Honeywell EK205-M Volume Conversion Device Instruction Manual

Contents

EK205-M Volume Conversion Device

Volume Conversion Device
EK205-M
Operating Instructions

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Mainz-Kastel, Mar 2022

General

1.1 Information in these instructions

These instructions make it possible to work with the device in a safe and efficient manner.
Compliance with all of the safety and handling instructions specified in this operating manual is a prerequisite to working with the device in a safe manner and to use it properly. In addition, compliance is also necessary with the guidelines, standards, local accident prevention regulations and general safety regulations that apply for the device's area of application.
The instructions are a component of the product and must be kept in the immediate vicinity of the device, so that installation, operational, maintenance, and cleaning personnel may access them at any time. The graphical illustrations in these instructions serve to depict the facts that are being explained and are therefore not necessarily true to scale and may differ from the actual design of the device.
The data and material properties that are presented below are guidelines. They must be reviewed for each individual case and corrected if necessary.
For the commissioning of the various communication and device applications, you can use the application manual of the EK205-M (see section 1.1.1).

1.1.1 Downloading manuals from Docuthek

Elster Gas provides user documentations such as manuals, certificates, data sheets and technical information bulletins for various device types in Docuthek. The documents are updated on a regular basis: **https://docuthek.kromschroeder.com**
Use the device type EK205-M as your search term.

Check the PDF after downloading it.
You can use SHA-1 checksum information to check the file integrity of a PDF after downloading it using a suitable tool.
The desired value of the SHA-1 checksum for a PDF can be found in Docuthek in the detailed information in the section entitled "Remarks" or, if you have downloaded the PDF from the Elster-Instromet website, in brackets next to the download link.
Which manuals are relevant for earlier device software versions?
Docuthek only contains the current manual versions. If you are using an older software version, you can find the manuals for every version in the software history on the Elster-Instromet website. The software history is available for product releases since 2020 in PDF format in the download area for the relevant device type.
www.elster-instromet.com/en/volume-converter

1.1.2 Device software available on the Elster-Instromet website

The Elster-Instromet website contains the latest software releases for the Elster Gas device series. The current versions for EK205-M and enSuite can be found in the download area: **www.elster-instromet.com/en/software-downloads**
The change history provides information about new functions, improvements, bug fixes and security problems which have been rectified. The change history is available for product releases since 2020 in PDF format in the download area for the relevant device type.
Furthermore, the change history lists the relevant manuals for a software release.

Elster Gas newsletter

Our newsletter provides you with regular information about new software releases and relevant manuals for the EK, DL and enCore FC device series. If you are interested, you can register at: **https://outcomes.gasdatalab.com/techniknewsEN.html**

1.2 enSuite parameterization software

The download area of the Elster-Instromet website also contains the enSuite parameterization for Windows 64-bit (from Windows XP) required for the commissioning process: **www.elster-instromet.com/en/software-downloads**

Updating enSuite

We recommend that you download the latest version of enSuite from the ElsterInstromet website before you commission the EK205-M.

1.3 Warranty provisions

The current warranty provisions can be found in our General Terms of Business, e.g., on our website at: **www.elster-instromet.com/en/general-terms-of-business**

1.4 Customer service and Technical Support (TAC)

Our customer service department is available for technical advice as well as repairs. Furthermore, our employees are always interested in new information and experiences that arise through use of the device and that may be valuable for improving our products.

1.4.1 Customer services and repairs

- Phone. +49 (0) 61 34/605-346
- Fax +49 (0) 61 34 605-390
- E-mail: **PMT-Reparatur_Mainz-GE4N@honeywell.com**

1.4.2 Technical Assistance Centre (TAC)

Our Technical Support (TAC Technical Assistance Center) is at your disposal in case of faults:

- Phone. +49 (0) 6134/605-123
- Website: **www.elster-instromet.com/en/support**
- Knowledge Base: **www.honeywellprocess.com/support**
- E-mail: **ElsterSupport@honeywell.com**

1.5 Explanation of symbols

1.5.1 Safety instructions

Safety instructions are indicated in these instructions by symbols. The safety instructions are introduced by keywords that express the extent of the risk.

Safety instructions must be observed and treated diligently to avoid accidents, personal injury, and material damage.

DANGER!

…indicates an immediately hazardous situation that leads to death or severe injury if it is not avoided.

WARNING!

…indicates an immediately hazardous situation that may lead to death or severe injury if it is not avoided.

CAUTION!

…indicates an immediately hazardous situation that may lead to minor or slight injury if it is not avoided.

… indicates hazards from electric current. In the event of non-observance of the safety instructions, there is a risk of severe or fatal injuries.

CAUTION!
…indicates an immediately hazardous situation that may lead to material damage if it is not avoided.

1.5.2 Tips and recommendations

… highlights useful tips and recommendations as well as information for ensuring efficient and smooth operations.

1.6 Limitation of liability

All specifications and instructions in these operating instructions were compiled under consideration of applicable standards and regulations, the current state of the art and the knowledge and experience we gained over the years. The manufacturer assumes no liability for loss due to:

- Non-compliance with these operating instructions
- Use of the device not in accordance with its intended use
- Use of the device by non-instructed personnel
- Unauthorized device modifications
- Technical changes
- Use of non-authorized replacement parts

The actual scope of delivery may differ from the explanations and descriptions included here in case of special device designs, the use of additional order options or because of the latest technical changes.
The obligations arranged in the delivery contract apply, as do the General Terms and Conditions, manufacturer delivery conditions and current legal regulations that apply at the time the contract was concluded.

Read through these operating instructions carefully before beginning any work to and with the device, especially before commissioning the device!
The manufacturer assumes no liability for loss and malfunctions that result from non-compliance with these instructions.
We reserve the right to make technical changes within the scope of improving performance characteristics and continuous development of the device.

1.7 Copyright

1.8 Scope of delivery

The scope of delivery of the EK205-M includes:

- Electronic Volume Conversion Device EK205-M
- Dispatch breakdown
- Interpretation data sheet
- Instructions
- Accessories bag

1.9 Replacement and accessory parts

WARNING!
Incorrect replacement parts and accessories are a safety risk!
Incorrect or defective replacement parts and accessories may detract from safety and lead to damage, malfunction, or total device failure.
Therefore:

– Use only original replacement parts and accessories from the manufacturer.
– Always contact the manufacturer if you are in doubt.
The replacement parts and accessories list can be found in the appendix. Replacement parts and accessories can be ordered from a contract dealership or directly from our customer service.
The accessories of the EK205-M also include the free enSuite program (see section 1.1.2). With them, you can program the Volume Conversion Device EK205-M via its data interfaces in order to carry out further applications.
The EK205-M is available in numerous equipment variants.
Details can be found at **www.elster-instromet.com** as well as in section 6 “Installation, connection and commissioning”.

1.10 Storage

CAUTION!
Reduced performance after exceeding or falling below the valid temperature range of the batteries.
Exceeding or falling below the valid temperature range can reduce the performance of the batteries when storing the device.
Therefore:
– For longer-term storage, ensure that the valid temperature range of the builtin batteries between -40 °C and +60 °C is not exceeded or fallen below.

CAUTION!
Material damage from formation of condensation!
Storing the device can lead to the formation of condensation resulting from variations in temperature. This may result in the device malfunctioning at a later time.
Therefore:
– After the device has been stored or transported in cold weather or if it has been subject to extreme variations in temperature, bring it slowly to room temperature before it is commissioned.
– The device must undergo a waiting period of at least 12 hours before it is put into operation if condensation formed during storage.

If the power supply of the device is interrupted during storage from clamping the batteries, the time and date need to be reset.
The following regulations apply for storage:

- Relative humidity may not exceed 93%.
- Do not store the packaging units outdoors.
- The storage temperature may not fall below -40°C and exceed +60°C.
- Avoid mechanical vibrations during storage.

Security considerations for your network

EK series volume converters are used in modern billing infrastructures and network control systems to supply process information such as meter readings, measurements and messages to a billing or control centre. A connection of this type constitutes a significant security risk which must be given careful consideration when designing the network.

2.1 How to report a vulnerability

A vulnerability is defined as an error or weakness in the software which can be exploited to adversely affect or reduce the operation or security of the parameterization or device software.
Honeywell reviews all reports about vulnerabilities relating to Honeywell products and services.
You can find further information about the Honeywell Security Policy at: **www.honeywell.com/product-security**
If you would like to report a possible vulnerability in a Honeywell product, follow the instructions on the Honeywell website at: **www.honeywell.com/product-security**
You can find information about current malware threats at: **www.honeywellprocess.com/en-US/support/Pages/security-updates.aspx**
Or

Contact your local Honeywell Process Solutions Customer Contact Centre (CCC) or our Elster Gas Technical Support team (see section 1.4.1 “Customer services and repairs”, page 11).

2.2 Implementing stringent password guidelines

Since various types of attacks on passwords take place these days, you should follow best practices for password management. Here are a few time-tested methods:

- Change standard passwords
- Use secure passwords. A secure password for LIS devices consists of eight characters.
- Change passwords on a regular basis.
- Change passwords immediately in case someone has tried to attack the system.
- LIS200 uses role-based authentication, please follow best practices for shared passwords like secured distribution and secured storage.

 Passwords can be changed via so-called insecure protocols without reauthentication!

Note that when a password is changed via IEC 62056-21 and DLMS, the initial password is not queried again. This vulnerability enables a potential attacker to assign a new password without specifying the old password!

It is therefore even more important to protect data communication from third-party access.

 **Document any changes from time-tested methods.**

If your system does not allow one of these time-tested methods to be used, you should document this. For example, if special symbols such as the equals sign “=” are not allowed in passwords.

2.3 Preventing unauthorized external access using a firewall

To reduce the risk for your network, we recommend that you use a firewall or another mechanism to restrict network traffic between the “external” central billing or control system and the “internal” network of the gas metering systems. Furthermore, EK devices should only be installed in the gas metering system, where access control is guaranteed, i.e., protective action is taken to prevent unauthorized persons gaining access to the device.

We also recommend that you only allow protocols and ports which are actually used for data exchange with the external network and that these are added, for example, to the firewall’s whitelist.

Refer to the information in section 2.4 Data security for data at rest and in transit.

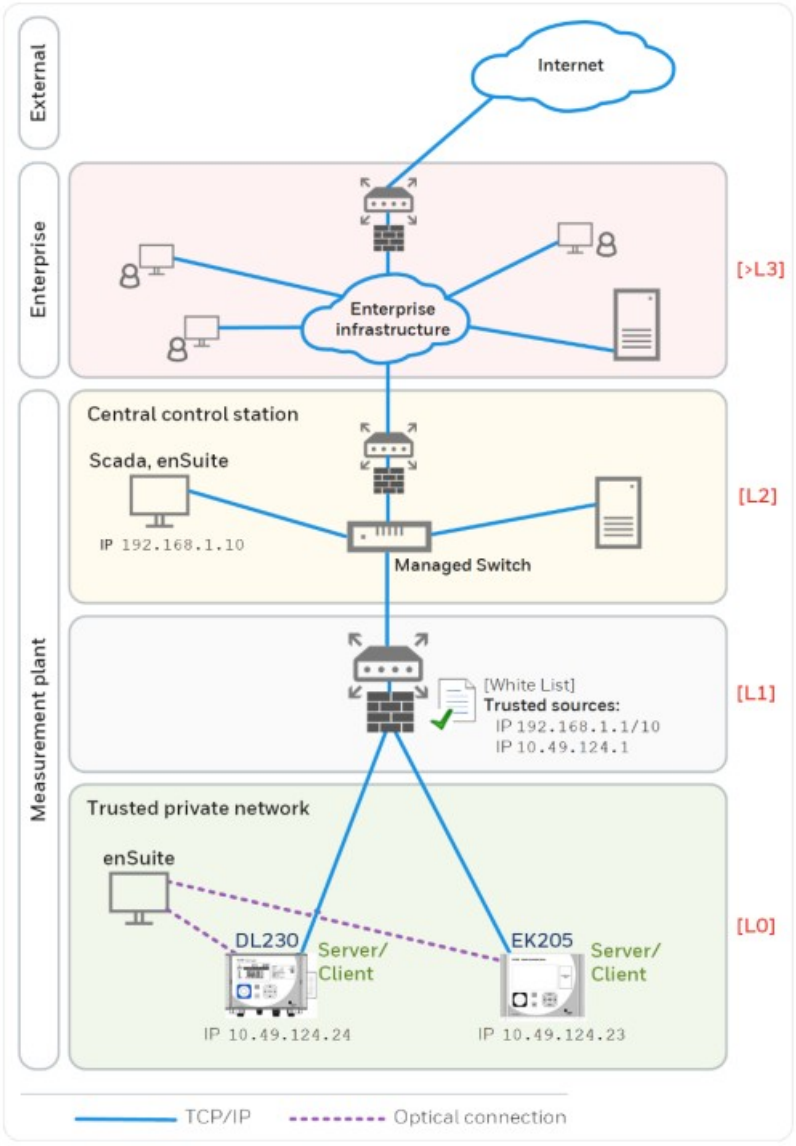


Fig. 1: Router and firewall between the metering systems and control centre – example with indication of security zones L0..L3 and higher according to IEC 62443

We recommend opening safety zone L0 only for zone L1 and not for zones L2, L3 and L4.

2.4 Data security for data at rest and in transit

2.4.1 Data security for data at rest

Data at rest are the data which are temporarily or permanently stored in the EK205-M. These data are unencrypted in the EK series. This means it is even more important to protect the device from unauthorized access.

See section 2.3 “Preventing unauthorized external access using a firewall”.

2.4.2 Data security for data in transit

Data in transit are data which are currently being transferred between the EK205-M and, for example, a control station in a public or trustworthy network.

The protocols used with the EK205-M normally transfer the data in plain text form. If possible, you should therefore use the secure version of a protocol (see section 4.9 “Supported protocols”, page 28).

See section 2.3 “Preventing unauthorized external access using a firewall”.

Using an encrypted VPN connection

We recommend that you use a VPN connection whenever you require a secure data connection, but a secure protocol is not supported for the data transfer.

In a VPN, the data are transferred between two or more subscribers in encrypted form. Therefore, a VPN connection is extremely important, for example for mobile access to a volume conversion device, for accessing a private network or for data communication using different systems.

Safety

This section provides an overview of all key safety aspects for optimal protection of the staff as well as for safe and fault-free operation.
Non-observance of these operating and safety instructions may result in considerable hazards.

3.1 General

The EK205-M is an intrinsically safe device and is suitable for operation within the zone at risk of gas explosion 2 for gases of temperature class T4.
Check for use in zone 2 in accordance with the currently applicable rules of the art: see section 13.3:

 **DANGER!**

Risk of explosion by connection to non-intrinsically safe and associated equipment.
When operating the EK205-M in an area at risk of explosion (zones 2) and connecting devices without certification as an “associated piece of equipment”, there is a risk of explosion.
Therefore:
– When used in an area at risk of explosion, connect the EK205-M to certified, associated pieces of equipment only in accordance with the valid rules of the art stated in the design test certificates.
– Connect the EK205-M only to intrinsically safe pieces of equipment whose electric data correspond to the requirements stated in the design test certificates of the EK205-M (see section 13.3).

 **DANGER!**

Risk of explosion from use of wrong batteries.
Use only batteries stated in the design test certificates of the EK205-M (see section 13.3). Order number see section 13.1.4.

 **DANGER!**

Risk of explosion from incorrect use or connection!
During connection and operation of the EK205-M in areas at risk of gas explosion, observe the associated norms: DIN EN 60079-0
The device may only be used in an area at risk of gas explosion if the installation is carried out in accordance with the general requirements of DIN EN 60079-0 and the operating conditions (see section Technical data) and connection conditions (see section Installation, connection, and commissioning) are observed.
The device can be hazardous if it is used by staff not trained correctly in an improper or unintended manner.

- Anyone appointed to perform work to or with the device must read and understand these operating instructions before beginning work on the device. This also applies if the individuals concerned have already worked with such a device or a similar one or were instructed by the manufacturer.
- Knowledge of the content is one of the requirements of protecting staff from hazards and avoiding faults and therefore operating the device in a safe and fault-free manner.
- In order to avoid risks and to ensure that the device performs in an optimal manner, no changes or modifications that were not expressly authorized by the manufacturer may be performed to the device.
- Always keep all operating instructions on the device in easily legible condition. Renew damaged or illegible instructions.
- Observe settings values or value ranges stated in the instructions.

3.2 Intended use

The device is designed and constructed exclusively for its intended use as described here.
The Volume Conversion Device EK205-M serves to convert a gas volume of a gas line in basic condition measured by a meter in measurement conditions as well as to assign the volumes measured to tariffs. In addition, using the device, further parameters can be measured, recorded, and monitored depending on the configuration set by the user.
Compliance with all the specifications in these operating instructions also falls under the device’s intended use. Any use of the device that goes beyond or deviates from its intended use is considered a misuse of the device and may lead to hazardous situations. Claims of any kind due to loss resulting from non-intended use of the

device are excluded.

 **WARNING!**
Hazard from incorrect use!
Incorrect use of the device may result in hazardous situations.
Therefore:
– Use the device only as intended.
– Do not use the device to control the gas flow or other parameters influencing the gas volume within the framework of the overall system.

3.3 Specific Conditions of Use

- The equipment must be only connected to a certified associated intrinsically safe equipment. This combination must be compatible as regards the intrinsically safe rules.
- Only temperature or pressure sensor defined in the manufacturer's technical file can be used.

3.4 Staff

 **WARNING!**
Risk of injury in the event of insufficient qualification!
Improper use may result in considerable personal injury and material damage.
Therefore:
– Have all activities carried out by qualified staff only.
The following qualifications for different areas of activity are listed below in the instructions:

- Instructed staff
  was instructed by the plant operator in an informational session on the tasks assigned to him or her, and on possible hazards in case of improper behaviour.
- Specialist staff
  has the ability, because of his or her technical training, knowledge, and experience, as well as his or her knowledge of the relevant regulations, to carry out the work to the device assigned to him or her, and to recognize and avoid possible hazards on his or her own.
- Gas specialist
  has the ability, because of his or her technical training, knowledge, and experience, as well as his or her knowledge of the relevant standards and regulations, to carry out work to gas systems, and to recognize possible hazards on his or her own. A gas specialist receives training for the specific location in which he or she works and is acquainted with the relevant standards and regulations.
- Calibration officer
  has the ability, because of his or her technical training, knowledge, and experience, as well as his or her knowledge of the relevant standards and regulations, to carry out calibration-protected work to gas systems. The calibration officer is trained to work with calibration-protected devices and systems and is acquainted with the relevant standards and regulations that apply.
- Electrical expert
  has the ability, because of his or her technical training, knowledge, and experience, as well as his or her knowledge of the relevant standards and regulations, to carry out work to electrical systems, and to recognize and avoid possible hazards on his or her own. A qualified electrician receives training for the specific location in which he/she works and is acquainted with the relevant standards and regulations.

 **WARNING!**
Risk for unauthorized persons!
Unauthorized persons who do not fulfil the requirements described do not know the hazards in the work area.
Therefore:
– Keep unauthorized persons away.
– In the event of doubt, speak to people and direct them out of the working area.
– Interrupt the work as long as unauthorized persons are in the working area.
Only persons are permitted as staff from whom it can be expected that they will perform their work reliably.
Persons whose reactivity is influenced, e.g., from drugs, alcohol, or medication, are not permitted.

- When selecting personnel to operate the device, make sure you comply with the specific regulations of the overall gas system that concern age and occupation.

3.5 Personal protective equipment
When working on the device within a gas system, wearing personal protective equipment is required to minimize health hazards.

- During the activity on the device, always wear the protective equipment required within the relevant system.
- Always observe the notes on the personal protective equipment provided in the working area.

3.6 Special hazards
The risks arising on the basis of the risk assessment are specified below. Observe the safety and warning instructions stated here in the further sections to reduce health hazards and avoid dangerous situations.

 **WARNING!**
Risk of injury when handling batteries incorrectly!
Batteries need to be treated with special care.
Therefore:
– Do not throw batteries in the fire or expose them to high temperatures. There is a risk of explosion.
– Do not charge batteries. There is a risk of explosion.
– Liquid being released in the event of incorrect use may result in skin inflammations. Avoid contact with the liquid. Rinse the liquid with lots of water in the event of contact. If the liquid enters the eyes, rinse the eyes for 10 mins with water and see a doctor immediately.

 **WARNING!**
Fire hazard from easily flammable substances!
Easily flammable substances, liquids or gases can ignite and cause severe to fatal injuries.
Therefore:
– Do not smoke inside the hazardous area and in the near proximity. Do not handle open flames or sources of ignition.
– Keep a fire extinguisher ready.
– Report suspicious substances, liquids, or gases to the person in charge immediately.
– Suspend work immediately in the event of fire. Leave the hazardous area until the all-clear has been given.

3.7 Environmental protection

 **CAUTION!**
Substances harmful to the environment!
When handling substances harmful to the environment, in particular in the event of incorrect disposal, severe damage may arise for the environment.
Therefore:
– Observe the below notes at all times.
– Take suitable measures immediately if substances harmful to the environment enter the environment by

mistake. In the event of doubt, inform the municipal authorities in charge of the damage.
The following substances harmful to the environment are used:

- Batteries

Batteries contain poisonous heavy metals. They are subject to special waste treatment and need to be disposed of at the municipal collection points or by a specialist company.

3.8 Operator liability

The device is used in industrial applications. The device operator is therefore subject to legal obligations of occupational health and safety.
In addition to the safety instructions in these operating instructions, current regulations of safety, accident prevention and environmental protection must be observed for the device area of application. The following items especially apply:

- The operator must ensure compliance with the current regulations of safety, accident prevention and environmental protection that apply for the overall system in which the device is integrated.
- The operator must keep himself/herself informed of the applicable occupational health and safety regulations, and determine, over the course of a risk assessment, the additional risks that arise from the specific working conditions when the device is being used. The operator must include these items in the form of operating instructions for the device.
- The operator must review, over the entire operational life of the device, whether the operating instructions prepared by him or her correspond to the status of the bodies of regulations and revise the instructions if necessary.
- The operator must definitively regulate and establish the responsibilities for device assembly, connection, commissioning, operation, and maintenance.
- The operator must ensure that all employees who work with the device have read and understood these operating instructions. In addition, the operator must train these personnel at regular intervals and inform them of the risks involved with the device.
- The operator of the overall system in which the device is integrated must provide personnel with the required protective equipment.

In addition, the operator is responsible for ensuring the device is always in technically perfect condition. The following items therefore apply:

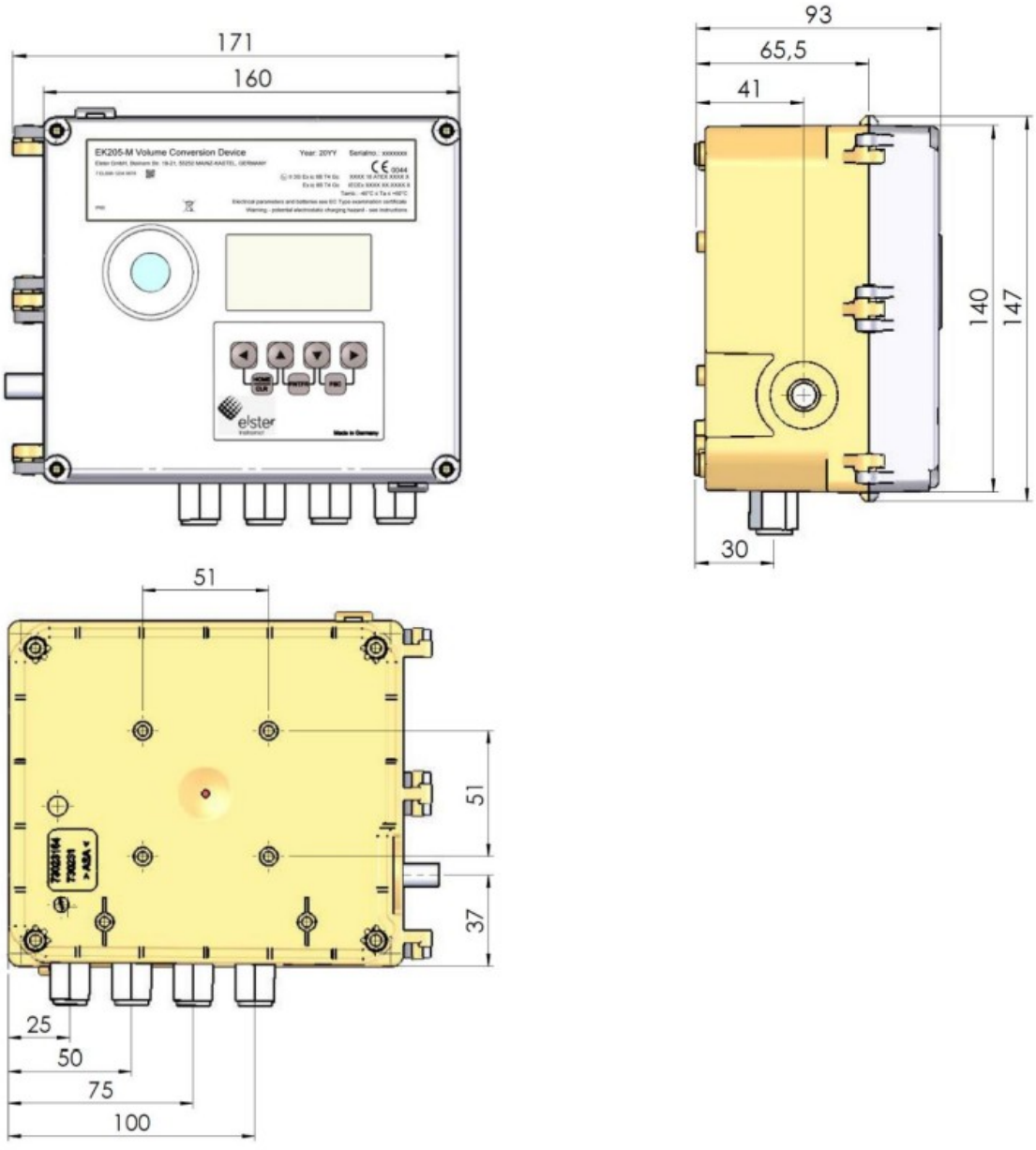
- The operator must ensure that the installation and maintenance work described in these operating instructions are performed properly.
- The operator must have all safety installations checked regularly to ensure they function correctly and are complete.

Technical data

4.1 General data

Information	Value	Unit
Width (incl. hinges)	170	mm
Height (incl. cable screw connections)	180	mm
Depth	90	mm
Permissible ambient temperature range	-40 — +60	°C
Permissible gas temperature range	-30 — +60	°C
IP protection class	IP65	

4.1.1 Dimensions



4.2 Power supply for EK205-M without integrated mains adapter

EK205-M is powered with dedicated batteries each for the basic device and the modem. The quantity of each of them is one.

The standard operation mode for the device operation is defined as follows:

Information	Value
Measurement cycle	30 seconds
Mode input 1	Pulse input
Display active	60 minutes per month
Interface active	30 minutes per month
Ambient temperature	-10 – +50°C
Modem readout duration	2 minutes per day

4.2.1 Basic device battery supply

Information	Value	Unit
Voltage	3.6	V
General nominal capacity	16.5	Ah
Usable capacity	13	Ah
Minimally required number of batteries	1	Unit
Minimal operating duration (in standard operation mode)	5	Years

4.2.2 Modem battery supply

Information	Value	Unit
Voltage	3.9	V
General nominal capacity	16	Ah
Usable capacity	13.68	Ah
Minimally required number of batteries	1	Unit
Minimal operating duration (in standard operation mode)	5	Years

4.2.3 External power supply for the basic device

Data	Value	Unit
Supply voltage	6.0 …9.0	VDC
Supply current, maximum	60	mA

4.3 Pressure sensor

4.3.1 CT30 Type Pressure Sensor

Information	Value	Unit
External thread	M12 x 1.5	
Usable thread length	About 10	mm

4.3.1.1 Absolute pressure ranges

Measuring range	Overload capacity
0.8 – 5 bar abs.	25 bar abs.
2.0 – 10 bar abs.	40 bar abs.
1.0 – 16 bar abs.	40 bar abs.


The pressure sensor is available as an internally completed variant.
You can find details at **www.elster-instromet.com** or see section 5.5 Cable glands.


Not applicable when used as a Temperature Conversion Device.

4.4 Temperature sensor

Information	Value	Unit
Measuring range	-30 – +60	°C
Measurement uncertainty	max. ± 0.1	%
Installation length	50	mm

4.5 Digital inputs

4.5.1 Pulse and reporting inputs NF

The maximum meter frequency of the digital inputs can be set with the enSuite software. The thresholds stated here for frequency and duration apply only if the so-called software debouncing is deactivated.
Ex works, the software debouncing is activated to suppress fault pulses and so that safe counting is limited to 2 Hz.


If the software debouncing is set to a higher frequency than 2 Hz, miscounting from electromagnetic faults may arise under certain circumstances.

Information		Value		Unit
No-load voltage Uo			2.0	V
Internal resistance R,		About	500	kΩ
Short-circuit current lk		About	4	pA
Switchpoint “on”:	•Resistance Re	max.	300	kit
	•Voltage lie	max.	0.8	V
Switchpoint “off’:	•Resistance R3	min.	5	MD
	•Voltage U3	min.	2.	V
Pulse duration to		min.	63.	ms
Break duration ta		min.	63.	ms
Meter frequency f		max.	10	Hz
Cable length		max.	10	m

4.6 Digital outputs

The digital outputs DA1 and DA2 can be set exclusively as low-frequency pulse or report outputs.

CAUTION!

It is essential that you observe the polarity of the outputs. Incorrect polarity will probably result in the destruction of the output. You should therefore not use reverse polarity even for test purposes.

Information	**Value**		**Unit**
Switching voltage	max.	30.0	V DC
Switching current	max.	100	mA DC
Voltage drop	max.	1	V
Remaining current	max.	0	mA
Pulse duration	min.	125.0	ms
Break duration	min.	125	ms
Output frequency	max.	4.	Hz
Cable length	max.	10.	m

4.7 Optical serial interface

Information	**Value**	**Unit**
Baud rate	9600	Bd
Format	1 start, 1 parity, 1 stop bit	


The baud rate of the serial optical interface is adjustable to 19200 Bd.

However, operation using this baud rate also depends on the connected optical reading cable and can therefore not be guaranteed.

4.8 Electrical serial interface

Information	Value
Adjustable types	RS232 or RS485
Cable length	max. 10 m

4.8.1 RS485 type

Parameter	Value
Operating types	RS485 2-wire (semi-duplex) RS485 4-wire (full-duplex)
Scheduling	No load resistor usable in the connected bus participants
Maximum data transmission rate	19,200 baud
Number of bus participants	Drive performance at the outlet: max. 16 unit loads’
	Received power at the input2: – 6 unit loads (RS485, not electr. insulated) – 3 unit loads (RS485, electr. separated)
Cable length	max. 10 m


The complete description for bus operation using Modbus is provided in the EK205M application manual.

4.9 Supported protocols

Transmission method	Application protocols
Optical	IEC 62056-21
Serial (RS232, RS485)	IEC 62056-21, Modbus (ASCII, RTU, TCP)
Via modem	IEC 62056-21, Modbus (ASCII, RTU, TCP)


Use secure version of a protocol!

The protocols used with the EK280 normally transfer the data in plain text form. If possible, use the secure version of a protocol.

Please take our recommendations in the following sections into account:

2.3 “Preventing unauthorized external access using a firewall”

2.4.2 “Data security for data in transit”

1 Unit load: Standard RS485 receiver with an input resistance = 12 kOhm

2 Details on the connection of the RS485 interface, see application manual

Application protocol	Description	Secure versions
DLMS/COSEM HLS	Device Language Message Specification for reading out the device and software updates (in High Level Security)	DLMS (HLS)
DLMS/COSEM LLS	Device Language Message Specification for reading out the device (in Low Level Security)	—
IEC 62056-21	Standard protocol for parameterizing and reading the device (A LIS200 protocol)	—
Modbus ASCII, RTU, TCP	Protocol for data exchange by user-defined registers between AMR and an EK series volume conversion device	—


Modbus TCP and IEC 62056-21: check the national regulations.
Please note that communication via Modbus and IEC 62056-21 is unencrypted. This means that the possibility of an attacker intercepting or modifying the data cannot be excluded. Check the national regulations. These may require the data to be verified manually or other measures.

4.10 Integrated Modem

Information	Value	Unit
Modem type	2G: GSM / GPRS	
Frequency bands	2G: 850 /900 /1800 /1900	MHz

4.11 Antenna

Information	Value	Unit
Frequency Range	820~960 &1710~2690	MHz
Input Impendence	50	Ω
VSWR	700-960 ≤ 4.0 1710-2690 ≤ 3	
Gain	≤ 5.23	dBi
Polarization Type	Vertical	

4.12 Operating conditions

4.12.1 Environment

Information	Value	Unit
Temperature range	-40 – +60	°C
Relative humidity, maximum	93	%
Humidity conditions acc. EN12405-1	condensation	
Point of use acc. EN12405-1	open	
Mechanical ambient conditions acc. EN12405-1	M2	
Electromagnetic ambient conditions acc. EN12405-1	E2	

4.13 Identification

The EK205-M is approved as a volume corrector as per the Measuring Instruments Directive (MID). The identification of the EK205-M is carried out on the front side (see section Structure and function).

4.13.1 Type plate 3 and EX identification

The type identification of the EK205-M, which relates to its function as Volume Conversion Device, contains the following information:

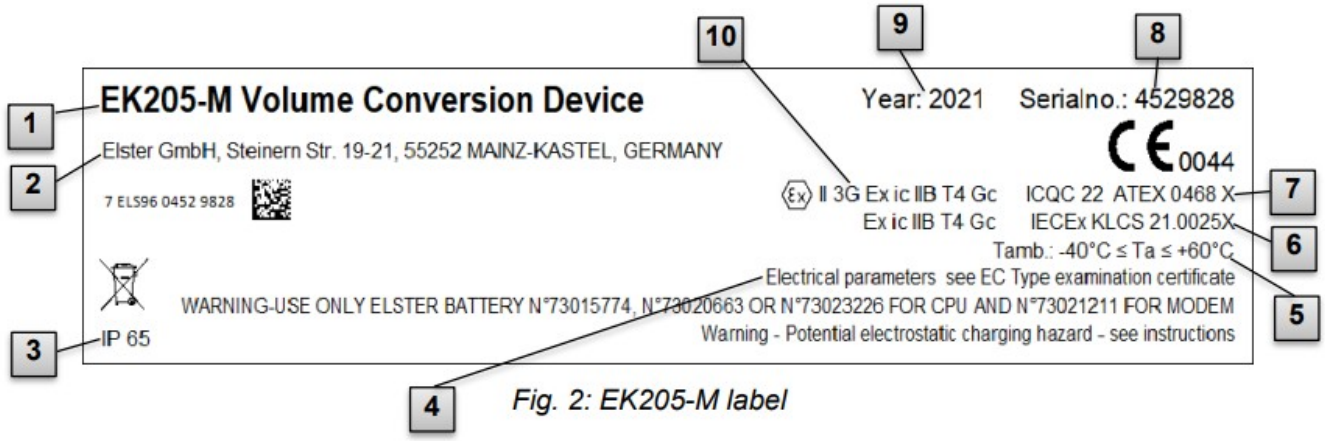


Fig. 2: EK205-M label

1. Type designation
2. Manufacturer and address
3. IP protection class data
4. Notices
5. Ambient temperature range
6. IECEx – EC type examination certificate no. 4
7. ATEX – EC type examination certificate no.
8. Serial number
9. Year of construction
10. Ex marking

3 Depending on the device design or country of destination, the type plate may contain other information.
4 Not available for all device types.

4.13.2 Device software identification

- Move the cursor with the arrow keys to the Serv. tab and via the following path to the values Vers (device software version) or Chk (checksum): Serv. → Identification → Volume converter → Vers or Chk
- The checksum Chk can be recalculated for verification purposes by pressing the ENTER button.

Documents / Resources

	**Honeywell EK205-M Volume Conversion Device** [pdf] Instruction Manual EK205-M Volume Conversion Device, EK205-M, Volume Conversion Device, Conversion Device