System Components
monorack II

System housing with power pack for individual or group mounting of 4 HP or 7 HP Racksyst plug-in cards

Row mounted Monorack
housings
4 HP and 7 HP versions
7 HP version with 4 HP
card and 3 HP blank panel

Application

Monorack is a robust, wall-mounted system housing designed to accommodate individual Racksyst or other 19" plug-in cards. It is designed such that several housings can be easily and economically mounted in rows, whereby the power supply of the instruments contained can be interconnected by simple plug-in contacts.

Monorack II conforms to the latest electrical safety standards and can be used with cards which drive sensors operating in explosion hazardous areas.
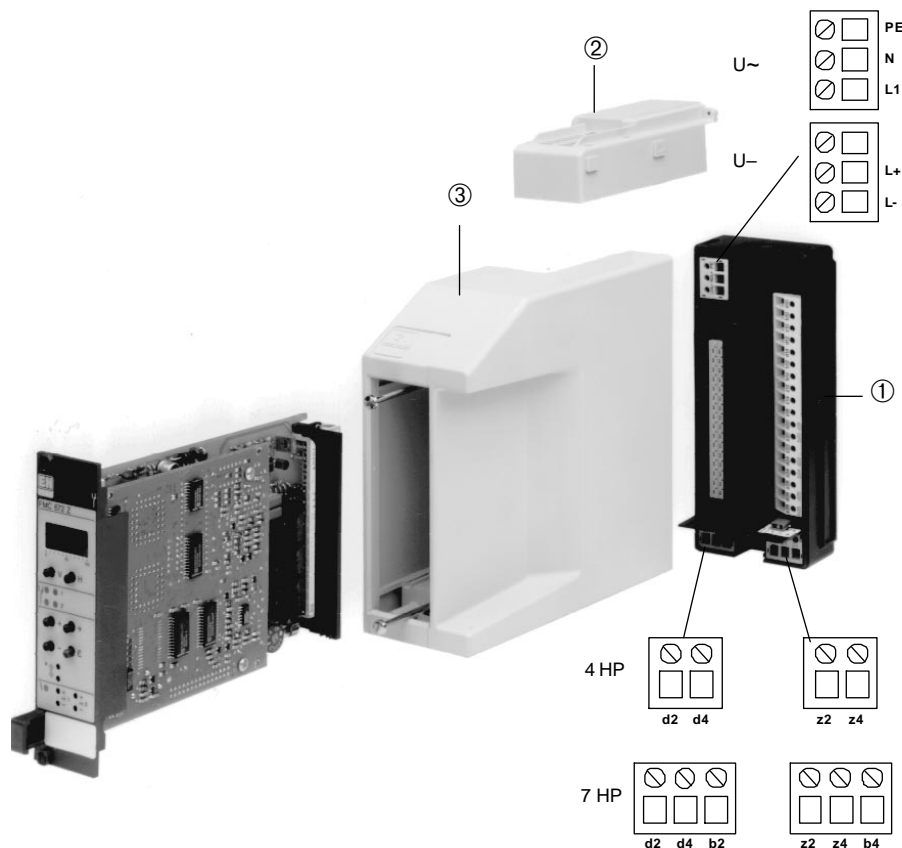
Features and Benefits

- Accommodates both 4 HP and 7 HP, 19" plug-in cards
- Degree of protection IP 40 when mounted on a flat wall
- Conforms to VDE 0110/0160 electrical safety regulations
- Integrated, short-circuit proof power pack
- Certified for use with instrinsically safe instruments.

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Design

PE
N
L1
U~

U−
L+
L−

4 HP
d2 d4
z2 z4

7 HP
d2 d4 b2
z2 z4 b4

Exploded view of Monorack housing

Monorack Housing

The Monorack housing comprises:

① base with terminals for
- input signals
- output signals
- power connection and
- female connector for Europa cards.
② power pack
③ housing with grip to aid card withdrawal when row-mounted

Versions

Monorack is produced in two versions:

- for 4 HP (horizontal pitch units) plug-in cards and
- for 7 HP plug-in cards.

The two housings differ in width and in the number of signal input terminals:

- for 4 HP cards, 4 signal terminals
- for 7 HP cards, 6 signal terminals

If 6 signal terminals are required for a 4 HP card, e.g. FTW 470 Z/570 Z for 2-point control only, the card and a 3 HP blank panel can be installed in the 7 HP housing.

Intrinsically Safe Circuits

Monorack is suitable for measuring instruments with sensors which operate in hazardous areas, Zone 0 or 10. The required electrical separation is ensured by internal measures on the power supply side as well as by routing the connecting cables for power supply and output signals through the top of the housing and the intrinsically safe inputs through the bottom.

Cards from Other Vendors

Any plug-in card in Europa card format can be used with the Monorack housing provided the following requirements are met:

- the dimensions conform to DIN 41 494 (see Technical Data)
- the front panel is 4 or 7 HP wide
- the connections of the multipoint socket (DIN 41 612, type F) fit to the plug-in connector (max. 30 pins)
- the power consumption of the chosen card lies within the tolerances of the built-in power pack and the housing.
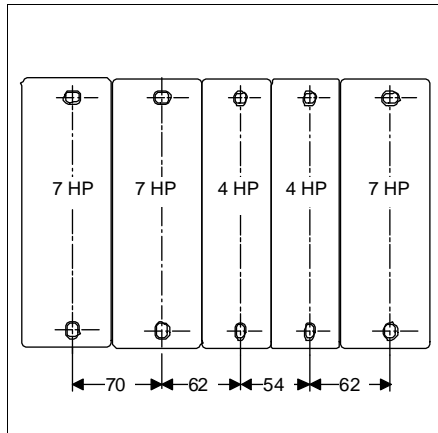
Installation

Mounting

The Monorack must be installed in a safe area, the site being chosen such that the operating temperature of

- -20 °C…+60 °C for one Monorack
- -20 °C…+50 °C for row mounting

is not exceeded. Drilling plans for single mounting are included in »Technical Data«, for row mounting from the diagram below.

Drilling plan for row mounting

Protective Housing

Should the Monorack be mounted at an exposed site, then it is recommended that it be installed in a protective housing, degree of protection IP 55. Details can be found in TI 099/00/e.
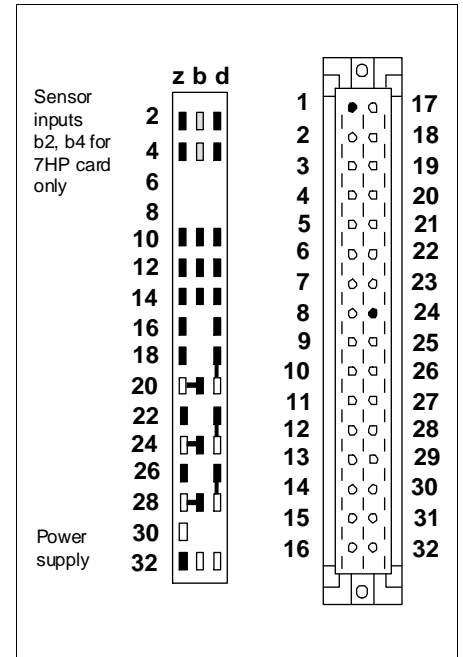

Monorack protective housing

Coding Pins

To prevent mix-ups between instruments with sensors operating in hazardous areas, e.g. where the measuring system is used as an overspill safety device, two coding pins can be inserted into the female connector in the base of the Monorack.

The coding pin configuration, can be taken from the appropriate instrument documentation.

Pin assignment and coding of female multipoint connector

Pin Assignment

The pin assignment of the female multipoint connector can be taken from appropriate instrument documentation.

- Signal inputs: d2/d4, b2/b4, z2/z4
- Power: L+: d32, PE: b32, L-: z32 for Racksyst II or z30 for Racksyst I, switchable
- d18/d20, b20/z20, d22/d24, b24/z24, d26/d28, b28/z28 each short-circuited.
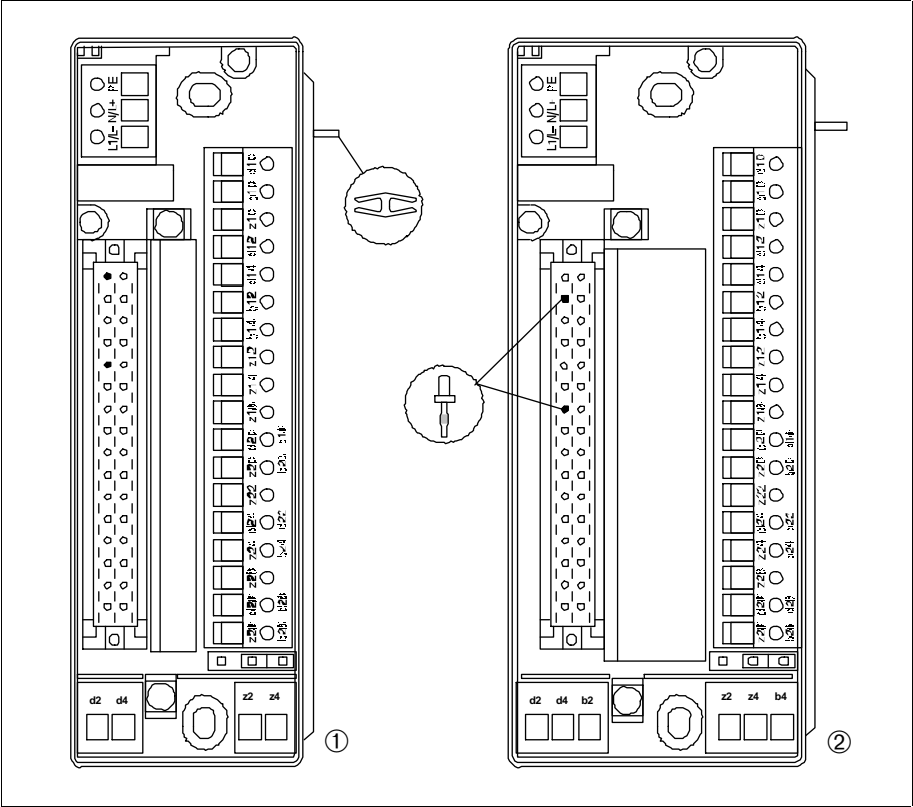
Cross-Connection Contacts

Where several Monorack units are mounted compactly in groups, the housing power supplies can be interconnected by using the contacts supplied.

The cross-connection contacts for Monorack units are inserted into the side of the base. No special tools are required.

Electrical Connection

Base arrangement for ① 4 HP and ② 7 HP Monorack showing position of terminal blocks and jumper switch for Racksyst I/II configuration.

Terminals and Female Connector

The female multipoint connector conforms to DIN 41 612, type F, and is designed for cards with up to 30-pole connections.
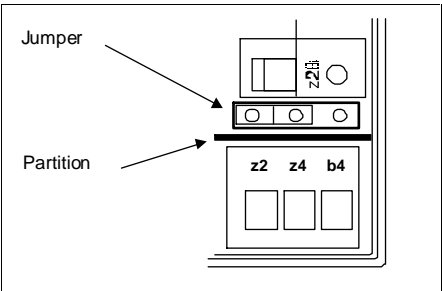
To make wiring-up easier, the terminal blocks are large, easily accessible and clearly labelled. The labelling on the terminals corresponds to the female connector pole numbers.

- Black lettering gives the assignment for 1st generation Racksyst cards,
- Green that for 2nd generation cards, where this differs.

1st and 2nd Generation Cards

The Monorack II housing can also be used for 1st generation Racksyst cards. Before they are inserted, jumper switch in the base must be moved to the alternative position. This routes the power supply to the appropriate terminals in the female connector.

All cards delivered prior to 1993 are 1st generation cards. 2nd generation cards are identified by the green instrument name on the connector nameplate.
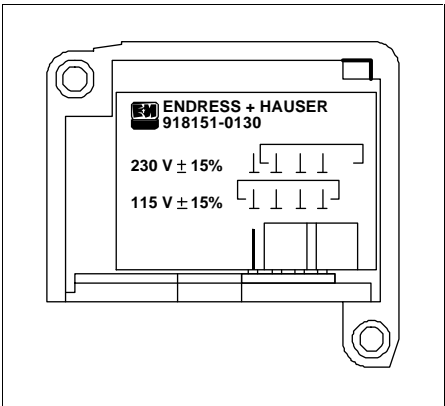
Power Pack

The Monorack can be supplied with the following power packs:

- 115/230 VAC ±15 %, 50/60 Hz
- 100/200 VAC ±15 %, 50/60 Hz
- 24/48 VAC ±15 %, 50/60 Hz
- 24 V DC external supply (without power pack)
- 16...60 V DC

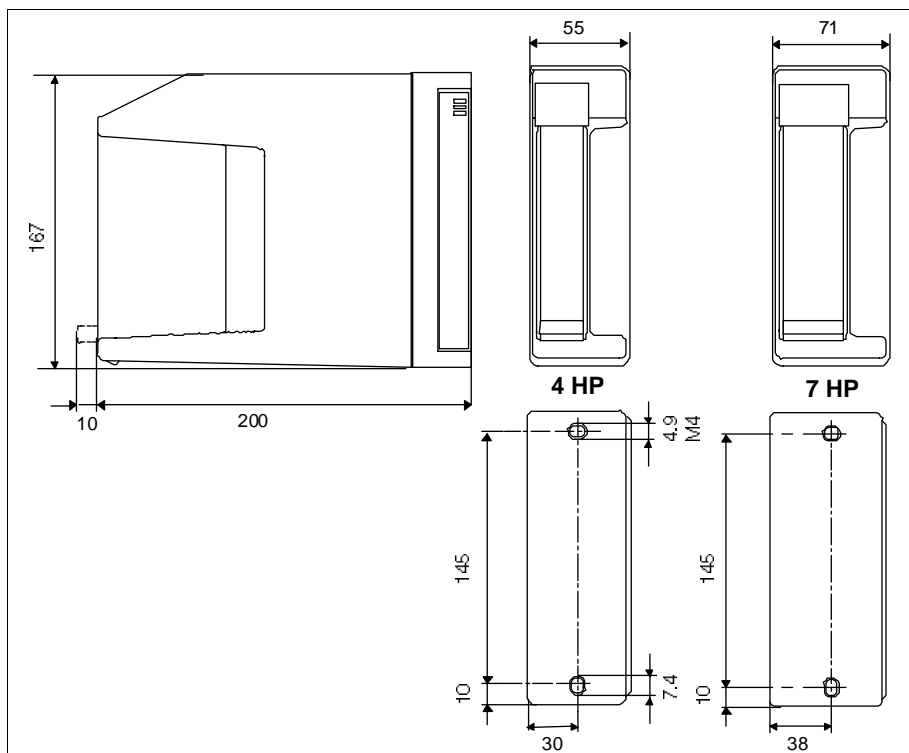In the case of the AC power packs, the voltage range is switched by means of a jumper switch.

The DC power packs may not be connected to the AC line!

For 1st generation Racksyst cards, reposition the jumper on the two lefthand pins

Voltage range selection in AC power packs.

Technical data

Dimensions and drill holes for individual mounting of 4 HP and 7 HP Monorack units

Construction
- Mounting: housing for wall-mounting
- Versions: for 4 HP and 7 HP Racksyst or other 19" plug-in cards
- Housing: ABS, grey
- Base: ABS, black
- Protection type to DIN 40 050: IP 40 mounted on flat wall;
- Ambient temperature:
  - singly mounted or with 1 cm gap, nominal range: 0 °C…+60 °C extreme range: -20 °C…+60 °C
  - row mounted: max. +50 °C
- Humidity: Class KSE to DIN 40 040
- Weight: 4 HP version, ca. 0.8 kg; 7 HP version, ca. 0.9 kg

Electrical connection:
- Power supply: 3 terminals
- Input signal: 4 terminals for 4 HP version 6 terminals for 7 HP version
- Output and control signals: 18 pole terminal block
- Terminal size: up to 4 mm^2 wire up to 2.5 mm^2 (fine strand) up to 2 x 1.5 mm^2 (fine strand)
- Female multipoint connector: conforming to DIN 41 612, type F, 48pole, suitable for 1st generation Racksyst cards with 15, 28 and 30 pin and 2nd generation Racksyst cards with 16, 25 and 27 pin male multipoint connectors
- Cross connectors: for power connection only, rating: ground max. 5 A, line max. 4 A per connection

Power Pack
- 115/230 V AC ±15 %, 50/60 Hz or 100/200 V AC ±15 %, 50/60 Hz, or 24/48 V AC ±15 %, 50/60 Hz, or 16…60 V DC (If the permissible voltage range is exceeded, safe isolation can be guaranteed only with the use of a suitable external fuse) or 24 V DC external supply (without power pack)
- Secondary side: electrically isolated from the primary side
- Output voltage: ca. 21 V
- Output current: max. 165 mA
- Output power: max. 3.5 W,
  - max. 2.8 W to be dissipated in housing alone
- Overload/short-circuit protection

Certificates
- PTB No. Ex-84.B.2085 U
- GL No. 96 703 - 95 HH
- CSA Class I…III, Group A…G

Accessories (included):
- 3 coding strips
- 5 cross connectors
- 1 blue cable gland

Further accessories (on request):
- 3 HP blank panel in black plastic

How to Order

Monorack Housing

Certificates
R   Standard (PTB)
U   CSA
2   GL

Version
0   4 HP Monorack housing
1   7 HP Monorack housing

Power Supply
A   115/230 V AC ±15%, 50/60 Hz, selectable
D   24/48 V AC ±15%, 50/60 Hz, selectable
E   24 V DC external (without power pack)
L   100/200 V AC ±15%, 50/60 Hz, selectable
K   16...60 V DC, for power plants
Y   Special voltage

MONO- ☐ ☐ ☐   Please complete order code

Blank panel, 3 HP wide	**Order No. 918110-000**

Supplementary Documentation

☐ Monorack Protective Housing
Technical Information TI 099F/00/en

☐ Racksyst
System Information SI 008

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