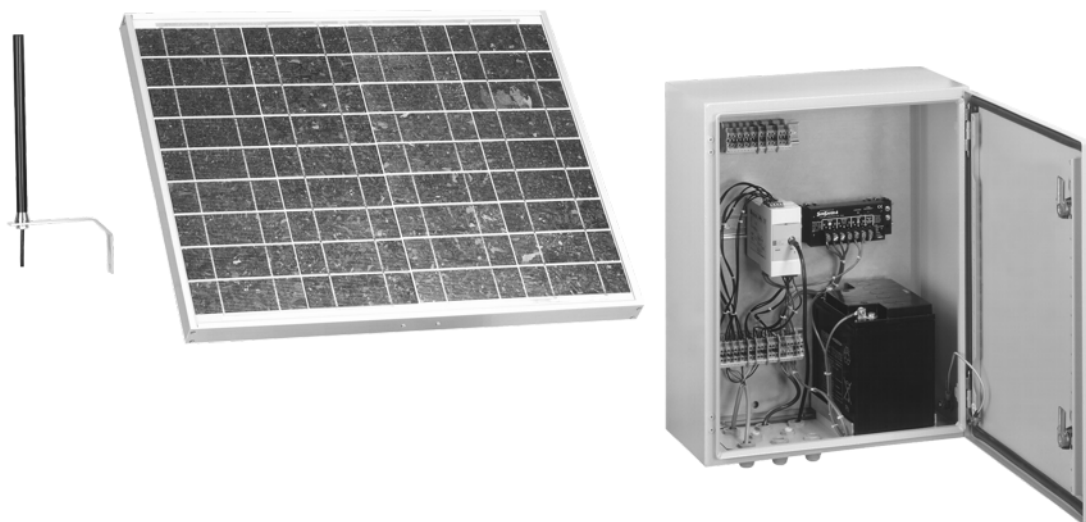


Technical Information

Solar box for Fieldgate FXA320

Gateways / Interfaces

Independent power supply for Fieldgate FXA320



Application

The solar box is a self-sufficient and complete power supply unit for passive 4...20 mA sensors. With the integrated Fieldgate FXA320 telemetry unit, inventory data can be transferred wirelessly via GSM to an inventory data management system from widely dispersed tanks or silos which do not have the appropriate infrastructure. This means that an accessory is available for the Inventory Control business sector to complete the entire system.

Your benefits

- Solar-powered, self-sufficient power supply unit including solar panel, battery, load controller, completely wired in a cabinet.
- Wireless transmission of measured values via GSM.
- Inventory data transmission from outdoor storage tanks.
- No need for manual inventory.
- Alarm in the event of inventory limits being overshot or undershot.

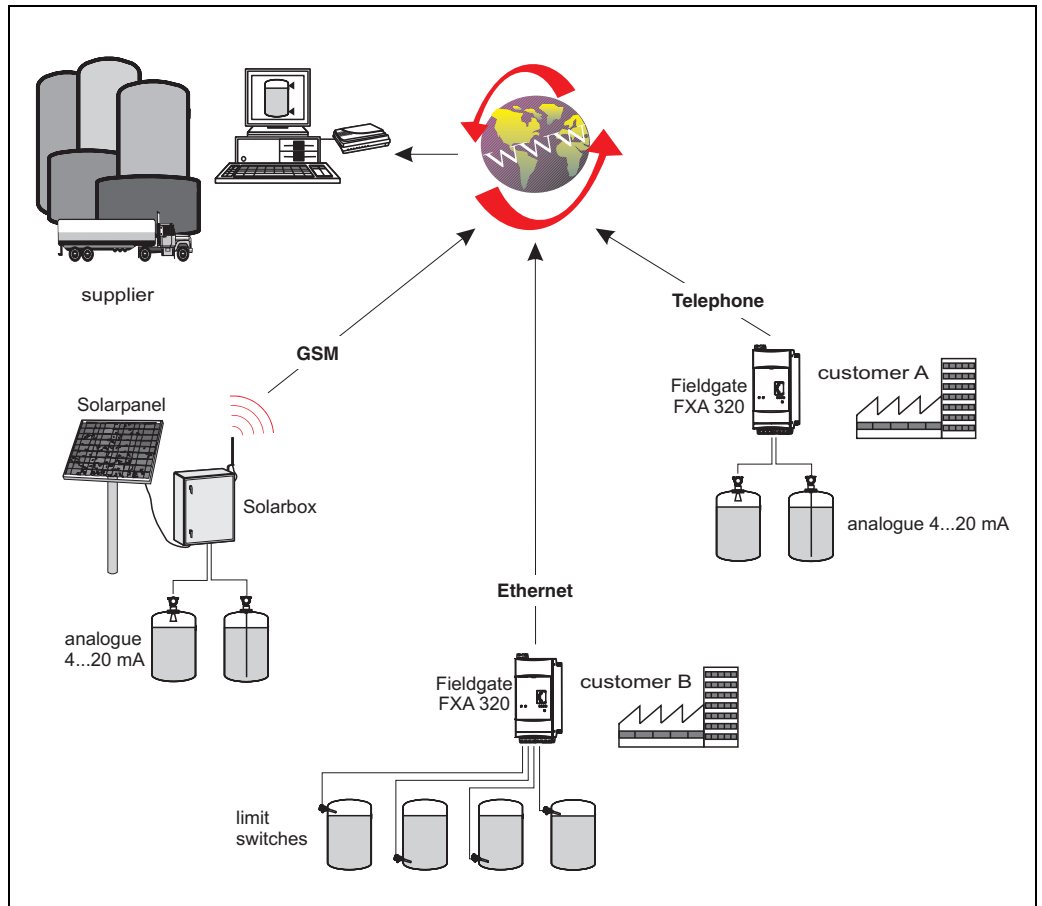
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Applications

Vendor Managed Inventory

By using Fieldgates to interrogate tank or silo levels remotely, suppliers of raw materials can provide their regular customers with information about the current supplies at any time and, for example, account for them in their own production planning. For their part, the Fieldgates monitor the configured level limits and, if required, automatically activate the next supply. The spectrum of options here ranges from a simple purchasing requisition via e-mail through to fully automatic order administration by coupling XML data into the planning systems on both sides.

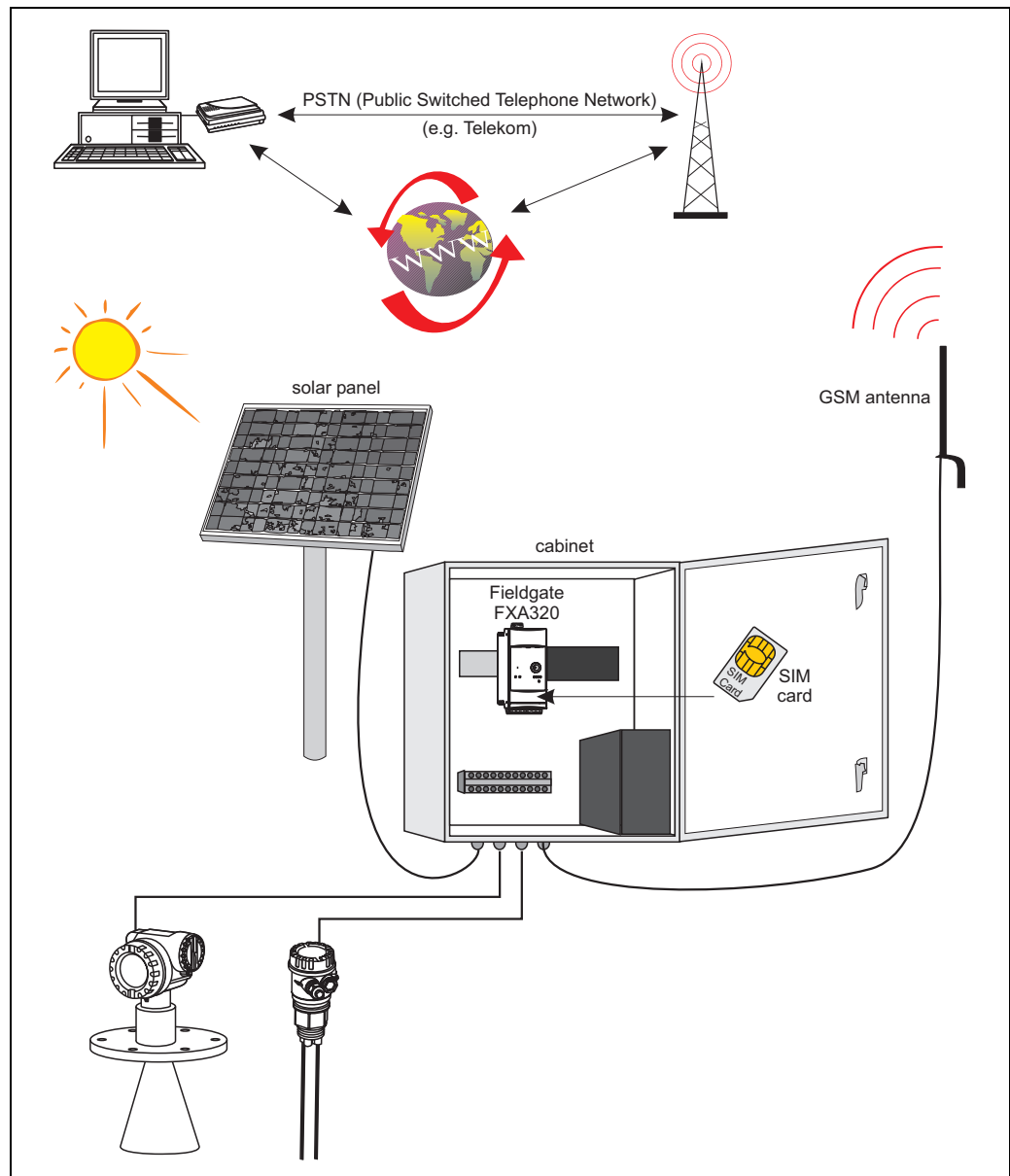


L00-FXA320cx-02-00-06-en-001

Function and system design

Measuring system

Configuration with sensor



L00-FXA320xx-14-00-06-en-003

Note!

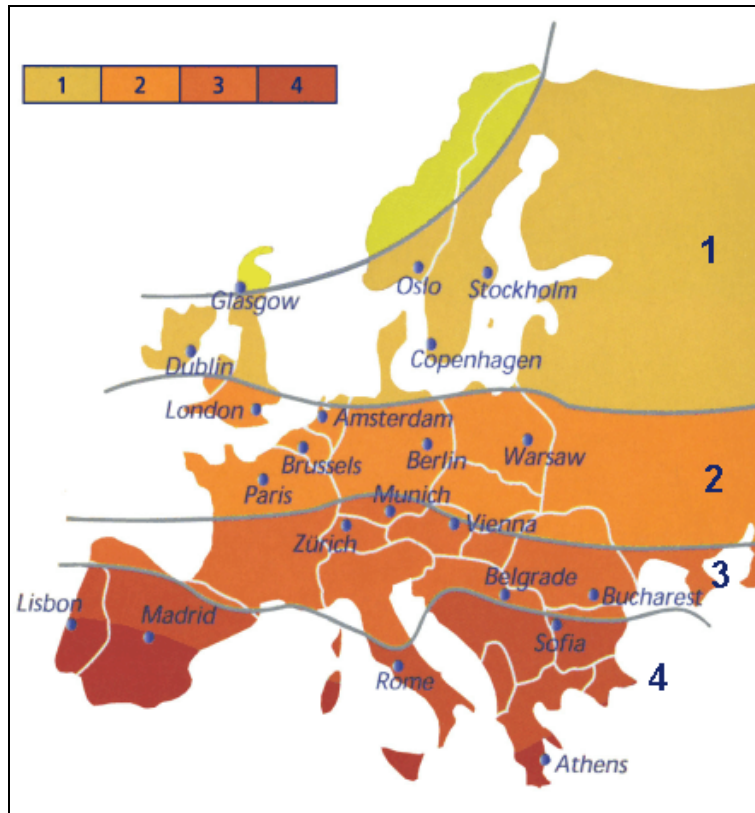
Terminal assignment see "Wiring plan - cabinet" on Page 10.

1. Insert SIM card, see Page 12 (this is not within the scope of delivery and must be provided by the user).
2. Connect battery -> terminals: 13(-) and 14(+).
3. Connect and align solar panel -> terminals: 9(-) and 11(+).
4. Connect sensors (two sensors can be connected directly).
5. Mount GSM antenna.
6. Configure Fieldgate FXA320 (see BA282F/00/en, download via the Internet from: "www.endress.com").

Input

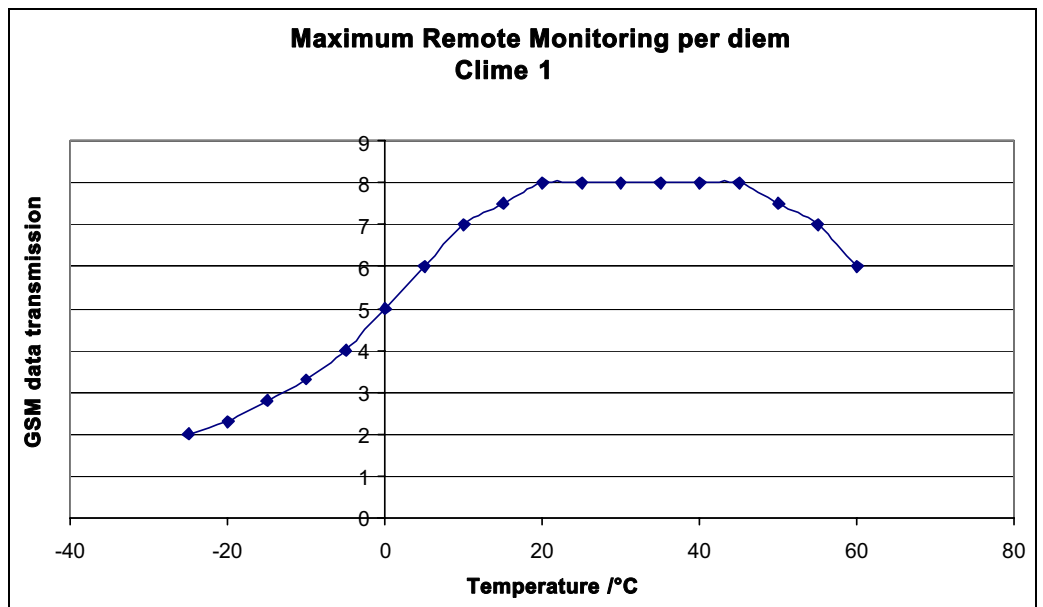
Solar irradiance

Climatic zones



L00-FXA320xx-05-00-00-en-002

The following diagram shows the maximum permitted remote monitorings depending on the ambient temperature. These values are based on mean climatic values.



L00-FXA320xx-05-00-00-en-003

The maximum number of level measurements is also indicated in the above graph: maximum three times as many level measurements as GSM transmissions. For example, at 0°C 5 GSM transmissions and 15 level measurements are permitted daily. In the summer months with increased solar irradiance, these values can be exceeded.

The FXA320 must be operated in "Power Down Mode" i.e. the connected 4...20mA devices are powered up for only 1 minute, for example, and the supply voltage of the devices is then switched off again (for configuration see the following figure).

AutoRefresh	Refresh	Endress+Hauser
Overview of connected Devices	Switch to User Mode	Information & Configuration...
Fieldgate Location	User Setup	Network Setup
Scan Control	Special	Information

Scan Control

Scan Cycle / Power Down Settings

Scan Cycle Time	use Email cycle ▾
Setup Time	1 min ▾
Power Down between Scan Cycles	<input checked="" type="checkbox"/> ALARM relais functionality if set to 'no'

Current Time: 21.07.2004 10:19:38 (UTC+2h)
XML Data

L00-FXA320xx-20-13-00-en-034

Output

GSM	Wireless transmission of measured values via TCP/IP HTML, XML.
Solar panel	<ul style="list-style-type: none"> ■ Maximum capacity 40 W \pm5 % ■ Voltage at Pmax: 16.9 V ■ Current at Pmax: 2.34 A ■ No-load voltage: 21.5 V ■ Short-circuit current: 2.48 A
Battery	<ul style="list-style-type: none"> ■ 12 V/30 Ah, minimum guaranteed service life of battery is 2 years.
Load controller	<ul style="list-style-type: none"> ■ Output voltage: min 11.5 V

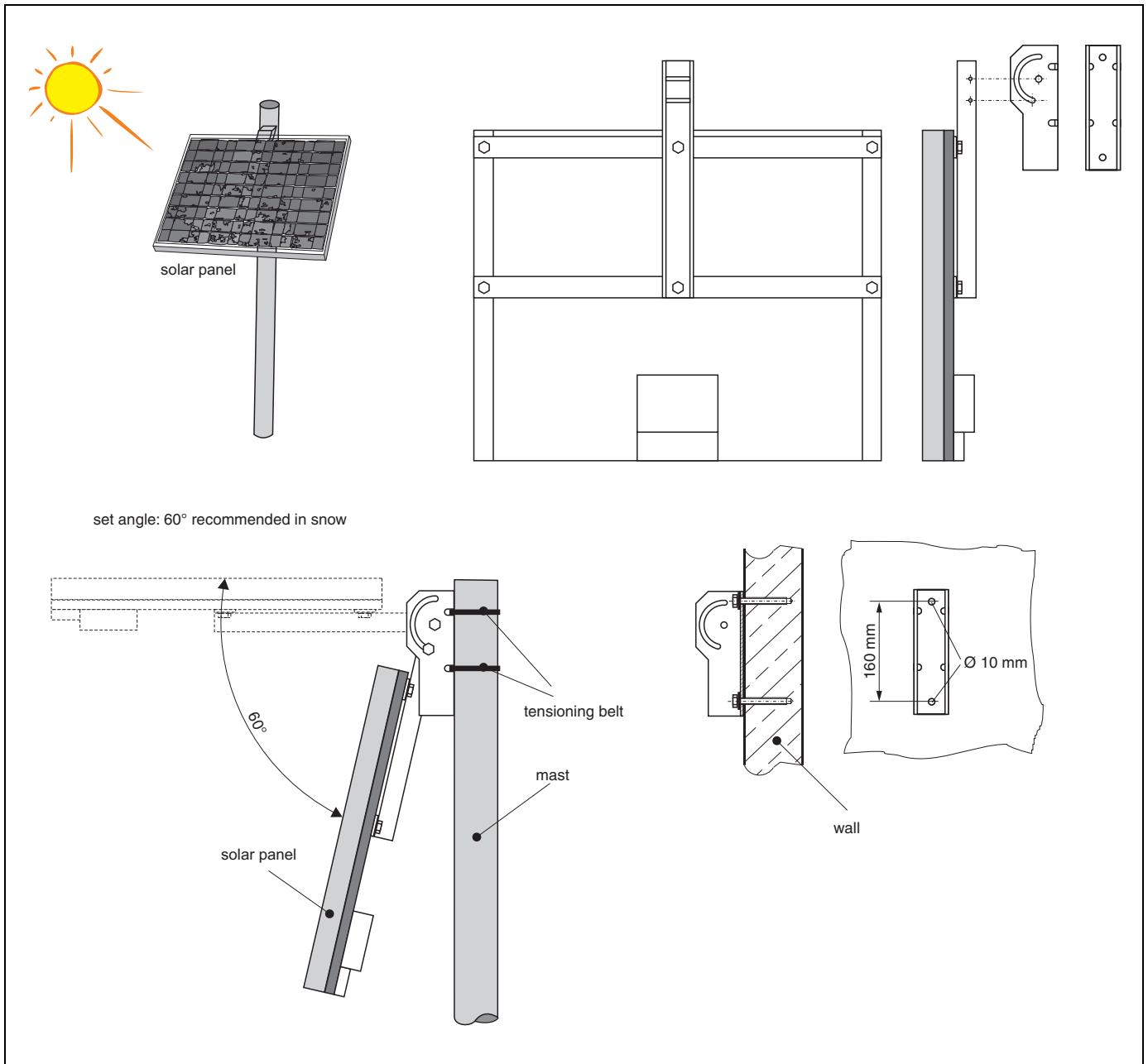
Hilfsenergie

Solar	Solar energy.
Cable entry	4 M20x1.5 cable glands (1 x GSM antenna, 2 x sensor, 1 x solar panel)

Operating conditions: Installation

Installation instructions

Installation kit - Solarpanel



L00-FXA320zx-17-00-06-en-002

Operating conditions: Environment

Permitted ambient temperatures -25 °C... +60 °C

Storage temperature -25 °C... +85 °C (preferably at +20 °C)

Climatic and mechanical application class for Fieldgate FXA320

3K3
In accordance with DIN EN 60721-3-3

3M2
In accordance with DIN EN 60721-3-3

Degree of protection for solar box IP 20, in accordance with EN 60529

Electromagnetic compatibility (EMC) for Fieldgate FXA320 Interference Emission to EN 61326, Electrical Equipment Class B. Interference Immunity to EN 61326.

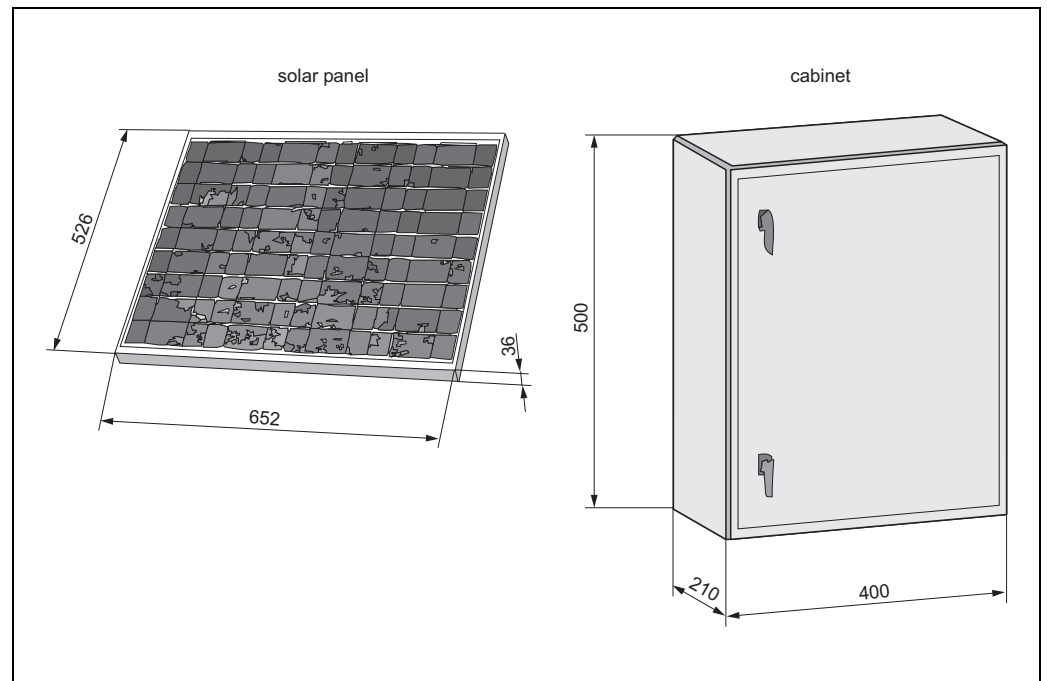
Mechanical construction

Design, dimensions

Note!

100 mm = 3.94 in

Dimensions



L00-FXA320xx-06-00-00-en-001

Weight

Cabinet incl. battery, load controller and accessories

Battery: 10.4 kg

Solar panel

4.5 kg

Materials

Cabinet

Steel plate
Colour: light grey, RAL 7032

Fixing material

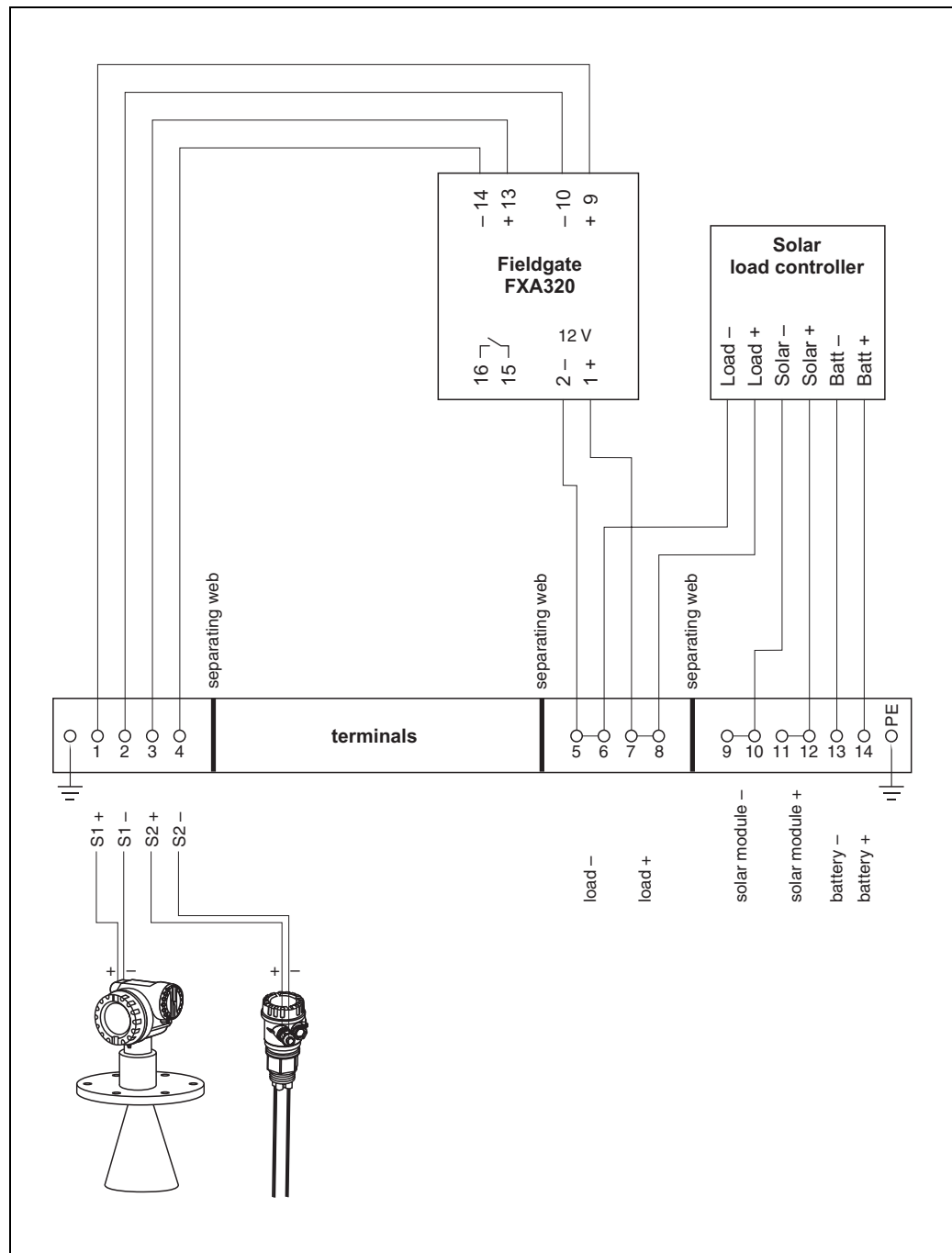
for solar panel (aluminium)

Terminals in cabinet

Connection cross-section

maximum 1 x 2.5 mm or 2 x 1.5 mm

Wiring plan - cabinet



L00-FXA320xx-04-00-06-es-010

**Plug-in connections at
Fieldgate FXA320**
Connection socket for GSM antenna:

FME socket (male).

Connection plug for DAT module:

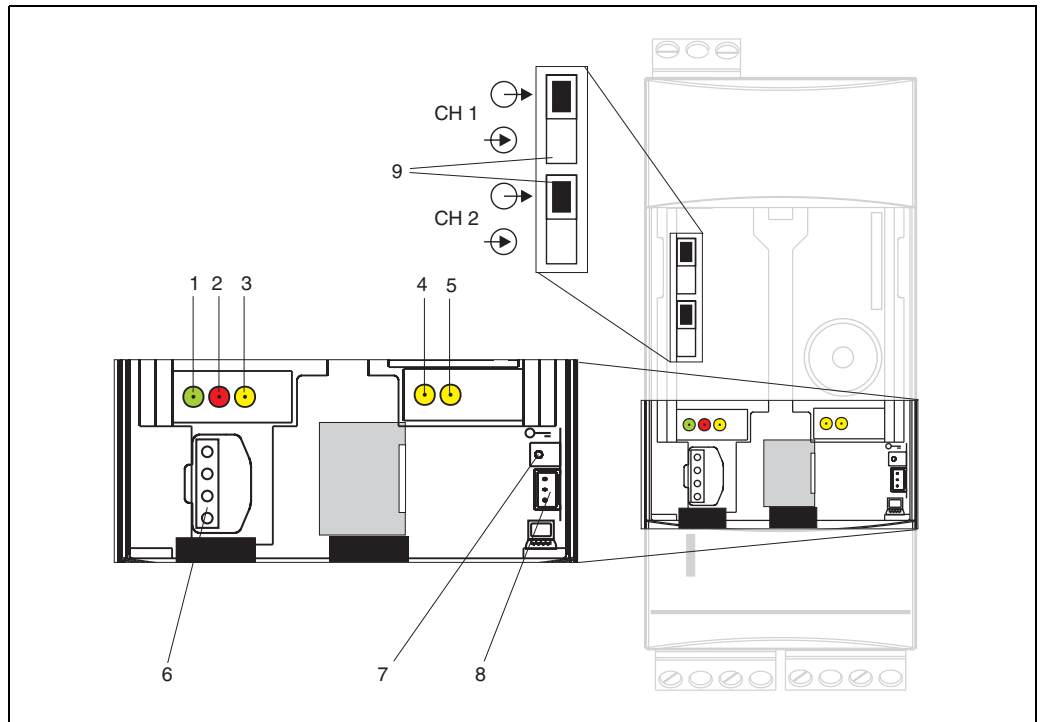
8-pin plug connector in 2.54 mm raster, 2 row.

Connection plug for PC cable:

3-pin plug connector in 2.54 mm raster, 1 row.

Human interface

Fieldgate FXA320 display elements



L00-FXA320xx-07-00-06-xx-000

Position	Light emitting diode (LED)	Meaning
1	Green LED constant	Displays the correct power supply
2	Red LED constant	Displays a fault
	Red LED flashes	Displays a warning / On site communication via PC / Hardware is unlocked / system start
3	Yellow LED	Switching status of the built-in relay / LED on = relay tightens
		- LED off = relay de-energised
		- LED on = relay energised
4	Yellow LED	Displays a successful connection
5	Yellow LED	Displays a transfer activity / GSM version: field strength display if no connection

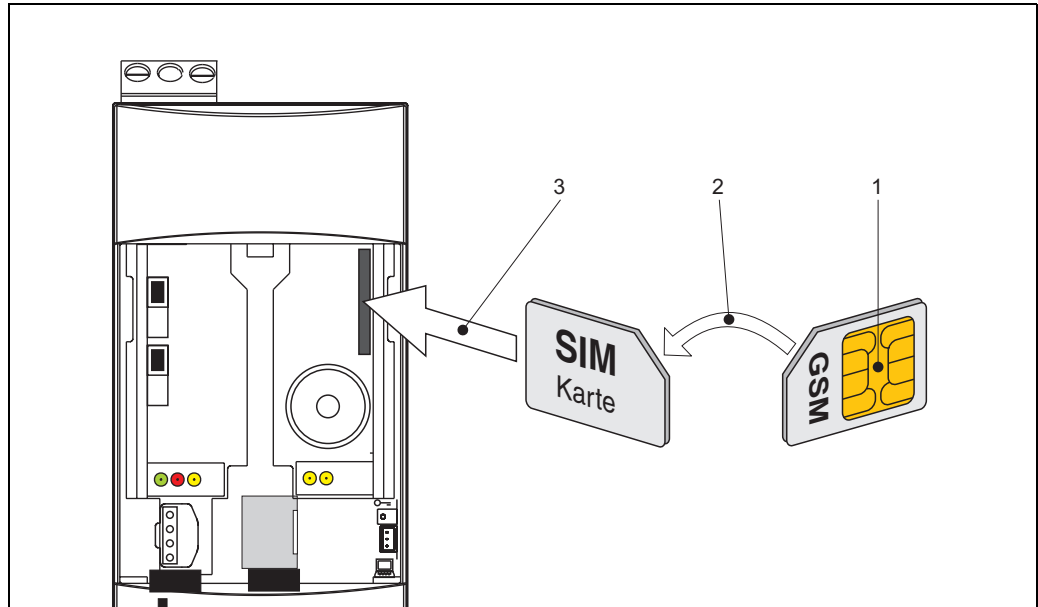
Fieldgate FXA320 operating elements

For the arrangement of the elements, see the diagram above.

Position	Element	Meaning
6	Socket	Connection socket for DAT module
7	Button	Button for hardware security locking and configuration reset
8	Socket	Connection socket for PC cable (service connector)

Position	Element	Current input channel 1 (CH1)		Current input channel 2 (CH2)	
		9	Switch position (up)		aktive
	Switch position (down)		passive		passive

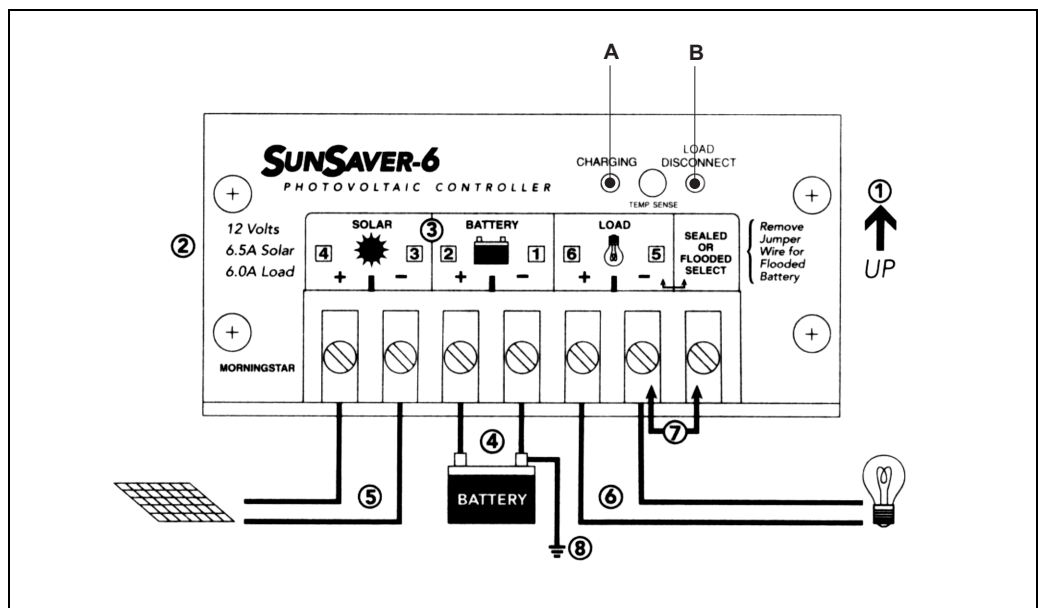
Insert SIM card



L00-FXA320cx-07-00-06-de-007

1. Note contact assignment.
2. Turn SIM card as necessary.
3. Insert SIM card.

Load controller



L00-FXA320cx-07-00-06-de-008

Position	Light emitting diode (LED)	Meaning
A	Green LED constant	Battery loading
B	Red LED constant	Minimum voltage 11.5 V undershot, load switched off

Cabinet



L00-FXA320xx-10-10-06-xx-003

Certificates and approvals

CE mark

The Fieldgate meets the legal requirements of the EC directives.
Endress+Hauser confirms that the device has been successfully tested by applying the CE label.

External standards and guidelines

Other standards and guidelines that have been observed when designing and developing the Fieldgate (see Technical Information TI369F/00/en for Fieldgate FXA320/520).

EN 60529

Ingress protections for housing (IP code)

EN 61010

Safety requirements for electrical equipment for measurement, control and laboratory use

Telecommunications regulatory compliance

See Technical Information TI369F/00/en for Fieldgate FXA320/520.

Ordering information

Solar box

Order number: 52023445

The scope of delivery is:

- **Cabinet**

- Power box:
 - 1 x Steel housing (400 x 500 210 mm), incl. mounting plate and screws
- 1 x Adaptation of housing, installation and wiring
- 1 x Battery 12 V/33 Ah, lead acid
- 1 x Load controller
- 1 x Connecting cable incl. terminal series

- **Solar panel incl. 3 m connecting cable**

Frame/connecting box dimensions: 526 x 652 x 36 mm / 52 mm

- **Fixing material**

(Mast/wall) for solar panel. Component of delivery.

Fully mounted and wired.

- Antenna (triband). Order number: 52018396.
- Fieldgate FXA320-AG4AB

Accessories

Battery

Order number: 52023446

Warning!

Exercise caution when working with the lead acid battery! Avoid short-circuits!

Note!

Terminal assignment see "Wiring plan - cabinet" on Page 10.

Replacing the battery:

1. Disconnect connected devices:
 - Device 1 terminals: 1(+) and 2(-)
 - Device 2 terminals: 3(+) and 4(-)
2. Disconnect from solar panel -> terminals: 11(+) and 9(-).
3. First disconnect positive pole from the battery, then negative pole.
4. Remove battery.
5. Install battery.
6. First connect negative pole to the battery, then positive pole.
7. Re-establish connection to the solar panel -> terminals: 9(-) and 11(+).
8. Reconnect devices:
 - Device 1 terminals: 1(+) and 2(-)
 - Device 2 terminals: 3(+) and 4(-)

Battery disposal!

Batteries constitute hazardous waste and must be disposed of in the correct way. Please note national regulations for disposal.

Documentation

Technical Information

TI369F/00/en

Technical Information for Fieldgate FXA320/520.

Operating Instructions

KA215F/00/a6

Mounting and installation instructions for Fieldgate FXA320. Order number: 52020867.

BA282F/00/en

Operating Instructions for Fieldgate FXA320 (online help in the Internet browser).

BA273F/00/en

Operating instructions for Fieldgate Data Access software (download via the Internet).

BA272F/00/en

Operating instructions for Fieldgate OPC server software (download via the Internet).

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