appreciated the quality of our products and services for many years. This trust in our products has enabled us to supply more than 100,000 ARGUS® testers throughout the world during the last 20 years – a large majority of which have been delivered to international companies such as Deutsche Telekom, Vodafone, Telefonica, KPN or A1 Telekom Austria.

Specification Broadband Interfaces:

General:		Application, Settings + Results:	
G.fast Tester	G.fast Modem Simulation, FTU-R, CPE G.fast Bridge + G.fast Router ITU-T G.9700/9701 Profile 106a/212a Time Division Duplexing (TDD)	**G.fast / VDSL / ADSL** • Net Data Rate d/u [kBit/s] • Attainable Data Rate d/u [kBit/s] • Relative Capacity d/u [%] • SNR Margin /Loop Attenuation d/u [dB] • Output Power d/u [dBm] • Interleave Delay d/u [ms] • Impulse Noise Protection d/u [Symbols] • FEC + CRC, far/near [Errors] • ES, SES, LOSS + UAS, far/near [sec] • Reset /Resync [Number] • Bitswap Events d/u • Retransmission d/u (G.INP) • Vendor, far/near [Name/ Number] • Modem Trace • Bits/SNR/QLN/Hlog/Noise Graphs • OK /Fail Evaluation: Bitrate, CRC, FEC • DC Voltage, UDC	**G.fast / VDSL** • Signal Attenuation [dB] • Showtime no Sync [Number] • Seamless Rate Adaption (SRA) • Data Transmission Unit (DTU) • INP REIN + INP SHINE [Symbols] • Expected Throughput Rate (ETR) [kBit/s] • Electrical Length @1 MHz R/C [dB] • EFM Statistics: Frames + Bytes **VDSL** • Vectoring Mode • Graphical Long-time Trace in ARGUS® **ADSL** • Latency Mode • Graphical Long-time Trace in ARGUS®
VDSL Tester	VDSL2 Modem Simulation, VTU-R, CPE VDSL2 Bridge + VDSL2 Router ITU-T G.993.2 (Profiles 8, 12, 17a, 30a) ITU-T G.993.2 Annex Q (Profile 35b), Super Vectoring (Vplus) ITU-T G.993.5, G.vector (Vectoring) ITU-T G.998.4, G.INP (Retransmission) ITU-T G.998.2, G.bond, 35b Bonding		
ADSL Tester	ADSL Modem Simulation, ATU-R, CPE ADSL Bridge + ADSL Router ITU-T G.992.1, Annex A+B (ADSL) ITU-T G.992.2, Annex A (G.lite) ITU-T G.992.3, Annex A+B+L+M (ADSL2) ITU-T G.992.5, Annex A+B+J+M (ADSL2+)		
GigE Tester	Ethernet according to IEEE 802.3 1 x 10/100/1000 Base-T (RJ45/8P8C) • 2.5 GBase-T (IEEE 802.3bz, NBase-T) 1 x SFP Interface, supports: • 100 Base-FX/LX • 1000 Base-BX/LX/SX/ZX • 2.5 GBase-T (IEEE 802.3bz, NBase-T) • FTTx (PtP), Active Ethernet DDM according to SFF-8472	• Link Status, Autonegotiation, far/near • Auto-MDI(X) Function • Speed (10, 100, 1000 Mbit/s) • Duplex Mode (full, half) / Flow Control • Polarity/Wire Pair (+/-) • Pair skew/Wire Pair [ns] • Frames (Rx/Tx) [Number] • Errors, Bytes (Rx/Tx) [Number] • Collisions [Number]	• SFP: Digital Diagnostic Mode (DDM): - Manufacturer Name, OUI, Item Number, Revision, Serial Number, Date, Coding, Medium, Speed - Optical Level (Tx/Rx), ±3 dB - Optical class of the OLT - Optical, PWR (Tx/Rx), ±3 dB - Temperature, Voltage, Current (Tx) - Max. Cable Length (Cu, SM, MM/OM1-4)
GPON Tester	GPON Modem Simulation, ONT, CPE ITU-T G.984 via ARGUS® GPON ONT • GigaBit Passive Optical Network DDM accord. to SFF-8472 (see Ethernet)	• Link Status / Link Speed • ONT Status / OLT Tx Power • Optical Network Unit ID (ONU ID) • Passive Optical Network ID (PON ID, Vendor + Equipment ID / Version)	• GPON Modem Trace • Serial Number / Password Configurable • Scan PLOAM message (ONU ID, S/N)* • SFP: Digital Diagnostic Mode (DDM) • Optical Level (Rx), ±0.7 dB • Optical Line Attenuation in dB
XGS-PON Tester	XGS-PON Modem Simulation, ONT, CPE ITU-T G.9807.1 via ARGUS® XGS-PON ONT • GigaBit Passive Optical Network	• Link Status • ONT Status / OLT Tx Power • Optical Network Unit ID (ONU ID) • Passive Optical Network ID (PON ID, Vendor + Equipment ID / Version)	• XGS-PON Modem Trace • Serial Number / Password Configurable • Scan PLOAM message (ONU ID, S/N)* • SFP: Digital Diagnostic Mode (DDM) • Optical Level (Rx), ±0.7 dB • Optical Line Attenuation in dB
PON installation test	GPON installation test PON level check	• guided measurement sequence • target attenuation can be entered as threshold value • automatic OK /Fail evaluation • PDF measurement protocol • SFP parameters (s. Eth/GPON)	• calibrated measurement of the insertion loss with ±0.5 dB accuracy • Assistance for up to 64 fibers • Evaluation PON-ID • Query of the job data
WLAN	WLAN Access Point Mode WLAN Client Mode IEEE 802.11b/g/n (2.4 GHz) IEEE 802.11a/an/ac (5 GHz)* • via WLAN USB Stick or • internal FPC Antenna • WEP to WPA2 Enterprise	• WLAN Access Point Scan - Number / List Access Points - Number 2.4 GHz / 5 GHz Networks - Network/Name (SSID) - Signal Strength (RSSI) [dBm] - Signal Quality [%] - MAC Address of AP - Used Channel/Frequency - Used Protocol - Negotiated Encryption - Authentification - Group Cipher, Pairwise Cipher	• Access Point Mode (WLAN Router) for mobile devices - IP Tests (Data, VoIP, IPTV) • AP Management (save etc.) • Test Result Upload via Web Server, WebDAV and FTP • Configuration Download via WebDAV and FTP • Remote Control via VNC, Web Server - Firmware Update via FTP Download

ARGUS® WLAN Analyzer	• Displaying the networks during existing WLAN connection • Manual evaluation of channels possible in tabular and graphical form	• Searching for networks again during existing WLAN connection	• Advanced automated evaluation of found networks and display of all AP info
WLAN spectrum analysis	• optional: ARGUS® 2G4 Scope graph. WLAN spectrum analysis for 2.4 GHz for the specific WLAN troubleshooting	• Real-time Analysis /Graphics • passive (no WLAN Interference) • Channel Load • Graphical representation	• Detection of - Bluetooth Devices - Motion Sensors - Microwave Ovens - Baby Phones

Specifications Protocol and IP tests (Triple Play):

General:	Applications, Settings + Results:	
Protocol Tests	• Configurable MAC Address • Use of Virtual Lines (VL): Maximum Flexibility as well as Control and Priorization under Real Conditions by Several VLs simultaneously • One VL/Service each (Data, VoIP, IPTV, opt.) • VL Configurable in Profiles (20) - IP, PPPoE via xDSL, G.fast + Eth (PPTP) - EoA, IPoA, PPPoA via ADSL - VPI/VCI, VLAN (Modus, ID, Prio., TPID) - PPP Profiles (Username, Password) - IP Version (IPv4, IPv6, Dual) + DHCP - Automatic receiving of connection-dependent dial-in data: PPP, VoIP (phone number)	• Display of BRAS Information - AC Name, Service Name, Session ID • Display of PPP Information - PPP Packets/Bytes (Tx/Rx) - PPP Trace (PPP Commands, Time) • Display of IP Information - IPv6: Global Unicast/Link Local Address - IPv4: Assigned IP, Gateway, DNS • Recording of a Data Log for Evaluation on PC (e.g. Wireshark)
Data Tests (Dowload Tester) PC/Terminal Simulation IP Ping Test Traceroute Test HTTP Up-/Download Test FTP Up-/Download Test FTP Server Test Webbrowser ARGUS® Real Speed Formal (RFC6349) ARGUS® Real Speed Direct (iperf)	• Memory with up to 10 IP Addresses, (IPv4/6 Address as Number or Name) • Number of Pings, Pause Configurable (Ping), Packet Size + Fragmentation Configurable • Traceroute: Max. Hops, Probes + Timeout Conf. • Down-/Upload: Server Profiles (10): Server Addr., File Name/Size, Number, Number of Parallel Downloads Configurable - FTP: Username + Password • Display Results IP Ping - Display of Packets (Tx/Rx/repeated) - Checksum Error [Number] - Error Packets [Number] • Display Results Traceroute - Current Hop + Probe / List of Hops - Response Time of Hops [s] - IP Address of Current Hops	• Round Trip Time (min/max/avg) [ms] • Display Results Down- /Upload - Current/Total Number [Number] - Already Loaded Data [%] - Average Speed [Mbit/s] - Loaded Bytes [MB] - Transfer Time /Remaining Time [h:min:s] • ARGUS® Real Speed Direct (iperf) - Client /Server Mode - TCP Throughput Down- /Upload - ARGUS® against ARGUS® • ARGUS® Real Speed Formal (RFC6349) - Throughput Test - Evaluation according to RFC 6349
VoIP Tests (VoIP Tester) IP Telephone Simulation Testing of VoIP Connections incl. Acoustics (dif. Codecs) MOS Evaluation (ITU-T P.800) Call Generator (up to 30 Calls)	• Configuration in VoIP Profiles (20): SIP Username, Password, Registrar Server, Outbound Proxy/SBC, Domain, Listen + Remote Port, Authentification, Caller ID, User Agent, Qualify, Process of Registration • Phone Settings: RTP Port Area, Silence Detection, Jitterbuffer, Codecs, DTMF • STUN Server • MOS Threshold for OK/Fail Evaluation • VoIP QoS, Layer 3 Diffserv: RTP/SIP: ToS, DSCP • VoIP QoS, Layer 2 VLAN Prio.: RTP/SIP: VLAN Prio. • Codecs: G.726 (16/24/32/40), G.729 (A/B), G.711 (a-law/µ-law), G.722 • Display of Own Number, Number of Called Person	• Duration of Connection [h:min:s] • MOS Plain Text Evaluation, According to E Model R Factor, ITU-T G. 107 (current/avg), MOS (current/avg/min/max/ideal) • Statistics: RTP Packets (Tx/Rx), • Error Counter: RTP Drop, RTP Error • RTP Jitter Rx (current/avg/min/max) • Lost RTP Packets (avg/min/max) • RTCP Contents: - RTP Jitter far (current/avg/min/max) [ms] - Lost RTP Packets of Remote Side - Network Delay (current/avg/min/max) [ms] - Display of Registration Details: SIP Codes, Registrar IP, Proxy, URI • Simulation (VoIP NT)

General:	Applications, Settings + Results:	
IPTV Tests (IPTV Tester) IPTV Device Simulation IPTV STB Simulation (Set-top Box) OK/Fail Evaluation IPTV Channel Scan IPTV Monitor (IPTV passive)	• Configuration in IPTV Profiles (3): Editable Channel List (up to 250 Channels), Multicast IP + Port, Channel Name, IGMP version • Thresholds for IPTV OK/Fail-Evaluation: IGMP Latency, Sync Error, PCR Jitter, Error Indication, CC Errors, CC Error Rate, Audio + Video Bytes, RTP Jitter, RTP Sequence Error, Current + Total RTP Loss Rate • Different VLs for IGMP + RTP • Scan Profiles (3) Configurable: max. Zapping Time • Display of Selected IPTV Channel, Test Duration, current Bitrate, OK or Fail • Packets Loss (current/min/max/avg) [Number]	• RTP/UDP Packet Loss Rate [%] • Delay [ms] + Delay Factor [ms] • Media Loss Rate (MLR) [%] • IP Address of Channel + Port • IGMP Latency (Activation Time) [ms] • For Correlation: xDSL CRC Counters • RTP Errors, RTP Sequence Errors • MPEG Bitrate + Packets (min/max/…), Bytes (current/min/max/...), PCR Jitter (current/min/max/avg) [ms], CC Errors + Error Rate (current/max) [%], Error Sync + Indication • Codecs and PIDs (Packet Identifier) • Channel Zapping Time (min/max/avg) [ms]

Specifications Fiber Tests:

General:	Applications, Settings + Results:	
ARGUS OPM Optical Power Meter	• Optical Power Meter in SFP form factor • Powerful InGaAs Photo Diode • Optical Level Measurement with wavelengths from 850, 1300, 1310, 1490, 1550, 1610, 1650 nm • Measuring range: -60 dBm up to +6 dBm, ± 0.25 dB	• Live display of the level • Storage of the measurement in measurement protocols • Robust and protected by use in SFP slot • Optional Calibration at 1310, 1490 and 1550 nm (-20 dBm), 20 °C
Selective xPON-OPM for GPON / XGS-PON	• Measuring range: • 1577 & 1490 nm (filtered): from -40 to +6 dBm • 1270 to 1625 nm (broadband): from -50 to +10 dBm • Accuracy: ±0,5 dB • Calibration conditions: -20 dBm, 23°C ±5 K • Connector: SC/APC, SFP+, LAN4 10 GBase-T * The network must provide the ID for this.	• Readout of PON ID and XGS-PON ID* via SC/APC, detection up to: • GPON ≥ -30 dBm • XGS-PON ≥ -28 dBm • Full ONT simulation (GPON ONT or XGS-PON ONT) via additional GPON/XGS-PON SFP transceiver module • IP/Performance tests via SFP+, LAN4 10/5/2.5/1 GBase-T, 100Base-Tx with up to 1 Gbit/s (max. 2.5 Gbit/s)
Optical Fault Finder	• simple fault finder • detects different types of optical faults • up to 15 event with one test	• distance to every event • robust and protected by use in SFP slot
Fiber Inspection Tool Video Microscope	• USB Microscope for the ARGUS • optical Fiber Inspection • manual Focusing with separate key • optional: Autofocus • digital Zoom • Pass /Fail evaluation according to IEC 61300-3-35	• min. Particle Size 0.5 µm • Defects: Core, Cladding, Adhesive, Contact • Scratches: Core, Cladding, Adhesive, Contact • different Tips /Adapters included in scope of delivery • PC, UPC, APC • Single Mode /Multi Mode
VFL Visual Fault Locator	• Mini Visual Laser Source • Output Power: 1 mW • Detecting Range: about 5 km • Wavelength: 650 nm	• Laser Level: Class 2 • Connector: Un/FC • Modulation Frequency: CW / 2 Hz • Power Supply: 2 * AAA batteries
Optical Light Source	• Wavelength: 1310 nm, 1490 nm, 1550 nm +1625 nm (± 20 nm) • Stability: - Short term (15 minutes): 1310 nm < ±0,05 dB 1490 nm < ±0,10 dB 1550 nm < ±0,05 dB 1625 nm < ±0,10 dB - Long term (5 hours): 1310 nm < ±0,10 dB 1490 nm < ±0,20 dB 1550 nm < ±0,10 dB 1625 nm < ±0,20 dB • Connector: SC/APC with dust protection and protection against loss	• Spectral width: 5 nm • Frequency: 270 Hz, 1 KHz, 2 KHz • Auto wavelength: protocol-based wavelength and TX power transmission • Power: -5 dBm ±0.5 dB • Auto power off / backlight • Power supply: 2x Ni-MH AA (2500 mAh), AC/DC charger • Dimension (L x W x H): 160 x 76 x 45 mm • Net weight: 270 g • Accessories: AC/DC charger, 2 x AA battery, calibration report

Specifications ISDN:

General:	Applications, Settings + Results:	
BRI S Interface ITU-T I.430 BRI S Terminal BRI S Telephone BRI S TE Simulation	• BRI S TE Mode, Terminal device simulation • Autom. Detection of Connection Configuration • L2 Mode: automatic, P-P, P-MP • Test Availability of B Channels • BRI S Level and Voltage Evaluation • Protocol: DSS1	• Display L1, L2 and L3 of B Channel Status • incoming /outgoing Call • Display of Call Parameters • own Acoustics • Connection: Call (Single/Block Dial)

Specifications POTS:

General:	Applications, Settings + Results:	
POTS Tester Analogue Tester POTS Butt Set POTS Terminal Simulation POTS Monitor	• Fully-fledged POTS Butt Set, POTS Phone • POTS Terminal Equipment (TE) • Analogue Phone w/ DTMF + Pulse Dial • Incl. Fully-fledged Analogue Acoustics • High-impedance Listening on POTS • Configurable DTMF Signal Level	• Voltage Measurement + Display Polarity when Hook-on and Hook-off • CLIP + Caller-ID according to ETS 300 659/778 • Supports FSK + Display of Caller ID • FLASH Function (40 up to 1000 ms)

Specifications Cable Multimeter:

General:			
	Measuring Range	**Resolution**	**Accuracy**
DC Voltage; UDC (U⎓):	• 0 V to 9.99 V	• 0.01 V	• ± (0.5 % + 2 digits)
	• 10 V to 200 V	• 0.1 V	• ± (0.5 % + 2 digits)
AC Voltage; UAC (U~):	• 0 V to 9.99 V	• 0.01 V	• ± (2 % + 2 digits)
	• 10 V to 200 V	• 0.1 V	• ± (1.5 % + 2 digits)
	Frequency: 10 Hz to 200 Hz; 0.2 Hz; ±(1.5 % + 2 digits), sinus		
Capacitive Symmetry Balance; CSym:	• 10 nF to 4 µF	• 0.01 nF	• 0.1 % of the capacity against ground
	Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 kΩ).		
Capacitance; C:	• 0.01 nF to 9.99 nF	• 0.01 nF	• ± (4 % + 4 digits)
	• 10 nF to 99.99 nF	• 0.01 nF	• ± (4 % + 4 digits)
	• 100 nF to 999.9 nF	• 0.1 nF	• ± (3 % + 1 digit)
	• 1 µF to 8 µF	• 1 nF	• ± (3 % + 1 digit)
	Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 kΩ). Measured by film capacitors.		
Isolation Resistance (105 V, max. 2 mA); Iso:	• 0.1 kΩ to 99.9 kΩ	• 0.1 kΩ	• ± (2 % + 1 digit)
	• 100 kΩ to 999 kΩ	• 1 kΩ	• ± (2 % + 1 digit)
	• 1 MΩ to 9.99 MΩ	• 10 kΩ	• ± (2 % + 1 digit)
	• 10 MΩ to 99.9 MΩ	• 100 kΩ	• ± (5 % + 1 digit)
	• 100 MΩ to 1 GΩ	• 100 kΩ	• ± (5 % + 1 digit)
	Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 kΩ).		
Isolation Resistance (8 V, max. 8 mA); Iso:	• 0.1 kΩ to 99.9 kΩ	• 0.1 kΩ	• ± (2 % + 1 digit)
	• 100 kΩ to 999 kΩ	• 1 kΩ	• ± (2 % + 1 digit)
	• 1 MΩ to 9.99 MΩ	• 10 kΩ	• ± (2 % + 1 digit)
	• 10 MΩ to 40 MΩ	• 100 kΩ	• ± (5 % + 1 digit)
	Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 kΩ).		
Resistive Symmetry Balance; RSym:	• 10 Ω to 5 kΩ	• 0.1 Ω	• 0.2 % of Rs ± 0.2 Ω
	Dielectric strength for external voltage up to 30 V DC or 30 V AC (with a load 200 kΩ).		
Loop Resistance; R: (13 V, max. 15 mA)	• 1 Ω to 999.9 Ω	• 0.1 Ω	• ± (1 % + 3 digits)
	• 1 kΩ to 9.999 kΩ	• 1 Ω	• ± (1 % + 1 digit)
	• 10 kΩ to 99.99 kΩ	• 10 Ω	• ± (1 % + 1 digit)
	• 100 kΩ to 999.9 kΩ	• 100 Ω	• ± (1 % + 1 digit)
	• 1 MΩ to 9.999 MΩ	• 1 kΩ	• ± (2 % + 1 digit)
	• 10 MΩ to 40 MΩ	• 10 kΩ	• ± (5 % + 1 digit)
DC Current; IDC (I⎓):	• 0 mA to 150 mA	• 0.1 mA	• ± (2.5 % + 3 digits)
Unbalance @ 1 MHz; LCL:	• 0 dB to 55 dB	• 0.1 dB	• ± 1.5 dB
	• 55.1 dB to 65 dB	• 0.1 dB	• ± 3 dB
	The length of the test leads can influence the accuracy of the measurement. Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 MΩ it will be measured up to 3.5 V DC / AC.		

NEXT @ 1 MHz; NEXT:	• 0 dB to 65 dB	• 0.1 dB	• ± 1 dB
	Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 MΩ it will be measured up to 3.5 V DC / AC.		
RFL Resistance troubleshooting	• Display of: - Resistance to error (R_x), distance to error - Resistance from fault to short-circuit (R_y) - Loop resistance (R_s), cable length - Fault resistance (R_{fault})	• Measuring ranges: - Loop resistance (R_s): 10..9999 Ω - Fault resistance (R_{fault}): 0..20 MΩ	• Accuracy R_x at $L_x/L = 0.1$ - R_s = 2000 Ω: ± 0.3 % ± 0.05 Ω - R_s = 200 Ω: ± 1.0 % ± 0.06 Ω
Remote Kit Control	• Use ARGUS to control different Remote Kits to switch the Line on the remote side, e.g. TX916 - Short-circuit - Exchange connect - Open circuit - Loop - Tone mode - switch 2 ports simultaneously		
Other Functions:	• Autotest	• Fast cable check	• Signature detection (e.g. PPA)
Reference Conditions (calibration):	• Temperature: 23 °C ± 5 °C • Relative humidity: 50 % ± 20 % relative humidity, non-condensing		• Frequency of measurement type: 50 Hz ± 5 Hz, sinus

Specifications Copper Tests

General:	Applications, Settings + Results:	
TDR Test Time Domain Reflectometer	• Determination of the Loop Length • For Identification and Detection of Shorts, Opens, Impedance Mismatches, Bridged Taps/Stubs, Moisture, Loading Coils, Loose Contacts and more • Pre-configured List of Cable Types, Velocity of Propagation (VoP): 30 % (45 m/µs) up to 99.9 % (149.7 m/µs), Line Resistance, Mutual Capacitance • Measurement Range: 3.5 up to 6000 m	• Res.: 0.025 % of Measurement Range; Accuracy: ±2 % • Graphical Display of Reflection Course • Configureable gain: -26 dB up to +44 dB • Config. Pulse: 5 ns up to 3.2 µs, Pulse Height: 5 V and 20 V • Dynamic range: 60 dB / Amplification Level • Zoom + Cursor for a Detailed Analysis • Save + Set of Reference Curve • Start/Stop Function (Realtime Mode)
Line Scope DSL Spectrum Analysis DSL Oscilloscope RF Current Clamp	• Monitoring in Time/Frequency Domain on all Types of Lines for Telecommunications and on active Lines with up to 200 VDC and 40 Vpp • Modem Finder, via Handshake Tones • Frequency Range: 20 kHz up to 35 MHz • Resolution: 67 Hz up to 8.625 kHz or 0.025 % of Measurement Range, Accuracy: ±2 dB • High-impedance or Line Termination: - Input Impedance: 3.6 kΩ, <10 pF - Switchable 100 Ω Input Resistance • Config. Gain FFT: -26 dB up to +20dB	• For Identification and Detection of different Access Types • Graphical Display of FFT [dBm/Hz] and of Time (Oscilloscope) • Config. X-Axis: FFT or Time [µs] • Autom. Trigger in Time Domain • Zoom + Cursor for a Detailed Analysis • Save + Set of Reference Curve • Start/Stop and Peak Hold Function) • Peak Hold Function (Min/Max Trailing) • Symmetry Toggling • Detection of Disturbers/Disturbing Signals

Documentation and Analysis
• **Documentation** of all parameters recorded to test reports (in device and on PC) via automatic access tests
• Transfer of test results via **QR code** to a smartphone or via WLAN, ETH or DSL to cloud (FTP server)
• Free of charge firmware updates via **cloud** or ARGUS **update tool** (www.argus.info)
• **WLAN** for transf. test results to systems of an electronic order processing system, remote control via smartphone

Device Specifications	
Technical Features:	
• **Hotkey**	Quick start of various tests
• **Power management**	User configurable
• **Keypad**	18 keys, 4 cursor keys, 4 context-sensitive softkeys
• **TFT colour display**	800 x 480 pixels, backlit, incl. touchscreen
• **6 LEDS**	Indicating the status + Ethernet port LEDs
• **Handset**	Integrated earpiece and microphone
• **ARGUSpedia**	Integrated help function
• **CE marking**	Complies with CE directives
• **User safety**	Fulfills EN 62368-1
• **RoHS conformance**	Conformance according to WEEE directive
Interfaces:	
• **1x RJ-45, 1x RJ-11**	For xDSL, G.fast, POTS, U, R and C Measurement
• **1x Ethernet**	10/100/1000 Base-T/ 2.5 GBase-T, RJ-45 test port
• **1x SFP port**	100 Base-FX/LX, 1000 Base-SX/LX/ZX/BX, 2.5 GBase-T
• **USB client interface, 2x USB host interface**	Type micro B, Type A
• **WLAN**	IEEE802.11a/b/g/n
Environmental conditions:	
• **Temperature range for charging battery pack**	0 °C (+32 °F) up to +40 °C (+104 °F)
• **Max. Operating temperature (endurance tests)**	0 °C (+32 °F) up to +40 °C (+104 °F)
• **Max. Operating temperature (in battery mode)**	-10 °C (+14 °F) up to +50 °C (+122 °F)
• **Operating temperature (with power/car adapter)**	0 °C (+32 °F) up to +40 °C (+104 °F)
• **Storing Temperature**	-20 °C (-4 °F) up to +60 °C (+140 °F)
• **Relative humidity**	Up to 95 %, non-condensing
Dimensions:	
• **Size**	H x W x D: 300 x 128 x 84 mm (11.81 x 5.04 x 3.31 in)
• **Weight**	<1.500 g (3.31 lbs) ARGUS incl. battery pack

Standard Package:		
Basic device incl. Gigabit-Ethernet interface (10/100/1000 Base-T), ADSL (Annex A+L+M) + VDSL2 (up to profile 35b), Bridge/router mode, Wi-Fi-Management, IP+Download package (IP ping, traceroute test, HTTP/FTP download, FTP upload/server), Line scope, Network scan, Web browser, Cloud services, Lithium-Ion battery pack, Mains adaptor, Shock absorbing rubber jacket, Carrying case, 2 wire cable + xDSL adaptor, Micro USB cable, Carrying strap, Hand strap and English manual		
Additional Options:		
• **ADSL Annex B + J Enhancement**		Order number: 026008
• **VDSL2 Bonding Enhancement (up to Profile 35b)**	requires Art.No.: 026045, incl. Bonding Cable	Order number: 026050
• **G.fast Enhancement (Profile 106a and 212a)**		Order number: 026045
• **Time Domain Reflektometer option (TDR)**	up to 6 km	Order number: 026040
• **Copper Package (Cable Multimeter/DMM)**	incl. banana cable red/black + green	Order number: 026010
• **Resistive Fault Location option (RFL)**	requires Art.No.: 026010	Order number: 026055
• **ARGUS® RF Current Clamp**		Order number: 000265
• **2,5 Gigabit Ethernet Interface**	10/100/1000/2.5 GigE via RJ45 and SFP	Order number: 020035
• **GPON Option**	incl. ARGUS® GPON ONT SFP, incl. SC/LC-APC patch cable	Order number: 026076
• **GPON Option, calibrated**	incl. Art.No.: 026076 + initial calibration of the level masurement	Order number: 026077
• **PON Installation Test**	w/o stick	Order number: 026097
• **Optical Light Source (OLS)**		Order number: 000280
• **Optical Power Meter option (OPM)**	incl. ARGUS® Optical Power Meter (SFP), type 6006	Order number: 026080
• **xPON OPM + PON ID for GPON/XGS-PON**		Order number: 026200
• **xPON installation for GPON/XGS-PON**		Order number: 026201
• **GPON-ONT for xPON-OPM**	incl. GPON Transceiver SFP; requires Art. No. 026200	Order number: 026202
• **XGS-PON-ONT for xPON-OPM**	incl. XGS-PON Transceiver SFP; requires Art. No. 026200	Order number: 026203
• **xPON-5xOPM**	incl. Through Mode + Up-/Downstream level measurement, requires Art. No. 026200	Order number: 026204
• **Optical Fault Finder option (OFF)**	w/o OFF SFP (000275)	Order number: 026083
• **Fiber Inspection option**	w/o Fiber Inspection Tool	Order number: 026094
• **XGS-PON option**	incl. ARGUS® XGS-PON ONT SFP + SC/LC-APC patch cable	Order number: 026115

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• **XGS-PON option, calibrated**	incl. Art.No. 026115 + initial calibration of level measurement	Order number: 026116
• **Wi-Fi Test Interface**	w/o Wi-Fi USB stick (000250)	Order number: 026059
• **ARGUS® WLAN Analyzer**	requires WLAN basic	Order number: 026054
• **ARGUS® 2G4 Scope (2.4 GHz Spectrum Analysis)**	incl. USB 2G4 Scope stick	Order number: 000240
• **VoIP Option**	incl. MOS value, Call generator, NT Sim., SIP trunk	Order number: 026060
• **IPTV Option**	incl. IPTV STB mode, IPTV passive, channel scan	Order number: 026065
• **Triple Play package**	incl. VoIP and IPTV Option	Order number: 026067
• **Speedtests up to 10 Gbit/s**	via Ethernet (LAN4, SFP3) + fiber via transceiver SFP; incl. ARGUS RealSpeed Direct (iperf); incl. Ethernet Cat6 Patch Cable 1:1 (red); requires Art. No.026200 and 026204	Order number: 026206
• **ARGUS® Real Speed Formal (RFC6349)**	incl. ARGUS® Real Speed Direct (iperf)	Order number: 026056
• **ARGUS® Real Speed Direct (iperf)**	Client/ Server	Order number: 026068
• **ISDN BRI S/T TE Interface**	requires Art.No.: 026045	Order number: 026016
• **POTS Option**	POTS	Order number: 026070
• **SFP Support**	supports various SFP types	Order number: 026042

* We would be glad to provide further details and information about additional accessories on request.

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