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ARGUS testing the telecom network

IN USE **THROUGHOUT EUROPE**

intec Gesellschaft für Informationstechnik mbh is successfully developing products for the international telecommunication markets for more than 30 years. Meanwhile specialized in high-quality telecommunication measuring devices, we belong to the leading suppliers of G.fast, xDSL, IP and fiber optic 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.



ARGUS 300 FORM SELL SORPH COLUMN TO THE POWER TO THE POW

ARGUS 300 ...

All-in-one tester with touch display: combines intuitive operation, familiar ARGUS® menu structure and maximum system performance

Combines the functions of various fiber measurement devices, xDSL combi testers and 10 GigE measurement technology

Establ. speed tests on numerous interfaces such as GPON, WLAN, G.fast, xDSL, 10 GigE and many more

Assists in the maintenance and testing of modern broadband interfaces in the copper and fiber range

Many different SFP modules for fiber (FTTx) and ETH (Active Ethernet), opt. with SFP+

Features a 1000 Base-T Ethernet interface and allows HTTP/FTP up/download tests, IP ping, traceroute, Speedtest® by Ookla®; simulates at xDSL (opt.) bridge, PC and router mode

Offers numerous copper test options: e.g. with the line scope in the time/frequency range for the detection of interferers on all telecommunication lines

Free cloud functions, e. g. firmware update, configuration and test result upload

Supports easy configuration on the PC with the ARGUS® Configuration Tool

ARGUS 300 with optional ...

Guided PON installation test, ONT simulation; display of PON ID in plain text, precise, calibrated attenuation measurement and much more

ARGUS® GPON ONT: Replaces the customer ONT on-site, protocol setup (PPP) as well as speed and triple play tests, OLT port determination, separate GPON trace and PON level and attenuation measurement

OTDR: highly precise last mile troubleshooting, auto mode + graph. route analysis event by event

Fiber inspection tool for optical fiber inspection and pass/fail evaluation according to IEC 61300-3-35

Selective OPM with automated detection of XGS-PON and GPON and readout of PON ID/XGS-PON ID

Optical Fault Finder: simple optical fault location, determines the distance to various fault events

 $2.5\ Gigabit\ Ethernet\ interface\ for\ even\ faster\ in-service\ speed\ testing\ via\ IPv4\ and\ IPv6$

WLAN AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even during the connection, and much more

Measurement on ADSL, VDSL (35b), SHDSL (8-wire), G.fast (106/212) and all types of bonding accesses, incl. graphical processing of measured values, graphical long-term trace, OK/fail analysis, etc.

iPerf client/server mode, determines TCP throughput in down-/upload, also ARGUS® vs. ARGUS®

 $ARGUS^{\tiny{\textcircled{\tiny 0}}}\ Real\ Speed\ Test\ with\ evaluation\ of\ TCP\ throughput\ acc.\ to\ RFC\ 6349\ with\ more\ than\ 2\ Gbit/s$

Traffic generator and loop function for 1/2.5/5/10 Gigabit Ethernet interfaces

RFC2544: Tests throughput, latency and frame loss with a maximum data rate of 10 Gbit/s

ARGUS® SAM: Service Activation and Performance Test according to Y.1564, determines CIR, EIR (incl. Traffic Policing) with a maximum data rate of 10 Gbit/s

Integr. cable multimeter for exact determination of U=, U \sim , CSym, C, Iso-R, RSym, R, I=, LCL, NEXT in autotest, opt. with RFL and automated remote kit control

TDR for determination of line length, detection and identification of short circuits, interruptions, mismatches, stubs, and more.

ISDN BRI S/T, PRI and/or POTS interface for maximum compatibility

ARGUS[®] 260





ARGUS 260 ...

Broadband tester with touch display: combines intuitive operation, familiar ARGUS® menu structure and maximum system performance

Combines the functions of various fiber measurement devices and xDSL combi testers

Establ. speed tests on numerous interfaces such as GPON, WLAN, G.fast, xDSL, 10 GigE and many more

Assists in the maintenance and testing of modern broadband interfaces in the copper and fiber range

Many different SFP modules for fiber (FTTx) and ETH (Active Ethernet)

Features a 1000 Base-T Ethernet interface and allows HTTP/FTP up/download tests, IP ping, traceroute, Speedtest® by Ookla®; simulates at xDSL (opt.) bridge, PC and router mode

Offers numerous copper test options: e.g. with the line monitor in the time/frequency range for the detection of interferers on all telecommunication lines

Free cloud functions, e. g. firmware update, configuration and test result upload

Supports easy configuration on the PC with the ARGUS Configuration Tool

Measurement on ADSL2/2+ (Annex B + J) + VDSL2 (up to profile 35b) incl. graph. Processing of the measured values, graph. Long-term trace, OK/Fail analysis and much more

ARGUS 260 with optional ...

Guided PON installation test, ONT simulation; display of PON ID in plain text, precise, calibrated attenuation measurement and much more $\frac{1}{2}$

ARGUS® GPON ONT: Replaces the customer ONT on-site, protocol setup (PPP) as well as speed and triple play tests, OLT port determination, separate GPON trace and PON level and attenuation measurement

Fiber inspection tool for optical fiber inspection and pass/fail evaluation according to IEC 61300-3-35

Selective OPM with automated detection of XGS-PON and GPON and readout of PON ID/XGS-PON ID

Optical Fault Finder: simple optical fault location, determines the distance to various fault events

 $2.5\ Gigabit\ Ethernet\ interface\ for\ even\ faster\ in-service\ speed\ testing\ via\ IPv4\ and\ IPv6$

WLAN AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even during the connection, and much more

Measurement on G.fast (106/212) and G.fast/VDSL (35b) bonding accesses

iPerf client/server mode, determines TCP throughput in down-/upload, also ARGUS® vs. ARGUS®

ARGUS® Real Speed Test with evaluation of TCP throughput acc. to RFC 6349 with more than 2 Gbit/s

Integr. cable multimeter for exact determination of U=, U~, CSym, C, Iso-R, RSym, R, I=, LCL, NEXT in autotest, opt. with RFL and automated remote kit control

TDR for determination of line length, detection and identification of short circuits, interruptions, mismatches, stubs, and more.

ISDN BRI S/T and/or POTS interface for maximum compatibility

accessories on

glad to

would be

Me

ARGUS®166

VDSL ADSL PON PM ((()) GigE

OFF (M) SFP LTE

ARGUS 166 ...

xDSL + GigE tester with larger memory and optimized system

VDSL2 profile 35b (ITU-T G.993.2, Annex Q / super vectoring)

Supports a lot of different SFP transceivers for fiber tests (FTTx)

Highspeed downloads on xDSL and Ethernet (> 900 Mbit/s)

Ethernet network scan with graphical display lists all IP and MAC addresses in the network

Active Line Noise graph and graphical xDSL long-time trace to detect infrequent DSL

HTTP/FTP up-/download tests, IP Ping, trace route; bridge, PC and router modes

Line monitoring (Line Scope) via optional Probe with sym. / asymm. operation mode

Free cloud functions, e. g. firmware update, configuration and test result upload

Supporting PC software (ARGUS Update Tool, WINanalyse, WINplus) for updates, configuration and test results

ARGUS 166 with optional ...

VDSL2 profile 35b Bonding support

G.fast extension (G.9700/9701) up to 212 MHz

ADSL2/2+ modem simulation (Annex A + L + M and / or B + J)

SHDSL connection tester, 2, 4, 6 and 8 wire, SDHSL and SHDSL.bis (ATM, EFM, TDM)

Supports throughput according to RFC 2544 incl. GigE loop and traffic generator (1 Gbit/s)

ISDN BRI S/T/U, PRI/E1 interface (TE/NT/monitor) and POTS

GPON modem simulation (ONT) with throughput tests3

TDR function for measuring line lengths (up to 6 km) and identifying sources of interference

Extension of copper test functions with the ARGUS® Copper Box

Parallel tests of all Triple Play services like Data, VoIP, IPTV via xDSL and GigE

LTE extension* consisting of LTE scanner and download tests

WLAN-AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even

during the connection, and much more Fiber enhancements for fiber testing (Optical Power Meter, Optical Fault Finder, PON installation test), see ARGUS® 300

ARGUS®163

VDSL + ADSL COMBI TESTER

VDSL

Data

V_P 🛂



ARGUS 163 ...

VDSL + ADSL combi tester with larger memory and optimized system performance

VDSL2 profile 35b (ITU-T G.993.2, Annex Q / super vectoring)

Highspeed downloads on xDSL and Ethernet (> 900 Mbit/s)

Ethernet network scan with graphical display lists all IP and MAC addresses in the network

Supports a lot of different SFP transceivers for fiber tests (FTTx)

Active Line Noise graph and graphical xDSL long-time trace to detect infrequent DSL errors

HTTP/FTP up-/download tests, IP Ping, trace route; bridge, PC and router modes

Line monitoring (Line Scope) via optional Probe with sym. / asymm. operation mode

Free cloud functions, e. g. firmware update, configuration and test result unload

Supporting PC software (ARGUS Update Tool, WINanalyse, WINplus) for updates, configuration and test results

ARGUS 163 with optional ...

VDSL2 profile 35b Bonding support

G.fast extension (G.9700/9701) up to 212 MHz

ADSL2/2+ modem simulation (Annex A + L + M and / or B + J)

ISDN BRI S/T/U, PRI/E1 interface (TE/NT/monitor) and POTS

LAN cabling tests (multi cable test) with up to 100 measurements for detecting cabling faults

Allocate up to 100 active ARGUS LAN Probes with programmable ID

PoE load tests ("Power over Ethernet"), class 0 to 4 automatic

GPON modem simulation (ONT) with throughput tests*

TDR function for measuring line lengths (up to 6 km) and identifying sources of interference

Extension of copper test functions with the ARGUS® Copper Box

Parallel tests of all Triple Play services like Data, VoIP, IPTV via xDSL and GigE

LTE extension* consisting of LTE scanner and download tests

WLAN-AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even during the connection, and much more

Fiber enhancements for fiber testing (Optical Power Meter, Optical Fault Finder, PON installation test), see ARGUS® 300

ARGUS®156

VDSL

ADSL

Speed test

Ookla[®]



ARGUS 156 ...

xDSL tester with larger memory and optimized system performance

Highspeed downloads on xDSL and Ethernet (> 900 Mbit/s)

Measurement of xDSL up-/downstream parameters, as well as bits/tone (graphic)

Active Line Noise graph and graphical xDSL long-time trace to detect infrequent DSL

HTTP/FTP up-/download tests, IP Ping, trace route; bridge, PC and router modes

Supports the protocols IPv4 and IPv6 as well as the dual stack mode

Line monitoring (Line Scope) via optional Probe with sym. / asymm. operation mode

Free cloud functions, e. g. firmware update, configuration and test result upload

Supporting PC software (ARGUS Update Tool, WINanalyse, WINplus) for updates, configuration and test results

ARGUS 156 with optional ...

VDSL2 profile 35b Bonding support

G.fast extension (G.9700/9701) up to 212 MHz

Ethernet network scan with graphical display lists all IP and MAC addresses in the network

ADSL2/2+ modem simulation (Annex A + L + M and / or B + J)

SHDSL connection tester, 2, 4, 6 and 8 wire, SDHSL and SHDSL.bis (ATM, EFM, TDM)

ISDN BRI S/T/U, PRI/E1 interface (TE/NT/monitor) and POTS

Expandability of line monitoring, TDR, symmetry measurement (up to 30 MHz) and more

TDR function for measuring line lengths (up to 6 km) and identifying sources of interference

Extension of copper test functions with the ARGUS® Copper Box

Parallel tests of all Triple Play services like Data, VoIP, IPTV via xDSL and GigE

LTE extension* consisting of LTE scanner and download tests

WLAN-AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even during the connection, and much more

ARGUS® 153



ARGUS 153 ...

VDSL + ADSL tester with larger memory and optimized system performance

VDSL2 profile 35b (ITU-T G.993.2, Annex Q / super vectoring)

Highspeed downloads on xDSL and Ethernet (> 900 Mbit/s) Incl. IP ping and trace route tests, bridge,

PC and router modes Supports the protocols IPv4 and IPv6 as

well as the dual stack mode

Active Line Noise graph and graphical xDSL long-time trace to detect infrequent DSL errors

Line monitoring (Line Scope) via optional Probe with sym. / asymm. operation

Free cloud functions, e. g. firmware update, configuration and test result upload

Supporting PC software (ARGUS Update Tool, WINanalyse, WINplus) for updates, configuration and test results

ARGUS 153 with optional ...

VDSL2 profile 35b Bonding support

G.fast extension (G.9700/9701) up to 212 MHz

Ethernet network scan with graphical display lists all IP and MAC addresses in the network

ADSL2/2+ modem simulation (Annex A + L + M and / or B + J)

HTTP download/FTP up and download tests (with several 100 Mbit/s) via FTP server

Parallel tests of all Triple Play services like Data, VoIP, IPTV via xDSL and GigE

TDR function for measuring line lengths (up to 6 km) and identifying sources of interference

Extension of copper test functions with the ARGUS® Copper Box

Transferring of test results via WLAN or QR code to systems of an electronic order processing

LTE extension* consisting of LTE scanner and download tests

WLAN-AP and WLAN client mode with WLAN scan for finding WLAN networks

ARGUS® 2G4 Scope for finding WLAN interferers in real time

ARGUS® WLAN Analyzer: Automated and graphical evaluation of found networks, even during the connection, and much

		300	260	166	163	156	153
	ADSL2/2+		Ø	✓	✓		✓
Interfaces	VDSL2 Profile 35b	⊘	Ø	✓	✓	✓	✓
	VDSL2 Profile 35b Bonding		✓	✓	✓	✓	<
	G.fast (up to 212 MHz)			✓	✓	✓	✓
	G.fast (up to 212 MHz Bond.)						
	SHDSL 2/4/8 wire (STU-R/C)	✓		✓		<	
	xDSL	✓		✓	✓	✓	✓
	1 GigE						
푪	2.5 GigE	<	<				
	10 GigE Link						
	GPON		•	•	•		
Fiber	XGS-PON	✓	⊘	•			
	xPON ID		⊘				
	PON Installation Test	✓	⊘	✓			
	Sel. OPM / Optical Power Meter			-/ 🗸	-/ 🗸		
	Optical Fault Finder	⊘	✓	✓	✓		
	OTDR	✓					
	Fiber Inspection Tool	✓	✓				
	Optical Light Source			✓	⊘		
	VFL	✓	✓	\checkmark	\checkmark		
	WLAN Test	✓	⊘		⊘	✓	⊘
Wireless	WLAN Test WLAN Spectrum Analysis/2G4 Scope	✓	⊘	✓	⊘	⊘	⊘
	WLAN Management	⊘	⊘	⊘	✓		✓
	ARGUS® WLAN Analyzer	✓	✓	⊘	✓	✓	✓
	LTE			⊘	⊘	⊘	✓
ISDN/ POTS	BRI U				⊘	✓	
	BRI S/T TE	✓		✓	⊘	✓	
2	BRI S/T NT	•	•	⊘	⊘	⊘	
Z	PRI/E1	✓		✓	⊘	⊘	
<u>s</u>	POTS	✓	✓	✓	⊘	⊘	
		✓	✓				
Copper	int. Cable Multimeter (DMM)	•	⋄	✓	✓	✓	
	Copper Box	Ø	Ø	⊘	_		_
	Line Scope TDR	⊘	⊘	⊘	⊘	⊘	⊘
	RFL	⊘	▽	•			
	Remote Kit Control	⊘	⊘	✓		•	⊘
	ARGUS® RF Current Clamp	✓	✓	✓	⊘	✓	⊘
	Active Probe II			✓	✓		✓
Tests	IP Tests (Ping/Traceroute)	Ø		Ø		⊘	
	Down-/Upload (HTTP/FTP)	⊘	⊘	⊘	✓	✓	⊘
	Speedtest® by Ookla®	Ø	Ø	O	⊘	⊘	⊘
	ARGUS® Real Speed (RFC6349)	⊘	✓	✓	⋄	⊘	⊗
	Network Scan			Ø	Ø	✓	⊘
	Web Browser						
	Modem Finder			✓	✓	✓	✓
	VoIP + MOS	<	<	✓	⊘	<	<
	IPTV			✓	⊘	✓	⊘
	Parallel Tests / Autotests	Ø	Ø	✓	⊘	<	<
	LAN Cabling/PoE				⊘		
	Loop/Traffic-Generator	⊘		⊘			
	RFC2544			✓			
	ARGUS® SAM (Y.1564)	\checkmark					
.≘	Firmware Update via Cloud/FTP			Ø		Ø	
	Configuration Import via Cloud/FTP	Ø	Ø		Ø	Ø	Ø
Admin	Test Result Upload via Cloud/FTP	Ø	Ø		Ø	\bigcirc	
Ä	Remote Access (VNC)	Ø	Ø	✓	<	✓	<
	PC Software			Ø	✓	<	✓
				5:55	2000	222	57.5
		1888		120	155	8868	Sissa
			6				