

2011/2012  
Version 02/2011/EN

# ARGUS<sup>®</sup>


## testing the telecom network



**intec**

GESELLSCHAFT FÜR  
INFORMATIONSTECHNIK mbH

# ARGUS: in use throughout Europe

- 
- Headquarter in Luedenscheid, Germany
  - Office in Madrid, Spain

## Distribution partners in Europe:

- |               |                  |
|---------------|------------------|
| ● Norway      | ● Italy          |
| ● Finland     | ● Portugal       |
| ● England     | ● Greece         |
| ● Ireland     | ● Croatia        |
| ● Netherlands | ● Serbia         |
| ● Belgium     | ● Slovenia       |
| ● France      | ● Hungary        |
| ● Switzerland | ● Poland         |
| ● Austria     | ● Czech Republic |

- |             |
|-------------|
| ● Slovakia  |
| ● Latvia    |
| ● Lithuania |
| ● Estonia   |
| ● Ukraine   |
| ● Russia    |
| ● Romania   |
| ● Sweden    |
| ● Cyprus    |

## Distribution partners worldwide:

- |                |
|----------------|
| ○ Saudi Arabia |
| ○ Egypt        |
| ○ New Zealand  |
| ○ Australia    |
| ○ Colombia     |
| ○ China        |
| ○ India        |
| ○ Thailand     |
| ○ South Africa |

# ARGUS: intec inside

## **In use throughout Europe: telecommunications measurement technology from intec**

intec Gesellschaft für Informationstechnik mbH is developing high-quality products for the international telecommunications market for more than 20 years and is one of the leading suppliers of xDSL, ISDN and IP measurement technology in Europe today.

The successful ARGUS measurement equipment enables its users to conveniently and safely commission and troubleshoot xDSL and ISDN accesses as well as those services that are based on these interfaces such as VoIP and IPTV. ARGUS testers are designed to meet the day-to-day needs of staff in the field; consequently intec engineers focus on ensuring high-quality measurement in a

compact device that is exceptionally uncomplicated to use.

The portfolio of ARGUS testers, software and analysers benefits from continual further development and is kept up-to-date with support for the latest standards for all the common access types and protocols as well as for the newest features of the Next Generation Networks (NGN) and Triple Play. Throughout the world, numerous telecommunication companies have come to appreciate and rely on the advantages offered by intec equipment; to name just a few Deutsche Telekom, Saudi Telecom, Telefonica, KPN, British Telecom and Telekom Austria.



In the past years, more than 50,000 test devices have been delivered throughout Europe and the rest of the world. Consequently, intec GmbH has continued to grow even at times when the rest of the branch was stagnating or in decline. We see this growth as an indication that we have followed the right strategy from the very beginning – in producing measurement equip-

ment that is precisely tailored to suit the needs of the user. Following this strategy, our ARGUS testers are easy to operate and combine in a single device all of the functions required for onsite measurements. A concept that has been well appreciated by our customers for many years!

*In the past years, more than 50,000 test devices have been delivered throughout Europe and the rest of the world.*

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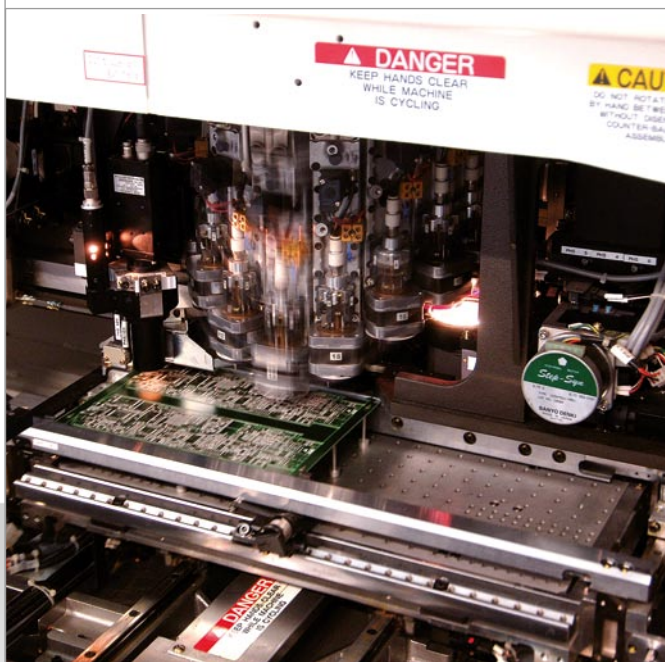
[www.argus.info](http://www.argus.info)

**intec**

GESELLSCHAFT FÜR  
INFORMATIONSTECHNIK mbH



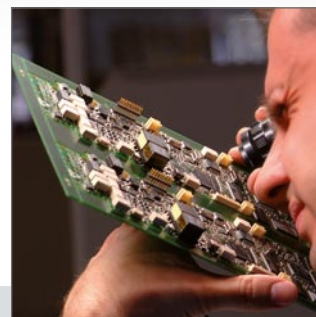
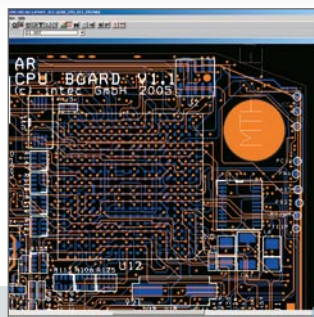
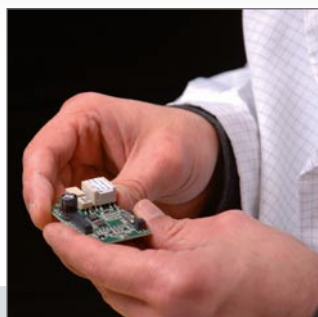
# Single-source quality



At intec, the entire core know-how is concentrated at one location – from software and hardware development to marketing, sales and service. As a result, we can react to our customers' wishes and suggestions in the shortest possible time and thus offer products that are exactly tailored to suit user requirements.

The equipment is also manufactured (under our control) in Germany. To maintain the high quality of all our ARGUS testers, we use the most modern processes and have implemented a DIN EN ISO 9001 certified quality management system. Furthermore, we test all of our equipment in our own in-house calibration laboratory. Moreover, each individual tester must pass an automatic optical inspection (AOI) as part of the production process.

**The result: first-class products "Made in Germany".**



## Success via innovation

Exceptional innovativeness is one of the key factors in our success. In the last nine years, we have expanded our product spectrum with the addition of numerous new products, which, besides ISDN and POTS, now also include support for the ADSL, SHDSL, VDSL2, Ethernet, E1 and interfaces as well as an extensive range of protocols and routines for functional tests in professionally used LANs.

By high-ohmic switching to the subscriber line, new Cu tests now also permit spectrum analysis for physical line qualification.

Our new and unique combination of Triple Play and xDSL/ISDN tester, the ARGUS 145 plus, also supports tests of advanced technologies such as VoIP, Video-on-Demand (VoD) and IPTV. In addition, it also includes a range of features that provide

even greater user-friendliness, flexibility and expansion options. These features include additional interfaces such as a USB client and host for faster data transfers, a large, high-quality color display as well as support for convenient operation from the mains or the high-power lithium-ion battery pack.



### Service has priority at intec

Our customer service is not limited to the extensive personal advice given in selecting a product. Once the equipment is a use, the service continues as our staff provides assistance free of charge by telephone or e-mail. The customer is also well advised in countries abroad, where

our international sales partners provide competent support for users.

From the very beginning, we have offered an update service free of charge for all of our products and we were the first manufacturer of telecommunication testers to do so. Incidentally, this service is free without any additional registration. Using our free update tool – or depending on the product – a web interface, customers can use a PC to perform updates themselves without needing to return the product. The current version of the firmware can be downloaded from

[www.argus.info/en/service/](http://www.argus.info/en/service/) and then simply transferred to the device. All of the manuals are available in PDF format at the same site.

Additionally, we also hold seminars, in which we offer solid, up-to-date know-how covering the various types of accesses and the technologies which are based on them. We can also come to you upon request.



### RoHS compliance

The European RoHS (EU Directive on the Restriction of Hazardous Substances) directive restricts the use of certain hazardous substances in electrical and electronic equipment. It applies in eight of ten categories (categories 1 to 7 and 10) of the WEEE (EU Directive on Waste Electrical and Electronic Equipment) directive.

All ARGUS products fall into category 9 and are thus not subject to the RoHS directive. Nonetheless, we have decided to satisfy all of the directive's requirements voluntarily. We are happy to announce that all ARGUS products available since 1 st January 2007 have been built in compliance with this directive.

*From the very beginning, we have offered an update service free of charge for all of our products and we were the first manufacturer of telecommunication testers to do so.*

# Flexible and future-proof The ARGUS products

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ARGUS testers present complex relationships in a form that is clear and easily understood and, therefore, they are indispensable aids in the installation of new accesses, in locating and clearing faults in existing PBXs, as well as in determining and monitoring the quality of service. These testers provide certainty while troubleshooting by systematically interrogating and checking the various portions of the transmission circuit. Depending on which functions of an access or network should be checked, an ARGUS tester can replace – for test purposes – the PC, the telephone, the user's network path, the modem or even the terminal on the IP level. The source of the problem can thus be precisely located permitting the installer or service engineer to quickly and effectively clear the fault. This saves not only the installer and service technician, but also your customer a great deal of time and money.



*„ARGUS testers present complex relationships in a form that is clear and easily understood and, therefore, they are indispensable aids in the installation of new accesses, in locating and clearing faults in existing PBXs, as well as in determining and monitoring the quality of service.“*

## Convenient use

We value and therefore have put in the effort to design an exceptionally uncomplicated, convenient user interface. This goal has been met by designing in features such as numerous automatic interrogations, intuitive menu structures, ergonomic design, a large and yet practical selection of functions as well as the low weight of the tester itself.

Another exceptionally helpful feature is the automatic printout of a report that presents all the

measured parameters. This report simplifies the documentation and can be used as evidence of the cause of the fault. This reporting function is a standard feature of all our ARGUS handheld testers.

All of our testers can be directly connected to a PC or notebook to conveniently view and analyse the measurement results as well as to easily store larger quantities of data.

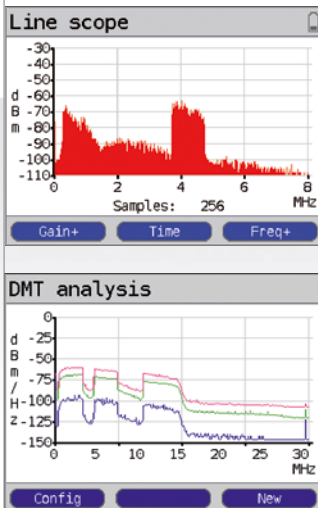
## Our product philosophy

From the very beginning, we have designed our testers to include everything that a service technician needs onsite in a single, compact and light weight device – from extensive test functions and interfaces to a convenient display all the way to an integrated handset.

To save the user time and effort involved in swapping modules, we have decided to design our testers to be complete without the use of exchangeable modules. All of the interfaces supported by an ARGUS tester are immediately ready for use onsite – no module swapping necessary. In the case of the ARGUS 142 xDSL/ISDN tester that means immediate access to test functions for VDSL2, ADSL, Ethernet, ISDN (BRI S/T and U interface) as well as POTS. A VoIP test, which is started by pressing a softkey, delivers results in seconds, evaluates these – e.g. in accordance with the MOS procedure – and presents this information on the display.

ARGUS 145 plus exhibits an organic extension of this philosophy: Its broad spectrum of features can be quickly and easily extended with additional functions by simply downloading a firmware update. Here again, all of the desired routines are directly available in one and the same device.





### ARGUS 145 plus

The ARGUS 145 plus is a first-class universal tester that meets the highest technical demands. It is the only handheld tester and analyzer to integrate all interfaces for VDSL2 (all profiles), ADSL (Annex A, B, M) and SHDSL (2-, 4- and 8-wire), Ethernet, ISDN PRI/E1, BRI S/T/U and POTS in a single measurement device – without having to swap modules.

If required, the numerous interfaces can be extended by further functions. For example the SHDSL interface also operates in SHDSL.bis (Enhanced SHDSL) –

as well as in ATM, TDM or EFM modes. Copper tests (Cu tests) for physical line qualification without synchronization to a DSLAM are always included: with a high-ohmic connection, the Line Scope can be used for a passive real-time analysis both in the time and frequency domains. Thanks to a spectrum analysis (DMT Analysis), the power spectral density (PSD) and noise can also be measured.

With its optional Triple Play test functions, the ARGUS 145 plus can be used to verify VoIP, IPTV and data services via xDSL and

Ethernet. The ARGUS 145 plus not only simulates terminal equipment such as a phone, PC or set-top box (STB), it also determines all relevant quality of service parameters and evaluates, as a digital lineman's handset, the voice quality delivering a MOS value. IPTV suitability is tested by means of STB emulation, Video on Demand (VoD) test, channel scan, Media Delivery Index (MDI) or IPTV long-term analysis.

The ARGUS 145 plus is extremely user-friendly thanks to its large 320 x 240 pixel color display and long-life Li-ion battery pack.



### ARGUS 142

Multifunctional measuring equipment at a fair price: the ARGUS 142 quickly and reliably tests interfaces and services down to the last detail. VDSL2, ADSL, Ethernet, ISDN BRI S/T/U and POTS, plus the physical conditions of the subscriber line are extremely easy to test – without having to swap modules.

The functions of the ARGUS 142 include at least one DSL and an Ethernet interface as standard, plus RC testing, voltage measurement, DMT Analysis and the Line Scope. Copper tests (Cu tests) can be used to assess the line quality even without synchronization to the far end.

Easy testing of Triple Play services: the analyzer offers Triple Play analysis as an option to verify VoIP, IPTV and data services via xDSL and Ethernet. The ARGUS 142 not only simulates terminal equipment such as a phone, PC or STB, it also determines all relevant quality of service parameters. As a digital lineman's handset, the unit evaluates the voice quality, e.g. delivering a MOS value using the E model, or IPTV suitability using the Media Delivery Index (MDI).

The ARGUS 142 is extremely user-friendly thanks to its large 320 x 240 pixel color display and intuitive menu structure. A powerful Li-ion battery pack ensures extended operating times.





### ARGUS 42 plus

ADSL combination tester at a fair price: the ARGUS 42 plus tests ADSL, as well as optionally ISDN and POTS. In addition to the various access types and protocols, the tester also determines e.g. the attainable transmission speed or noise floor of the line.

Basic Triple Play tests are also supported: the ARGUS 42 plus can be upgraded to a fully featured voice tester if desired. The combination tester can then be used to set up voice calls to test and evaluate not only POTS and ISDN connections, but also calls placed via VoIP. The ARGUS 42 plus evaluates the voice quality, delivers a MOS value (using E model) and determines the Media Delivery Index (MDI) of IPTV streams.

The testing set also checks the resistance and capacitance and performs voltage measurements on top. Optionally, HF signals can be detected or data services can be tested, e.g. by enabling the passive bridge or router modes. This allows determining the transmission quality of the line.

The handheld tester, which weighs just 450 g, is remarkably user-friendly thanks to its intuitive menu structure.

# ARGUS® 141

## ARGUS® 41<sup>PLUS</sup>

xDSL TESTERS

### ARGUS 141

Fast testing guaranteed: the ARGUS 141 xDSL Tester focuses on the key functions for testing VDSL2 or ADSL and is ready to operate extremely quickly. The user-friendly hand-held tester is able to integrate both interfaces in a single device. Separate chip sets for ADSL and VDSL2 ensure optimum performance, thus providing a high level of interoperability and a long reach. The results are presented both in tabular or graphical form.

Well equipped for the future: as an option, the ARGUS 141 can

be upgraded to test Voice over IP (VoIP) and data services such as ping, trace route or download via xDSL – this upgrade is even available after purchase.

During VoIP testing, the MOS value is also calculated automatically. As a lineman's handset, the ARGUS 141 simulates terminal equipment such as a phone or replaces a PC and determines the relevant quality parameters. If required, intec can also supply the tester with bridge or router functions to test customer modems.

The ARGUS 141 is extremely user-friendly thanks to its large 320 x 240 pixel color display and long-life Li-ion battery pack, which can be replaced in the field.



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### ARGUS 41 plus

Easy entry into the world of ADSL measurement technology: the inexpensive ARGUS 41 plus ADSL Tester offers impressive features such as quick availability and user-friendly testing of ADSL over POTS and ADSL over ISDN. The device is supplied with an IP ping function by default. The checker can optionally support a passive bridge mode.

Thanks to its easy handling, the ADSL Tester requires only few prior knowledge. A menu is not necessary since all of the functions and tests can be quickly selected and started by pressing a softkey. The most important measurement results such as the up- and downstream data rates of the loop are displayed automatically. The handheld tester can also be configured easily via its web interface.

The ARGUS 41 plus is remarkably user-friendly thanks to its web interface and quick availability. This handy tester weighs just 395 g and offers long operating times of several hours.



# ARGUS® 125

# ARGUS® 126

## NEXT GENERATION VOICE TESTERS



### NGVT – Upgrade to the Next Generation Voice Tester

The ARGUS 125 and ARGUS 126 testers can also be upgraded to an ADSL tester – the NGVT, Next Generation Voice Tester – with support for an even broader spectrum of interfaces. In this configuration, they offer support for ISDN accesses (including BRI, PRI and E1) and POTS as well as comprehensive measurement functions for ADSL accesses (Annex A and/or Annex B).

They are also well equipped for checking Internet connections as they have IP ping and trace route functions as well as upload and download tests. Rounding out the package, they can operate in xDSL bridge and router mode and can also perform an ADSL online trace when they are used together with the WINanalyse software.

Furthermore, the latest test routines are available to allow objective and subjective assessment of the voice quality of VoIP via ADSL and Ethernet as well as on ISDN and POTS accesses. The quality assessment is made using among others the well-known MOS and PESQ methods. Its excellent audio circuitry makes it quick and easy to assess the quality of the voice connection in either handset or headset operation.

### ARGUS 125

ISDN handheld tester with comprehensive options: the ARGUS 125 tests all ISDN interfaces including BRI, PRI and E1 without having to swap modules. It tests voice connections via ISDN and POTS. In addition, the handheld tester provides all functions necessary for installing and maintaining BRI S/T and U, as well as POTS accesses.

The ISDN tester supports D channel monitoring in TE, NT and leased line modes. In addition, a bit error rate test (BERT) can be performed in the D channel. An optional MegaBERT is also available expanding the BERT to cover the full 2Mbit/s bandwidth.

If desired, the ARGUS 125 can also be equipped for testing in Next Generation Networks in order to check Voice over IP (VoIP) and data services directly at the ADSL and Ethernet interfaces.

The ARGUS 125 is extremely user-friendly thanks to its intuitive and clear menu structure.

### ARGUS 126

Efficient ISDN testing: the ARGUS 126 tests all ISDN interfaces including BRI, PRI and E1, as well as voice connections via ISDN and POTS. In addition, the handheld tester provides all functions necessary for installing and maintaining BRI S/T and U, as well as POTS accesses, if desired.

The ARGUS 126 supports D channel monitoring in TE, NT and leased line modes. A recorder function stores D channel traces. The built-in traffic generator can simulate a specific network load, for example to operate all B channels at full capacity. In addition, a bit error rate test (BERT) can be performed in the D channel. An n x 64kBit BERT also offers the option to performing a BERT in any 64 kBit time slot via E1. The ARGUS 126 also has an integrated X.21 interface and an X.21 BERT.

As an option, the ARGUS 126 can also be equipped for testing in Next Generation Networks in order to verify Voice over IP (VoIP), including a MOS evaluation, and data services via ADSL and Ethernet.



### ARGUS 3u plus

The ARGUS 3u plus is an impressive and versatile connection tester for ISDN and POTS interfaces. It enables an accurate installation of POTS accesses as well as BRI S/T and U interfaces, and is therefore suitable for checking all functions before and after the NTBA.

This handy tester supports automatic testing of accesses, services and supplementary services and also offers voltage and signal level measurements as well as a bit error rate test (BERT). Another function is the HF detection, which can distinguish between active BRI U and ADSL signals.

In addition, the test set features RC measurements and loop length calculation as well as an integrated mini splitter, filtering interference from ADSL frequencies. Optionally, a cabling test of the BRI S/T bus can be performed.



### ARGUS 3u NT

The ARGUS 3u NT provides all functions necessary for installing and maintaining BRI S/T and U, as well as POTS accesses. It tests BRI S/T interfaces in TE, NT and leased line modes, including D channel monitoring and verifies BRI U and POTS interfaces in TE mode. When monitoring, D channel data can be recorded and then decoded on a PC with user-friendly filters and search functions.

In addition to automatic testing of accesses, services and supplementary services, this handy tester also offers voltage and signal level measurements as well as a bit error rate test (BERT). Other functions provided by the handheld tester include a HF detection, which can distinguish between active BRI U and ADSL signals, and an integrated mini splitter, which prevents interference from ADSL frequencies. RC testing and a line length calculation complete the scope of functions offered by the test set. A cabling test of the BRI S/T bus can also be performed optionally.











### ARGUS 3u basic

The ARGUS 3u basic tests BRI S/T and U accesses in TE and leased line modes plus POTS interface optionally. The user-friendly test set provides automatic testing of accesses, services and supplementary services. It also supports voltage and signal level measurements, as well as a bit error rate test (BERT). With this full set of features, the ARGUS 3u basic offers a truly impressive and low-cost entry into the world of ISDN measurement technology.

The extremely lightweight handheld tester is particularly user-friendly thanks to its intuitive menu structure.



# ARGUS overview

	145 plus	142	42 plus	141	41 plus	126	125	3u NT	3u plus	3u basic
VDSL2	✓*	✓*		✓						
ADSL <sup>1</sup>	✓*	✓*	✓*	✓	✓	✓*	✓*			
SHDSL	✓*									
Ethernet	✓	✓	✓			✓	✓			
BRI S/T-TE/LL	✓	✓	✓			✓	✓	✓	✓	✓
BRI S/T-NT	✓					✓	✓	✓		
BRI S/T-Mon.	✓					✓	✓	✓		
PRI-TE/LL	✓					✓	✓			
PRI-NT/mon.	✓					✓	✓			
PRI/E1 n x 64 k						✓				
BRI U	✓	✓	✓			✓	✓	✓	✓	✓
POTS	✓	✓	✓			✓	✓	✓	✓	✓
X.21						✓				
RC	✓	✓	✓			✓	✓	✓	✓	
Cu tests	✓	✓								
TDR	✓	✓								
HF			✓					✓	✓	
Bridge	✓	✓	✓	✓	✓	✓	✓			
Router	✓	✓	✓			✓	✓			
IP tests	✓	✓	✓	✓	✓	✓	✓			
IPTV	✓*	✓*								
MDI	✓	✓	✓							
VoIP	✓	✓	✓	✓		✓	✓			
MOS	✓	✓	✓	✓		✓	✓			
PESQ	✓					✓	✓			
	145 plus	142	42 plus	141	41 plus	126	125	3u NT	3u plus	3u basic
										



inclusive



optional



minimum one DSL interface is part of the standard package

\* Online trace in combination with WINanalyse

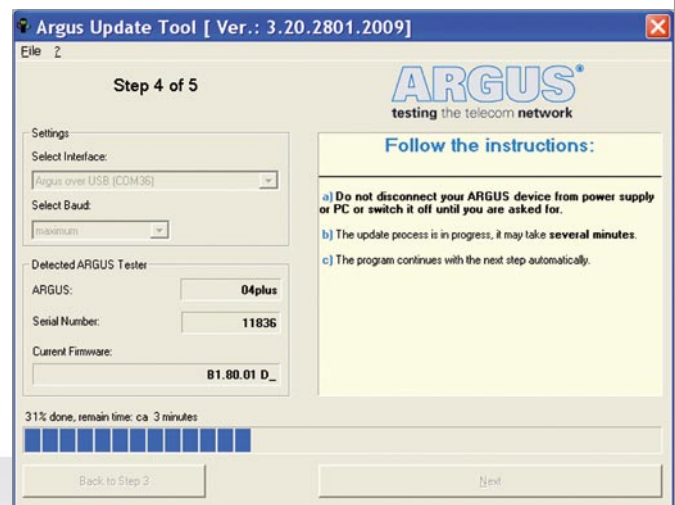
<sup>1</sup> Annex may vary depending on country.

## Update-Tool

A free update tool is available to easily update an ARGUS tester.

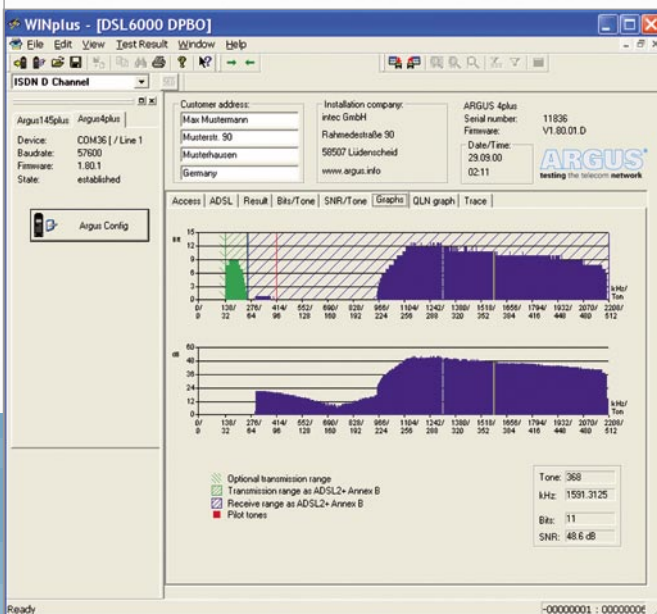
With this tool, the latest firmware can be downloaded from [www.argus.info/en/service/](http://www.argus.info/en/service/) and then transferred to the tester.

The whole procedure is very simple and intuitive, thanks to the integrated step-by-step instructions. The Update Tool is also included as part of our WINplus and WINanalyse software.

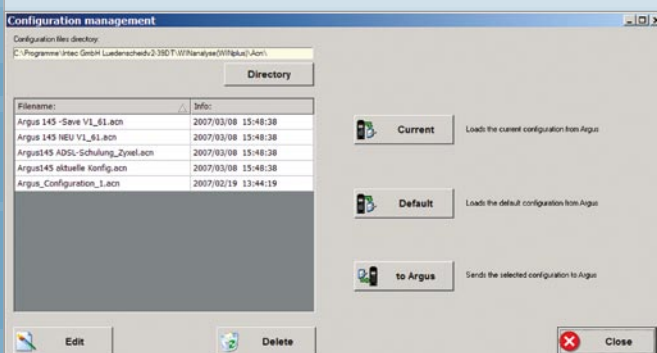


Step 4 of 5 during an update with ARGUS Update-Tool

# Convenient software extension



Graphical illustration of measurement results using WINplus

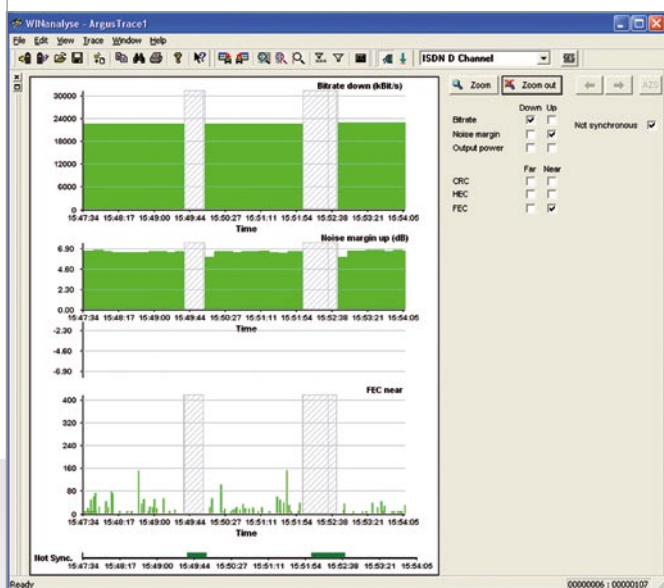


Save and manage your ARGUS configurations using WINplus

## WINplus

The PC software, WINplus, serves as a communication platform to link any of the ARGUS handheld testers with a PC. With it, you can view a clear tabular and graphic presentation of all of the test results on the screen and easily generate a printout of an access acceptance report – for example for xDSL, ISDN, VoIP or IPTV.

Many of the ARGUS testers can be conveniently configured using a PC. WINplus also enables you to store ARGUS test configurations on the PC, to edit them there, or compare or archive them and then, if needed, to transfer them back to the tester.



ADSL online trace for long-term analysis using WINanalyse

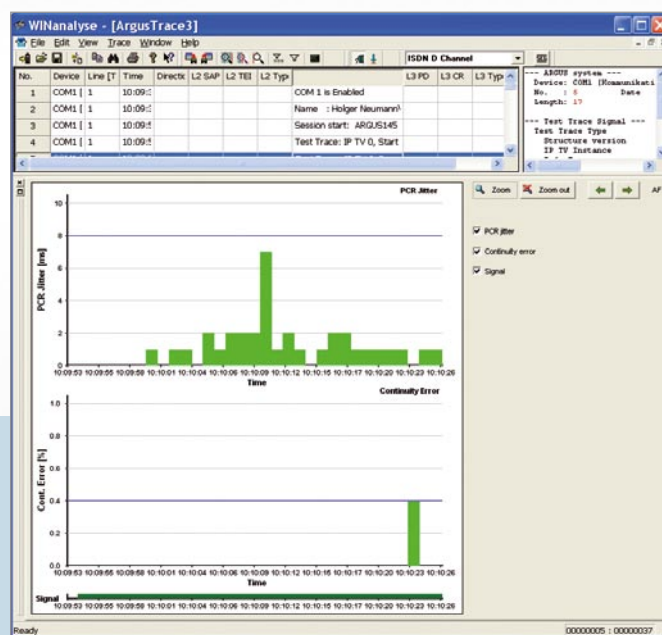
## WINanalyse

The WINanalyse analysis software includes all of the functionality of the WINplus program.

In addition, however, WINanalyse can capture errors that occur while setting up a xDSL connection or during a xDSL connection and then display these and the various xDSL parameters in their proper order in time. Furthermore, it is possible to perform long-term analysis using an xDSL or IPTV online trace. In this case, depending on the previously selected settings, the results will be either displayed in the form of statistics or presented graphically in their proper order in time (as usual, time is on the x-axis). In this manner, you can analyse the bitrate, the signal to noise ratio or the error counter totals in connection with the loss of synchronization on the xDSL connection.



„Convenient software extends the spectrum of functions, however, it can capture errors that occur while setting up a xDSL connection or during a xDSL connection and then display these and the various xDSL parameters in their proper order in time. Furthermore, it is possible to perform long-term analysis using an xDSL or IPTV online trace.“



IPTV online trace for long-term analysis using WINanalyse

WINanalyse also offers an extensive set of ISDN functions: Using an ARGUS as a D channel monitor, you can record data, pass it directly to WINanalyse and decode it in realtime. In addition, the software offers the option of displaying the D channel data in a table and presenting the interpreted results in the form of clear text in a separate window.

As an option, WINanalyse adds the feature of comprehensive D channel protocol analysis to any of the supported ARGUS handheld testers. The software decodes DSS1, X.25 in the D channel and other protocols and can simultaneously record the data from several D channels.



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