Technical Documentation

VISY-X

VISY-Output 8
8-channel relay output module

(en)

Art. No.	Version	Edition
350072	5	2025-01

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1 Introduction

VISY-Output 8 is an 8-channel relay output module, installed in a case with the protection IP66.

It connects the high-precision VISY-X tank gauging system to external safety devices or alarm indicators.

With VISY-Output 8, different alarm conditions detected by the tank gauging system can be transferred to external devices. As VISY-Output 8 has its own housing it can be installed at any position wherever the simplest wiring can be done. To connect to the tank gauging system only a low-cost communication cable has to be laid. Up to eight VISY-Output 8 modules can be operated simultaneously with VISY-Command.

VISY-Output 8 supports the following protocols for communication with the tank gauging system:

- FAFNIR Output Box Protocol (OBP)
- FAFNIR Universal Device Protocol (UDP)

2 Installation

2.1 Safety Instructions

When installing VISY-Output 8 following safety instructions must be observed:

- VISY-Output 8 is intended for operation within the VISY-X system only.

- Modifications to the VISY-Output 8 are prohibited without the prior consent of the manufacturer.

- All installation and maintenance work, with the exception of functional testing, must be carried out with the power disconnected.

- The installation and configuration of the VISY-Output 8 may be carried out only by expert personnel. Specialised knowledge must be obtained by regular training.

- Operators, installers and service technicians must comply with all applicable safety regulations. This also applies to any local safety and accident prevention regulations which are not stated in this guide.

The safety instructions in this guide are marked as follows:

⚠ *Not observing these safety instructions result in the risk of accident or damages to the system.*

☞ *Useful information in this guide you should observe, appear in italics and are identified by this symbol.*

2.2 Prerequisites

To connect the VISY-Output 8 to the VISY-Command, the measurement evaluation must be available in the version VISY-Command VI-4 with connected communication adapter VISY-ICI 485 or in the version VISY-Command Web VPI, see Technical Documentation:

📖 VISY-Command VI-4, art. no. 207184

📖 VISY-Command Web VPI, art. no. 207226

2.3 Mounting

The VISY-Output 8 is designed for wall mounting inside a building.
To install it, the casing cover must be removed.

2.4 Design and construction

The following figure shows the position of the connectors, LEDs and controls on the board of the VISY-Output 8.
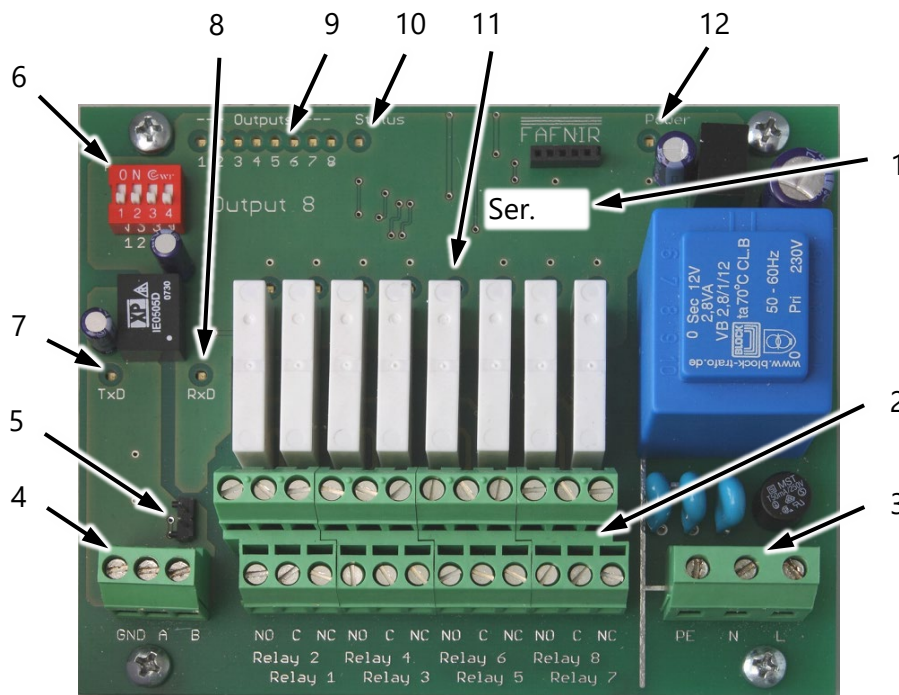

Figure 1: VISY-Output 8 Design

2.4.1 Device information

(1) Sticker of the VISY-Output 8 device number, which uniquely identifies the device. When using the device with the VISY-X tank gauging system, this device number is required for the configuration.

2.4.2 Connections

(2) 24-pin screw terminal for connection to the relay contacts

(3) 3-pin screw terminal for connection to the power supply

(4) 3-pin screw terminal for connection to the measurement evaluation unit

2.4.3 Control elements

(5) 2-pin pin strip for activating a terminating impedance for the RS-485 interface. Generally speaking, communication in the RS-485 network should be interference-free without activating terminating impedances (jumper not inserted) because the data rate is comparatively low.

(6) 4-way DIL switch for selecting the protocol for communication with the respective tank gauging system and, when using the FAFNIR Universal Device protocol, also for selecting the board address.

2.4.4 LEDs

(7) Transmit LED TxD (red)

(8) Receive LED RxD (red)

(9) Output LEDs (red) – one each per output

(10) Status LED (yellow)

(11) Relay LEDs (red) – one each per relay

(12) Operating voltage LED (green)

2.5   Connection of the power supply

The power supply (230 VAC) must be supplied using fixed wiring. The wires for the power supply are connected to the screw terminals marked with PE, N and L.
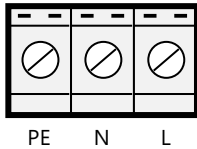
Figure 2: Power supply screw terminal

2.6   Connection of the relay contacts

The VISY-Output 8 has eight output relays, each with a potential-free changeover contact. External safety devices or alarm indicators can be connected to the terminals for the 24-pin screw terminal marked relay 1 to 8 (see figure below). The alarms of the tank gauging system can freely be assigned to the relays. Whether the contact should be used as a normally open contact (NO) or normally closed contact (NC) depends on the respective application and the relay operating mode (see chapter 4.3).

Figure 3: Screw terminal relay contacts

2.7 Connection to the measurement evaluation unit ...

Up to eight VISY-Output 8 can be operated simultaneously with the VISY-X tank gauging system.

To connect VISY-Output 8 to the tank gauging system it is recommended to use a 3-core cable with signal ground (GND connection terminal) to increase the noise immunity.

The communication cable is connected to the measurement evaluation unit using the terminals A, B and GND of the 3-pin screw terminal :
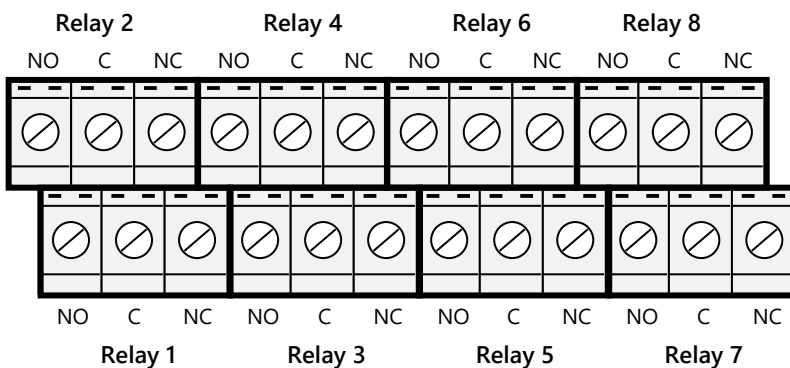

GND   A   B
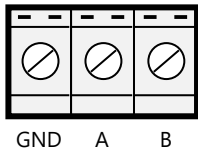
Figure 4: Communication screw terminal

2.7.1 ... VISY-Command VI-4

For the connection to VISY-Command VI-4, the communication adapter VISY-ICI 485 is required which must be installed in the VISY-Command. The communication between VISY-ICI 485 and VISY-Output 8 takes place via a galvanically isolated RS-485 interface.

For further information on the VISY-ICI 485 communication adapter see:

📖   Technical Documentation VISY-ICI 485, art. no. 207150

2.7.2 ... VISY-Command Web VPI

For connection to the VISY-Command Web VPI, a 3-pin connection cable is required to be plugged in the VISY terminal clamps in VISY-Command Web VPI. For further information on connecting to the VISY-Command Web VPI see Technical Documentation:

📖   VISY-Command Web VPI, art no. 207226

3 Configuration

3.1 Configuration of protocol and board address …

Depending on the evaluation unit used, the protocol for communication and the board address must be configured using the 4-way DIL switch.

3.1.1 … when connected to VISY-Command VI-4

The FAFNIR Output Box Protocol (OBP) is used for communication with VISY-Command VI-4. Addressing is done via the individual device number of the VISY-Output 8. All switches must be set to the **OFF** position.

3.1.2 … when connected to VISY-Command Web VPI

The FAFNIR Universal Device Protocol (UDP) is used for communication with VISY-Command Web VPI. Addressing is done via the board address, which can be set using switches in the range 18-32. Each VISY-Output 8 must be assigned its own board address.

Protocol Board address	DIP switch			
	1	2	3	4
OBP -	OFF	OFF	OFF	OFF
UDP 18	OFF	OFF	OFF	ON
UDP 19	OFF	OFF	ON	OFF
UDP 20	OFF	OFF	ON	ON
…				
UDP 32	ON	ON	ON	ON

Table 1: DIL switch for selecting protocol and board address

Changed switch positions only take effect after a new restart.

3.2 Access to configuration …

3.2.1 … when connected to VISY-Command VI-4

VISY-Output 8 is configured using the VISY-Setup configuration software.

⚠ *Wired version of the VISY-X system:*
If VISY-Output 8 is connected to the wired VISY-X system, the "Data protocol for VISY-Stick communication" must be set to "Multi Probe" using VISY-Setup. Due to shorter communication times, "Multi Probe 4800 bps" should preferably be used.

⚠ *Wireless version of the VISY-X System:*
If VISY-Output 8 is connected to the wireless VISY-X system, the "Data protocol for VISY-Stick communication" must be set to "Standard VISY TLG" using VISY-Setup.

Please follow the relevant instructions in the manual of the configuration software:

📖 VISY-Setup V4, art. no. 207158

3.2.2 … when connected to VISY-Command Web VPI

VISY-Output 8 is configured by browser access via the SECON Client Administrator website of the respective SECON-Client using the SECON Configuration GUI.

The connection to the SECON client can be made either with a PC in the local network or with the SECON-Server.

Please follow the relevant instructions in the following manual:

📖 SECON-Client Administrator, art. no. 350340

4 Settings

Changing the configuration adjusts the VISY-Output 8 to the requirements of the relevant application. The following settings are possible:

- Hold time after communication loss
- Output Action After Hold Time
- Relay mode
- Relay Delay

☞ After configuration, it should be checked whether the alarm signalling works as expected.

4.1 Hold time after communication loss

With the hold time it is configured if and when the outputs react after a communication loss. The hold time can be configured from 0 to 240 minutes.

Hold time = 0 (minutes)

The hold time is deactivated.
The outputs keep their current states.

Hold time = 1 – 240 (minutes)

The hold time is set to 1 – 240 minutes.
After the hold time is exceeded, the outputs react as described in the following chapter.

4.2 Output Action After Hold Time

This configuration defines how the outputs react after the hold time is exceeded. After the hold time the outputs can either be activated or deactivated.

☞ *If a hold time of "0" is configured, the outputs do not change their state.*

☞ *The behaviour of the relays depends on the relay-mode configuration.*

4.3   Relay modes

The following relay operating modes are possible:

- Standard mode

In the Standard work mode, a relay is generally de-energised (passive), and will be energised (active) when the corresponding output is activated.

- Fail safe mode

In fail-safe mode, a relay is generally energised (actively) and is de-energised (passively) when the relevant output is activated.

☞   *The fail-safe mode offers the advantage that even in the event of a power fail-ure, an alarm can be signalled from VISY-Output 8 via the relay that becomes passive.*

The following table shows the relay state depending on the configured relay mode and the state of the relevant output.

Relay mode	Output	Relay state
Standard	deactivated	de-energised (passive)
Standard	activated	energised (active)
Fail safe	deactivated	energised (active)
Fail safe	activated	de-energised (passive)

Table 2: Relay mode

4.4   Relay Delay

If the relay delay is activated, the relay status (passive/active) changes as soon as the event for activating the output is pending for at least 1 minute. The relay delay occurs only upon activation of an output. If the output is deactivated, the relay status changes without delay.

☞   *If an output is activated and the relay delay is on, the corresponding output LED blinks slowly to show the delayed reaction of the relay.*

5   Fault diagnosis

VISY-Output 8 has several LEDs to make diagnosis easier when there are problems. The position of the LEDs can be seen in Figure 1.

5.1   Transmit LED TxD (7) / Receive LED RxD (8)

The two red communication LEDs indicate, whether data are received or transmitted from VISY-Output 8.

☞   *In normal conditions, the communication LEDs should blink at regular intervals.*

5.2   Output LEDs (9)

The 8 red LEDs for the outputs show whether an output has been activated or deactivated. In addition, these LEDs indicate relay switch-on delays. The following table lists the possible states for the output LEDs and explains their meaning.

Output LED	Meaning
ON	Output activated
OFF	Output deactivated
Blinking slowly	relay delay

Table 3: Output LEDs

5.3   Status LED (10)

The yellow status LED gives information on the status of communication between the VI-... interface card in the VISY-Command and the VISY-Output 8.

The following table lists the possible states of the status LED and explains their meaning.

Status LED	Fault	Meaning
ON	No error	Correct data is being received regularly.
Continuous flash	No communication	No correct data received since the last switch-on.
1 short flashes	Communication interruption	No correct data received for longer than 1 minute
2 short flashes	Hold time exceeded	No correct data received for longer than the configured hold time.

Table 4: Status LED

☞ *Under normal conditions, the status LED should be on constantly.*

5.4   Relay LEDs (11)

The 8 red LEDs for the relays indicate whether a relay has been energised or deenergised.

☞ *In the relay mode "standard", the output LEDs and the relay LEDs display the same status. In the relay mode "fail-safe", the output LEDs and the relay LEDs display opposing statuses.*

5.5   Operating voltage LED (12)

The green operating voltage LED shows whether the VISY-Output 8 is being supplied with power. After the auxiliary energy is turned on, the operating voltage LED glows continuously. An LED that flickers or goes out indicates a problem with the auxiliary energy or the electrical adaptor.

6   Servicing

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 products is only possible after approval by the FAFNIR customer service.*

7　Technical Data

Dimensions:	H 60 x W 180 x D 130 [mm] (excluding cable glands)
Casing protection:	IP66
Ambient temperature:	0 °C ... +40 °C
Power supply:	230 VAC ±10 %, 50 - 60 Hz, ≤ 4 VA
Communication:	1 x RS-485, galvanically isolated, 3-pin screw terminal with ground connection (GND) for connection to the measuring system
Outputs:	8 relays each with a potential-free changeover contact
Load capacity of contacts:	AC: U ≤ 250 VAC, I ≤ 3 A, P ≤ 300 VA, cos φ ≥ 0.7 DC: U ≤ 24 VDC, I ≤ 2 A, P ≤ 50 VA

Table 5: Technical Data

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CE

EU–Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

FAFNIR GmbH
Bahrenfelder Straße 19
22765 Hamburg / Germany

erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
declares as manufacturer under sole responsibility that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit

Ausgangsmodul
Output Module
Module de sortie

VISY-Output ...

den Vorschriften der europäischen Richtlinien
complies with the regulations of the European directives
est conforme aux réglementations des directives européennes suivantes

2011/65/EU	Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten	RoHS
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment	RoHS
2011/65/UE	Limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques	RoHS
2014/30/EU	Elektromagnetische Verträglichkeit	EMV
2014/30/EU	Electromagnetic compatibility	EMC
2014/30/UE	Compatibilité électromagnétique	CEM
2014/35/EU	Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt	NSRL
2014/35/EU	Making available on the market of electrical equipment designed for use within certain voltage limits	LVD
2014/35/UE	Mise à disposition sur le marché du matériel électrique destiné à être employé dans certaines limites de tension	DBT

durch die Anwendung folgender harmonisierter Normen entspricht
by applying the harmonised standards
par l'application des normes

RoHS / RoHS / RoHS	EN 50581:2012
EMV / EMC / CEM	EN 61326-1:2013
NSRL / LVD / DBT	EN 61010-1:2010

Das Produkt ist bestimmt als Elektro- und Elektronikgerät der RoHS-
The product is determined as electrical and electronic equipment of RoHS
Le produit est déterminés comme des équipements électriques et électroniques de RoHS

Kategorie / Category / Catégorie

Überwachungs- und Kontrollinstrumenten in der Industrie /
Industrial Monitoring and Control Instruments /
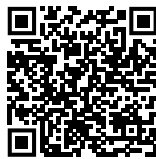**Instruments de contrôle et de surveillance industriels**

Das Produkt entspricht den EMV-Anforderungen
The product complies with the EMC requirements
Le produit est conforme aux exigences CEM

Störaussendung / Emission / Émission
Störfestigkeit / Immunity / D'immunité

Klasse B / Class B / Classe B
Industrielle elektromagnetische Umgebung /
Industrial electromagnetic environment /
Environnement électromagnétique industriel

Hamburg, 20.04.2016
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