

Industrial Electronic Devices

# User Manual

Revision 2.000 English

# M-Bus Analyzer / Scanner / Sniffer

(Order Code: HD67031-B2-xxx)

for Website information: www.adfweb.com?Product=HD67031

### for Price information:

www.adfweb.com?Price=HD67031-20-B2 www.adfweb.com?Price=HD67031-40-B2 www.adfweb.com?Price=HD67031-80-B2 www.adfweb.com?Price=HD67031-160-B2 www.adfweb.com?Price=HD67031-250-B2

### **Benefits and Main Features:**

- Very easy to use
- Power supply of 15...21V AC or 18...35V DC
- Industrial temperature range: -40°C / 70°C (-40°F / 158°F)



User Manual

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### For other M-Bus products:

See also the following link:Converter M-Bus towww.adfweb.com?Product=HD67021(RS232)www.adfweb.com?Product=HD67022(RS485)www.adfweb.com?Product=HD67030(Ethernet)

Extender and Repeater, M-Bus www.adfweb.com?Product=HD67032

Gateway M-Bus / Modbus RTUwww.adfweb.com?Product=HD67029M-232(on RS232)www.adfweb.com?Product=HD67029M-485(on RS485)

Gateway M-Bus / Modbus TCP www.adfweb.com?Product=HD67044M

Gateway M-Bus / CANopen www.adfweb.com?Product=HD67051

Gateway M-Bus / PROFIBUS www.adfweb.com?Product=HD67053M

Do you have an your customer protocol? See the following link: www.adfweb.com?Product=HD67003

Do you need to choose a device? do you want help? Ask it to the following link: <a href="http://www.adfweb.com?Cmd=helpme">www.adfweb.com?Cmd=helpme</a>

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### **UPDATED DOCUMENTATION:**

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- Updated
- Related to the product you own

To obtain the most recently updated document, note the "document code" that appears at the top right-hand corner of each page of this document.

With this "Document Code" go to web page <u>www.adfweb.com/download/</u> and search for the corresponding code on the page. Click on the proper "Document Code" and download the updates.

# **REVISION LIST:**

Revision	Date	Author	Chapter	Description
1.000	07/01/2010	FI	All	First release version
1.100	31/03/2011	Fl	All	Software changed (v3.000)
1.001	03/04/2013	Nt	All	Added new chapters
2.000	20/06/2016	Ff	All	New hardware version

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ADFweb.com is not responsible for any error this manual may contain.

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### **SECURITY ALERT:**

### **GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, legal and safety regulation are required for each individual application. The same applies also when using accessories.

### INTENDED USE

Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

### QUALIFIED PERSONNEL

The device can be used only by qualified personnel, strictly in accordance with the specifications.

Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

### **RESIDUAL RISKS**

The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:

This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

### **CE** CONFORMITY

The declaration is made by our company. You can send an email to <u>support@adfweb.com</u> or give us a call if you need it.



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# **CONNECTION SCHEME:**







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### CHARACTERISTICS:

The HD67031 series are M-Bus Analyzers - Scanner- Sniffer with the following features:

- Electrical isolation between Ethernet and M-Bus;
- Mountable on Rail DIN;
- Power Supply 15...21V AC or 18...35V DC;
- Temperature range -40°C to 70°C.

### **CONFIGURATION:**

You need Compositor SW67031 software on your PC in order to perform the following:

- Manage the analyzer's functions;
- ✤ Update Firmware



### **POWER SUPPLY:**

The devices can be powered at 15...21V AC and 18...35V DC. The consumption depends to the code of the device. For more details see the two tables below.

VAC	$\sim$	VDC	
Vmin	Vmax	Vmin	Vmax
15V	21V	18V	35V

### Consumption at 24V DC:

Device	No Load [W/VA]	Full Load [W/VA]*
HD67031-B2-20		4
HD67031-B2-40		5
HD67031-B2-80	3.5	8
HD67031-B2-160		14
HD67031-B2-250		30

\* This value is with all the Slave M-Bus devices of the code (20, 40, 80, 160, 250) connected to the line



# Caution: Do not reverse the polarity power





# **FUNCTION MODES:**

The device has got two functions mode depending of the position of the 'Dip1 of Dip-Switch A' of HD67031-B2-xxx:

- ✤ The first, with `Dip1 of Dip-Switch A' at ``OFF'' position is used for the normal working of the device.
- The second, with 'Dip1 of Dip-Switch A' at "ON" position is used for update the firmware.

For the operations to follow for the updating, see 'UPDATE DEVICE' section.

According to the functioning mode, the LEDs will have specifics functions, see 'LEDS' section.





# LEDS:

The HD67031-B2-xxx device has got five LEDs that are used to give information of the functioning status. The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1. Device State (green)	Blinks slowly (~1Hz)	Blinks quickly: Boot state
1. Device State (green)		Blinks very slowly (~0.5Hz): update in progress
2: M-Bus Slave	Dinks when correct M. Due request is received	Blinks quickly: Boot state
communication (yellow)	billiks when correct M-Bus request is received	Blinks very slowly (~0.5Hz): update in progress
3: M-Bus Master	Diale when coment M Due response is received	Blinks quickly: Boot state
communication (yellow)	Blinks when correct M-Bus response is received	Blinks very slowly (~0.5Hz): update in progress
4: Ethernet communication	Dinke when an Ethernet request is required	Blinks quickly: Boot state
(yellow)	billiks when an Ethernet request is received	Blinks very slowly (~0.5Hz): update in progress
5: Ethernot Link (groon)	ON: Ethernet cable connected	ON: Ethernet cable connected
J. LUIEITIEL LIIK (GIEEII)	<b>OFF:</b> Ethernet cable disconnected	<b>OFF:</b> Ethernet cable disconnected





# M-BUS:

The M-Bus is a unpolarized bus.

A two wire standard telephone cable (JYStY N\*2\*0.8 mm) is used as the transmission medium for the M-Bus. The maximum distance between a slave and the repeater is 350m; this length corresponds to a cable resistance of up  $29\Omega$ . This distance applies for the standard configuration having Baud rates between 300 and 9600 Baud, and a maximum of 250 slaves. The maximum distance can be increased by limiting the Baud rate and using fewer slaves, but the bus voltage in the space state must at no point in a segment fall below 12V, because of the remote powering of the slaves. In the standard configuration the total cable length should not exceed 1000m, in order to meet the requirement of a maximum cable capacitance of 180nF. (*Taken from M-Bus specifics*)



# RS232 (for old version with RS232):

The connection from RS232 socket to a serial port (example one from a personal computer), must be made with a Null Modem cable (a serial cable where the pins 2 and 3 are crossed). It is recommended that the RS232C Cable not exceed 15 meters.





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### **ETHERNET:**

The Ethernet connection must be made using Connector2 of HD67031-B2-xxx with at least a Category 5E cable. The maximum length of the cable should not exceed 100m. The cable has to conform to the T568 norms relative to connections in cat.5 up to 100 Mbps. To connect the device to an Hub/Switch is recommended the use of a straight cable, to connect the device to a PC/PLC/other is recommended the use of a cross cable.





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# USE OF SW67031 ANALYZER & SCANNER M-BUS:

List of		1 <u>0</u> //clons 100/ 11	elp									
	slaves:				Num. Slave:	0						
rimai	y Addresss	Secondary Addresss	Manifacture	Version	Medium	Status	Baudrate	Parity	Des	cription		
				í.								
ommu	nication trace	Slaves four	1d — 👘 STOF	2	Now Scanning	: Baudrate/ Pari	ty/ ID: -			Save L	Log 🥻 (	Clear Lo
istof ⊧≢	variables:	Time Addr	ID # Man	Dimension	Fun	ction field	Storage #	Tariff I	To lo	ad the icon, doubl	le click in the	desired
0.2-	Date	THE AUGI.	10 # Fian	Dimension	run		Storage #		June Ty	pe or uata		State
								-	-			
-												
-												
		Image: Constraint of the sector of										
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Figure 1: Main window for SW67031



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# **SECTION FILE:**

	M	ADFweb.com -	SW67031 A	nalyzer	& Scan	iner N
	File	Connection	Functions	Tool	Help	
	🗋 N 🍟 0	lew Project )pen Project				anifa
	💾 s 🖆 c	ave Project Tose Project				F
	🗼 E	xport Configur	ation Docun	nent		
"File"	📲 E	xit				

In this section it is possible to create a new project, open a saved project, save the existing project or close it. Moreover it is possible to export the configuration for one of our M-Bus converters.

### **New Project:**

The "New Project" button creates the folder which contains the new project files.

Figure 2: Section

New Project	×
Project Name	
Example2	
Directory Select directory	
C:\Users\Utente\Desktop	
✓ ОК	Cancel

Figure 3: "New Project" window



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### **OPEN PROJECT:**

By pressing "**Open Project**" button it is possible to open a saved project with all the characteristics saved this project. i.e. device selected, baudrate and parity, devices found at the scan, descriptions of variables...

### SAVE PROJECT:

By pressing "Save Project" button it is possible to save the current workspace with all the project characteristics. i.e. device selected, baudrate and parity, devices found at the scan, descriptions of variables...

### **CLOSE PROJECT:**

By pressing "Close Project" button it is possible to close the current workspace.

### **EXPORT CONFIGURATION DOCUMENT:**

By pressing the "Export Configuration Document" it is possible to save a .xml file used to configure the others our M-Bus products.



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# **SECTION CONNECTION:**

M	ADFweb.com -	SW67031 A	nalyzer	& Scann
File	Connection	Functions	Tool	Help
List	/ Connect	· [		
Prim	🧏 Disconne	<sup>ct</sup> dary	Addre	sss Ma

Figure 4: Section "Connection"

In this section it is possible to manage the connection parameters.

Mote: This section isn't available until a new project was created or an existing one was opened.

### CONNECT...:

In this form it is possible to select the device in your possess between "HD67031 Serial" and "HD67031 Ethernet".

If the device selected is the "HD67031 Serial", in the field "Serial COM Port" you have to select the serial port used to connecting to the device.

If the device selected is the "**HD67031 Ethernet**", in the field "IP Address" you have to insert the programmed IP Address of the Analyzer.

If you want to send the SND\_NKE command when you do the scanning you have to check the "**Send SND\_NKE**" field.

If you want to send the Application reset command when you do the scanning you have to check the "**Send Appl. Reset**" field.

If the meters are Multi-Telegram meters, you can filter the ones that you need with the "**Cut After**" field.

M	_ M-BUS Parar	meters		×
s	elect the device	in your possess	HD67031 Serial	O HD67031 Ethernet
_				
F	or updating thes	e Parameters the s	erial cable must be conne	ected to the device.
	Serial connection	on parameters		
	COM Port:	Select Com Port	•	
	M-Bus paramete	ers		
	Send SND	_NKE		
	Send Appli	ication Reset		
	Cut after	1 responses		
	M-Bus baudra	ite / parity		
	Raudrata	Parity None	Paruty Odd	Parity Even
	300 bos			
	600 bps			
	1200 bps			
	2400 bps			
	4800 bps			
	9600 bps			
	19200 bps			
	38400 bps			
_				
		💙 Conne	ct 🛛 🗶 C	lose
-				

Figure 5: "M-Bus Parameters" window



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# **SECTION FUNCTIONS:**

Note:

M. ADFweb.com -	SW67031 A	nalyzer & Scanner M-Bus	
File Connection	Functions	Tool Help	
List of slaves:	Scan by	Primary Address	
Primary Addresss	Scan by	Secondary Address	
	🔎 SNIFFER	R Mode	⊢

Figure 6: Section "Functions"

This section isn't available until a new project was created or an existing one was opened.

### SCAN BY PRIMARY/SECONDARY ADDRESS:

With this button, the Network scanning by Primary or Secondary Address starts.

1: This window indicates that the software is doing the requests for scanning the devices;

- 2: This label indicates the baudrate, parity and the ID now scanned;
- 3: This label indicates the number of slaves found until now;
- 4: In this field it is possible to see the data logged;

5: With this button it is possible to stop the scanning. For example if you have four devices and the scan has found four devices, you can stop it.

	nection ignetio	uz Tool L	Jeib								
LIST OT SIBV	res:					Num Slave: 0					
rimary /	ddresss Second	ary Address	s Manifactu	re	Submitting requ	uests	Baudrate	Parity		Description	
	3	2	G		y			3	2		
Communic x: 68 BD B 0 C4 04 06	ation trace: D 68 08 02 72 71 65 00 00 00 00 C4 04 84 80 01 06 00 00 0	Slaves fou 45 28 4D 6A 14 6B 04 00 00 10 00 C2 80 01	81 04 C9 27 00 84 05 14 1A 1 6C 61 12 F4 8	CO 00 04 79 00 00 00 04 79 00 00 00 00 04	0 00 00 00 04 06 00 00 0 13 22 00 00 04 06 00 00 0 13 0 00 00 04 80 01 06 00	low Scanning: Baudrate/ Pari 0 00 44 06 00 00 00 00 04 14 6E 0 00 00 00 44 2D 00 00 00 02 00 00 00 82 81 01 6C 61 11 44	ty/ ID: 2400 bp 0 4 00 00 84 01 14 59 EB 09 02 5D 23 0 81 01 05 00 00 00 00	9 04 6D 34 0	02 FD 17 0 0F 7E 13 C	00 00 84 04 6D 00 00 81 11 2 08 6C BF 1C 82 80 01 6C 00 15 16	84 04 06 00 00 61 13 A4 80 01
c 10 7B 0	3 7E 16	4									
List of var	ables:	Addr	TD #	Man	Dimension	Function field	Storage #	Tariff	linit	To load the icon, double c	lick in the desir
- Di	ince inite	Addi.	10 -	Trait	Dimension	Tunction nea	Scolage #	Tarini	Unic	Type of data	500

### Figure 7: Scanning window



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If, when you have stopped the scan or it was completed, the software hasn't found any device connected the right window appear (Fig. 8).





Otherwise:

1: At this table it is possible to see the main information of the devices found by the scan. i.e. Primary Address, Secondary Address, manufacturer, version, medium, status, baudrate, parity. In the field "Description" you can insert a brief description of the device.

2: At this table it is possible to see all the variables of the scanned devices. Also in this table is present a field "Description" that allows you to insert a description of the variable.

	<u>Connection</u>	Fun	ctions <u>l</u> o	ol H	elp											
List o	slaves:							Num	Slave: 0							
rima	ry Address	s Sec	ondary Ad	dresss	Manifa	acture	Version	Medium		Status	Baudrate	Parity	Des	scription		
		2845	6571		ZRM (\$	6A4D)	129	Heat (outlet	:) (4)	\$27	2400 bps	EVEN				
		1430	9864		HYD (\$	2324)	1	Heat (outlet	:) (4)	\$30	2400 bps	EVEN				
68 68	DB 0B 68 73 F DB 0B 68 73 F DB 0B 68 73 F	D 52 FF	FF FF 8F F FF FF 9F F	F FF FF F FF FF	FF 4A 1 FF 5A 1	6 (8FFFFFFF 6 (9FFFFFFF	)									
scan	through Sect	ondary A	Address Fin	ished ! !	-	5	2									
ist o	through Sect variables: Date	Time	Address Fin	ID #	Man 🖌	Imension	2 Function field	Storage #	Tariff	Unit	Type of data	Scale	To k Data	ad the icon, double click Description	k in the des	ired
ist o	through Sect variables: Date 30/03/201	Time 16:44:	Address Fin	ID # 28456	Man 🅖 ZRM	Dimension 32 Bit	2 Function field Istantaneous value	Storage #	<b>Tariff</b> 0	Unit 0	Type of data Identification (\$79)	Scale	To k Data \$00	ad the icon, double click Description Identification (\$79)	t in the des	ired
ist o	through Seco variables: Date 30/03/201 30/03/201	Time 16:44: 16:44:	Address Fin Addr. 2 2	ID # 28456 28456	Man 🅖 ZRM ZRM	Jimension 32 Bit 32 Bit	Function field Istantaneous value Istantaneous value	Storage # 0 0	• Tariff 0 0	Unit 0 0	Type of data Identification (\$79) Energy Wh	Scale - 10 el(6-3)	To lo Data \$00 \$00	Description Description Identification (\$79) Energy Wh U0S0T0	c in the des	ired
st o * 1 2 3	through Seco variables: Date 30/03/201 30/03/201 30/03/201	Time 16:44: 16:44: 16:44:	Address Fin	ID # 28456 28456 28456	Man ZRM ZRM ZRM	Dimension 32 Bit 32 Bit 32 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value	<b>Storage #</b> 0 0 1	<b>Tariff</b> 0 0 0	Unit 0 0 0	Type of data Identification (\$79) Energy Wh Energy Wh	<b>Scale</b> - 10 el(6-3) 10 el(6-3)	To lo Data \$00 \$00 \$00	Description Identification (\$79) Energy Wh UOSOTO Energy Wh UOSITO	in the des	ired
st o ** 1 2 3 4	through Seco variables: Date 30/03/201 30/03/201 30/03/201	Time 16:44: 16:44: 16:44: 16:44:	Address Fin	ID # 28456 28456 28456 28456	Man ZRM ZRM ZRM ZRM	22 Bit 32 Bit 32 Bit 32 Bit 32 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value Istantaneous value	Storage # 0 0 1 1	• Tariff 0 0 0 0	Unit 0 0 0 0	Type of data Identification (\$79) Energy Wh Energy Wh Volume m3	Scale - 10 el(6-3) 10 el(6-3) 10 el(4-6)	To k Data \$00 \$00 \$00 \$468	ad the icon, double click Description Identification (\$79) Energy Wh UOSOTO Energy Wh UOSITO Volume m3 UOSITO	k in the des	ired
ist o ** 1 2 3 4 5	through Sect variables: Date 30/03/201 30/03/201 30/03/201 30/03/201	Time 16:44: 16:44: 16:44: 16:44: 16:44:	Address Fin	ID # 28456 28456 28456 28456 28456	Man J ZRM ZRM ZRM ZRM ZRM	32 Bit 32 Bit 32 Bit 32 Bit 32 Bit 32 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value Istantaneous value Istantaneous value	Storage # 0 0 1 1 2	• Tariff 0 0 0 0 0	Unit 0 0 0 0 0 0	Type of data           Identification (\$79)           Energy Wh           Energy Wh           Volume m3           Volume m3	Scale - 10 el(6-3) 10 el(6-3) 10 el(4-6) 10 el(4-6)	To k Data \$00 \$00 \$00 \$46B \$1A	Description Description Identification (\$79) Energy Wh U0S1T0 Volume m3 U0S1T0 Volume m3 U0S2T0	k in the des	ired
ist o ** 3 4 5	through Secc variables: Date 30/03/201 30/03/201 30/03/201 30/03/201 30/03/201 1	Time 16:44: 16:44: 16:44: 16:44: 16:44: 16:44: 56	Address Fin Addr. 2 2 2 2 2 2 2 2 2	ID # 28456 28456 28456 28456 28456 28456 28456 571	Man ZRM ZRM ZRM ZRM ZRM ZRM	22 Bit 32 Bit 32 Bit 32 Bit 32 Bit 32 Bit 32 Bit 16 Bit Integer	Eunction field Istantaneous value Istantaneous value Istantaneous value Istantaneous value Istantaneous value Istantaneous value	Storage #           0           0           1           2           0	<ul> <li>Tariff</li> <li>0</li> </ul>	Unit 0 0 0 0 0 0 0 0 0	Type of data           Identification (\$79)           Energy Wh           Energy Wh           Volume m3           Volume m3           Error flag (binary)	Scale           -           10 el(6-3)           10 el(6-3)           10 el(4-6)           10 el(4-6)	Data           \$00           \$00           \$00           \$46B           \$1A	Description Description Identification (\$79) Energy Wh U0S0T0 Energy Wh U0S1T0 Volume m3 U0S1T0 Volume m3 U0S2T0 Error flag (binary) U0S0T0	k in the des	ired
ist o ** 1 2 3 4 5 6	Variables:           Date           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201           30/03/201	Time 16:44: 16:44: 16:44: 16:44: 16:44: 16:44: 16:44: 16:44: 16:44:	Addr. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ID # 28456 28456 28456 28456 28456 28456 28456 571 29456	Man ZRM ZRM ZRM ZRM ZRM ZRM ZRM	Simension 32 Bit 32 Bit 32 Bit 32 Bit 32 Bit 16 Bit Integer 22 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value Istantaneous value Istantaneous value	Storage #           0           0           1           2           0           •	<b>Tariff</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit 0 0 0 0 0 0 0 0 0	Type of data           Identification (\$79)           Energy Wh           Energy Wh           Volume m3           Volume m3           Error flag (binary)           Time Deint	Scale - 10 el(6-3) 10 el(6-3) 10 el(4-6) 10 el(4-6) - Hunc 1 debe	Data           \$00           \$00           \$00           \$00           \$10           \$00           \$10           \$00           \$14           \$00           \$14	Description Description Identification (\$79) Energy Wh U0S0T0 Energy Wh U0S1T0 Volume m3 U0S1T0 Volume m3 U0S2T0 Error flag (binary) U0S0T0 Time Daint H050T0	in the des	ired

Figure 9: Scanning window



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### **SNIFFER MODE:**

With this button is possible to sniff the traffic in the network. To do this, it is necessary to connect the existing Master M-Bus to the "M-Bus Slave connector" and the slaves to the "M-Bus Master connector".

1: This label indicates the number of slaves found until now;

2: With this button it is possible to stops the scanning. For example if you have four devices and the scan has found four devices, you can stop it;

3: In this field it is possible to see the data logged.

ist of slaves	es:				Num Slave: 0					
rimary Ade	ddresss Se	econdary Addresss	Manifacture	Version	Medium State	s Baudrate	Parity	Description		
		<u> </u>	-							
		(1)	(2)							
		Y	· · · · · · · · · · · · · · · · · · ·							
										_
mmunicati	tion trace:	Slaves four	d - D	1P1	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	🥢 Clear I	L
ommunicatio	tion trace:	Slaves four	nd 📑 👘 STO	DP)	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	💾 Save Log	i 🥻 Clear I	L
ommunicatio	tion trace: 7D 16 7E 16	Slaves four	nd 📑 📑 🗤	DP)	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	i 🥻 Clear I	L
ommunicatio 10 7B 02 7 10 7B 03 7 10 7B 04 7	tion trace: 7D 16 7E 16 7F 16	Slaves four		) (	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	Clear I	·L
ommunicatio 10 7B 02 7 10 7B 03 7 10 7B 04 7	tion trace: 7D 16 7E 16 7F 16	Slaves four	nd 🖃 👘 STC		Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	i 🥻 Clear I	·l
ommunicatio 10 7B 02 7 10 7B 03 7 10 7B 04 7	tion trace: 7D 16 7E 16 7F 16 7F 16	Slaves four	nd STC		Now Scanning: Baudr	ie/ Parity/ ID: 2400	bps/EVEN/5	Save Log	i 🥻 Clear I	. [
ommunicatii 10 7B 02 7 10 7B 03 7 10 7B 04 7	tion trace: 7D 16 7E 16 7F 16	Slaves four		•	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	i 🥻 Clear I	
ommunicatii : 10 7B 02 7 : 10 7B 03 7 : 10 7B 04 7	tion trace: 7D 16 7E 16 7F 16	Slaves four		<b>P</b>	Now Scanning: Baudr	te/ Parity/ ID: 2400	bps/EVEN/5	Save Log	Clear I	
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mmunication 10 7B 02 7 10 7B 03 7 10 7B 04 7 10 7B 04 7 st of variab	tion trace: 7D 16 7E 16 7F 16 7F 16 ables: te Tin	Slaves four	ID # Mar	n Dimension	Now Scanning: Baudr	d Storage #	Tariff Unit	To load the icon, double co	Clear I 🎸 Clear I	r I
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Figure 10: Scanning window

	Functions lool	Heip										
List of slaves:				Num	Slave: 0							
Primary Address	Secondary Addres	ss Manifacture	Version	Medium	S	Status	Baudrate	Parity	1	Description		
2	28456571	ZRM (\$6A4D)	129	Heat (outlet)	(4) \$	27	2400 bps	EVEN				
5	14309864	HYD (\$2324)	1	Heat (outlet)	(4) \$	30	2400 bps	EVEN				
x: 68 0B 0B 68 73 F	D 52 FF FF FF 8F FF FF	FF FF 4A 16 (8FFFFFF										
x: 68 0B 0B 68 73 F x: 68 0B 0B 68 73 F x: 68 0B 0B 68 73 F Scan through Seco	D 52 FF FF FF FF 6F FF FF D 52 FF FF FF 9F FF FF ndary Address Finishe	FF FF 4A 16 (8FFFFFFF FF FF 5A 16 (9FFFFFFF II-	2						T	o load the icon, double click	in the des	red c
x: 68 0B 0B 68 73 f x: 68 0B 0B 68 73 f .scan through Seco List of variables: **** Date	D 52 FF FF FF 8F FF FF D 52 FF FF FF 9F FF FF ndary Address Finishe Time Addr. ID ;	FF FF 4A 16 (8FFFFFF FF FF 5A 16 (9FFFFFFF II-	2 Function field	Storage #	Tariff	Unit	Type of data	Scale	Data	io load the icon, double click Description	in the des Icon	red c
x: 68 00 00 68 73 f x: 68 00 00 68 73 f x: 68 0B 0B 68 73 f Scan through Seco List of variables:	D 52 FF FF FF 8F FF FF D 52 FF FF FF 9F FF FF ndary Address Finishe Time Addr. ID 1 16:44: 2 284	FF FF 4A 16 (8FFFFFF           FF FA 16 (9FFFFFF           IL-           Man           Man           Jimension           6 ZRM         32 Bit	2 Function field Istantaneous value	Storage #	Tariff 0	Unit 0	Type of data Identification (\$79	Scale	7 Data \$00	o load the icon, double click Description Identification (\$79)	in the des	red c
x: 68 00 00 68 73 f           x:: 68 00 00 68 73 f           Scan through Sect           List of variables:           ***         Date           ₱ 1         30/03/201           ₱ 2         30/03/201	D 52 FF FF FF 8F FF FF           D 52 FF FF FF 9F FF FF           ndary Address Finishe           Time         Addr.           16:44:         2         284           16:44:         2         284	Man         Jimension           6         ZRM         32 Bit           6         ZRM         32 Bit	2 Function field Istantaneous value Istantaneous value	Storage # 0 0	Tariff 0 0	Unit 0 0	Type of data Identification (\$79 Energy Wh	Scale - 10 el(6-3)	7 Data \$00 \$00	io load the icon, double click Description Identification (\$79) Energy Wh U0S0T0	in the des Icon	red c
x:         60:00         00:00         00:00           x::         60:00         00:00         00:00         00:00           x::         60:00         00:00         00:00         00:00         00:00           List of variables:         Image: 10:00         0:00         0:00	D S2 FF FF FF 8F FF FF           D S2 FF FF FF 9F FF FF           D S2 FF FF 7F 9F FF FF           Indary Address Finishe           Time         Addr.           10 1           16:44:         2           16:44:         2           16:44:         2           284           16:44:         2	Man         Mmension           6         ZRM         32 Bit           6         ZRM         32 Bit           6         ZRM         32 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value	Storage # 0 0 1	Tariff 0 0	Unit 0 0 0	Type of data Identification (\$79 Energy Wh Energy Wh	Scale - 10 el(6-3) 10 el(6-3)	T Data \$00 \$00 \$00	io load the icon, double click Description I dentification (\$79) Energy Wh U0S0T0 Energy Wh U0S1T0	in the des Icon	red o
	D 52 FF FF FF 8F FF FF 9F FF FF 9F FF FF 9F FF FF 9F FF F	Man         Jimension           6         ZRM         32 Bit           6         ZRM         32 Bit           6         ZRM         32 Bit           6         ZRM         32 Bit           6         ZRM         32 Bit	2 Function field Istantaneous value Istantaneous value Istantaneous value Istantaneous value	Storage # 0 0 1 1	<b>Tariff</b> 0 0 0 0	Unit 0 0 0	Type of data Identification (\$79) Energy Wh Energy Wh Volume m3	Scale - 10 el(6-3) 10 el(6-3) 10 el(4-6)	T Data \$00 \$00 \$00 \$00 \$468	io load the icon, double click Description Identification (\$79) Energy Wh UOSOTO Energy Wh UOSITO Volume m3 UOSITO	in the des Icon	red co

When you have stopped the Sniffer Mode functioning the window on the left appears (Fig. 11).

1: At this table it is possible to see the main information of the devices found by the scan. i.e. Primary Address, Secondary Address, manufacturer, version, medium, status, baudrate, parity. In the field "Description" you can insert a brief description of the device.

2: At this table it is possible to see all the variables of the scanned devices. Also in this table is present a field "Description" that allows you to insert a description of the variable.

ADFweb.com Srl – IT31010 – Mareno – Treviso

Figure 11: Scanning window



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### **OPERATIONS SLAVES LIST:**



*Figure 12: Operations by right click of mouse on* "Slaves List" table

### Note:

Some operations are available only when the connection is established, other only when there are present slaves.



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### INSERT SLAVE:

By pressing the "Insert Slave", a new row where it is possible to edit the Primary Address, Secondary Address, Baudrate and Parity is inserted.

### DELETE SLAVE:

By pressing the "**Delete Slave**" button, the selected slave is deleted.

### **READ SLAVE BY PRIMARY ADDRESS:**

By pressing the "**Read Slave by Primary Address**" button, a command for reading the data, using the Primary Address, of the selected slave is sent.

### **READ SLAVE BY SECONDARY ADDRESS:**

By pressing the "**Read Slave by Primary Address**" button, a command for reading the data, using the Secondary Address, of the selected slave is sent.

### CLEAR LIST:

By pressing the "Clear List" button all the informations present in the two tables, "Slaves List" and "List's Variables", are cleared.

### CHANGE BAUDRATE...:

By pressing the "**Change Baudrate...**" it is possible to change the baudrate of the devices. In the field "**New Baud Rate**" you can select the new baudrate of the device. When you press the "**OK**" button, the software sends the frame for changing the baudrate.

### **SET PRIMARY ADDRESS VIA IDENTIFICATION NUMBER:**

By pressing the "Set Primary Address via Identification Number" button it is possible to change the Primary Address. To do this you have just to set the desired Primary Address and then with the right button of mouse select the function for changing the address.



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### **SET IDENTIFICATION NUMBER VIA PRIMARY ADDRESS:**

By pressing the "**Set Identification Number via Primary Address**" button it is possible to change the Secondary Address. To do this you have just to change the desired Secondary Address and then with the right button of mouse select the function for changing the address.

### SEND SND\_NKE TO ADDRESS:

By pressing the "Send SND\_NKE to Address" button, you can send the SND\_NKE command to the selected slave.

### SEND SND\_NKE TO ALL:

By pressing the "Send SND\_NKE to all" button, you can send the SND\_NKE command to all slaves (broadcast command).

### SEND APPLICATION RESET TO ADDRESS:

By pressing the "Send Application Reset to all" button, you can send an Application Reset command to the selected slave.

### SEND APPLICATION RESET TO ALL:

By pressing the "Send Application Reset to all" button, you can send an Application Reset command to all slaves (broadcast command).



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# **SECTION TOOL:**

M. ADFweb.com - SW67031 A	nalyzer & Scanner M-Bus
File Connection Functions	Tool Help
List of slaves:	Calculate Manufacturer ID
Primary Addresss Secondary	Send Custom String
2 28456571	🟥 Update Firmware - Serial Device 🛛 🔹
	🔔 Update Firmware - Ethernet Device

Figure 13: Section "Tool"

In this section you have some tools and the possibility to update the firmware of the device.

### CALCULATE MANUFACTURER ID:

By pressing the **Calculate Manufacturer ID**" button the right window appear (Fig. 14).

In this form it is possible to calculate the Manufacturer ID of the M-Bus devices.

# Calculate Manufacturing or Manufacturer ID You can calculate the manufacturing value from Manufacturer ID or calculate the Manufacturer ID from manufacturing Manufacturer >> ADF Calculate \$486 Manufacturer ID >> 486 Calculate ADF Calculate \$486 Manufacturer ADF Calculate Close

Figure 14: "Calculate Manufacturing" window



### SEND CUSTOM STRING...:

By pressing the "**Send Custom String**..." button the right window appears (Fig. 15).

This form allows you to send a frame and see the reply of the device. The frame must be written in the first Edit-Box; the values are expressed in hexadecimal format. If the slave has replied the reply is displayed in the memo under "Send" button. It is possible to copy or clear the memo by pressing the corresponding buttons "Copy" or "Clear".

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M. Send Custom String	—		×
Insert the string to send to a slave device.			
Send 🔤			
Frame read:			
			<u> </u>
			~
L Copy		×	Close

Figure 15: "Send Custom String..." window



# **UPDATE FIRMWARE – SERIAL DEVICE (OLD VERSION WITH RS232):**

By pressing the "**Update Firmware – Serial Device**" button it is possible to update the Firmware using the RS232 port.

In order to load the parameters or update the firmware in the device, follow these instructions:

Figure 16: "Update via Serial" windows

- Turn OFF the Device;
- Connect the RS232 cable from your PC to the Analyzer;
- Put Dip1 of 'Dip-Switch A' in ON position;
- Select the "COM port" and press the "Connect" button;
- Turn ON the device;
- Press the "Next" button;
- Select which operations you want to do.
- Press the "Execute update firmware" button to start the upload;
- When all the operations are "OK" turn OFF the device;
- Put Dip1 of 'Dip-Switch A' in OFF position;
- Disconnect the RS232 cable;
- Turn ON the device.

ne	Update Firmware from Serial (RS232)
	Follow this step to update the HD67031 from RS232:
	1 - Turn OFF the Device
	2 - Insert the Boot Jumper (see the manual)
	3 - Select the COM port and press the connect button COM1 COM1 Connect
	4 - Turn ON the Device
	5 - Check the BOOT led. It must blink quickly
	X Cancel Next IS →
Up	odate Firmware from Serial (RS232)
U	pdate Device Options
	🗹 Firmware
	🗹 Read Firmware when finish
	Execute update firmware

SW67031 Serial Update	×
INIT : Waiting	Ver. 1.000
FIRMWARE : Waiting	
PROJECT : Not Used	

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### **UPDATE FIRMWARE – ETHERNET DEVICE**

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By pressing the "**Update Firmware – Ethernet Device**" button, it is possible to load the created Configuration into the device; and also the Firmware, if necessary.

If you don't know the actual IP address of the device you have to use this procedure:

- Turn OFF the Device;
- Put Dip1 of `Dip-Switch A' in ON position;
- Turn ON the device
- Connect the Ethernet cable;
- Insert the IP "192.168.2.205";
- Set the IP Address, the SubNet Mask and the Default Gateway that you want to use;
- Press the "Execute update firmware" button to start the upload;
- When all the operations are "OK" turn OFF the Device;
- Put Dip1 of 'Dip-Switch A' in OFF position;
- Turn ON the device.

At this point the configuration/firmware on the device is correctly updated.

If you know the actual IP address of the device, you have to use this procedure:

- Turn ON the Device with the Ethernet cable inserted;
- Insert the actual IP of the Converter;
- Set the IP Address, the SubNet Mask and the Default Gateway that you want to use;
- Press the "Execute update firmware" button to start the upload;
- ✤ When all the operations are "OK" the device automatically goes at Normal Mode.

$\mathcal{M}_{L}$ Update Firmware from Ethernet (UDP) $\qquad imes$
Insert the actual IP Address of Device
Select the options for the Update
🗹 Firmware 🛛 🗹 Read Firmware
🗹 Project 🛛 🗹 Read Project
IP Address
192 168 0 10
SubNet Mask
255 255 0
192 168 0 1
Execute update firmware



*Figure 17: "Update via UDP" windows* 



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W67031 Serial Update

INIT : PROTECTION

FIRMWARE : PROTECTION

PROJECT : PROTECTION

SW67031 Ethernet Update

INIT : PROTECTION

FIRMWARE : PROTECTION

PROJECT : PROTECTION

# Note:

When you install a new version of the software, if it is the first time it is better you do the update of the Firmware in the HD67031 device.

# Note:

When you receive the device, for the first time, you also have to update the Firmware in the HD67031 device.



# Warning:

If Fig. 18 appears when you try to do the Update try these points before seeking assistance:

- Try to repeat the operations for the updating;
- Trv with another PC:
- Trv to restart the PC:
- Check the LAN settings;
- Check the Wi-Fi settings;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- ✤ If you are using Windows Seven, Vista, 8 or 10 make sure that you have the administrator privileges;
- In case you have to program more than one device, using the "UDP Update", you have to cancel the ARP table every time you connect a new device on Ethernet. For do this you have to launch the "Command Prompt" and write the command "arp -d". Pay attention that with Windows Vista, Seven, 8, 10 you have to launch the "Command Prompt" with Administrator Rights;
- ✤ Pay attention at Firewall lock.

Figure 18: "Protection" windows

Ver. 1.000

Ver. 1.003

In the case of HD67031 you have to use the software "SW67031": www.adfweb.com\download\filefold\SW67031.zip.



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### **MECHANICAL DIMENSIONS:**



Figure 19: Mechanical dimensions scheme for HD67031-B2-xx



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# **ORDERING INFORMATIONS:**

The ordering part number is formed by a valid combination of the following:

### HD67031 - B 2 - xxx Maximum number of slaves supported 20: up to 20 standard slaves (1.5mA consumption) connected to M-Bus 40: up to 40 standard slaves (1.5mA consumption) connected to M-Bus 80: up to 80 standard slaves (1.5mA consumption) connected to M-Bus 160: up to 160 standard slaves (1.5mA consumption) connected to M-Bus 250: up to 250 standard slaves (1.5mA consumption) connected to M-Bus **Connectors Type** 2: Fixed Screw Terminal **Enclosure Type** B: Modulbox 4M, 35mm DIN Rail mounting **Device Family** HD67031: M-Bus Analyzer - Scanner - Sniffer Order Code: HD67031-B2-20 -M-Bus Analyzer – Scanner - Sniffer (up to 20 slaves connected to M-Bus) M-Bus Analyzer – Scanner - Sniffer (up to 40 slaves connected to M-Bus) Order Code: HD67031-B2-40 -M-Bus Analyzer – Scanner - Sniffer (up to 80 slaves connected to M-Bus) Order Code: HD67031-B2-80 -M-Bus Analyzer - Scanner - Sniffer (up to 160 slaves connected to M-Bus) Order Code: HD67031-B2-160 -M-Bus Analyzer - Scanner - Sniffer (up to 250 slaves connected to M-Bus) Order Code: HD67031-B2-250 -ACCESSORIES:

Order Code:	APW020	-	Power Supply for M-Bus Master device that supports up to 20 Slaves
Order Code:	APW040	-	Power Supply for M-Bus Master device that supports up to 40 Slaves
Order Code:	APW080	-	Power Supply for M-Bus Master device that supports up to 80 Slaves
Order Code:	APW160	-	Power Supply for M-Bus Master device that supports up to 160 Slaves
Order Code:	APW250	-	Power Supply for M-Bus Master device that supports up to 250 Slaves



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### **OTHER REGULATIONS AND STANDARDS:**

### WEEE INFORMATION

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and impact of human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

### **RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE**

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

### **CE** MARKING

**T C** The product conforms with the essential requirements of the applicable EC directives.



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# WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at <u>www.adfweb.com</u>. Otherwise contact us at the address support@adfweb.com

# **RETURN POLICY:**

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- Obtain a Product Return Number (PRN) from our internet support at <u>www.adfweb.com</u>. Together with the request, you need to provide detailed information about the problem.
- Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.

