1 FVB120-PAT

Field module for switching and monitoring 2 compressors

1.1 Front view

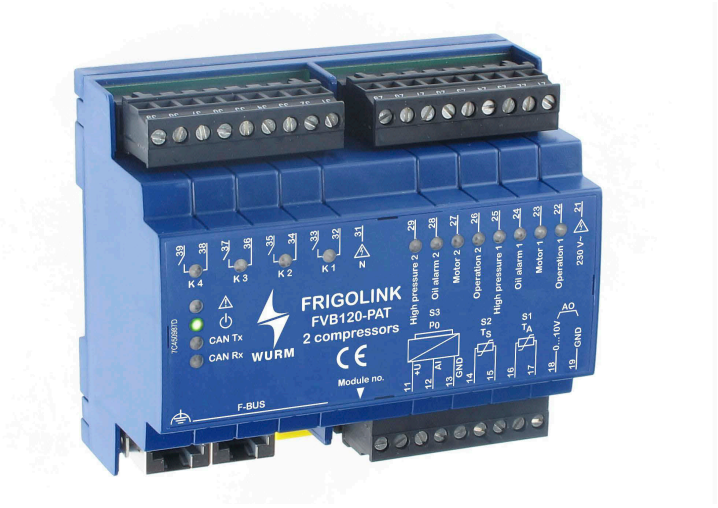

Fig. 1: Front view

1.2 Features

- 4 relay switching outputs 230V~ for 2 compressors
- 230V~ inputs for operation feedback messages and detailed fault chain monitoring
- Control of a screw compressor by ASV001 and HVI-G3/G4
- Control of a reciprocating compressor by ASV101 and HVB-G3/G4, HVI-G3/G4, HVV-G3/G4
- Emergency program in case of CAN bus errors
- No parameters to be set on the device
- Connection to master module via Wurm CAN field bus (F-BUS)

1.3 Safety instructions

Writing conventions

CAUTION

- Avoid the described hazard: Otherwise **minor** or **medium** bodily injury or property damage will result.

WARNING

- Avoid the described hazard: otherwise, **electric voltage** represents a danger that could lead to fatal or **serious** bodily injury.

For your safety

For safe operation and to avoid personal injury and equipment damage through operator error, always read these instructions, become familiar with the device, and follow all safety instructions on the product and in this document, as well as the safety guidelines of Wurm GmbH & Co. KG Elektronische Systeme. Keep these instructions ready to hand for quick reference and pass them on with the device if the product is sold.

Wurm GmbH & Co. KG Elektronische Systeme accepts no liability in the case of improper use or use for purposes other than the intended purpose.

Target group	This manual is intended for “service technician” personnel.
Intended use	The **FVB120-PAT** is a field module for switching and monitoring 2 compressors.

WARNING

DANGER TO LIFE FROM ELECTRIC SHOCK AND/OR FIRE!

- Switch off the power to the entire plant when carrying out installation, wiring or disassembly work! Otherwise, mains voltage and/or external voltage may still be present, even if the control voltage is switched off!
- The wiring of the device must be carried out only by qualified electricians!
- Use the correct tools for any work!
- Check the entire wiring after connection!
- Observe the maximum loads for all connections!
- Never expose the device to moisture, for example due to condensation or cleaning agents!
- Stop operating the device if it is faulty or damaged and its safe operation is compromised!
- Do not open the device.
- Do not repair the device yourself! If the device requires repairs, send it in with an exact description of the fault!

CAUTION

ELECTROMAGNETIC INTERFERENCE MAY CAUSE FAULTS!

- Always use shielded data cables and place them far away from power lines.

Wurm Infocenter

paperless info

Version and validity of the documentation

Version	Date	
V3.30 and higher	2024-03	Documentation status

Any versions not listed are special solutions for individual projects and are not described in detail in this document.
This document will automatically cease to be valid if a new technical description is issued.
Manufacturer: Wurm GmbH & Co. KG Elektronische Systeme, Morsbachtalstraße 30, D-42857 Remscheid
You can find more information on our website at www.wurm.de.

1.4 Connection diagram

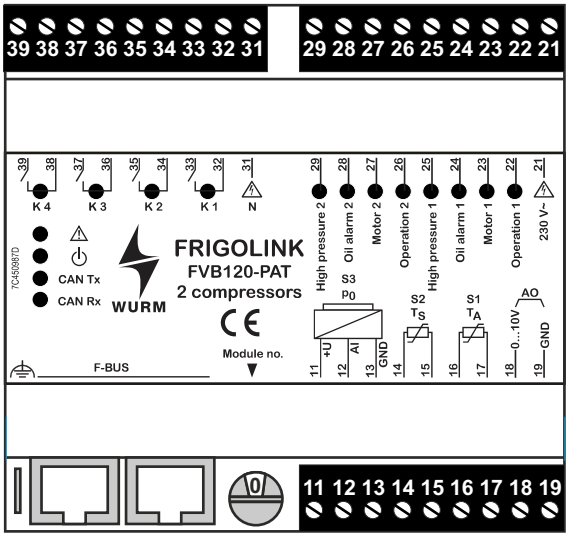

Fig. 2: Connection diagram

- The CAN bus shield must be connected at only one (!) CAN bus end by means of the 6.3mm connecting lug with PE.
- Further information on the CAN bus can be found in the FRIGOLINK bus system manual.

NOTICE

1.5 Installing the device

This device is designed for top-hat rail installation. The housing has standard DIN 43880 dimensions and is suitable for operation in fuse boxes, distribution cabinets, or the load sections of refrigeration units.

The device can be positioned immediately adjacent to another device without gaps.

DANGER TO LIFE FROM ELECTRIC SHOCK AND/OR FIRE!

- Switch off the power to the entire plant before installing. Otherwise, mains voltage and/or external voltage may still be present, even if the control voltage is switched off.

WARNING

✓ The entire plant must be free of voltage.

1. **(A)** Place the device with the leading edge at an acute angle to the top-hat rail.
2. **(B)** Push the device downwards onto the top-hat rail.
   ▶ The device snaps into place with the fastening safety catch **(a)** on the top-hat rail.
   ▶ You can now connect the device.

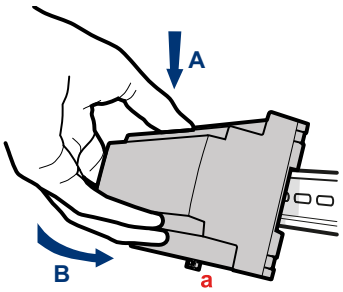

Fig. 3: Top-hat rail installation

Fault inputs that are not used

In order to obtain correct fault information, fault inputs that are not used must be jumpered with the fault signal that is connected upstream within the alarm routing. The input "Operation 1/2" (terminal 22/26) is used for measuring the operating hours. If no corresponding signal is available from the machine protection, then it is advisable to jumper the output relay.

Monitoring function / emergency program

In the event of an F-BUS fault, the field module enters an emergency program corresponding to the operating mode. If a problem with the cover identification arises at the same time, then all of the output relays are switched off and the analogue output "AO" is set to 0V.

Module addressing

Make sure that each of the 8 field modules per master module (HVI-G3/G4: 12) has a different module address. Permissible addresses are the values 0…7 (HVI-G3/G4: 0…B). No other settings are permitted. The address of the module FIO001B / FIO-PAT and the addresses of the field modules FVBxxxB / FVBxxx-PAT must not overlap. In the event of an address conflict, an entry is made in the fault list of the master module and the LED "⚠" (fault) on the field modules flashes.

1.6 Technical data

Power supply	230V~, +10% / -15%, 7VA approx.
Display	1 x red LED, flashes in case of fault 1 x green LED, operating voltage 2 x green LED, CAN bus data traffic (CAN Tx, CAN Rx) 8 x yellow LED, for signal at the input 4 x green LED, for controlling the relays
Communication	2 x RJ45 sockets for the CAN bus connection with integrated power supply, galvanically isolated
Temperature sensor	1 x TRK277/7 PLUS, S 1 for cold zone temperature 1 x TRK277/7 PLUS, S 2 for suction gas temperature
Digital inputs	8 x 230V~, galvanically isolated by optocoupler
Analogue input	4...20mA, output voltage 18V=, 22mA max., suction pressure
Output relay	4 x normally open contact, 230V~, 4(2)A
Analogue output	1 x 0...10V=, non-floating, max. load 10mA
Connection cross-section	2.5mm^2
Dimensions	(W x H x D) 106 x 90 x 58mm (DIN 43880)
Fastening	Top-hat rail TH 35-15 or TH 35-7.5 (DIN EN 60715)
Ambient temperature	Operation: 0...+55°C, storage: -25…+70°C
Weight	About 450g
CE conformity	- 2014/30/EU (EMC Directive) - 2014/35/EU (Low Voltage Directive) CE
	RoHS II