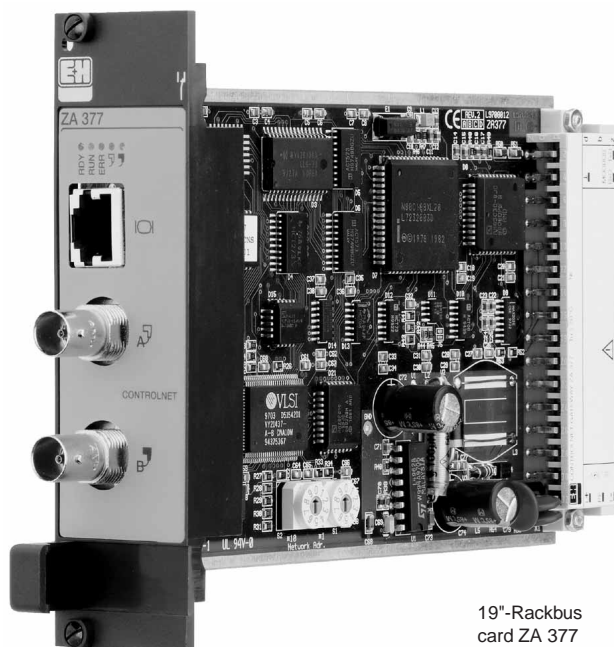# Field Communication
Gateway for CONTROLNET
(ZA 377 + ZA 672)

Connects intelligent Rackbus devices to CONTROLNET networks

19"-Rackbus
card ZA 377

Application

The CONTROLNET gateway (ZA 377 and ZA 672), connects intelligent measuring points to programmable logic controllers, personal computers and process control systems which are operating within CONTROLNET networks.

The ZA 377 has been realised as a "Communications Adapter" in accordance with the specification of ControlNet International .

Features and Benefits

- CONTROLNET standard gateway corresponds to the specification of ControlNet International

- Transmission of up to 320 measured values, e.g. level, pressure, temperature, flow and analysis measurements

- Auto-scan buffer provides fast cyclic access to process data

- Process data channel allows acyclic access to transmitter operating parameters, e.g. for configuration

- Data format Values can be transmitted in various formats, e.g. Endress+Hauser and IEEE.

Endress+Hauser

Nothing beats know-how

Measuring System

PC with operating and display program Commuwin II

CONTROLNET master

Channel A

Channel B

RS 232C

Rackbus

Commutec transmitters on Rackbus

CONTROLNET

ZA 672/ZA 377

4 ... 20 mA

Smart

Rackbus RS 485

next device

Measuring system comprising the Commutec transmitters, CONTROLNET gateway (ZA 377 + ZA 672), PC with operating program and CONTROLNET master
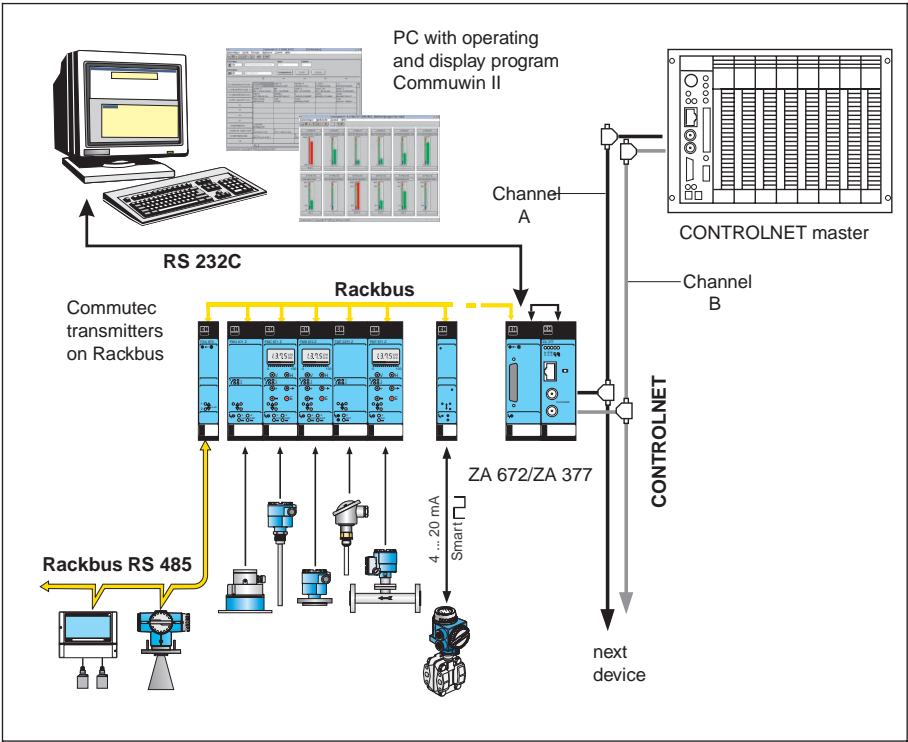
Commutec Transmitters

Commutec transmitters are intelligent 19"-rack modules which can be connected together on the Rackbus. They provide intrinsically safe power to the sensors and condition the signals returned. Transmitters are available for level, pressure, flow and temperature measurement as well as water analysis.

Rackbus

Up to 320 measured values from max. 64 commutec transmitters can be transmitted over the Rackbus to the ZA 377 and CONTROLNET master. For RSNetworx Software Version 1.2, only 75 measured values can be transmitted.

Each transmitter has a unique address, which allows it to be interrogated by the master or a personal computer.

Module ZA 672

The ZA 672 is the interface between the Rackbus and the ZA 377. It scans the transmitter measured values cyclically according to a freely configurable scan list and stores them in an auto-scan buffer.

It is also equipped with an RS-232C interface, which allows the configuration of the transmitters via a PC with the operating programm or Commuwin II.

Module ZA 377

The ZA 377 is the interface between the ZA 672 and the CONTROLNET master. It automatically scans the measured values in the ZA 672 auto-scan buffer and stores them in an I/O buffer which can be accessed as an object by the CONTROLNET master. Individual parameters can also be read or written.
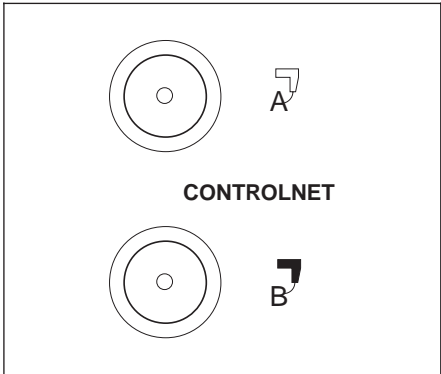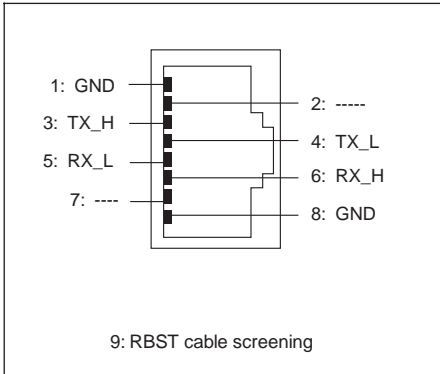
Electrical Connection

CONTROLNET Network

The two front panel BNC connectors and an 8-pole RJ-45 socket are used.
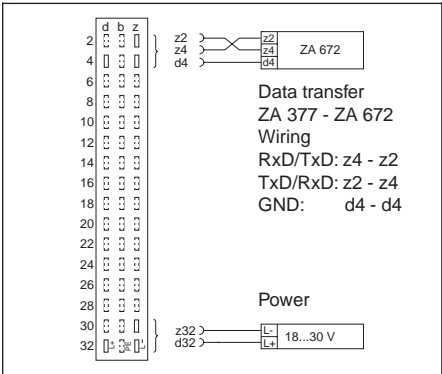
ZA 672

The multipoint connector at the rear of the gateway is used.

CONTROLNET

CONTROLNET channel A and B
BNC sockets

1: GND

2: -----

3: TX_H

4: TX_L

5: RX_L

6: RX_H

7: ----

8: GND

9: RBST cable screening

Network Access Point (NAP):
RJ-45 socket

Data transfer
ZA 377 - ZA 672
Wiring
RxD/TxD: z4 - z2
TxD/RxD: z2 - z4
GND: d4 - d4

Power

18...30 V

ZA 377 male connector

Technical Data

Application		
	General information	Gateway for connecting Rackbus devices (including intrinsically safe ones) to CONTROLNET networks, corresponds to ControlNet specification
	Instrument designation	CONTROLNET gateway (comprising ZA 377 and ZA 672 modules)

Function and system design		
	Measuring system	Depending upon the number of measured values transmitted per measuring point, the measuring system comprises up to 64 Commutec transmitters on the Rackbus, an CONTROLNET gateway (ZA 672 and ZA 377) as well as a personal computer or PLC
	Bus cable CONTROLNET	Obtainable from Rockwell Automation

Input/Output		
	Job channel (scheduled service)	5 data words for read/write jobs
	Data format (unscheduled service)	1 data word for setting of the data format (measured value channel)
	Measured value channel (75 values with scheduled service 245 values with unscheduled service)	RSNetworx Software Version 1.6 onwards: up to 320 measured values with status data from the ZA 672 auto-scan buffer RSNetworx Software Version 1.2: up to 75 measured values with status data from the ZA 672 auto-scan buffer
	Signal on alarm	Depending upon error, setting of an error bit in the input status word of the measured value channel ERR LED lights

Operating conditions	Environment	
	Ambient temperature	0 °C…+60 °C
	Limiting temperature range	0 °C…+70 °C
	Storage temperature	–20 °C…+80 °C
	Ingress protection	to DIN 40 050 front panel IP 20, plug-in card IP 00
	Electromagnetic compatibility	Interference emission to EN 50 081-2 Interference immunity to EN 50 082-2 and industrial standard NAMUR with 10 V/m for assembly rack guide rail with ground clip

Mechanical construction		
	Design	19" Racksyst plug-in card, Type II, Europa card
	Front panel	Black plastic with blue field inlay, with grip and tagging field
	Connector at rear	Male multipoint connector to DIN 41 612 Part 3, Type F (25 pin) Plug-in point installation kit 25/2
	Connector at front panel	2x BNC Sockets for redundant data transfer (channel A und B) 1x RJ-45 socket as Network Access Point giving direct access to network for programming purposes.
	Dimensions	7 HP, 3 HU
	Weight	approx. 0.3 kg

User interface	Display	LED display: operation and communication readiness of gateway as well as status display
	Communication interface (ZA 377)	Input side: TTL fixed potential with Modbus protocol Data transmission rate: 9,600 Bit/s Output side: CONTROLNET channel A, potential-free CONTROLNET channel B, potential-free RS-422 Network Access Point, potential-carrying (RJ-45 socket) Data transmission rate: 5 MBit/s

Power	Supply voltage	18...30 V
	Current consumption	2.8 W

Certificates and approvals	CE mark	By attaching the CE Mark, the manufacturer confirms that the instrument fulfils all legal requirements of the relevant EU directives

External standards and guidelines	CONTROLNET	Specification of ControlNet International Version 1.03 May 1997/ControlNet 1.5

Product Structure

CONTROLNET gateway (ZA 377 + ZA 672)	Part No. 017508-0000

Supplementary Documentation

- ❏ CONTROLNET Overview
  Allen-Bradley publication 1786-2.9

- ❏ CONTROLNET gateway
  Operating Instructions BA 181F/00/en

- ❏ Gateway ZA 672
  Operating Instructions BA 054F/00/en

- ❏ Gateway ZA 672
  Technical Information TI 148F/00/en

- ❏ Commutec operating program
  Technical Information TI 113/00/en

Endress+Hauser

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