

METRA Hit 1 ASI

Addressing and Diagnosis Instrument
for AS-i Modules (incl. extended specification V2.1)

3-349-433-15

2/3.11

Control and Display Elements, Symbols

- 1 Infrared interface
- 2 Main display window
- 3 Address field:
display of assigned addresses
- 4 Acknowledge entered value
- 5 Increase value
- 6 Decrease value
- 7 Return / escape*
- 8 Rotary function selector switch
- 9 Jack M12 for connection to AS-i bus



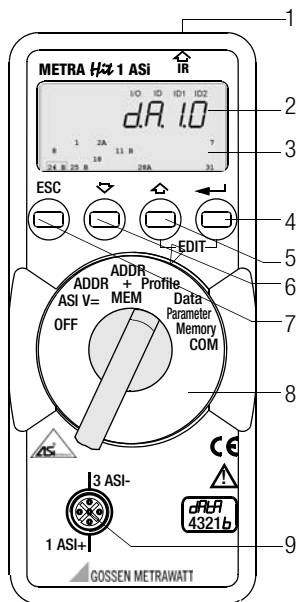
AS-i-certification




May only be operated by qualified personnel
(Attention: observe documentation!)



Indicates CE conformity



* Return to the previous menu level with ESC instead of  without executing the selected function.

Please observe the connection diagrams for single-slave addressing and plant diagnostics in the backfolder.



Attention!

Changing system states during an active process sequence may be **life endangering**, or may cause damage to system components if malfunctioning or program errors occur.

Make sure that dangerous situations will not arise before executing functions such as Data or Parameter etc.



Note! Battery Replacement

When the “-|” symbol appears at the display, the batteries should be replaced or recharged as soon as possible. Disconnect the instrument from the AS-i bus before opening.

Stored data are lost when the batteries are replaced.

OFF Switching the Instrument Off Manually – Set Switch to OFF Position

Automatic Shutdown – Any Switch Position Except for OFF:

Your instrument switches itself off automatically if none of the keys or the rotary switch have been activated for a period of approximately 10 minutes. Exception: after 1 minute in the Data and Parameter function modes.

After automatic shutdown, the instrument can be switched back on by activating the rotary switch or the ↵ key.

ASI V= Display AS-i Voltage and AS-i Power Consumption


300 V: external AS-i voltage

0.025 A: If no external AS-i voltage is applied to the slaves, power consumption is displayed.


AS-i power packs and AS-i masters which have been switched off must be isolated from the bus! The use of an external AS-i power pack is recommended for slaves with high power consumption (e.g. analog modules).


ESC: Change to battery voltage display and return to previous display.


ADDR *AddrESS: Addressing without saving the bus configuration*
Slaves can be selected and readdressed with this function.


 *SEARCH:* Find all slave addresses within the bus.

 All detected addresses are displayed.
uSEx: One of the detected addresses is displayed.

 *uSEx:* Select the slave to be readdressed.

 Acknowledge your selection.
(no selection required if only 1 slave is connected)

 The slave address blinks in the address field.
SEtx: The current address is displayed.

 Select a new address for the current slave if desired.

 Transfer the new address to the slave.



Note!

If two or more modules with the same slave address are detected at the AS-i bus, *dbAdd* is displayed at the instrument. The corresponding address blinks in the address field.


ADDR+MEM *AddrMEM: Addressing and storage of the bus configuration to memory*

Function identical to ADDR, except that newly generated addresses are stored to RAM (memory 0). **Assigning the same address to two slaves is prevented** by storing data to RAM. RAM should be cleared before assigning addresses for a new system. To delete RAM:
Simultaneously activate the ↑ and ↓ keys. *clr* appears at the display. Acknowledge with the ↓ key.

Profile

Prüfung: Reading and Writing Slave Profiles

Suche: Find all slave addresses within the bus.

 A detected address blinks and the respective slave profile is displayed.



Select a slave.



The address blinks and slave profile is displayed.



Only for slaves in accordance with extended AS-i specification V2.1 (4-place code display):

Select EDIT level



Select a new value for ID1 if desired.



The value for ID1 blinks at the main display window.



Transfer the new value to the slave.

Note: *The slave profile is used for identification of module types. It consists of an I/O code and an ID code. Modules in accordance with extended AS-i specification V2.1 also include an ID1 code and an ID2 code. The ID1 code can be changed (see instructions for the respective module). The other codes are permanently programmed into the module.*

Data

Prüfung: Reading and Writing Slave Data – Display Mode

One of two different display types can be selected:

raw: Displays raw slave data.

5.H. .F.L.3: Representation in “S7 Mode”

Points are displayed between the characters.

Data from the slave are multiplied by 8,

data to the slave are divided by 8.

Selecting a Display Mode



EDIT: Activate the settings menu.




Switch back and forth between *raw* and *5.H. .F.L.3*




Acknowledge your selection.

The peripheral fault flag is indicated by means of a blinking PFF segment in the header at the display.

Data *dAtA*: Reading and Writing Slave Data

 *SEARCH*: Find all slave addresses within the bus.

 Select a slave (does not apply if addressing plug is used).



4 different displays are possible:

dAtA / 4321b: Assignment of binary inputs and outputs to the display

Binary inputs: *000 1b* (read-only binary values)


Binary outputs: *--00b* (no out, if no output)

*Non-existent inputs and outputs appear as "--".
Input data are continuously updated.*


Analog inputs: *Ch 1 nP* (channel input)

Analog outputs: *nd nP* (no channel input)


Slaves with Binary Outputs


 EDIT: Activate the settings menu.


 Change the value.

 Transfer the value to the slave.


Slaves with Analog Outputs

 Acknowledge slave selection.

 *Ch n*: Select a channel.

 Acknowledge channel and display the value, return with **ESC**.


Slaves with Analog Outputs

 EDIT: Activate the settings menu.

 *Ch n*: Select a channel.

 Acknowledge the selected channel and display the value.

 Change the value.

 Transfer the value to the slave.

Parameter *PARA*: Reading and Writing Slave Parameters in Hex Format

SEARCH: Find all slave addresses within the bus.
The first assigned address blinks.



Select a slave.



Address blinks, parameter is displayed in hexadecimal format.



EDIT:

Open menu for reading and editing parameters.

Slaves with Parameter String, e.g. Analog Slaves

READ is displayed briefly. The parameter number appears at the left, and the respective value at the right.



Select the desired parameter.



Acknowledge the selected parameter.



Select a new parameter value.



The hex value blinks at the main display.



Transfer the parameter to the slave.

Slaves without Parameter String, e.g. Digital Slaves

Select a new parameter value.



The hex value blinks at the main display.



Transfer the parameter to the slave.

Changed parameters which have been transferred to the slave can be deleted with CLR after setting the selector switch to Memory.



ECHOXH: The received parameter echo is displayed in hexadecimal format.

Memory

MEM: Loading, Saving, Deleting and Copying Data Records

All addresses included within a system which has been saved to memory can be transferred to the individual slaves for a new system, one after the other, in the “copy” operating mode.

ESC

Display available memory capacity in %.



Deleting Data Records

clear ← *clrx* ↓↑ ←

Delete contents of memory address 0 (RAM), or memory address 1, 2, 3 or 4, or ALL (0 through 4).



Loading Data Records

recall ← *clx* ↓↑ ←

Load the contents of memory address 1, 2, 3 or 4 to memory address 0 (RAM).



Saving Data Records

store ← *stox* ↓↑ ←

Save contents of memory address 0 (RAM) to memory address 1, 2, 3 or 4.



Copying Slave Addresses

copy ← *cpyx* ↓↑ ← *ready* ← *setto* ← *clAdr* ← or ESC

cpyx ← : Copy all addresses from memory address x.

Connect the slave with the addressing plug. The address of the connected slave blinks at the display, which corresponds to a slave profile.

setto ← : Start transfer of the address.

clAdr ← : Delete the slave displayed in the address field.

EMPTY appears after all addresses have been transferred.

ESC: If several slaves are to be programmed with the same profile, this address is not deleted from the address field.

ready: Prompts user to select next slave.

COM

Selecting and Activating a PC Port

Port active:

Two of the segments in the "0" rotate clockwise.

 888



EDIT: Setup mode for the PC port



Select a port: *bd232* (RS232)



Save your selection to memory.

ESC

Return to the main display.

Querying the Firmware Version

 888

3.4:

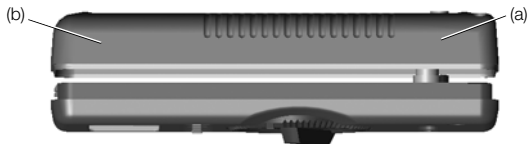
Press and hold the ↓ key with the instrument switched off (rotary switch in the OFF position), and turn the rotary switch to the ASI V= position without releasing the ↓ key. Now press the ↓ key three times and hold it depressed after the third activation. A two digit number with the format x.y appears at the display.

Maintenance

Replacing the Batteries

- Place the instrument face down onto the work surface and loosen the two screws at the rear panel. Lift away the housing base starting at the bottom. The housing top and base are held together with snap hooks at the top front.
- Pry the batteries from the clamp-type holder with a screwdriver: Position the screwdriver next to internal components, or at the middle of the battery. Insert 4 new batteries making sure to observe the polarity markings in the clamp-type battery holder.

Important for reassembly: First place the housing base squarely onto the housing top (see figure below), and then press them together, first at the bottom (a) and then at the top front (b).



- Retighten the two screws in order to fasten the housing base to the housing top.
- Please dispose of depleted batteries in an environmentally sound fashion!

Housing Maintenance

No special maintenance is required for the housing. Keep outside surfaces clean. Use a slightly dampened cloth for cleaning. Avoid the use of cleansers, abrasives and solvents.

Device Return and Environmentally Compatible Disposal

The addressing and diagnostics instrument is a category 9 product (monitoring and control instrument) in accordance with ElektroG (German Electrical and Electronic Device Law). This device is not subject to the RoHS directive.

We identify our electrical and electronic devices (as of August 2005) in accordance with WEEE 2002/96/EG and ElektroG with the symbol shown to the right per DIN EN 50419 .

These devices may not be disposed with the trash.

Please contact our Repair and Replacement Parts Service.



If you use **batteries** or **rechargeable batteries** in your instrument or accessories which no longer function properly, they must be duly disposed of in compliance with the applicable national regulations.

Batteries or rechargeable batteries may contain harmful substances or heavy metal such as lead (Pb), cadmium (Cd) or mercury (Hg).

The symbol shown to the right indicates that batteries or rechargeable batteries may not be disposed of with the trash, but must be delivered to collection points specially provided for this purpose.



Characteristic Values

	Measuring Range	Measuring Accuracy
Voltage	2 ... 35 V	$\pm(3.5\% \text{ of reading} + 2 \text{ d})$
Current (for slaves)	0 ... 0.1 A	$\pm(5\% \text{ of reading} + 2 \text{ d})$

Intrinsic resistance during voltage measurement: approx. 300 k Ω

Key: d = digit(s)

Power Supply

The standard power supply consists of 4 batteries per IEC LR6 (NEDA15) with a service life which allows for addressing at least 2500 devices.

Rechargeable batteries may also be used (accessory battery set 1ASi including battery charger, article number Z206B).

In order to extend battery service life, automatic shutdown occurs approx. 1 minute after the last key or switch activation.

Electromagnetic Compatibility (EMC)

Interference Emission EN 61326-1:2006, class B

Interference Immunity EN 61326-1:2006

Ambient Conditions

Operating Temperature 0 °C ... +50 °C

Storage Temperature -20 °C ... +75 °C (w/o batteries)

Relative Humidity max. 75%, no condensation allowed

Elevation to 2000 m

Deployment indoors only

Mechanical Design

Dimensions 84 mm x 195 mm x 35 mm

Weight approx. 450 gr. with batteries

Protection IP 40

Extract from table on the meaning of IP codes

IP XY (1 st digit X)	Protection against foreign object entry	IP XY (2 nd digit Y)	Protection against the penetration of water
4	$\geq 1,0 \text{ mm } \varnothing$	0	not protected

System Messages

The following messages must be acknowledged with the ↵ key in order to return to the currently selected function.

Message	Function	Significance
<i>coNErr</i>	COM	Transmission error
<i>dblAdd</i>	ADDR	Same address occurs twice (doublet)
<i>Echo</i>	Parameter	Received parameter XH
<i>ENPEY</i>	Memory (copy)	Entire system has been copied
<i>Error</i>	Data, Parameter	Address 0: Data and parameters cannot be read
<i>Found</i>	ADDR	Slave addresses recognized
<i>Hi Load</i>	ASI V=	Current load too high for addressing device
<i>LabAtt</i>	ASI V=	Battery can no longer supply full ASI voltage
<i>intErrn</i>	ASI V=	No AS-i power pack at bus
<i>MASTER</i>	ADDR, Profile, Data, Parameter, Memory	Active master at bus
<i>no ASi</i>	ADDR	Can't find any slave addresses
<i>no out</i>	Data	This slave type has no outputs
<i>no inP</i>	Data	This slave type has no inputs
<i>noPARA</i>	Para	Can't find parameters
<i>noTEQu</i>	Memory (copy)	Can't find suitable slave profile
<i>oL</i>	ASI V=	Overload: UASi > 35 V
<i>-PoL</i>	ASI V=	Voltage < -2 V (-pol blinks)
<i>PrGErR</i>	ADDR, Profile, Data, Parameter, Memory	Programming error
<i>ProG</i>	Data, Para, Memory (copy)	Transferring data to the slave
<i>rERd</i>	ADDR, Profile, Data, Parameter, Memory	Reading data
<i>SErCH</i>	ADDR, Data	Searching for slave addresses
<i>uALbit</i>	Data	Faulty valid bit
<i>uSEnot</i>	Data, Profile	Address 0 not allowed
<i>uSEonE</i>	Memory (copy)	Only 1 slave can be copied, use addressing plug

Repair and Replacement Parts Service Calibration Center and Rental Instrument Service

When you need service, please contact:

GMC-I Service GmbH

Service-Center

Thomas-Mann-Straße 20

90471 Nürnberg, Germany

Phone +49 911 817718-0

Fax +49 911 817718-253

E-Mail service@gossenmetrawatt.com

www.gmci-service.com

This address is only valid in Germany. Please contact our representatives or subsidiaries for service in other countries.

Product Support

When you need support, please contact:

GMC-I Messtechnik GmbH

Product Support Hotline

Phone +49 911 8602-0

Fax +49 911 8602-709

E-Mail support@gossenmetrawatt.com

Additional language versions of these operating instructions, as well as accessories, are available on the Internet at www.gossenmetrawatt.com (→ Produkte → Prüftechnik – elektrisch → Prüfgeräte für AS-Interface → METRA HIT 1 ASI).

Edited in Germany • Subject to change without notice • A pdf version is available on the internet



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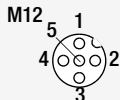
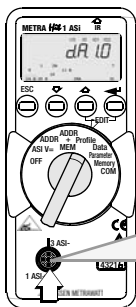
E-Mail info@gossenmetrawatt.com

www.gossenmetrawatt.com

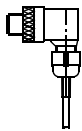
1

- (D) Einzelslave-Adressierung
 (GB) Single Slave Addressing
 (F) Adressage des systèmes asservis individuels

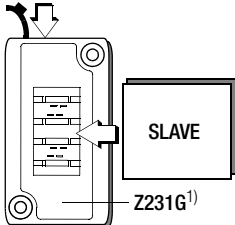
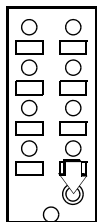
- (I) Indirizzamento single-slave
 (E) Dirección slaves individuales
 (P) Endereçamento de slaves individuais



- Pin 1 ASI+
 Pin 2 IR-Addressing
 Pin 3 ASI-/GND
 Pin 4 IR-Addressing
 Pin 5 IR-Addressing



1)

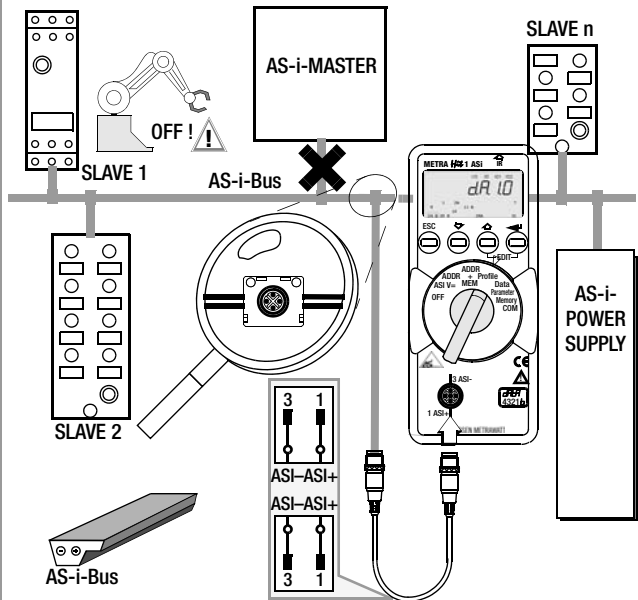


- 1) Lieferumfang
 Scope of supply
 Fournitures
 Entità della fornitura
 Alcance suministro
 Escopo de fornecimento

2

- (D) Anlagendiagnose
(GB) Plant diagnostics
(F) Le diagnostic de l'installation

- (I) Diagnosi dell'impianto
(E) Diagnóstico de instalaciones
(P) Diagnóstico da instalação



(D) Achtung!

Für Anlagendiagnose muss das AS-i-Netz durch ein AS-i-Netzteil versorgt werden.

(GB) Attention!

For plant diagnostics the AS-i system must be supplied via an AS-i power pack.

(F) Attention!

Pour le diagnostic des installations, le réseau AS-i doit être alimenté par un bloc d'alimentation AS-i.

(I) Attenzione!

Per la diagnosi dell'impianto, il sistema AS-i deve essere alimentato da un alimentatore AS-i.

(E) Atención!

El diagnóstico de una instalación únicamente es posible alimentando la red AS-i con una fuente de alimentación AS-i.

(P) Atenção!

Para o diagnóstico da instalação, a rede AS-i deve ser alimentada por uma fonte de alimentação AS-i.