Manual EM260

with Volume Corrector EK220/260/280

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Contents

1   Safety Instructions

⚠ Please read these instructions carefully before assembling, installing or commissioning the EM260 to avoid any damage, dangers or problems.

Assembly and installation should be carried out by qualified personnel !

⚠ The 'AC' version of the EM260 has a power supply of 90...260 V. Do not touch any live parts as this is extremely dangerous !

Shut off the power supply before carrying out any installation work and before opening the housing !

Switch the power back on only after all of the work has been completed and the housing has been firmly closed!

Other notes:

☞ **The PE connections in both the EM260 and the EK2x0 should be as short as possible and have as wide a cross-section as possible.**

☞ When assembling the front cover, ensure that the flat-strip cable for connecting the LEDs integrated into the front transparent film is plugged into the 4x1 pin strip ST8!

2   Features

- Modem for use with ELSTER LIS-100 and LIS-200 end devices
- Internal TTL interface for one of the following communication modules:
  – Standard analogue modem
  – ISDN adapter
  – Ethernet LAN adapter.
  – ELSTER-CL0 interface card
- RS232 / V.24 interface to end device (RxD, TxD, Gnd, DCD, DTR, RI), galvanically separated
- Power supply for EK2x0 and EK-88
- 5 VDC outputs for interface component of LIS100 devices, only switched on during modem connection (online status)
- EMC in accordance with standards EN55011 Class B, EN55024, EN61326 and EN12405 (standard for volume correctors)
- Operating status display: Power on (green LED), Ring and Online (yellow LED)
- Apart from mains cable, all cables are already assembled exworks (Plug & Play):
  – Data cable
  – Power supply for end device
  – Communication cable (TAE, ISDN, Ethernet).

3 Wiring EK220/260/280 ←→ EM260

EK terminal			Direction	EM260
EK220	EK260	EK280	of data	terminal
TxD	TD	TxD	→	TxD
DTR	RS	RTS	→	DTR
RxD	RD	RxD	←	RxD
DCD	CS	CTS	←	DCD
n.c.	RI	RI	←	RI
n.c.	Gnd	GND	←→	GND
Uext	Uext +	Uext +	←	+9V
GND	Uext -	Uext -	←→	GND

For the wiring, a shielded 8-wire cable (Elster-Instromet ID no. 04250469) is recommended. In the EM260 the cable is assembled by Elster-Instromet exworks. When connecting the EM260 to the EK2x0, please ensure the cable is properly inserted into the EMV cable fitting on the EK2x0.

4 Wiring of EM260´s communication interface

If an analogue modem, an ISDN adapter or an Ethernet adapter is mounted inside the EM260, the corresponding cable is also mounted by Elster-Instromet exworks. The cable is connected to the terminals a(Rx-), b(Rx+), a2(Tx-) and b2(Tx+).
When using a CL0 interface, a shielded cable with two leads (e.g. ID no. 04250467, 2 x 1,0 mm^2) must be connected on site by the customer in the following way:

EM260 terminal	Terminal in the CL1 modem
a (Rx-)	CL- / Rx-
b (Rx+)	CL+ / Rx+

5 Settings of the serial interface in the EK220/260/280

If the EK2x0 is delivered together with the EM260, the EK2x0´s internal serial interface as well as the communication module integrated in the EM260 are properly set by Elster-Instromet exworks. If the EM260 is delivered separately for additional installation beside an EK2x0, the internal serial interface of the EK2x0 must be set in accordance with the software version of the EK2x0 and with the type of communication module integrated in the EM260.

☞ **The serial interface of the EK2x0 must be parameterised <u>before</u> the EM260 is connected to the EK2x0 and switched on.**

For this purpose the parameter software "WinPADS200-EK" or "enSuite" (only for EK280) can be used:
-    WinPADS200-EK: Menu "Data transfer", item "Send parameter file…"
-    enSuite: Item "Send parameter file", then button "Open…"
Then you can select the parameter file (*.WPP) which fits to your application (communication module, version of EK2x0).

Example:
EM260 with an analogue modem connected with an EK280 V2.0:
→ „EK280_2v2.. - EM260 & i-modul Analogmodem_a.WPP"

If there is no laptop with WinPADS or enSuite available on site, you can set the most important values via the keypad of the EK2x0 (EK220/260: menu "Ser.IO", EK280: menu "Terminal Interface").
The following values cannot be set via the keypad: SMS specific values, ISDN MSN, IP address for Ethernet.
The following table contains the most important parameters which can be set via the interface menu:

Communication module	EK260 SW vers.	Md.S2 (2:705)	DF.S2 (2:707)	Bd.S2 (2:708)	----- (2:709)[1]	TypS2 (2:70A)	Num.T (2:720)
Analogue [4]	all	**2**	**0**	**19200**	**19200**	**1**	1, **2**…9
ISDN	up to 2.3..	5	0	19200	19200	1	- [3]
ISDN	from 2.4..	2	0	19200	19200	1	1
Ethernet	up to 2.3..	5	2	19200	19200	1	- [3]
Ethernet	from 2.4..	2	2	19200	19200	1	1
CL	from 2.0..	5	0 od. 2 [2]	300... 19200 [2]	300... 19200 [2]	1	- [3]
	EK280 SW-Vers.	MdxS2 (2:706)					
Analog	ab 2.0..	standard AT	auto	19200	19200	RS232	1
ISDN	ab 2.0..	standard AT	auto	19200	19200	RS232	1
Ethernet	ab 2.0..	standard AT	auto	19200	19200	RS232	1
CL	ab 2.0..	transparent	auto	300... 19200 [2]	300... 19200 [2]	RS232	- [3]

[1] Not available in in the interface menu! Can only be modified with "WinPADS200-EK" or "enSuite"!

[2] According to the settings in the CL1 modem and the other devices installed in the current loop (CL).

[3] This setting (number of rings) is not used in mode 5. In mode 5 the communication module in the EM260 always picks up an incoming call after the first ring signal.

[4] **Numbers in bold:** Exworks settings performed by Elster-Instromet if the EK2x0 is delivered without any modem.

6 Setting the parameters for the communication module

The parameters for the communication module (modem) in the EM260 are set ex-works for use with an EK2x0.
If the parameters have to be modified on site, this can be carried out with the help of the parameter software "WinPADS200-EK": Menu „File transfer…", item "Send parameter file…". Then you can select the parameter file (*.WPP) which fits to your application (communication module, version of EK2x0).
Example: EM260/Analogue modem with EK260 V2.55
→ "EK260_2v5.. - EM260 & int. Analog-Modem (Insys)_b.WPP"

Before disconnecting, the button "Init modem" should be pressed ("Interface – Modem initialisation"). → after it is disconnected, the EK2x0 sends the parameters to the communication module. The parameters are also sent after switching on the power supply and after "M.INI=1" in EK2x0´s menu "Ser.IO".
The parameterisation of the communication module does not work with all EK2x0 versions and also not with all types of communication modules. The following table shows the dependences ("x" means: Communication module can be parameterised by the EK2x0):

Software version of **EK260**	Remarks				
	Analogue	ISDN	Ethernet	CL0	
1.11	[1]	[1]	[1]		
from V2.0.. up to V2.3..	x	[1] [3]	[1] [3]	[2]	
from V2.4..	x	x	x		
EK280					
From 2.0..	x	x	x	[2]	

[1] Parameterisation can be carried out only by Elster-Instromet exworks or by Elster-Instromet customer service on site with the help of the software tool "ModemIni" (ID no. 73017249).

[2] CL0 interface need not be parameterised

[3] The modem parameters, of course, can be set by "WinPADS200-EK" („Interface – String for connected modem"), but after carrying out the parameterisation (Button „Init modem", „M.INI=1" or switching on power supply) they must be deleted again!!! Otherwise the communication module will not pick up any further incoming call!!!
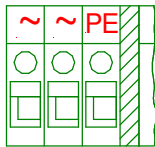
7 Replacement of communication modules

A faulty communication module can be substituted by another communication module of the same type by the customer on site. It depends on the software version of the EK2x0 and on the type of the communication module if the new module can be parameterised on site or if it must be parameterised by Elster-Instromet exworks (refer to the table in chapter 6).
The replacement of a communication module by another communication module of a different type (e.g. analogue modem replaced by ISDN adapter) can only be carried out by Elster-Instromet exworks or by Elster-Instromet´s customer service.
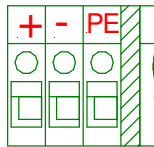
8 Power supply

The voltage required for power supply is marked on the nameplate (90...260 VAC / 18...30 VDC).
The three left screwing terminals are connected as follows:
90...260 VAC version: 18...30 VDC version:
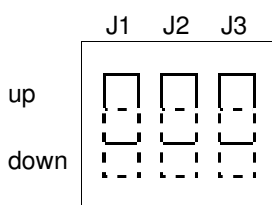
9 Operating status display

Green LED: Power on
Yellow LED: Ring / Online
The yellow Online-LED has the following meanings:

Analogue Modem / ISDN / Ethernet	
LED status	Meaning
off	no connection
flashing briefly	ringing signal
on	online / data transfer

NB: when a CL interface is in use, the Online-LED is always off!!!

10 Jumper

J1	J2	J3	
up	up	up	Analogue Modem / ISDN / Ethernet / CL
up	down	up	Reserved
down	up	up	Setting parameters for analogue modem / ISDN / Ethernet
down	down	up	Reserved
any		down	Reserved

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11 Technical Data

- Internal communication module (only one of the following possibilities is integrated into the EM260):
  – Standard analogue modem: V.32bis (14.4 kbps)
  – ISDN adapter: V.110, V.120, X.75, PPP, HDLC
  – Ethernet-LAN adapter: 10base-T, 10Mbit/s.
  – ELSTER-CL0 interface card

- RS232 / V.24 interface to the end device (RxD, TxD, Gnd, DCD, DTR, RI), galvanically separated, screw terminals for leads with cross section 0.5...1.5 mm^2

- Power supply for EK2x0 and EK-88: output 8.5 VDC +/-5% / 50 mA, galvanically separated, screw terminals for leads with cross section 0.5...1.5 mm^2

- 5 VDC outputs for interface component of LIS100 devices, only switched on during modem connection (online status), screw terminal for lead with cross section 0.5...1.5 mm^2

- Power supply:
  – 90...260 VAC, L, N, PE
  – 18...30 VDC, +, -, PE
  – screw terminal for lead with cross section 0.5...1.5 mm^2

- Synthetic housing (standard ABS) with metallised surface inside, IP65 in accordance with EN60529, EMV cable fitting for shielded cable, otherwise synthetic cable fittings

- Ambient temperature:
  - with analogue modem 'INSYS i-module-Modem':   0 ... + 50 ℃
  - with ISDN adapter 'TA+HUX':   0 ... + 50 ℃
  - with CL interface (CL0, passive):   -10 ...+ 60 ℃
  - with Ethernet card: 0 ...+ 50 ℃

- Ambient humidity: max. 93%, non condensating

- **Declaration of EU conformity** in accordance with the current version of the EMC-Directive 89/336/EEC:
  The product 'EM260' conforms to the current versions of the following standards:

Emission	EN 55011 Class B (for domestic and commercial applications)
Immunity	EN 61326 (Electrical equipment for measurement, control and laboratory use)
	EN 12405 (Volume correctors)
	EN 55024 (IT equipment, data transmission devices)