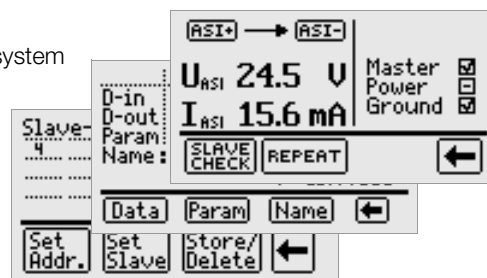# METRAtest 36ASi
AS Interface System Tester

3-349-106-03
3/7.02

Device for testing, addressing and programming actuator-sensor interface systems (AS-i). For service applications in AS-i systems and networks, and for retrofitting input/output modules with parallel wiring in AS-i systems.

QUALITY MANAGEMENT SYSTEM

DQS certified per
DIN EN ISO 9001 Reg. No.1262

Features:

- PC-like operation with menu and function buttons
- Measurement of physical bus data
- Diagnosis system recognizes reversed polarity, overload, transmission errors, the failure of slaves and slaves with identical addresses
- Can be used as master within the AS-i system
- Programming and parameters configuration of AS-i slaves
- PC gateway function

Applications

The METRAtest 36A is used for testing the AS interface bus system and its individual components (AS-i slaves) in accordance with the expanded AS interface specification, version 2.1.

Beyond this, the device can be used as a PC gateway for programming purposes, and as a master.

Completed testing of the AS interface can be documented with the help of PC software.

Functions

- **AS-i Test:**
  For meas. voltage (meas. range: ±0 to 35 V) and power consumption (meas. range: 0 to 240 mA) within the AS-i bus.

- **Slave Test:** Tests data transmission between AS-i slaves and the tester, and measures voltage peaks during data transfer.

- **Master Function:** Can be used as a bus master for addressing and programming slaves, for testing their functions and for read-out of AS-i profiles (address, ID, data, extended ID1/2, expanded profiles per specification 2.1, e.g. ID and data string).

- **Monitoring Function:** Operation as a passive bus user, bus activity for one address is logged. The instrument detects errors which occur within the bus system separately for the master and for the slaves. Error quotas are determined as a percentage of the total number of telegrams.

- **Memory**
  The addresses and profiles of all slaves connected to the AS-i bus (including extended profiles per specification 2.1) can be saved under any desired system name along with time and date in this operating mode. Four memory addresses are available to this end, and names may contain up to 15 alpha-numeric characters. The system configurations stored to these four memory addresses can be loaded back to RAM, changed and saved under a new name. This allows for the copying of individual slaves, as well as entire systems.

Display

The device is equipped with a backlit dot matrix LCD. Menus and setting options, as well as measurement results are displayed.

Operation

The user interface at the METRAtest 36A allows for intuitive operation without a long learning curve. The desired function or sub-menu can be selected from the task bar with the help of 4 so-called softkeys which appear at the display.
A multifunction key can be toggled left or right for scrolling through the menus within any given level. If both sides of this key are activated simultaneously, the data entry function is activated.

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Data Interface

Data can be transmitted to a PC via the integrated IR interface and an interface adapter (accessory: IrDa 0100S). Data are then saved to memory at the PC, can be copied and edited if desired, and then uploaded back to the METRAtest 36ASi. In addition, all device functions can be executed from a PC via the interface. Test reports can be generated with the help of appropriate software, and expanded functions can be uploaded if they become available in the future.

Clock Function

Current data and time of day are available for documentation purposes.

Housing

The METRAtest 36ASi housing has been designed for rugged use. Soft plastic jacketing protects the device against damage due to impact and dropping.

Rechargeable Battery Test and Device Self-Test

The device monitors the battery automatically for adequate charging. If actual voltage drops to below the predefined threshold, an appropriate message appears at the display. Current battery voltage is displayed in the setup menu. If battery voltage is too low, the device is switched off automatically, or cannot be switched on.

Test patterns can be queried one after the other during the self-test, and the keys can be tested for proper functioning.

Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
DIN 43751 Part 1, 2	Digital measuring instruments
VDE 0106 Part 1	Protection against electrical shock, classification of electrical and electronic equipment
EN 60529 VDE 0470 Part 1	Test instruments and test procedures, protection provided by enclosures (IP code)
EN 61326-1	Electromagnetic compatibility (EMC), generic standard for interference emission
EN 61326/A1	Electromagnetic compatibility (EMC), generic standard for interference immunity

Sample Displays

Main Menus
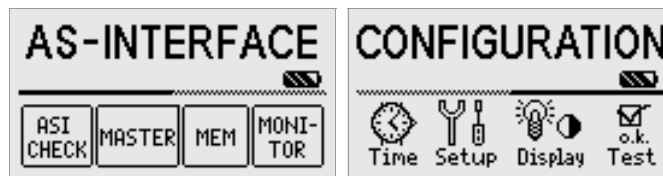
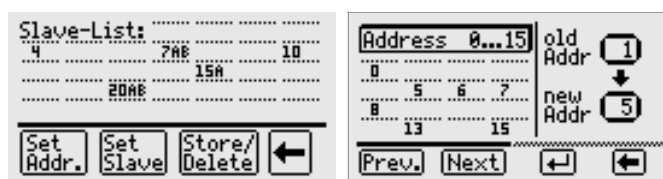**AS-i Check**
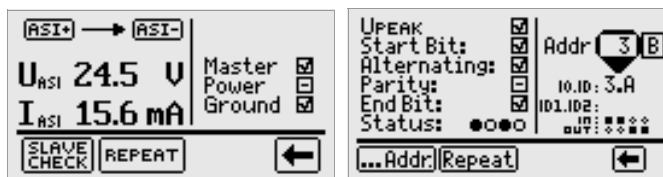
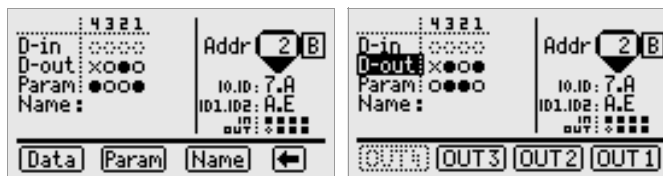Bus Test   Bus User Test

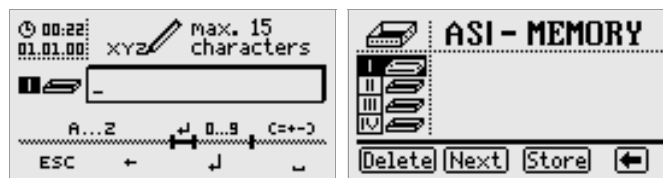**Master Functions**

Query Active Users   Address Bus Users

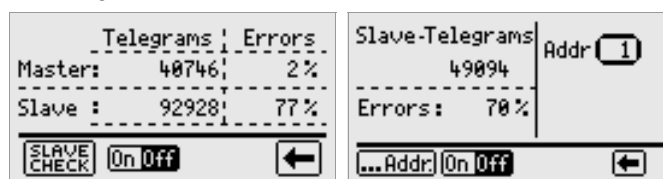Change Bus User Data, Parameters and Names

Memory Functions

Entering an AS-i Bus Name   List of Stored AS-i Systems

Monitoring Functions

Error Quotas for Master and Slaves at the Bus System

Inputs and Outputs

Output voltage between Asi+ and Asi−:
U_{ASi} = 29.5 … 31.6 V.
See ASI Complete Specification Version 2.11 (3/2000) for further details.

Measuring Functions

Measuring Function	Measuring Range	Display Range	Measuring Error
U_{ASI}	±35 V	20 … 35 V	±(2% rdg. + 2 d)
I_{ASI} (for slaves)	0 … 240 mA	0 … 240 mA	±(3% rdg. + 2 d)

Reference Conditions

Temperature	23 °C ±2 K
Relative Humidity	45% … 55%
Battery Voltage	5.5 V ±1%
Line Frequency	50 Hz ±0.2 Hz
Line Voltage Waveshape	sinusoidal (deviation between RMS and rectified value < 1%)

Power Supply

Rechargeable Battery Pack	6 NiMH mignon batteries (6 x AA size) nominal voltage: 7.2 V capacity: 1300 mAh charging: 130 mA / 16h
Battery Test	displayed as symbol
Battery Saving Circuit	Automatic shutdown approx. 5 min. after last key operation. Display illumination can be deactivated.
Power Consumption	Closed-circuit current approx. 50 µA, master ≥ 150 mA
Safety Shutdown	If supply voltage is too low the instrument is switched off, or cannot be switched on.
Charging Socket	The rechargeable battery pack can be charged inside the instrument by connecting the Z501D charger to the charging socket.

Electrical Safety

Safety Class	II per IEC 61010-1/EN 61010-1/ VDE 0411-1
Overvoltage Category	II
Nominal Voltage	50 V
Test Voltage	510 V per IEC 61010-1: 1990/+A1 Mod.: 1992 /EN 61010-1: 1993 /VDE 0411 Part 1: 1994
Fouling Factor	2

EMC

Emission	EN 61326-1, Electrical equipment Class B: 1997
Immunity	EN 61326:1997/A1:1998

Ambient Conditions

Operating Temperature	−10 ... + 50 °C
Storage Temperature	−20 ... + 60 °C (without batteries)
Relative Humidity	max. 85%, no condensation allowed
Elevation	max. 2000 m
Deployment	indoors only

Mechanical Design

Display	multiple field dot matrix LCD, 128 x 64 pixels (65 mm x 38 mm), illuminated
Protection	housing: IP 52 per DIN VDE 0470 part 1/EN 60529 jacks: IP 20
Dimensions	275 mm x 140 mm x 65 mm
Weight	approx. 1.2 kg with batteries

Data Interface

Type	infrared interface (SIR/IrDa), bidirectional, half-duplex
Format	9600 baud, 1 start bit, 1 stop bit, 8 data bits, no parity, no handshake
Range	max. 10 cm recommended distance: < 4 cm

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Standard Equipment

1 AS-i addressing device and tester with neck strap
1 NiMh rechargeable battery pack
1 Z501D battery charger
1 KS36A addressing cable (M12m to jack plug)
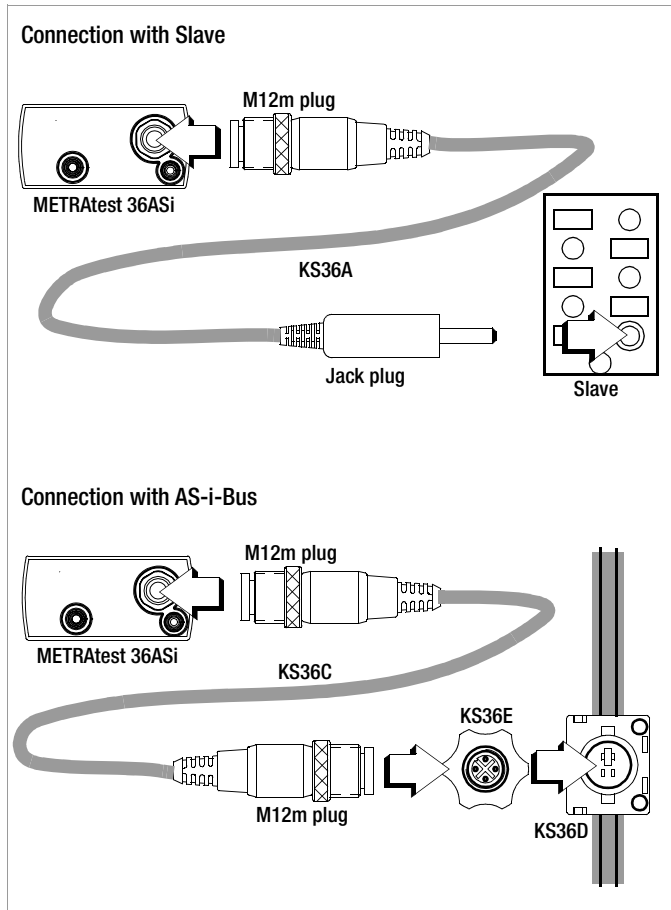1 Ground cable
1 HC30 hard shell case
1 operating instructions

Order Information

Designation	Type	Article No.
Basic Device		
AS-i addressing device and tester	METRAtest 36ASi	M236A
Device Set		
AS-i addressing device and tester with same equipment as above plus extensive connector accessories (module base with addressing socket, KS36A,B,C,D and E), IrDA 0100S inter-face adapter and ASi-access software.	Set 36 ASi	M236B
Accessories		
Battery charger for charging batteries inside the METRAtest 36ASi	NA 0100S	Z501D
NiMH rechargeable battery pack	Akku-Set 36A	Z236F
Addressing cable (M12m plug to jack plug)	KS36A	Z236A
Extension cable M12m plug to M12m-LW-socket (e.g. for connecting SONAR-BERO)	KS36B	Z236B
Bus adapter cable (M12m plug to M12m plug)	KS36C	Z236C
1 set (10 ea.) AS-i flat cable pick-off bracket	KS36D	Z236D
1 flat cable pick-off (coupler/socket)	KS36E	Z236E
IR interface for connection to the RS 232 interface at the PC for transmission of data between the PC and the METRAtest 36ASi, e.g. for installing software updates to the tester or for the visualization of measurement values at the PC	IrDa 0100S	Z501C
Documentation software for AS-i -bus	ASi.doc-win	Z710Q
Documentation and administration software for ASi -bus	ASi-access	Z710J
Hard shell case for 1 METRAtest 36ASi series device and accessories	HC31	Z541C

Accessories

Accessory Adapters and cable sets

Connection with Slave

M12m plug

METRAtest 36ASi

KS36A

Jack plug

Slave

Connection with AS-i-Bus

M12m plug

METRAtest 36ASi

KS36C

KS36E

M12m plug

KS36D

Hard shell case HC31 with example of contents

METRAtest 36ASi
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Accessory Software for METRA*Hit* ® 1 ASI and METRAtest 36ASi AS-i Bus Testers

ASi.doc-win – Report Generating with WinWord

ASi.doc-win reads in data from the AS-i bus tester and displays the system configuration in a WinWord form which can be added to and printed out.

Software display window:

ASi-Access – Systems Management

- Systems planning, testing and documentation with Access (unlicensed runtime version or PC installed version)

- Supports Microsoft Office WinWord and Access

- Intercompany AS interface catalog with Internet hyperlinks

- Upload test data to the PC and download planned systems to the tester

- Documentation with WinWord

ASi-Access manages systems configurations, reads in data from the AS-i bus tester and displays systems configurations in a WinWord form which can be added to and printed out.
Functions:
– Assignment of systems to customers

– Systems planning with the help of an integrated master-slave catalog with hyperlinks to appropriate manufacturer websites

– Read-out of slave addresses and profiles to the AS-i bus tester for on-site addressing

– Read-in of systems configurations from the AS-i bus tester

– Systems testing without interconnected master

If the user has installed the full version of Access to his PC and uses this instead of the integrated runtime version, all of the tools provided by Access are placed at his disposal for the creation of individualized queries.

System Requirements

Report Generating with ASi.doc-win

Hardware	PC processor, 80486 or higher
	8 MB RAM
	1 available serial port
	20 MB available hard disk memory
Software	MS Windows 95, 98, Me, NT 4.0 or 2000
	MS Word 6.0, 7.0, 97 or 2000

Systems Management with ASi-Access

Hardware	Pentium processor, 166 MHz or higher
	64 MB RAM
	1 available serial port
	40 MB available hard disk memory if Access is already installed, 200 MB if Access 2000 runtime will be installed
Software	Same as for report generating

Program Examples for ASi-Access

The ASi-Access **Explorer** guides you through the database:

The **integrated catalog** contains hyperlinks to appropriate Internet websites:

Manufacturers' Internet websites can be accessed directly by clicking the **hyperlinks**:
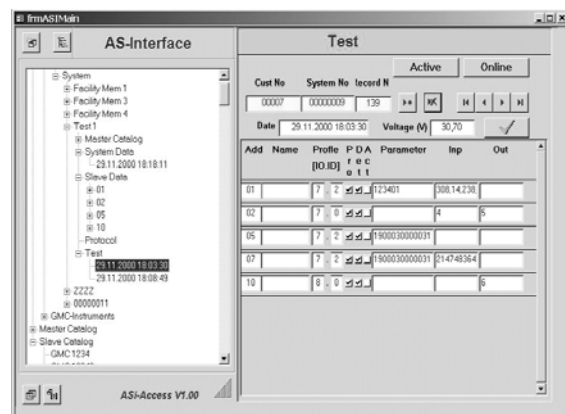

Systems data are transmitted to, or read in from the AS-i bus tester. Slave current is summated for testing. Cable length segments can be entered for each slave for testing purposes as well. Overall length is calculated.
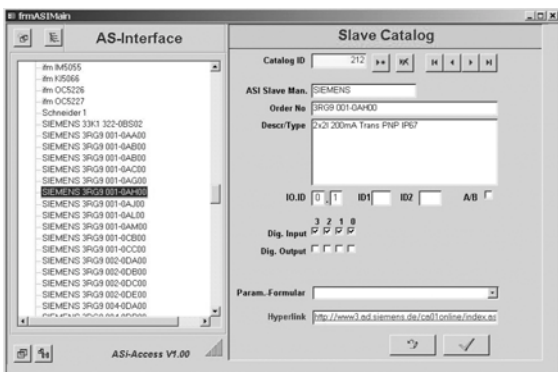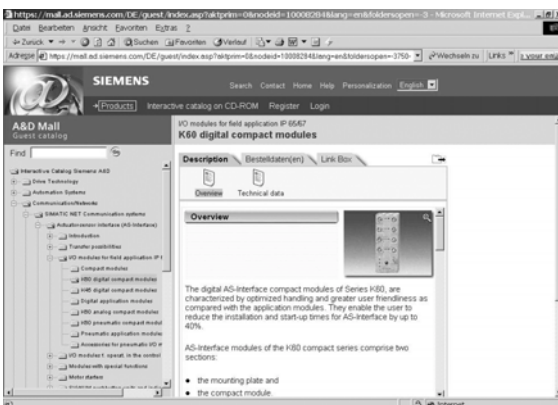

Initial start-up: Systems can be started up without an AS-i master by using the AS-i bus tester as a gateway.

Master data and test results can also be printed as WinWord reports.

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