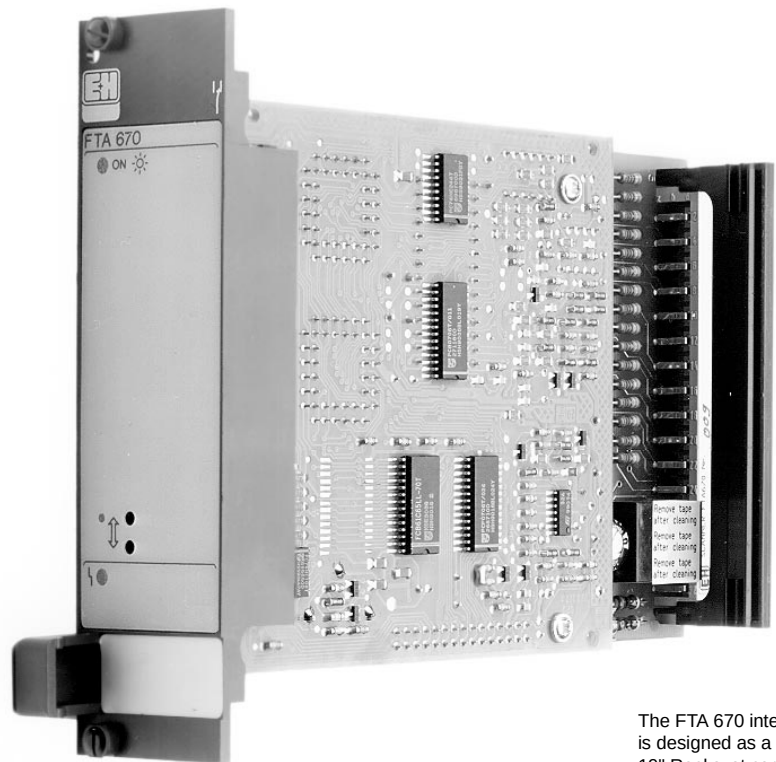


Field Communication

FTA 670 digital interface

16-channel Rackbus interface for 24 V binary logic devices



The FTA 670 interface is designed as a 7 HP, 19" Racksyst card.

Application

The FTA 670 digital interface allows up to 16 binary 24 V logic devices to be linked up to the Rackbus in an industrial environment, e. g., Endress+Hauser and foreign devices with:

- PNP-output
- NPN-output
- relay output.

The FTA 670 interface is designed as a 19" Racksyst card without operating elements. It is configured either on-site with a Commulog VU 260 Z handheld terminal or remotely via a ZA 67... gateway by personal computer, programmable logic controller or process control system.

Features and Benefits

- Integrates existing 24 V logic equipment into digital control systems
- Accepts foreign and Endress+Hauser transmitters without Rackbus connection.
- Valve or limit switch status available to controlling system.
- 16 electrically isolated input channels.
- Green LED on front panel indicates operational readiness.
- Alarm relay for fault condition.
- Configuration by operating matrix

Endress + Hauser

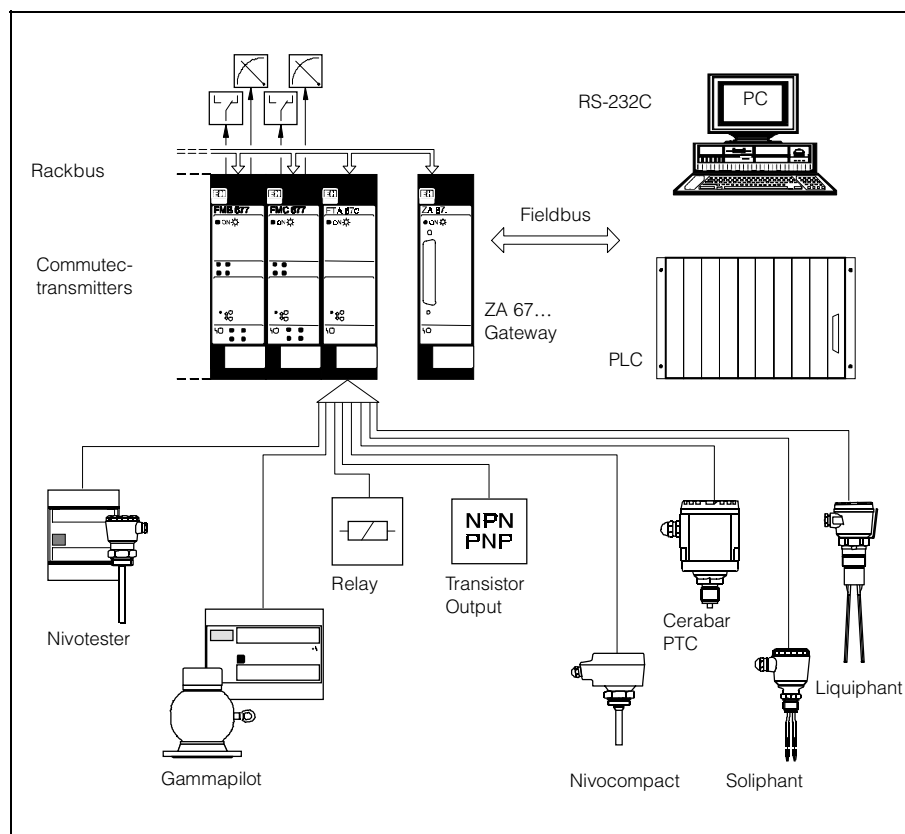
Nothing beats know-how



Measuring System

A complete measuring system comprises, e. g.,

- up to 16x 24 V binary logic devices
- FTA 670 interface
- ZA 67 ... gateway
- Personal computer, PLC or PC system

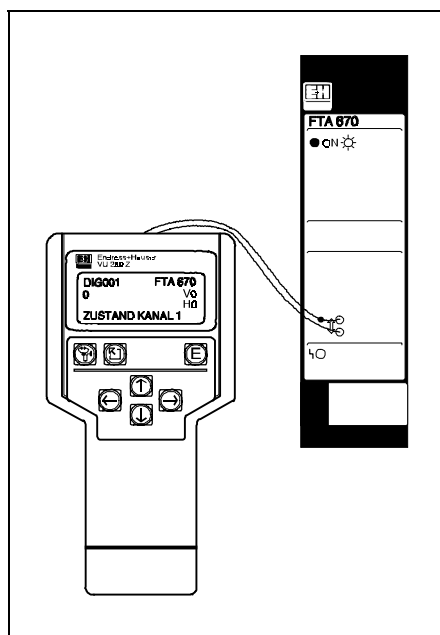


Measuring System

A complete measuring system comprises:

- up to 16x 24 V binary logic devices
- FTA 670 interface
- ZA 67... Gateway as interface to personal computer, PLC or PC system

The FTA 670 can also be operated as a stand-alone unit, whereby the logical status of the connected devices is read on-site by a Commulog handheld terminal.



When plugged into the communication sockets, the Commulog VU 260 Z can be used to interrogate and configure the FTA 670. ZA 67... operation is disabled during this time.

24 V Binary Logic Devices

Any 24 V logic device with PNP-, NPN- or relay output can be connected to the FTA 670 interface. For Endress+Hauser instrumentation these include:

- Compact level switches such as Nivocompact FTC/FTW, Soliphant FTM and Liquiphant FTL
- Cerabar PTC process pressure switches
- Minipac transmitters such as Nivotester FTC/FTW/FTR, Gammapiplot FTG and others.
- Flow, analysis and temperature measuring equipment with relay output. (Not suitable for bulk flow meters with pulse counters.)

ZA 67... Gateway

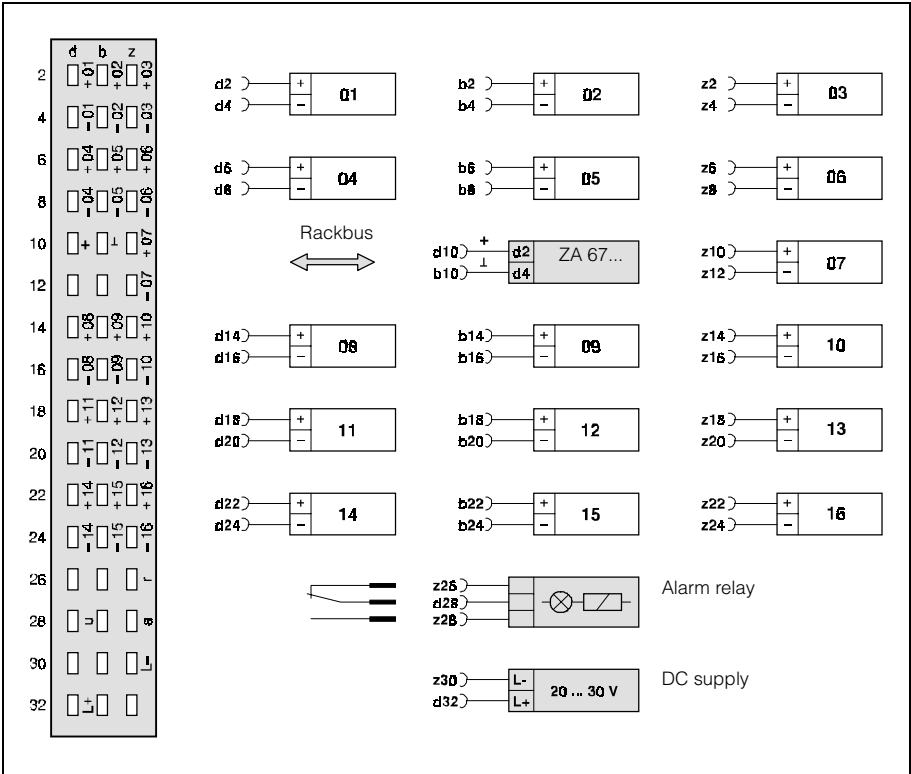
The ZA 67... Gateway interfaces the Rackbus system to the digital control system. The following types are available or in preparation:

- ZA 672 Modbus Gateway with ZA 370 RS-232C/RS-422 adapter or ZA 371 20 mA current loop adapter.
- ZA 673 Profibus Gateway
- ZA 74 FIP-Bus Gateway

Further Gateways are planned.

Installation

Pin assignment diagram for FTA 670 interface



Electrical Connection

The diagram above shows the electrical connections to be made for the FTA interface.

- Suggestions for wiring PNP-, NPN- and relay circuits are shown below.
- All input channels are electrically isolated.

Hardware Configuration

Before the FTA 670 interface card is inserted in the rack its Rackbus address must be set at the address DIP-switch (see diagram on next page):

- Each switch is assigned a value as follows:

Switch	1	2	3	4	5	6
Value off	0	0	0	0	0	0
Value on	1	2	4	8	16	32

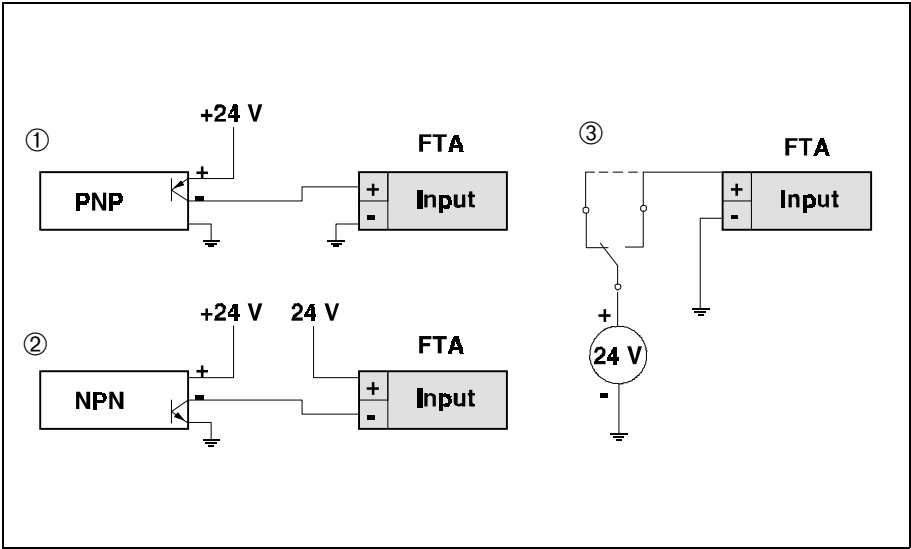
- E.g., Switches 2 and 4 on = Rackbus address 10.

The Rackbus address chosen must be unoccupied.

System Connection

Details on connecting up the measuring system can be taken from the ZA 67... operating manual, e. g. BA 054 for ZA 672 Modbus gateway, or Technical Information sheet. In general the electromagnetic compatibility of the device is good. For hints on installation in the vicinity of heavy interference see TI 241F/00/e.

Suggestions for wiring
① PNP-circuits
② NPN-circuits
③ relay and switching circuits



Configuration

The FTA 670 interface is configured and interrogated by means of an operating matrix. Each parameter is allocated a field in the matrix and can be called up selecting the appropriate vertical and horizontal parameter. The matrix can be accessed by:

- the Commulog handheld terminal or
- a personal computer, PLC or control system communicating via a ZA 67... gateway.

If a personal computer is used, the Commutec Operating Program, see »Supplementary Documentation«, provides easy access to all matrix positions.

Details of Commulog VU 260 Z and Commutec Program operation can be taken from the operating instructions supplied with these products.

	H0	H1	H2	H3	H4	H5	H6	H7	H8	H9
V0	Status Channel 1	Status Channel 2	Status Channel 3	Status Channel 4	Status Channel 5	Status Channel 6	Status Channel 7	Status Channel 8	Status Channel 1...8	Status Channel 9...16
V1	Set Channel 1 0:pos, 1:neg	Set Channel 2 0:pos, 1:neg	Set Channel 3 0:pos, 1:neg	Set Channel 4 0:pos, 1:neg	Set Channel 5 0:pos, 1:neg	Set Channel 6 0:pos, 1:neg	Set Channel 7 0:pos, 1:neg	Set Channel 8 0:pos, 1:neg		
V2	Status Channel 9	Status Chan. 10	Status Chan. 11	Status Chan. 12	Status Chan. 13	Status Chan. 14	Status Chan. 15	Status Chan. 16		
V3	Set Chan. 9 0:pos, 1:neg	Set Chan. 10 0:pos, 1:neg	Set Chan. 11 0:pos, 1:neg	Set Chan. 12 0:pos, 1:neg	Set Chan. 13 0:pos, 1:neg	Set Chan. 14 0:pos, 1:neg	Set Chan. 15 0:pos, 1:neg	Set Chan. 16 0:pos, 1:neg		
V4										
V5										
V6										
V7										
V8										Parameter lock
V9	Diagnostics	Last Diag. code		Software No.	Rackbus address	Reset				
VA	Tag. No.									

Significance of operating matrix for FTA 670

- ☒ Display field
- ☐ Input field

Configuration

Before it can operate correctly, the FTA 670 must be told the kind of logic to be expected at each channel. Four modes are possible:

- 0 = positive logic (default)
–30...+5 V for »0« signal
+13...+30 V for »1« signal
- 1 = negative logic
–30...+5 V for »1« signal
+13...+30 V for »0« signal
- 2 = simulation »0« signal
- 3 = simulation »1« signal.

The parameters are entered at positions V1H0...V1H7 for channels 1...8 and V3H0...V3H7 for channels 9...16.

Tag No.

The Tag. No. of the measuring point can be entered at position VAH1. The Tag. No. appears in Commulog display and Commutec Operating Program.

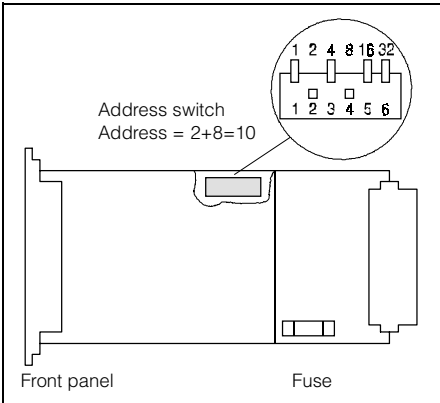
Parameter Lock

The parameter matrix can be protected from unauthorized access by entering a number < 670 or > 679 at V8H9. The lock is disabled by entering a number between 670 and 679 inclusive.

Reset

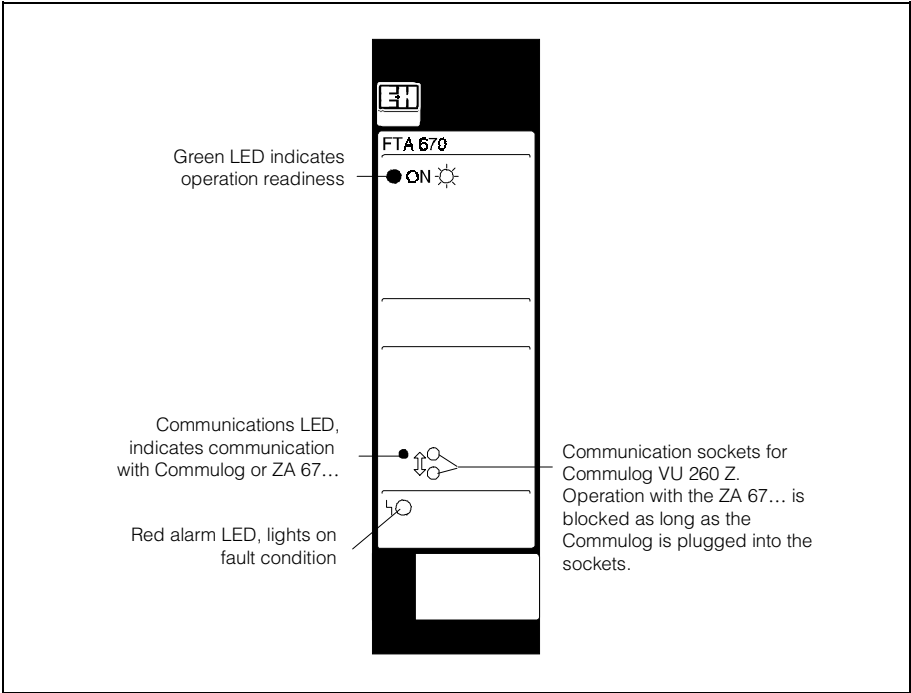
The FTA 670 interface can be reset by entering a number between 670 and 679 at V9H5. On reset, the default values are set at all channels.

A unique address must be set at the address DIP-switch, see »Installation«



Operation

Front panel of FTA 670 interface



Commulog VU 260 Z

Plug the Commulog into the communication sockets and switch on. The required matrix field can be selected by pressing the cursor keys:

- Fields V0H0...V0H7 contain the status of digital inputs on channels 1...8
- Fields V2H0...V2H7 the status of channels 9...16.

Fault Condition

On fault condition the alarm relay de-energises and the red alarm LED lights. An error code can be read at V9H0. V9H1 contains the previous error code.

Error Messages

The Table below lists error messages and their significance.

ZA 67... Gateway

The status of each channel can be read at the gateway by entering the FTA 670 Rackbus address as well as the vertical and horizontal matrix position of the desired value in the autoscan buffer list. The measured value at the selected field can then be read by transmitting its list position.

- Fields V0H0...V0H7 contain the status of digital inputs on channels 1...8
- Fields V2H0...V2H7 the status of channels 9...16.

Fields V0H8 contains a test sum, which when converted to 8-bit binary notation, reveals the status of channels 1...8 in one command. For example:

- Test sum = 187
Binary equivalent = 1011 1011

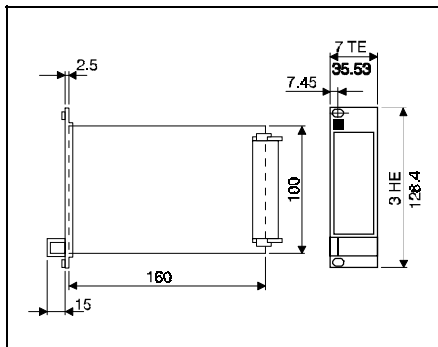
Channel	1	2	3	4	5	6	7	8
Status	1	0	1	1	1	0	1	1

- Field V0H9 contains the same information for channels 9...16.

Code	Significance
E 101 - 106	Hardware fault Contact Endress+Hauser
E 107	Battery voltage too low Replace battery (call Service)

Technical Data

Dimensions of FTA 670 interface card



Mounting

The FTA 670 digital interface is a Racksyst plug-in card which must be installed outside explosion hazardous areas in a rack or protective housing, for example:

- 19" rack for mounting up to 12 x 7 HP modules in the control room,
- Half 19" wide field housing with Protection IP 65,

Power Supply

- DC supply voltage: 24 V (–4 V...+6 V)
Residual ripple: max 1 V within tolerance
- Current: approx. 90 mA, max. 120 mA, integrated fine-wire fuse
- Power consumption: 2.5 VA
- Status: green LED lights when on.

Construction

Plug-in card to DIN 41 494 (Eurocard).

- Frontpanel: black synthetic with blue field inlay, grip and tag space
- Degree of Protection to DIN 40 050: panel IP 20; board IP 00
- Electromagnetic compatibility
Interference emission to EN 50 081-2
Interference immunity to EN 50 082-1 and EN 61 326 (E 1995)
- Dimensions: see diagram
- Weight: approx. 0.2 kg
- Permissible ambient temperature:
Operation: 0 °C...+70 °C
Storage: –20 °C...+85 °C

Electrical Connection

Multipoint plug to DIN 41 612, Part 3, Type F (48-pole)

Digital Inputs

- 16 electrically isolated channels
- 24 VDC logic, selectable positive or negative
- –30...+5 V for »0« signal
+13...+30 V for »1« signal
or vica versa
- Input current per channel ca. 7 mA.

Alarm Relay

- Max. switching capacity 2.5 A,
250 VAC, 300 VA at $\cos \phi \geq 0.7$ or
100 VDC, 90 W

How to Order

FTA 670 digital interface

Order No. 208807-0000

Supplementary Documentation

- ☐ Rackbus
System Information SI 014/00/e
- ☐ ZA 672 Modbus Gateway
Technical Information TI 148/00/e
- ☐ Commulog VU 260 Z
Technical Information TI 140/00/e

- ☐ Commute Operating Program
Technical Information TI 113/00/e
- ☐ Commulog VU 260 Z
Operating Instructions BA028/00/e
- ☐ ZA 672 Modbus Gateway
Operating Instructions BA054/00/e
- ☐ EMC Test Procedures
Technical Information TI 241F/00/e

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Nothing beats know-how

