Technical Documentation

VISY-X

VISY-TD Display Ex d

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FAFNIR GmbH • Schnackenburgallee 149 c • 22525 Hamburg • Tel: +49 /40 / 39 82 07-0 • Fax: +49 /40 / 390 63 39

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Contents

1 Safety instructions

The VISY-TD Display Ex d is used to display the ullage determined by the VISY-X system in the tank up to the maximum filling level (capacity). In addition, the current volume is also displayed. Use the display for this purpose only. The manufacturer accepts no liability for any form of damage resulting from improper use.

The display has been developed, manufactured, and tested in accordance with the latest safety engineering practices and generally accepted safety standards. Nevertheless, hazards may arise from its use.

For this reason, the following safety instructions must be observed:

- Do not change or modify the display or add any equipment without the prior consent of the manufacturer.
- The installation of the display may only be carried out by expert personnel. Specialised knowledge must be acquired by regular training.
- Installers and operators must comply with all applicable safety regulations. This also applies to any local safety and accident prevention regulations which are not stated in this manual.

The safety instructions in this manual are marked as follows:

If these safety instructions are not observed, it may result in the risk of accident or damage to the VISY-TD Display Ex d.

Useful information designed to ensure correct operation of the VISY-TD Display Ex d or helpful advice to make your work easier

2 Overview

The VISY-TD Display Ex d is an optional part of the VISY-X system. With the VISY-X system (volume information system), highly precise, continuous filling level measurements in up to 16 tanks are carried out.

The VISY-TD Display Ex d is used for displaying tank information which is important for a fuel truck driver and displays the ullage of one configured tank as well as warnings. It is connected with the VISY-Command central unit via an RS-232/485 converter, from which the measured values are transmitted to the VISY-TD Display Ex d and displayed there.

Typically, the VISY-TD Display Ex d is placed near the filling valve.

3 Scope of delivery

VISY-TD Display Ex d
with magnet

RS-232/485 converter kit includes:

- RS-232/485 converter
- 2 m RS-232 cable
- Plug-in power supply with 2 m connection cable

RS-232 adapter

4 Function and operation

The VISY-TD Display Ex d is supplied with power via the RS-232/485 converter and is operating continuously.

In case of a power failure, only the measured values transmitted last are stored and the VISY-TD Display Ex d is supplied with power via the internal battery. After switching on the display with the magnet, these last measured values are displayed.

⚠ *After a power failure the measured values displayed may not correspond to the actual values.*

The VISY-TD Display Ex d is operated with the help of the internal reed contact and the external magnet fitted to a chain.

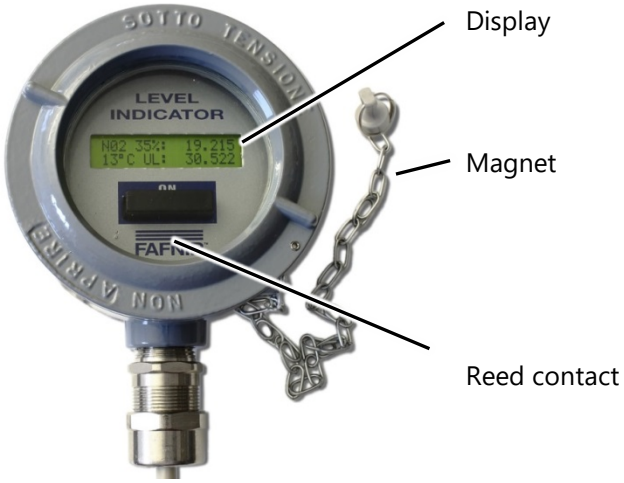


Figure 1: VISY-TD Display Ex d

The magnet must be held over the reed contact (see left Figure).

Depending on how long the magnet is held in this position, a change in operating mode occurs (see the following chapter).

Figure 2: Operation with the aid of the magnet

4.1 Modes of operation

There are 3 different operating modes of the display:

- Overview display
- Detail display
- Configuration

The change between the modes of display occurs according to the following concept depending on how long the magnet is operated:

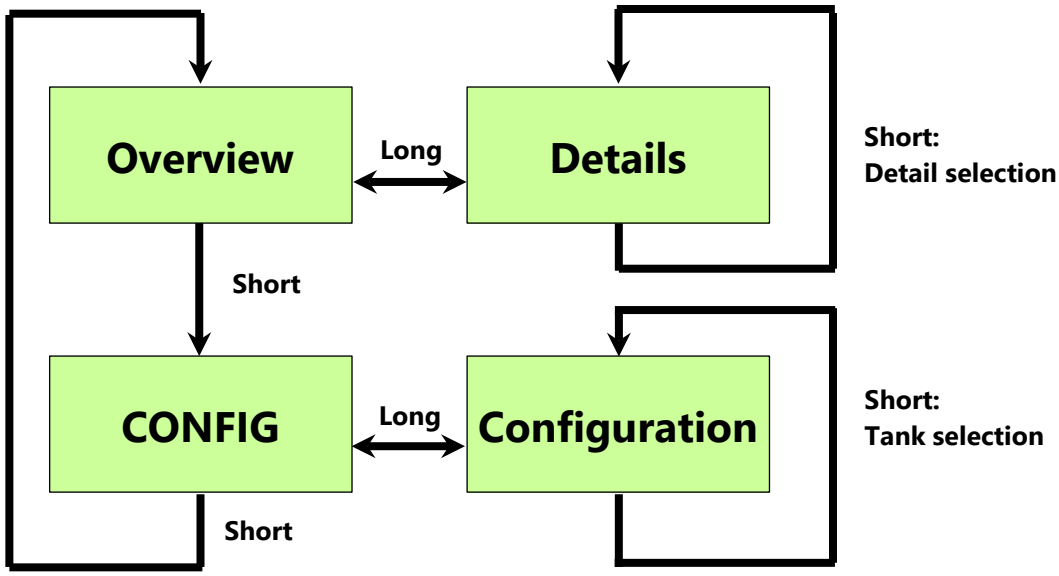


Figure 3: Change of operating modes depending on magnet operation

4.1.1 Overview display

After switching on the display with the power supply of the converter, the firmware is displayed first:

Level Measurement CPTS03510 r. 01.15

r.01.15: Firmware Version (Example: Firmware Version 01.15)

The data of the configured tank are displayed automatically after 5 seconds:

N0 1	34%:	19,215
13°C	UL:	30,522

N01: Tank number (Example: Tank 01)
34%, 19.215: Filling volume in % and m^3 (Example: 34% and 19.215 m^3)
13 °C: Temperature of product in °C (Example: 13 °C)
UL 30.522: Free space in tank in m^3 (Example: 30.522 m^3)

☞ *The return to the overview display occurs automatically after approx. 60 seconds without operating the magnet.*

☞ *Product/water **warnings** are displayed by means of a flashing **W**.*

⚠ *Product/water **alarms** are displayed by means of a flashing **A**.*

4.1.2 Detail display

During the active detail display additional data are displayed for the selected tank. The change between the overview display and the detail display is done by a *longer* actuation (more than 2 seconds) of the reed contact. In the detail display, it is switched between individual values by a *brief* actuation (less than 2 seconds) of the reed contact.

For the configured tank the following 11 values can be displayed in the detail display:

- Product level in mm (Example: "Prod.(mm): 1017“)
- Water level in mm (Example: "Water(mm): 0“)
- Product volume in l (Example: "Prod.(l): 18692“)
- Water volume in l (Example: "Water(l): 0“)
- Temperature-compensated volume (Example: "Compen(l): 0“)
- Ullage in litres (Example: "Ullage(l): 31045“)
- Tank capacity (Example: "MaxVol(l): 55264“)
- Temperature in °C (Example: "Temper(°C):+11.8")
- Density in kg/l (Example: Density(kg/l): 0,847“)
- Level of alarm (Example: "L.Alar:")
- Level warning (Example: "L.Warn:")

Example:

< 01	N01	> 11
Prod.(mm):		705

N01: Tank 01

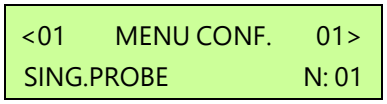
Product level: 705 mm

☞ *Possible displays for level warning and level alarm are:*
Max: Product warning / alarm,
Water: Water warning / alarm, or
Max&Water: Product and water warning / alarm

4.1.3 Configuration

In the configuration menu the displayed tank can be selected.

The change between overview menu and configuration menu is done by a *longer* actuation (more than 2 seconds) of the reed contact. In the configuration menu, it is switched between the individual tanks by a *brief* actuation (less than 2 seconds) of the reed contact.



Example: Tank 01 has been selected

5 Installation

5.1 Assembly

The VISY-TD Display Ex d should be mounted at eye level for better readability. The mounting rail at the rear of the housing has been provided for the installation of the display.

When the housing is being installed it should be ensured that the housing and mounting rail are not damaged.

5.2 Electrical connection

The VISY-TD Display Ex d (in the following figure designated as AT04111/F) is connected to the service interface of the VI-4 board in the VISY-Command via the RS-232/485 converter. The VISY-Quick protocol is used for communication.

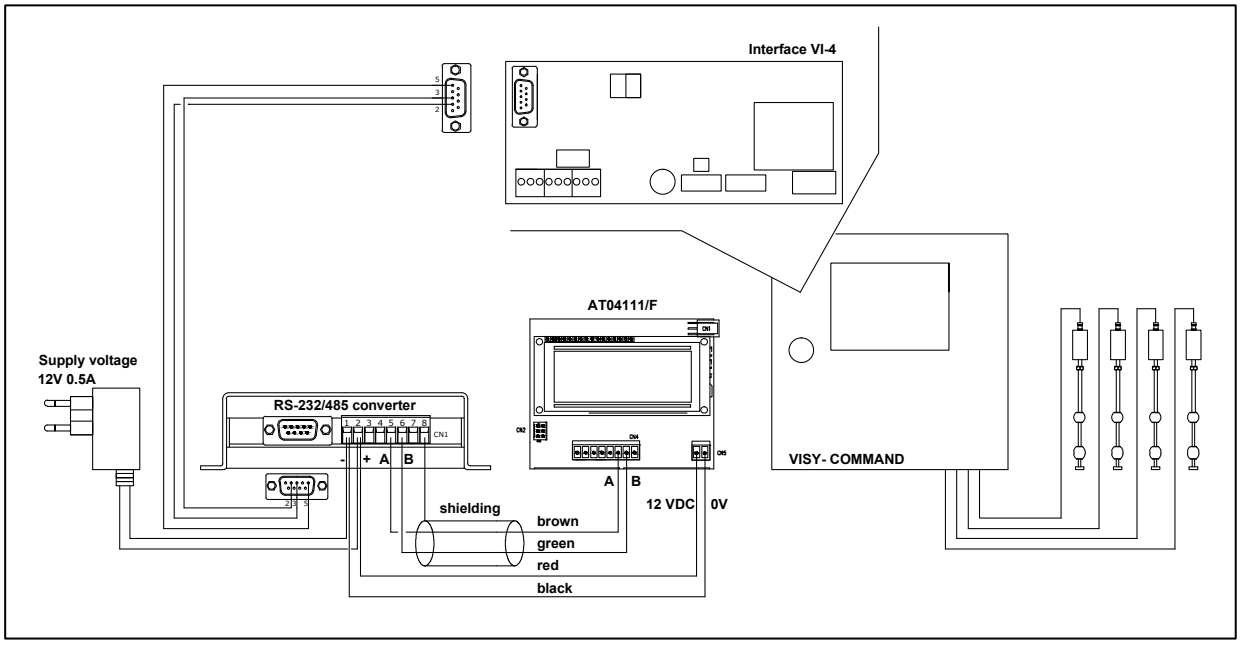


Figure 4: Overview of connection plan

Unused wires of the connection cable of the display are to be suitably insulated, to prevent short-circuits in the display.

5.2.1 Connection of the RS-232/485 converter

To power the RS-232/485 converter, a 230 V_{AC} / 12 V_{DC} plug-in power supply with 2 m long connection cable is included.

☞ *A socket is required at a distance not more than 1.5 m from the VISY-Command*

The RS-232/485 converter is connected to the service interface of the VI-4 board in the VISY-Command via a 2 m long RS-232 cable (see following Figure):

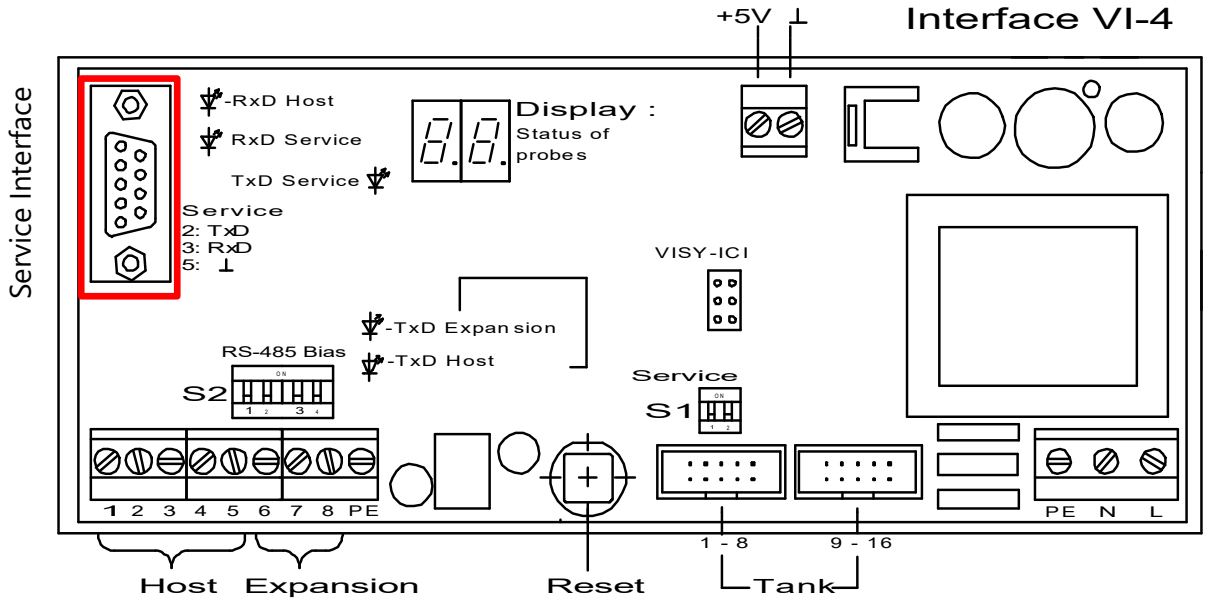


Figure 5: Service interface of the VI-4 Interface

For better wiring, an adapter for connection to the VI-4 board has been included (see the following Figure):

Figure 6: RS-232 adapter for connection to the VI-4 board

5.2.2 Connection of the VISY-TD Display Ex d

Two cables are required for the electrical connection of the display to the RS-232/485 converter:

- 2-pole shielded cable
- 2-pole low-voltage cable (12 V)

The connection is to be carried out according to the following connection diagram:

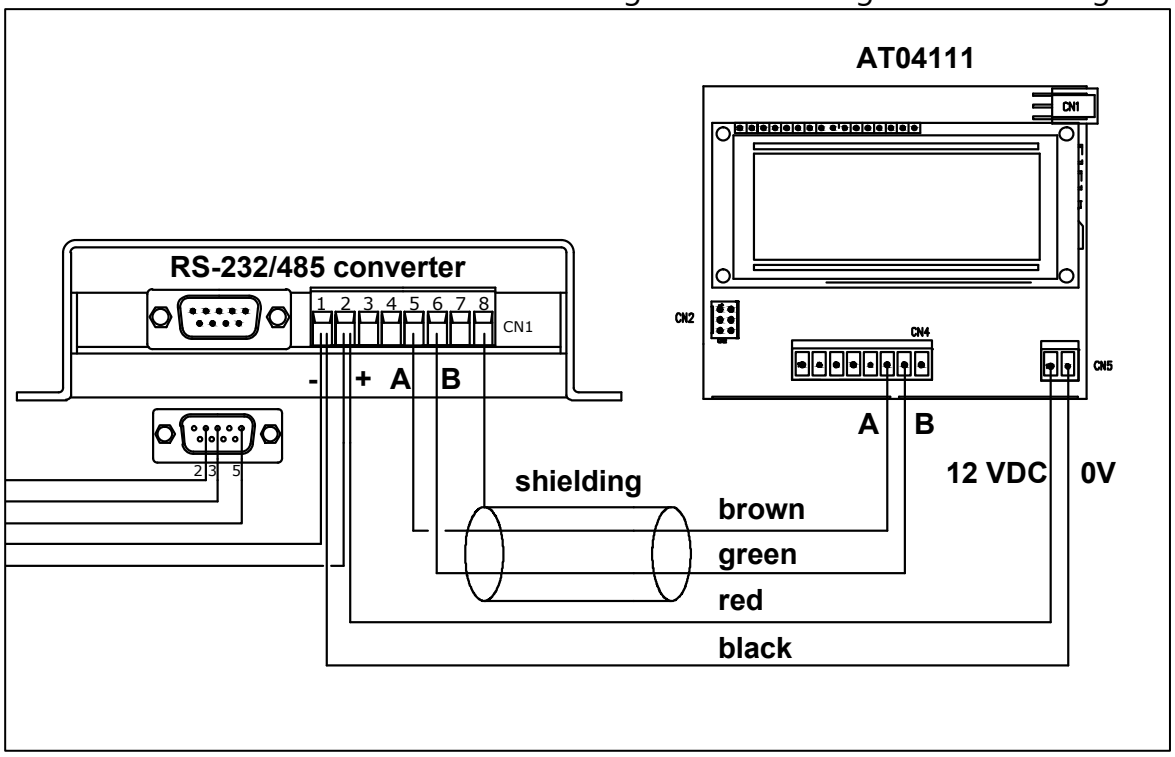


Figure 7: Connection diagram of converter display

⚠ *Unused wires of the connection cable of the display are to be suitably insulated, to prevent short-circuits in the display.*

5.3 Settings on the VI-4 board

The S1 switch is to be set according to the following table so that the VISY-Quick protocol for communication with the VISY-TD Display Ex d is selected on the service interface.

Settings of dip switch Service S1:

Dip switch	S1.1	S1.2
Switch position	OFF	ON

A detailed description is available in the manual of the VISY-Command

📖 Technical documentation VISY-Command, art. no. 207184

6 Maintenance

6.1 Return shipment

Before returning any FAFNIR equipment, the Return Material Authorization (RMA) from FAFNIR customer service is required. Please contact your account manager or the customer service to receive the instructions on how to return goods.

☞ *The return of FAFNIR equipment is possible only with authorization by the FAFNIR customer care.*

7 Technical Data

Display	2-line LCD display with backlighting
Supply voltage	The scope of supply for the converter includes a 12 V DC plug-in power supply
Consumption	3 VA
Communication	RS-485, 2-pole, connection to the VISY-Command via the converter
Ambient temperature	-25°C … +55°C
Protection class	IP 66
Ignition protection class	Ex d II C
Dimensions [mm]:	Height: 105 mm, diameter: 130 mm, without connection

8 List of figures

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FAFNIR GmbH
Schnackenburgallee 149 c
22525 Hamburg, Germany
Tel.: +49 / 40 / 39 82 07-0
Fax: +49 / 40 / 390 63 39
E-mail: info@fafnir.com
Web: www.fafnir.com