NEW
Degree of protection
IP 66

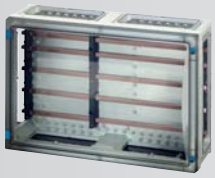
Distribution Boards up to 250 A with Door According to IEC 61 439-3

„Distribution Boards Intended to be Operated by Ordinary Persons (DBO)“

- combinable enclosure system
- degree of protection IP 66
- made from polycarbonate
- protection class II, ⧈

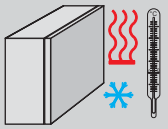
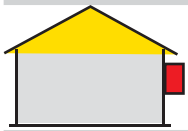
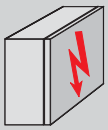
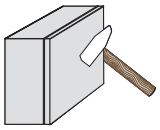
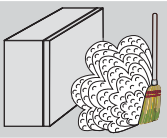
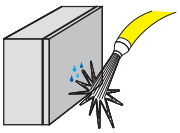
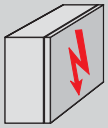
Assembling videos

Design fast, simply, more clever
www.ENYGUIDE.eu



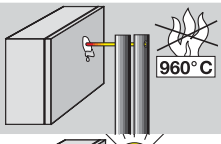
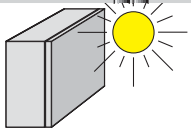
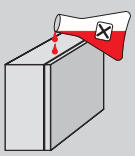
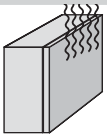
Additional information e.g. about other electrical functions in ENYSTAR enclosures available at www.hensel-electric.de

Dependent on the system

 **Environmental conditions**	Ambient temperature ■ for distribution boards in accordance with IEC 60 439-3: -5° C up to 35° C, max. + 40° C Relative humidity: 50% at 40° C, 100% at 25° C ■ for empty enclosures: - 25°C up to + 70° C The ambient temperature for distribution boards is reduced by the installed equipment technology!
 **Application area**	**The enclosures are suitable for the protected outdoor installation - harsh environment and / or protected outdoor.** However the climatic influences and effects on the equipment are to be considered, see Technical Details: Operating and Ambient Conditions
 **Insulation**	Insulated enclosures (Protection class II) ⧈
 **Impact strength**	degree of protection against mechanical load IK 08 (5 Joule) in accordance with IEC 62 262
 **Protection against foreign solid objects and direct contact**	Dust-proof degree of protection IP **6**6
 **Protection against ingress of water with harmful effects**	Protected against water degree of protection IP 6**6**
 **Electrical parameters**	Rated current: 250 A Rated insulation voltage [2]: AC 690 V, DC 1000 V, IEC 60 664 [2] the rated insulation voltage is possibly reduced by the installed equipment technology

Dependent on material

Material: thermoplastic

 **Burning behaviour**	Glow wire test 960°C in accordance with IEC 60 695-2-11 flame-retardant, self-extinguishing UL Subject 94, V-2
 **UV resistance**	UV resistance according to IEC 61 439-1 The material is examined for UV resistance
 **Chemical resistance**	Resistance against acid 10% and alkaline 10%, petrol and mineral oil
 **Toxic behavour**	Silicone- and halogen-free

All enclosure sizes with transparent or opaque door.

Distribution Boards up to 250 A with Door

combinable enclosure system
insulation-enclosed, degree of protection IP 66, made from polycarbonate for the assembly of distribution boards up to 250 A intended to be operated by ordinary persons in accordance with IEC 61 439-3

Distribution Boards up to 250 A with Door

- for indoor and protected outdoor installation
- dust-proof and protected against water (IP 66)
- protection class II ⧈
- colour: grey, RAL 7035

Easy operation of the devices behind a door with protection against accidential contact.

Doors

- all enclosure sizes with door
- transparent and opaque
- door hinge changeable
- sealable
- locking facilities: lockable, door fasteners for tool and hand operation
- operation of the devices behind the door protected with covers, no overhangig handles

Quick assembly

Quick Assembly

- closed or open enclosure walls, which can fast and easily be closed with closing plate sets
- integrated gaskets
- safe connectors

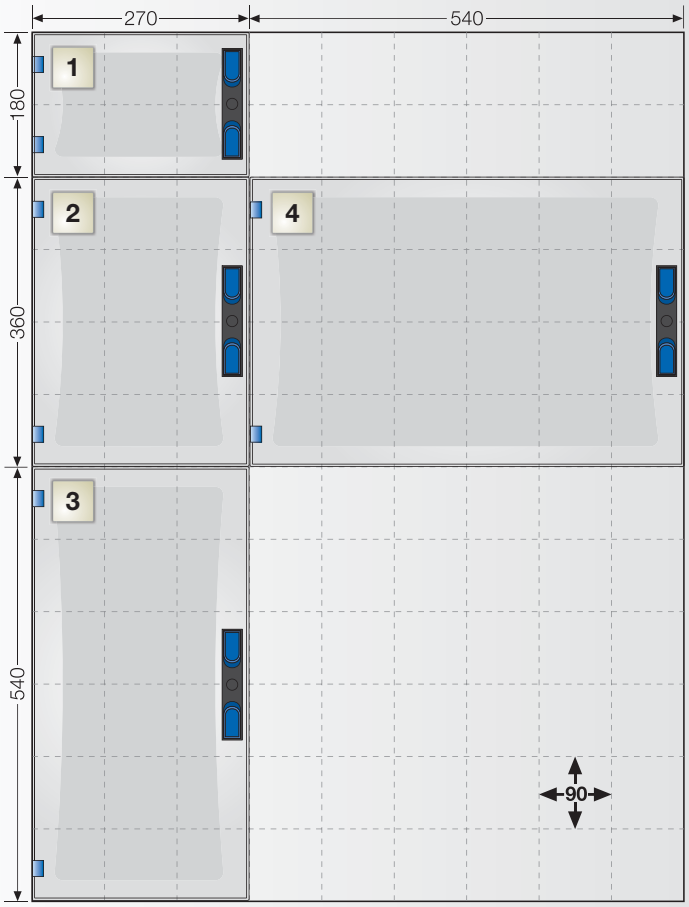
Multikey for door locking systems

Multikey

Besides the standard locking system for tool-operation with slot screwdriver ENYSTAR doors can be operated as well with triangle 8 mm, square lock 8mm and double-bit.
All four locking systems are operated by a Mulitkey.

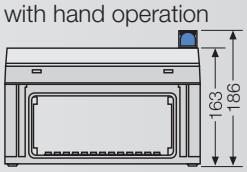
Combinable distribution boards with door

- modular structure of enclosures in grid of 90 mm
- 4 enclosure sizes:
  270 x 180 mm,
  270 x 360 mm,
  270 x 540 mm and
  540 x 360 mm
- to assemble fast and simply to larger combinations
- Order closing plate sets, single closing plates and flanges separately.

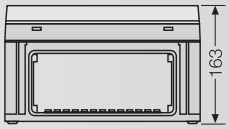


Dimensions (in mm)

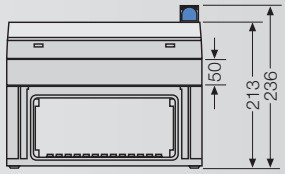
Enclosure depth
with hand operation



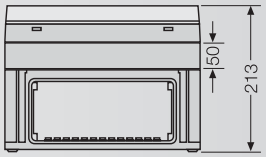
with tool operation



Extension frame
for extending installation depths by 50 mm
with hand operation



with tool operation



Combinable enclosures with door and closing plates

- 4 box sizes:
  276 x 186 mm,
  276 x 366 mm,
  276 x 546 mm and
  546 x 366 mm

Empty enclosures and circuit breaker boxes additionally with closing plate sets for closing enclosure walls

Enclosure walls closed via closing plates

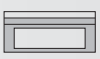
Assignment of box walls:

The assignment of box walls is effected via wall symbols that are assigned to each product. The individual figures 2 give an indication, which wall is concerned.

All box walls are listed in the fold-out of the coverpages.

ENYSTAR
Distribution boards
Box walls

Wall 1 (180 mm)
Wall opening:
100 x 80 mm



Wall 3 (360 mm)
Wall opening:
280 x 80 mm

Wall 2 (270 mm)
Wall opening:
190 x 80 mm

Wall 4 (540 mm)
Wall opening:
2 x 190 x 80 mm

Can be combined and extended in all directions

Because of the increasing requirements, flexibility is essential in the electrial installation.

ENYSTAR enclosures can be combined and arranged freely in order to adapt the system flexibly to the individual requirements in site: Combination next to each other or one above the other.

Large doors for all box sizes allow a simple accessibility of the electrical functions.

Combination of enclosures in vertical direction.

Combination of enclosures in horizontal direction.

Distribution boards intended to be operated by ordinary persons

Example 1:
Distribution board with 72 modules (6 x 12 x 18 mm) built-up of 2 x FP 1318 with closing plates

Example 2:
Distribution board with 125 A feeding,
36 modules (3 x 12 x 18 mm) and a terminal box for PE and N

1

2

ENYSTAR®

Connection Box

The ENYSTAR Connection Box allows a simple and fast installation of devices that must be operated externally. Such as plug devices, pushbuttons, switches or also touch panels.

The new Connection Box is installed via safe plug connectors.

The ENYSTAR Connection Box is available in different designs and standard equipments.

Distribution Boards up to 250 A According to IEC 61 439-3 „Distribution Boards Indended to Be Operated by Ordinary Persons“

Distribution boards are usually used in working place proximity. Their application is various.

Here the demands and requirements that result from the installation site must be adhered to.

General requirements concerning distribution boards

1. **Clear separation between operation area and distribution area**
   For areas in distribution boards to which unskilled persons have access, standards require special protective measures:
   - Life parts are to be protected against accidental contact by a cover.
   - Devices, which may be operated only by an electrical skilled person, are to be arranged in a separate area, which is to be opened only with tool.
2. **Fast and safe operating of the intended devices, e.g. series built-in equipment and switching devices**
3. **No removable covers or parts** so that electrotechnical unskilled persons can easyly operate.

Additional specific requirements when used in commercial and industrial applications:

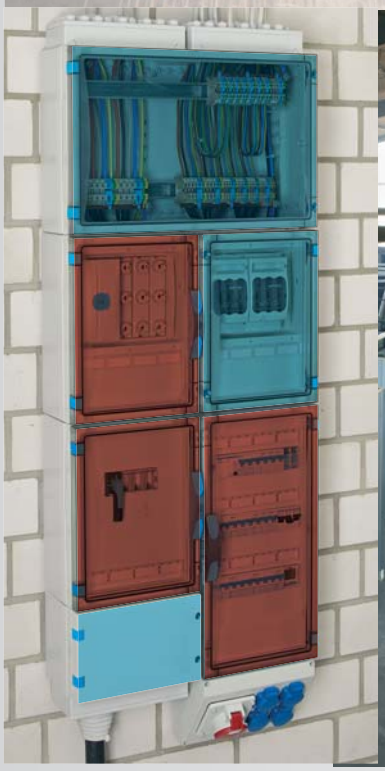
1. **High degree of protection IP 66:** dust-proof and waterproof
2. **Robust material for use in rough environments:** high-quality thermoplastic material for high mechanical loads.
3. **Corrosion resistance:** Material resistant to corrosion by atmospheric humidity or industrial processes.

Modular distribution boards for special requirements in commercial and industrial applications ...

- Total insulated enclosures, protection class II ⧈
- High degree of protection IP 66: dust-proof and water-proof
- Corrosion-resistant enclosures by high-quality thermoplastic material
- High mechanical strength IK 08 for heavy duty usage in commercial and industrial applications

... and with clearly separated functional areas!

- Modular design for clear separation of access and operation areas for electrical skilled persons and unskilled persons.
- Large, transparent doors for a quick control and convenient operation of the built-in equipment
- Fast opening and closing of the doors in a single operation
- At any time an expandable, modular system



Operation
also by electrotechnical unskilled persons

Requirements in accordance with IEC 61 439-3:

1. Only installation equipment, like series built-in equipment, fuses up to 63 A, circuit-breakers and IT-components are permitted. For the access a tool-operated door locking facility is **NOT** necessary.
2. Other switching devices must be installed behind separate lids or doors, which can only be opened using a tool: **protection against direct contact with hazardous live parts IP XXC**.

Access and operation
only by electrical skilled persons

To the following areas **only an electrical skilled person** may have access:

- feeding-in
- back-up fuse
- outgoing terminals.

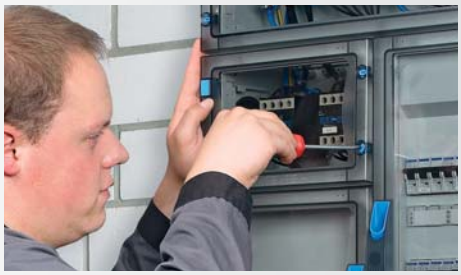
Therefore access is possible **only with appropriate tools.** The access can be prevented by optionally lockable doors. Electrotechnical unskilled persons have no access here.

- Device mounting via DIN rails

- Device mounting via mounting plates

- Individual device installation into covers

- Hand-operated doors in areas to which unskilled persons have access for operating devices



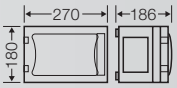
- Tool-operated doors in areas to which only an electrical skilled person may have access

- Facilities for earth connection according to British Standard

FP 0140

Built-in dimensions W 216 x H 126 x D 140 mm
door locking with hand operation

PC · RAL 7035 · 2 / 1 Wall 1 / 2

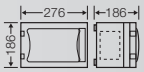


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 1
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0141

Built-in dimensions W 216 x H 126 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 · PC · RAL 7035 · 2 / 1 Wall 1 / 2

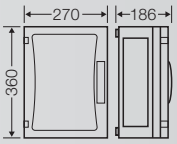


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 1
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0240

Built-in dimensions W 216 x H 306 x D 140 mm
door locking with hand operation

PC · RAL 7035 · 2 / 3 Wall 3 / 2

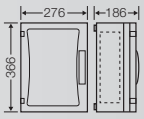


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 2
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0241

Built-in dimensions W 216 x H 306 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 · PC · RAL 7035 · 2 / 3 Wall 3 / 2



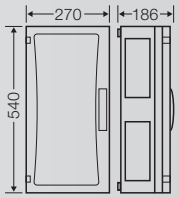
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 2
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0340

Built-in dimensions W 216 x H 486 x D 140 mm
door locking with hand operation

PC · RAL 7035 · 2 / 4 Wall 4 / 2

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 3
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

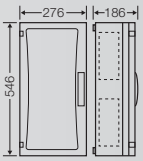


FP 0341

Built-in dimensions W 216 x H 486 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 · PC · RAL 7035 · 2 / 4 Wall 4 / 2

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 3
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately

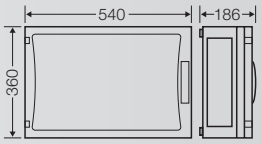


FP 0440

Built-in dimensions W 486 x H 306 x D 140 mm
door locking with hand operation

PC · RAL 7035 · 4 / 3 Wall 3 / 4

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

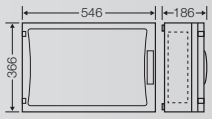


FP 0441

Built-in dimensions W 486 x H 306 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 · PC · RAL 7035 · 4 / 3 Wall 3 / 4

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



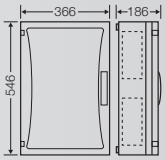
ATTENTION

Built-in equipment must be suitable for operation by electrotechnical unskilled persons and has to be protected by a cover against direct contact with hazardous life parts.

FP 0461

**Built-in dimensions W 306 x H 486 x D 140 mm
door locking with hand operation
with closing plates for box walls**

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately

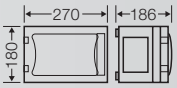


ENYSTAR
Empty Boxes with Opaque Door
Operation and Access also by Unskilled Persons

FP 0150

Built-in dimensions W 216 x H 126 x D 140 mm
door locking with hand operation

PC | RAL 7035 | 2 / 1 Wall 1 / 2

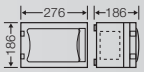


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 1
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0151

Built-in dimensions W 216 x H 126 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 1 Wall 1 / 2

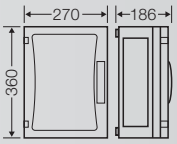


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 1
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0250

Built-in dimensions W 216 x H 306 x D 140 mm
door locking with hand operation

PC | RAL 7035 | 2 / 3 Wall 3 / 2

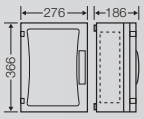


- box size 2
- with opaque door
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0251

Built-in dimensions W 216 x H 306 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 3 Wall 3 / 2



- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 2
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

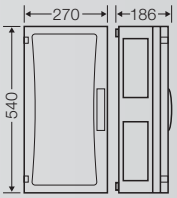
ATTENTION

Built-in equipment must be suitable for operation by electrotechnical unskilled persons and has to be protected by a cover against direct contact with hazardous life parts.

FP 0350

Built-in dimensions W 216 x H 486 x D 140 mm
door locking with hand operation

PC | RAL 7035 | 2 4 Wall 4 2

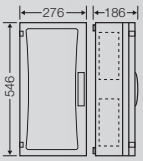


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 3
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 0351

Built-in dimensions W 216 x H 486 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 4 Wall 4 2

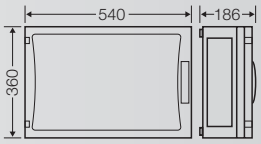


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 3
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately

FP 0450

Built-in dimensions W 486 x H 306 x D 140 mm
door locking with hand operation

PC | RAL 7035 | 4 3 Wall 3 4

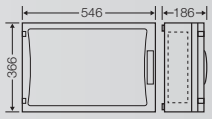


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 0451

Built-in dimensions W 486 x H 306 x D 140 mm
door locking with hand operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 4 3 Wall 3 4

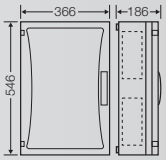


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately

FP 0471

**Built-in dimensions W 306 x H 486 x D 140 mm
door locking with hand operation
with closing plates for box walls**

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



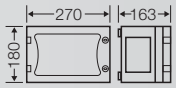
ATTENTION

Built-in equipment must be suitable for operation by electrotechnical unskilled persons and has to be protected by a cover against direct contact with hazardous life parts.

FP 0100

Built-in dimensions W 216 x H 126 x D 140 mm
door fastener with tool operation

PC | RAL 7035 | 2 / 1 Wall 1 / 2

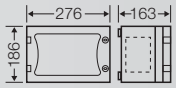


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 1
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0101

Built-in dimensions W 216 x H 126 x D 140 mm
door fastener with tool operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 1 Wall 1 / 2

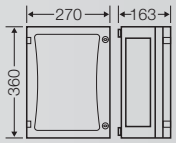


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 1
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0210

Built-in dimensions W 216 x H 306 x D 140 mm
door fastener with tool operation

PC | RAL 7035 | 2 / 3 Wall 3 / 2

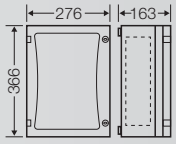


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 2
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0211

Built-in dimensions W 216 x H 306 x D 140 mm
door fastener with tool operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 3 Wall 3 / 2

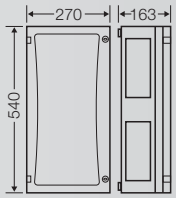


- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 2
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0310

Built-in dimensions W 216 x H 486 x D 140 mm
door fastener with tool operation

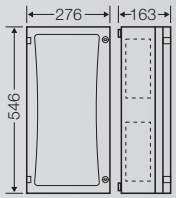
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 3
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately



FP 0311

Built-in dimensions W 216 x H 486 x D 140 mm
door fastener with tool operation
with closing plates for box walls

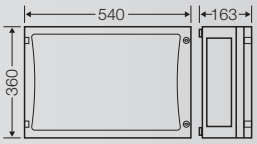
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 3
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



FP 0400

Built-in dimensions W 486 x H 306 x D 140 mm
door fastener with tool operation

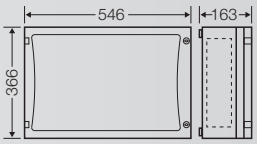
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately



FP 0401

Built-in dimensions W 486 x H 306 x D 140 mm
door fastener with tool operation
with closing plates for box walls

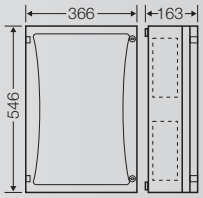
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



FP 0411

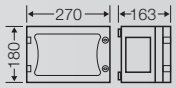
**Built-in dimensions W 306 x H 486 x D 140 mm
door fastener with tool operation
with closing plates for box walls**

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- box size 4
- with transparent door
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



FP 0120

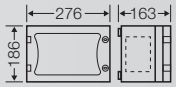
Built-in dimensions W 216 x H 126 x D 140 mm
door fastener with tool operation



- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 1
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0121

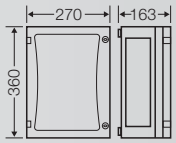
Built-in dimensions W 216 x H 126 x D 140 mm
door fastener with tool operation
with closing plates for box walls



- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 1
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0230

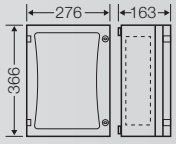
Built-in dimensions W 216 x H 306 x D 140 mm
door fastener with tool operation



- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 2
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 0231

Built-in dimensions W 216 x H 306 x D 140 mm
door fastener with tool operation
with closing plates for box walls



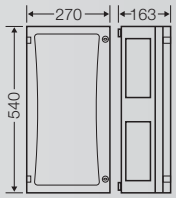
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 2
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 4 items
- order flanges separately

FP 0330

Built-in dimensions W 216 x H 486 x D 140 mm
door fastener with tool operation

PC | RAL 7035 | 2 4 Wall 4 2

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 3
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

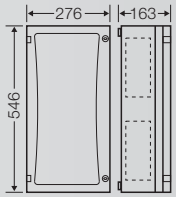


FP 0331

Built-in dimensions W 216 x H 486 x D 140 mm
door fastener with tool operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 4 Wall 4 2

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 3
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately

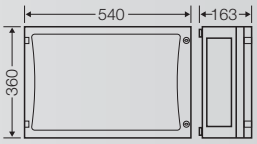


FP 0420

Built-in dimensions W 486 x H 306 x D 140 mm
door fastener with tool operation

PC | RAL 7035 | 4 3 Wall 3 4

- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

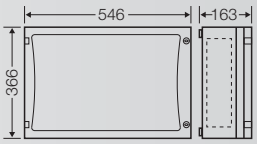


FP 0421

Built-in dimensions W 486 x H 306 x D 140 mm
door fastener with tool operation
with closing plates for box walls

IP 66 | PC | RAL 7035 | 4 3 Wall 3 4

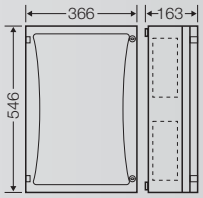
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



FP 0431

**Built-in dimensions W 306 x H 486 x D 140 mm
door fastener with tool operation
with closing plates for box walls**

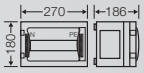
- max. installation depth with built-in mounting plate 136 mm, with built-in DIN rail 125 mm
- with opaque door
- box size 4
- door locking sealable
- please order DIN rails, mounting plates or covers additionally
- connector: 6 items
- order flanges separately



FP 1109

9 modules: 1 x 9 x 18 mm

PC · RAL 7035 · 2 / 1 Wall 1 / 2

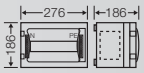


- 1-row
- box size 1
- FIXCONNECT® plug-in terminal technology for PE and N
- PE/N 2 x 25 mm², 8 x 4 mm², Cu each
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1108

9 modules: 1 x 9 x 18 mm
with closing plates for box walls

IP 66 · PC · RAL 7035 · 2 / 1 Wall 1 / 2

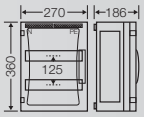


- 1-row
- box size 1
- FIXCONNECT® plug-in terminal technology for PE and N
- PE/N 2 x 25 mm², 8 x 4 mm², Cu each
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order flanges separately

FP 1219

24 modules: 2 x 12 x 18 mm

PC · RAL 7035 · 2 / 3 Wall 3 / 2

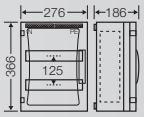


- 2-row
- box size 2
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 3 x 25 mm², 12 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking sealable
- door locking with hand operation
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1218

24 modules: 2 x 12 x 18 mm
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 3 Wall 3 / 2

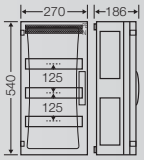


- 2-row
- box size 2
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 3 x 25 mm², 12 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order flanges separately

FP 1319

36 modules: 3 x 12 x 18 mm

PC | RAL 7035 | 2 / 4 Wall 4 / 2

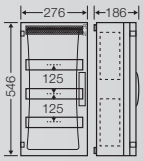


- 3-row
- box size 3
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 6 x 25 mm², 24 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1318

36 modules: 3 x 12 x 18 mm
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 4 Wall 4 / 2



- 3-row
- box size 3
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 6 x 25 mm², 24 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order flanges separately

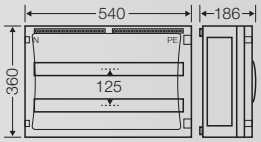
Circuit Breaker Boxes for the Installation of DIN Rail Equipment up to 63 A

Operation and Access also by Unskilled Persons

FP 1409

54 modules: 2 x 27 x 18 mm

PC | RAL 7035 | 4 / 3 Wall 3 / 4

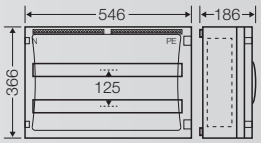


- 2-row
- box size 4
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 6 x 25 mm², 24 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1408

54 modules: 2 x 27 x 18 mm
with closing plates for box walls

IP 66 | PC | RAL 7035 | 4 / 3 Wall 3 / 4

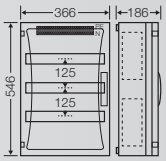


- 2-row
- box size 4
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 6 x 25 mm², 24 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order flanges separately

FP 1418

51 modules: 3 x 17 x 18
with closing plates for box walls

IP 66 | PC | RAL 7035 | 3 / 4 Wall 4 / 3



- 3-row
- box size 4
- FIXCONNECT® plug-in terminal technology for PE and N
- per PE/N 6 x 25 mm², 24 x 4 mm², Cu
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order flanges separately

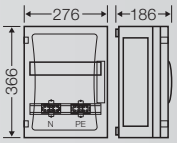
ENYSTAR

Circuit Breaker Boxes for the Installation of DIN Rail Equipment up to 63 A

Operation also by Unskilled Persons

FP 1211

12 modules: 1 x 12 x 18 mm
for miniature circuit breakers (MCB)

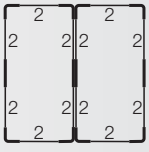


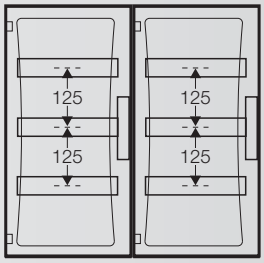
- 1-row
- box size 2
- with 1 DIN rail 216 mm wide (for installation depth of 72 mm)
- for installation of DIN rail equipment up to 100 A
  in accordance with DIN 43 880
- per PE/N 2 x 25 mm², 4 x 16 mm², Cu
- cover can be sealed
- with lockable blanking strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

Example:

2 x FP 1318
72 modules: 6 x 12 x 18 mm

with closing plates
2 x 3-row
PE+N x cross section
6 x 25 mm², Cu
24 x 4 mm², Cu
attached enclosure connectors: 6 items
order flanges separately
degree of protection IP 66

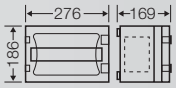




FP 1105

12 modules: 1 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 1 Wall 1 / 2

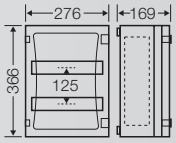


- 1-row
- box size 1
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- order PE/N terminals separately
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- walls closed with closing plates, closing plate set included
- order flanges separately

FP 1215

24 modules: 2 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

IP 66 | PC | RAL 7035 | 2 / 3 Wall 3 / 2

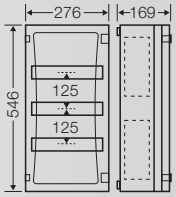


- 2-row
- box size 2
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- walls closed with closing plates, closing plate set included
- order flanges separately

FP 1315

36 modules: 3 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

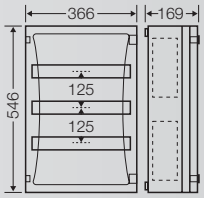
IP 66 | PC | RAL 7035 | 2 / 4 Wall 4 / 2



- 3-row
- box size 3
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- walls closed with closing plates, closing plate set included
- order flanges separately

FP 1415

51 modules: 3 x 17 x 18
without PE and N terminal
with closing plates for box walls

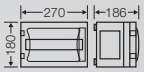


- 3-row
- box size 4
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- walls closed with closing plates, closing plate set included
- order flanges separately

FP 1106

PC | RAL 7035 | 2 / 1 Wall 1 / 2

12 modules: 1 x 12 x 18 mm
without PE and N terminal

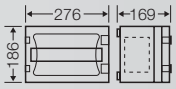


- 1-row
- box size 1
- order PE/N terminals separately
- with installation of a PE/N terminal the number of modules is reduced to 1 x 9 x 18 mm
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1107

IP 66 | PC | RAL 7035 | 2 / 1 Wall 1 / 2

12 modules: 1 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

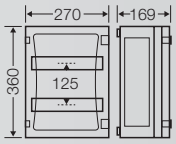


- 1-row
- box size 1
- order PE/N terminals separately
- with installation of a PE/N terminal the number of modules is reduced to 1 x 9 x 18 mm
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 4 items
- walls closed with closing plates, closing plate set included
- order flanges separately

Removable DIN rail rack for e.g. earth connection (British standard)

FP 1216

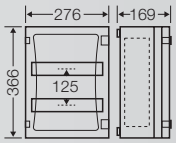
24 modules: 2 x 12 x 18 mm
without PE and N terminal



- 2-row
- box size 2
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1217

24 modules: 2 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

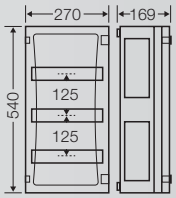


- 2-row
- box size 2
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 4 items
- walls closed with closing plates, closing plate set included
- order flanges separately

Removable DIN rail rack for e.g. earth connection (British standard)

FP 1316

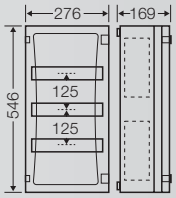
36 modules: 3 x 12 x 18 mm
without PE and N terminal



- 3-row
- box size 3
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1317

36 modules: 3 x 12 x 18 mm
without PE and N terminal
with closing plates for box walls

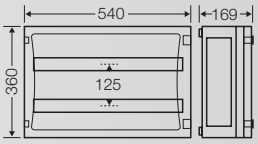


- 3-row
- box size 3
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 6 items
- walls closed with closing plates, closing plate set included
- order flanges separately

Removable DIN rail rack for e.g. earth connection (British standard)

FP 1406

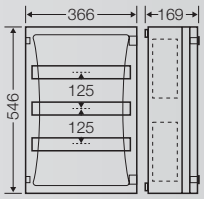
54 modules: 2 x 27 x 18 mm
without PE and N terminal



- 2-row
- box size 4
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1417

51 modules: 3 x 17 x 18
without PE and N terminal
with closing plates for box walls

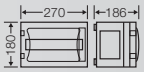


- 3-row
- box size 4
- order PE/N terminals separately
- for installation of DIN rail equipment up to 63 A in accordance with DIN 43 880
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- with removable DIN rail rack and earth connection
- connector: 6 items
- walls closed with closing plates, closing plate set included
- order flanges separately

FP 1101

12 modules: 1 x 12 x 18 mm
without PE and N terminal

PC · RAL 7035 · 2 / 1 Wall 1 / 2

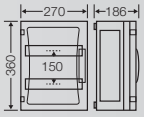


- 1-row
- box size 1
- for installation of DIN rail equipment up to 100 A in accordance with DIN 43 880
- use enclosure FP 1100 for N/PE terminals
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1249

24 modules: 2 x 12 x 18 mm
without PE and N terminal

PC · RAL 7035 · 2 / 3 Wall 3 / 2

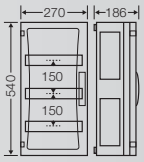


- 2-row
- box size 2
- for installation of DIN rail equipment up to 100 A in accordance with DIN 43 880
- use enclosure FP 1100 for N/PE terminals
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1349

36 modules: 3 x 12 x 18 mm
without PE and N terminal

PC · RAL 7035 · 2 / 4 Wall 4 / 2

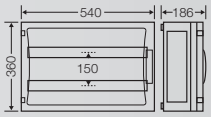


- 3-row
- box size 3
- for installation of DIN rail equipment up to 100 A in accordance with DIN 43 880
- use enclosure FP 1100 for N/PE terminals
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1439

54 modules: 2 x 27 x 18 mm
without PE and N terminal

PC | RAL 7035 | 4 / 3 Wall 3 / 4

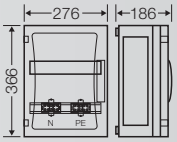


- 2-row
- box size 4
- for installation of DIN rail equipment up to 100 A in accordance with DIN 43 880
- use enclosure FP 1100 for N/PE terminals
- with transparent door
- door locking with hand operation
- door locking sealable
- with blanking strips for unused DIN rail openings
- with labelling strips
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 1211

12 modules: 1 x 12 x 18 mm
for miniature circuit breakers (MCB)

PC | RAL 7035 | 2 / 3 Wall 3 / 2

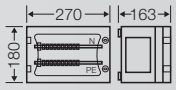


- 1-row
- box size 2
- with 1 DIN rail 216 mm wide (for installation depth of 72 mm)
- for installation of DIN rail equipment up to 100 A in accordance with DIN 43 880
- per PE/N 2 x 25 mm², 4 x 16 mm², Cu
- cover can be sealed
- with lockable blanking strips
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 1100

Terminal box
per PE+N 12 x 1.5-16 mm², Cu, 1 x 4-35 mm², Cu

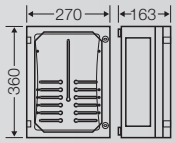
PC | RAL 7035 | 2 / 1 Wall 1 / 2



- rated current: 125 A
- box size 1
- with opaque door
- door fastener with tool operation
- door locking sealable
- order closing plate sets, single closing plates and flanges separately

FP 2211

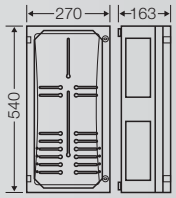
max. installation depth: 136 mm
with meter fixing screws



- box size 2
- use in unmetered area after consultation with local power supply companies
- for meters with three-point mounting
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 2312

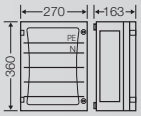
max. installation depth: 136 mm
with supports for 2 KWH meters



- or for the installation of 1 kWh meter and 1 additional DIN rail
- box size 3
- use in unmetered area after consultation with local power supply companies
- for meters with three-point mounting
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP 3212

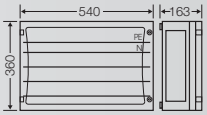
Busbar rated current: 250 A



- box size 2
- 5-pole
- centreline spacing of busbars: 60 mm
- N conductor with the same current carrying capacity as the phase conductors
- installation width:
- space units: 12
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

FP 3402

Busbar rated current: 250 A



- box size 4
- 5-pole
- centreline spacing of busbars: 60 mm
- N conductor with the same current carrying capacity as the phase conductors
- installation width: 180 mm and 288 mm
- space units: 10 and 16
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

FP SV 25

Busbar connector
for busbars 250 A, 5-pole

- for the connection of ENYSTAR busbar boxes

FP AP 21

Cover for bus-mounted fusegear for enclosure size 2

PC RAL 7035

- for busbar boxes for equipping with fusegear HRC RT 00C and ZS RS 18
- cut-out: H 160 mm x W 216 mm
- space units: 12

FP AP 41

Cover for bus-mounted fusegear for enclosure size 4

PC RAL 7035

- for busbar boxes for equipping with fusegear HRC RT 00C and ZS RS 18
- cut-out: H 160 mm x W 180 mm and H 160 mm x W 288 mm
- space units: 10 and 16

FP BA 70

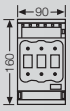
Blanking cover W 126 x H 160 mm

- for blanking of unused openings in covers and terminals for direct busbar connection 16-70 mm²
- for blanking of unused openings in covers for bus-mounted fusegear
- space unit: 7
- divisible every 18 mm

NH RT 00C

HRC 00C bus-mounted fuse switch disconnector connection: 1,5-50 mm², Cu

- 3-polig
- rated current: 125 A
- W 90 mm x H 160 mm, space unit: 5
- for retrofitting on busbars
- busbar thickness 5 mm and distance 60 mm between bars



rated voltage	AC 690 V

ZS RS 18

D02 bus-mounted fuse base connection: 1.5-16 mm², Cu, 3-pole

- rated current: 63 A
- W 36 x H 160 mm, space unit: 2
- for retrofitting on busbars
- busbar thickness 5 mm and distance 60 mm between bars

rated voltage	AC 400 V

ENYSTAR
Terminal for direct connection on busbar

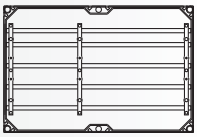
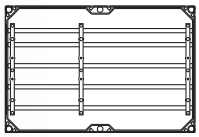
Terminal for direct connection on busbar

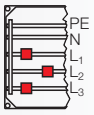
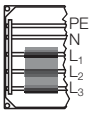
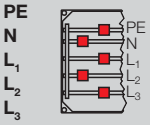
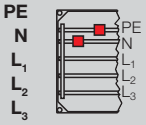
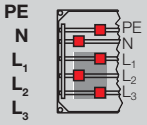
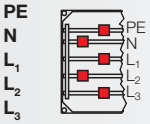
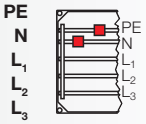
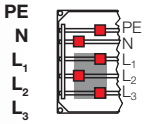
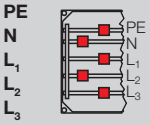
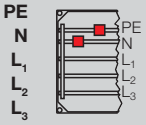
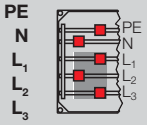
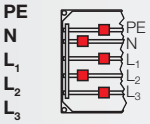
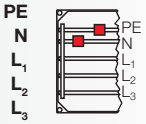
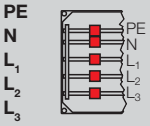
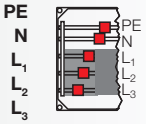
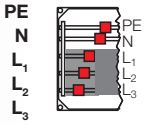
- for solid (sol), stranded (s), flexible (f) copper conductors, with gas-tight crimped end sleeve and for laminated wiring strip
- **Note:** To comply the insulation resistance there must be an air gab of 10 mm between different potentials and to inactive, conductive metal parts 15 mm.

	Type	Cross-section	Wiring strip	for busbars
	**KS 16 F**	1,5-16 mm² Cu		... x 5 mm
	**KS 35 F**	4-35 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	... x 5 mm
	**KS 70 F**	10-70 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	... x 5 mm
	**KS 150 F**	35-150 mm² Cu	250 A: Mi VS 250	12 x 5 mm / 12 x 10 mm
	**KS 240/12**	35-240 mm² Cu/**Alu ***		12 x 5 mm / 12 x 10 mm
	**AM RK 150**	**Connection module 35-150 mm²** ■ for bus-mounting in busbar boxes with covers ■ 5-pole ■ Space unit: 8		
		L1-L3, N: 35-150 mm² Cu PE: 10-70 mm² Cu	250 A: Mi VS 250 160 A: Mi VS 160	12 x 5 mm

*** Reference to the preparation of aluminum conductors:**

1. Clean the bared conductor end carefully by scraping off the oxide film, for example with a knife, (Please do not use rasps, emery paper or brushes!).
2. Immediately after removing the oxide film the conductor end is to rub in with acid and alkali free fat for example vaseline, and immediately to be connected in the terminal.
3. The prementioned processing steps are to be repeated, if the conductor was disconnected and connected again.
4. Due to the disposition to flowing of aluminum the terminals are to be re-tightened before start-up and after the first 200 operation hours.

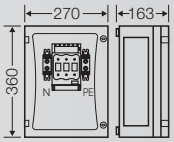




Width	Tightening torque for terminal	For Busbar Boxes	For Busbar Boxes with covers for combination with fusegears	For Busbar Boxes with covers for combination with fusegears and blanking covers
				
11 mm	4 Nm			
16 mm	6 Nm			
21 mm	10 Nm			
34 mm	12 Nm			
34 mm	40 Nm			
144 mm	12,0 Nm L1-L3, N 10,0 Nm PE			

ENYSTAR
HRC Fuse Boxes with Fuse Switch Disconnectors
Fuse Switch Disconnectors in Accordance with IEC 60 947-3
Access and Operation only by Skilled Persons

FP 4211
1 x HRC 00C, 3pole

PC | RAL 7035 | 2 / 3 Wall 3 / 2

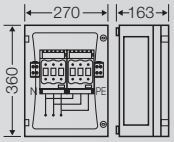


- with PE and N for copper conductors
- connection: 2,5-50 mm², terminal Cu
- wiring area top/bottom changeable
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 4 items
- box size 2
- order closing plate sets, single closing plates and flanges separately

rated current	maximum rated current of fuse link: 100 A
rated voltage	AC 690 V

FP 4212
2 x HRC 00C, 3-pole

PC | RAL 7035 | 2 / 3 Wall 3 / 2

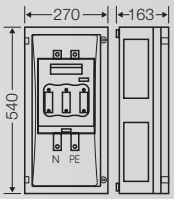


- with PE and N for copper conductors
- connection: incoming 2,5-35 mm², terminal Cu, connection: outgoing 2,5-50 mm², terminal Cu
- wiring area top/bottom changeable
- with connection for splitting-up incoming cable
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 4 items
- box size 2
- order closing plate sets, single closing plates and flanges separately

rated current	maximum rated current of fuse link: 100 A
rated voltage	AC 690 V

FP 4312
1 x HRC 1, 3pole

PC | RAL 7035 | 2 / 4 Wall 4 / 2

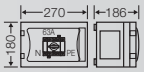


- with PE and N for copper conductors
- connection: M 10 / Mi VS 250+VA 400 (for terminal technology refer to index technical data)
- wiring area top/bottom changeable
- with transparent door
- door fastener with tool operation
- door locking sealable
- connector: 6 items
- box size 3
- order closing plate sets, single closing plates and flanges separately

rated current	maximum rated current of fuse link: 200 A
rated voltage	AC 690 V

FP 5101

switch disconnector 63 A
3-pole PE + N

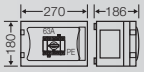


- connection: 2,5-35 mm², Cu or Mi VS 100
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- box size 1
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	30 kW AC-23A/B 400 V
maximum back-up fuse	80 A
rated voltage	Ue= AC 690 V

FP 5103

switch disconnector 63 A
4-polig PE

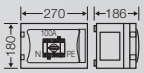


- connection: 2,5-35 mm², Cu or Mi VS 100
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- box size 1
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	30 kW AC-23A/B 400 V
maximum back-up fuse	80 A
rated voltage	Ue= AC 690 V

FP 5102

switch disconnector 100 A
3-pole PE + N

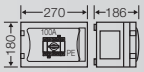


- connection: 10-35 mm², Cu or Mi VS 100
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- box size 1
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	40 kW AC-23A/B 400 V
maximum back-up fuse	100 A
rated voltage	Ue= AC 690 V

FP 5104

switch disconnector 100 A
4-polig PE

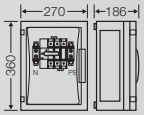


- connection: 10-35 mm², Cu or Mi VS 100
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- box size 1
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	40 kW AC-23A/B 400 V
maximum back-up fuse	100 A
rated voltage	Ue= AC 690 V

FP 5201

switch disconnector 125 A
3-pole PE + N

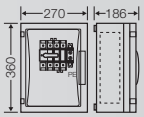


- connection: 70 mm², Cu or Mi VS 160
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- wiring area top/bottom changeable
- box size 2
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	55 kW AC-23A/B 400 V
maximum back-up fuse	125 A
rated voltage	Ue= AC 690 V

FP 5202

switch disconnector 125 A
4-polig PE



- connection: 70 mm², Cu or Mi VS 160
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- wiring area top/bottom changeable
- box size 2
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

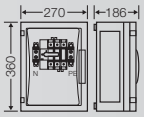
switching capacity	55 kW AC-23A/B 400 V
maximum back-up fuse	125 A
rated voltage	Ue= AC 690 V

ENYSTAR
Isolator boxes
Switch Disconnectors in Accordance with IEC 60 947-3
Operation also by Unskilled Persons

FP 5211

switch disconnector 160 A
3-pole PE + N

PC | RAL 7035 | 2 / 3 Wall 3 / 2



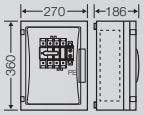
- connection: 70 mm², Cu or Mi VS 160
- with transparent door
- door locking with hand operation
- door locking sealable
- lockable handle
- wiring area top/bottom changeable
- box size 2
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	75 kW AC-23A/B 400 V
maximum back-up fuse	160 A
rated voltage	Ue= AC 690 V

FP 5213

switch disconnector 160 A
4-polig PE

PC | RAL 7035 | 2 / 3 Wall 3 / 2



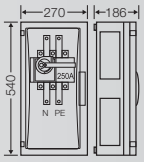
- connection: 70 mm², Cu or Mi VS 160
- with transparent door
- door locking with hand operation
- door locking sealable
- wiring area top/bottom changeable
- lockable handle
- box size 2
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	75 kW AC-23A/B 400 V
maximum back-up fuse	160 A
rated voltage	Ue= AC 690 V

FP 5312

switch disconnector 250 A
3-pole PE + N

PC | RAL 7035 | 2 / 4 Wall 4 / 2

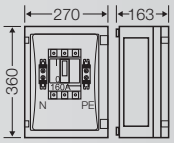


- connection: M 10 (max. 1 x 150 mm² per phase) or VA 400 + Mi VS 250 (for terminal technology refer to index technical data)
- with transparent door
- door locking with hand operation
- door locking sealable
- wiring area top/bottom changeable
- lockable handle
- box size 3
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

switching capacity	132 kW AC-23A/B 400 V
maximum back-up fuse	250 A
rated voltage	Ue= AC 500 V

FP 5216

PC | RAL 7035 | 2 / 3 Wall 3 / 2



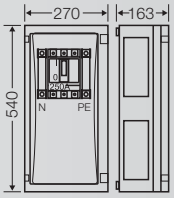
160 A
3-pole PE + N

- connection: 70 mm², Cu or Mi VS 160
- MCCB with overload and short-circuit release
- with transparent door
- door fastener with tool operation
- door locking sealable
- wiring area top/bottom changeable
- box size 2
- connector: 4 items
- order closing plate sets, single closing plates and flanges separately

rated voltage	AC 690 V
rated ultimate short-circuit breaking capacity	Ics = Icu AC 690 V 8 kA Ics = Icu AC 415 V 36 kA
overload release	setting range 112-160 A

FP 5325

PC | RAL 7035 | 2 / 4 Wall 4 / 2



250 A
3-pole PE + N

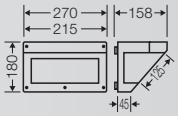
- connection: 150 mm², Cu or Mi VS 250
- MCCB with overload and short-circuit release
- with transparent door
- door fastener with tool operation
- door locking sealable
- wiring area top/bottom changeable
- box size 3
- connector: 6 items
- order closing plate sets, single closing plates and flanges separately

rated voltage	AC 690 V
rated ultimate short-circuit breaking capacity	Ics = Icu AC 690 V 8 kA Ics = Icu AC 415 V 36 kA
overload release	setting range 175-250 A

FP CB 210

Connection Box

- for mounting on box walls (270 mm)
- hinged mounting area
- for the installation of devices that must be operated externally, such as plug devices, push buttons and switches

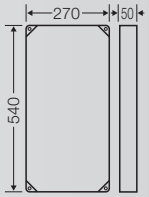


Example:
the Connection Box allows a simple and fast installation of devices, that must be operated externally, such as plug devices, push buttons and switches.

FP ZR 30

Extension frame
for enclosures size 3

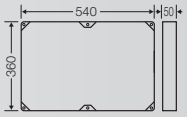
- for extension of the installation depth by 50 mm
- inclusive fixing material
- suitable for the admission of cover FP AP 30 in different installation depths



FP ZR 40

Extension frame
for enclosure size 4

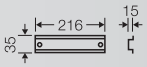
- for extension of the installation depth by 50 mm
- inclusive fixing material
- suitable for the admission of cover FP AP 40 in different installation depths



FP TS 27

DIN rail
length 216 mm

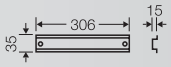
- in accordance with DIN EN 60 715
- for ENYSTAR empty boxes sizes 1, 2 and 3
- for equipment or terminals with clip-on mounting
- with fixing screws



FP TS 36

DIN rail
length 306 mm

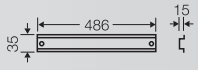
- in accordance with DIN EN 60 715
- for ENYSTAR empty boxes sizes 2 and 4
- for equipment or terminals with clip-on mounting
- with fixing screws



FP TS 54

DIN rail
length 486 mm

- in accordance with DIN EN 60 715
- for ENYSTAR empty boxes sizes 3 and 4
- for equipment or terminals with clip-on mounting
- with fixing screws



FP DS 02

Spacer
height: 29.5 mm or 53.5 mm

- for spacing DIN rails ENYSTAR
- 2 pieces
- with fixing screws for fixing on bottoms

FP MP 10

Mounting plate
W 216 x H 126 mm

- for ENYSTAR empty boxes sizes 1, 2 and 3
- material thickness 4 mm
- with fixing screws

Lami-nated paper

FP MP 20

Mounting plate
W 216 x H 306 mm

- for ENYSTAR empty boxes sizes 2, 3 and 4
- material thickness 4 mm
- with fixing screws

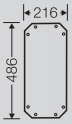
Lami-nated paper

FP MP 30

Mounting plate
W 216 x H 486 mm

- for ENYSTAR empty boxes sizes 3 and 4
- material thickness 4 mm
- with fixing screws

Lami-nated paper

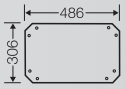


FP MP 40

Mounting plate
W 486 x H 306 mm

- for ENYSTAR empty boxes size 4
- material thickness 4 mm
- with fixing screws

Lami-nated paper



FP BZ 13

Fixing screw
length 13 mm

- for assembling DIN rails or mounting plates at the base of the box
- for material thicknesses of 2.5 to 4 mm
- self-tapping
- galvanised

Example:

FP AP 10

Cover without cut-outs
W 220 x H 130 mm

- for ENYSTAR enclosure size 1
- for retrofitting
- as protection cover or for installation of equipment

PC RAL 7035

FP AP 20

Cover without cut-outs
W 220 x H 310 mm

- for ENYSTAR enclosure size 2
- for retrofitting
- as protection cover or for installation of equipment

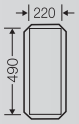
PC RAL 7035

FP AP 30

Cover without cut-outs
W 220 x H 490 mm

- for ENYSTAR enclosure size 3
- for retrofitting
- as protection cover or for installation of equipment

PC RAL 7035

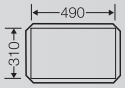


FP AP 40

Cover without cut-outs
W 490 x H 310 mm

- for ENYSTAR enclosure size 4
- for retrofitting
- as protection cover or for installation of equipment

PC RAL 7035



FP PL 2

Sealing device for covers
not suitable for circuit-breaker boxes

- can be retrofitted
- 2 pieces
- with fixing screws

Example:

FP TW 18

Partition
180 mm

RAL 7035

- to push-in between enclosures

FP TW 27

Partition
270 mm

RAL 7035

- to push-in between enclosures

FP TW 36

Partition
360 mm

RAL 7035

- to push-in between enclosures
- except between two busbar boxes

AS 12

Blanking strip
12 modules

RAL 7035

- 12 x 18 mm, divisible every 9 mm
- for the covering of spare equipment openings, for material thickness up to 3 mm

AS 18

Blanking strip
18 modules

RAL 7035

- 18 X 18 mm, divisible every 9 mm
- for the covering of spare equipment openings, for material thickness up to 3 mm

FC PN 20

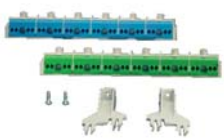
PE and N terminal
PE/N 2 x 25 mm², 8 x 4 mm², Cu each

- for installation on DIN rails in accordance with IEC 60 715, top hat profile 35 mm
- for boxes with 1 x 12 modules (through terminal reduction to 9 modules)
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- current carrying capacity: 80 A

FP FC 24

PE and N terminal
per PE/N 3 x 25 mm², 12 x 4 mm², Cu

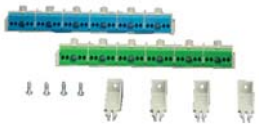
- for enclosures with 2 x 12 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A
- N separable for various potentials



FP FC 36

PE and N terminal
per PE/N 6 x 25 mm², 24 x 4 mm², Cu

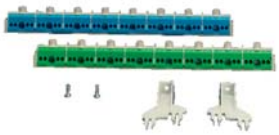
- for enclosures with 3 x 12 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A
- N separable for various potentials



FP FC 54

PE and N terminal
per PE/N 6 x 25 mm², 24 x 4 mm², Cu

- for enclosures with 2 x 27 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A
- N separable for various potentials



FP FC 51

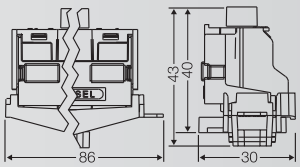
PE and N terminal
per PE/N 8 x 25 mm², 32 x 4 mm², Cu

- for enclosures with 3 x 17 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A
- N separable for various potentials

FC PE 10

PE terminal
2 x 25 mm², 8 x 4 mm², Cu

- for boxes with 1 x 12 modules (through terminal reduction to 9 modules)
- for installation on DIN rails in accordance with IEC 60 715, top hat profile 35 mm
- FIXCONNECT® plug-in technology, for terminal technology refer to index technical data
- current carrying capacity: 80 A



FP FC 054

PE terminal
6 x 25 mm², 24 x 4 mm², Cu

- for enclosures with 2 x 12 modules, 3 x 12 modules, 2 x 27 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A

FP FC 051

PE terminal
8 x 25 mm², 32 x 4 mm², Cu

- for enclosures with 3 x 17 modules
- FIXCONNECT® plug-in terminal technology, for terminal technology refer to technical data
- with fixing screws
- current carrying capacity: 80 A

FC BS 5

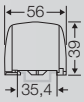
FIXCONNECT labelling system
set with 5 pieces

- labelling system for FIXCONNECT plug-in terminals, not for terminals 2x25 / 4x4 mm²
- for attaching of labelling strips or marking with felt tip pen

KKL 34

Main line branch terminal
per pole 4 x 1.5-25 mm² as L1-L3, Cu

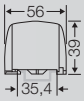
- 3-pole as connecting terminal 25 mm²
- for installation on DIN rails in accordance with IEC 60 715, top hat profile 35 mm
- current carrying capacity: 80 A
- width: 61 mm



KKL 48

Main line branch terminal
per pole 4 x 1.5-25 mm², as L1-L3;
8 x 1.5-25 mm², as N, Cu

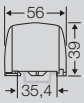
- 4-pole as connecting terminal 25 mm²
- for installation on DIN rails in accordance with IEC 60 715, top hat profile 35 mm
- current carrying capacity: 80 A
- width: 100 mm



KKL 54

Main line branch terminal
per pole 4 x 1.5-25 mm² as L1-L3;
4 x 1.5-25mm² as N;
4 x 1.5-25 mm² as PE, Cu

- 5-pole as connecting terminal 25 mm²
- for installation on DIN rails in accordance with IEC 60 715, top hat profile 35 mm
- current carrying capacity: 80 A
- width: 100 mm



Mi HS 20

Auxiliary contact
2 changeover contacts for retrofitting on switch disconnectors 160-630 A

- rated current: 6 A
- 2-pole
- connection with flat connector 6.3 mm

MK 0107

Auxiliary changeover contact
for circuit-breakers 16-630 A

- rated current: 6 A
- 1-pole
- The auxiliary switches can report different functions depending on their mounting location in the circuit-breaker.
- circuit breaker 160/250 A = 2x ON/OFF signal + 1x tripping signal
- circuit-breaker 400/630 A = 3x ON/OFF signal + 1x tripping signal + 1x electric error signal

MK 0106

Open-circuit shunt release
for circuit-breakers 16-630 A

- AC 50/60 Hz, 200 to 240 V
- the main contacts of the circuit-breaker are opened when voltage of more than 0.7 x Un is applied

MK 0105

Undervoltage release
for circuit-breakers 16-630 A

- AC 50/60 Hz, 200 to 240 V
- when the control voltage drops below 0.35 - 0.7 x Un, the main contacts of the circuit-breaker are opened
- the closing of the contacts can only take place with voltages above 0.85 x Un

VA 400

Wiring terminal up to 400 A

- terminal for direct connection of laminated copper wiring strip (Mi VS 250 and Mi VS 400) up to 400 A
- onto switchgear with flat contact M10

tightening torque for terminal	8,0 Nm

DA 185

Terminal for direct connection

- for mounting onto switchgear with flat contact M10
- rated connecting capacity:
  16-185 mm² s (round), Cu
  16-185 mm² s (sector), Cu
  16-185 mm² sol(round), Cu
  16-185 mm² sol (sector), Cu

tightening torque for terminal	25,0 Nm

ENYSTAR
Accessories
Terminal for direct connection on busbar

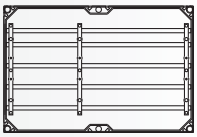
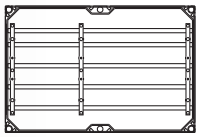
Terminal for direct connection on busbar

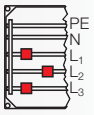
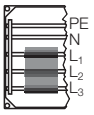
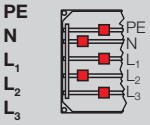
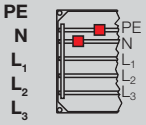
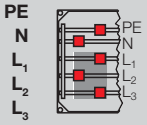
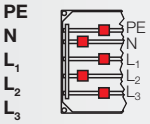
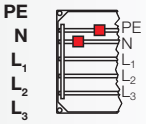
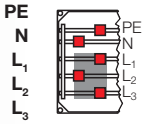
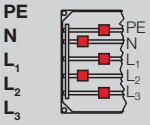
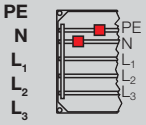
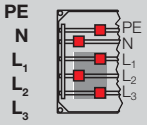
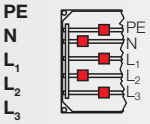
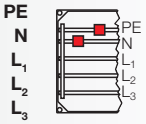
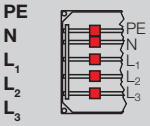
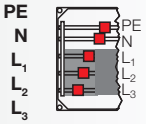
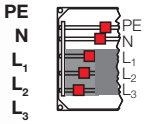
- for solid (sol), stranded (s), flexible (f) copper conductors, with gas-tight crimped end sleeve and for laminated wiring strip
- **Note:** To comply the insulation resistance there must be an air gab of 10 mm between different potentials and to inactive, conductive metal parts 15 mm.

	Type	Cross-section	Wiring strip	for busbars
	**KS 16 F**	1,5-16 mm² Cu		... x 5 mm
	**KS 35 F**	4-35 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	... x 5 mm
	**KS 70 F**	10-70 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	... x 5 mm
	**KS 150 F**	35-150 mm² Cu	250 A: Mi VS 250	12 x 5 mm / 12 x 10 mm
	**KS 240/12**	35-240 mm² Cu/**Alu ***		12 x 5 mm / 12 x 10 mm
	**AM RK 150**	**Connection module 35-150 mm²** ■ for bus-mounting in busbar boxes with covers ■ 5-pole ■ Space unit: 8		
		L1-L3, N: 35-150 mm² Cu PE: 10-70 mm² Cu	250 A: Mi VS 250 160 A: Mi VS 160	12 x 5 mm

*** Reference to the preparation of aluminum conductors:**

1. Clean the bared conductor end carefully by scraping off the oxide film, for example with a knife, (Please do not use rasps, emery paper or brushes!).
2. Immediately after removing the oxide film the conductor end is to rub in with acid and alkali free fat for example vaseline, and immediately to be connected in the terminal.
3. The prementioned processing steps are to be repeated, if the conductor was disconnected and connected again.
4. Due to the disposition to flowing of aluminum the terminals are to be re-tightened before start-up and after the first 200 operation hours.

Width	Tightening torque for terminal	For Busbar Boxes	For Busbar Boxes with covers for combination with fusegears	For Busbar Boxes with covers for combination with fusegears and blanking covers
				
11 mm	4 Nm			
16 mm	6 Nm			
21 mm	10 Nm			
34 mm	12 Nm			
34 mm	40 Nm			
144 mm	12,0 Nm L1-L3, N 10,0 Nm PE			

Mi SS 22

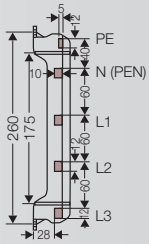
Busbar 12 x 5 mm

- length 2400 mm
- conductor material: Cu
- busbar rated current 250 A as N/PE, 400 A as PE, with ENYSTAR as L1, L2, L3, N and PE 250 A

FP ST 25

Busbar support
for busbars 250 A, 5-pole

- for installation in FP empty enclosures
- centreline spacing of busbars: 60 mm
- for bus bars 12 x 5 mm
- with fixing screws



Mi VS 100

Wiring strip
rated current: 100 A

- for connections of 100 A between busbars and built-in equipment
- wiring instructions for equipment (e.g. wire range ...mm²) must be observed
- length 2000 mm
- number of sheets: 3 pieces
- width: 9 mm
- material thickness per sheet 0.8 mm

Mi VS 160

Wiring strip
rated current: 160 A

- for connections of 160 A between busbars and built-in equipment
- wiring instructions for equipment (e.g. wire range ...mm²) must be observed
- length 2000 mm
- sheets: 6 pieces
- width: 9 mm
- material thickness per sheet 0.8 mm

Mi VS 250

Wiring strip
rated current: 250 A

- for connections of 250 A between busbars and built-in equipment
- wiring instructions for equipment (e.g. wire range ...mm²) must be observed
- length 2000 mm
- sheets: 6 pieces
- width: 15.5 mm
- material thickness per sheet 0.8 mm

FP WT 1

Wall separator

- for connecting enclosure walls of different sizes (refer to technical data)
- for insertion in bases of enclosures
- with 2 fixing elements

FP VP 18

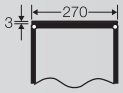
Closing plate
180 mm

- with 2 fixing elements
- without knockouts

FP VP 27

Closing plate
270 mm

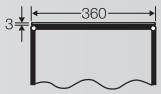
- with 2 fixing elements
- without knockouts



FP VP 36

Closing plate
360 mm

- with 2 fixing elements
- without knockouts



FP BF 18

Ventilation flange
180 mm

IP 44

- for ventilation of ENYSTAR Distribution boards in the event of extremely high internal temperatures or a risk of water condensation
- for vertical installation on box walls
- with 2 fixing elements

FP BF 27

Ventilation flange
270 mm

IP 44

- for ventilation of ENYSTAR Distribution boards in the event of extremely high internal temperatures or a risk of water condensation
- for vertical installation on box walls
- with 2 fixing elements

FP BF 36

Ventilation flange
360 mm

IP 44

- for ventilation of ENYSTAR Distribution boards in the event of extremely high internal temperatures or a risk of water condensation
- for vertical installation on box walls
- with 2 fixing elements

BE 44

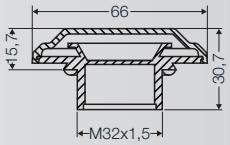
Ventilation insert

IP 44

BM 32

Pressure compensation element
for M 32 knockouts

IP 65 | ASA/PC Blend | RAL 7016



- for the reduction of condensation by pressure compensation in power distribution systems
- ISO thread M 32 x 1.5
- bore-hole: Ø 32.3 mm
- wall thickness of up to 8 mm
- with counter nut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25° to + 55° C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one pressure compensation element BM 32 must be used per 42 litres (42000 cm³) of enclosure volume.
- Example: enclosure size 30 cm x 60 cm x 17 cm = 30600 cm³ = 30,6 litres. Number of necessary BM 32 (M32) = 1 piece.

FP VS 10

Closing plate set
box size 1

- 2 x for box wall 1 (180 mm) and 2 x for box wall 2 (270 mm)
- with 8 fixing elements
- without knockouts

FP VS 20

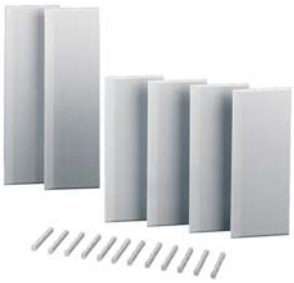
Closing plate set
box size 2

- 2 x for box wall 2 (270 mm) and 2 x for box wall 3 (360 mm)
- with 8 fixing elements
- without knockouts

FP VS 30

Closing plate set
box size 3

- 6x for box wall 2 (270 mm)
- with 12 fixing elements
- without knockouts



FP VS 40

Closing plate set
box size 4

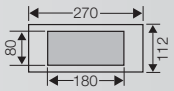
- 4 x for box wall 2 (270 mm) and 2 x for box wall 3 (360 mm)
- with 12 fixing elements
- without knockouts

FP VM 27

Metal insert for closing plates

- box size 2 (270 mm)
- for earthing of metal armoured cables
- without knockouts

mounting width	215 mm
mounting height	80 mm

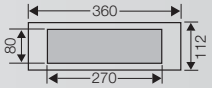


FP VM 36

Metal insert for closing plates

- for box wall 3 (360 mm)
- for earthing of metal armoured cables
- without knockouts

mounting width	215 mm
mounting height	80 mm



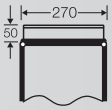
Earth connection according to Britsh Standard installation via built-in metal insert.

FP FG 200

Flange
without knockouts

- box size 2 (270 mm)
- attached enclosure connectors: 2 items

mounting width	240 mm
mounting height	92 mm

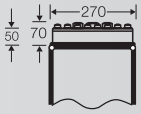


FP FG 222

IP 65

Flange
sealing range Ø 6-30 mm

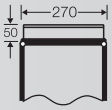
- sealing range: 17 x Ø 6-13 mm, 2 x Ø 9-17 mm, 2 x Ø 8-23 mm, 1 x Ø 11-30 mm
- box size 2 (270 mm)
- attached enclosure connectors: 2 items
- with integrated grommets for cable entry



FP FM 225

Flange
knockouts: 7 x M 16/25, 13 x M 20/25

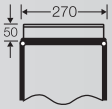
- box size 2 (270 mm)
- attached enclosure connectors: 2 items



FP FM 232

Flange
knockouts: 8 x M 25/32, 2 x M 25/32/40

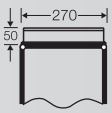
- box size 2 (270 mm)
- attached enclosure connectors: 2 items



FP FM 240

Flange
knockouts: 2 x M 25/32, 5 x M 25/32/40

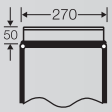
- box size 2 (270 mm)
- attached enclosure connectors: 2 items



FP FM 263

Flange
knockouts: 2 x M 20, 2 x M 25/32, 2 x M 32/40/50, 1 x M 40/50/63

- box size 2 (270 mm)
- attached enclosure connectors: 2 items

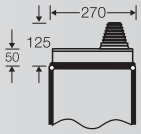


FP FG 272

Flange
sealing range: 1 x Ø 30-72 mm

- box size 2 (270 mm)
- attached enclosure connectors: 2 items

IP 65

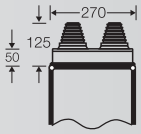


FP FG 273

Flange
sealing range: 2 x each Ø 30-72 mm

- box size 2 (270 mm)
- attached enclosure connectors: 2 items

IP 65



FP FG 282

Cable insert
sealing range: 2 x each Ø 30-72 mm

- divisible for cable insertion from the front
- box size 2 (270 mm)
- attached enclosure connectors: 2 items
- degree of protection IP 65 only with additional strain and pressure relief (e.g. FP ZE 272)

IP 65

FP GS 27

Box fin
for inserting cables across 2 boxes

- removable
- for box walls 270 mm
- can be retrofitted

FP ZE 272

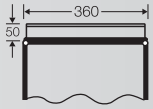
Cable strain relief
for 2 cables with max. 60 mm external diameter

- box size 2 (270 mm)
- with fixing screws

FP FG 300

Flange
without knockouts

- for box wall 3 (360 mm)
- attached enclosure connectors: 2 items



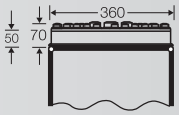
mounting width	330 mm
mounting height	92 mm

FP FG 331

Flange
sealing range Ø 6-30 mm

IP 65

- sealing range: 22 x Ø 6-13 mm, 6 x Ø 9-17 mm, 2 x Ø 8-23 mm, 1 x Ø 11-30 mm
- for box wall 3 (360 mm)
- attached enclosure connectors: 2 items
- with integrated grommets for cable entry



FP DB 27

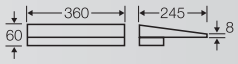
Canopy
for box wall 270 mm

- W 270 x D 245 mm
- attached enclosure connectors: 2 items

FP DB 36

Canopy
for box wall 300 mm

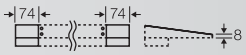
- W 360 x D 245 mm
- attached enclosure connectors: 2 items



Mi DB 01

Canopy end plate

- for canopies FP DB xx and Mi DB xx



Application of canopy:

FP GV 10

Connector

RAL 7035

- when converting existing installations
- for connection of enclosures or fixation of flanges
- set with 10 pieces

FP PL 3

Facility for sealing

- for door sealing
- can be retrofitted
- 2 pieces

FP TS 1

Door lock
converting kit to key operation

- for subsequent installation in hand operated door locking system

FP TW 1

Tool operation
conversion kit to tool operation

- can be retrofitted

FP TW 2

Tool key for double-bit
conversion kit to tool operation

- can be retrofitted

FP TW 3

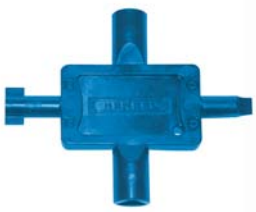
Tool key for triangular lock, 8 mm
conversion kit to tool operation

- can be retrofitted

FP TW 4

Tool key for sqare lock, 8 mm
conversion kit to tool operation

- can be retrofitted



US 1

Multikey

- triangular 8 mm, square 8 mm, double-bit and slot

DS 1

Triangular key 8 mm

FP TA 1

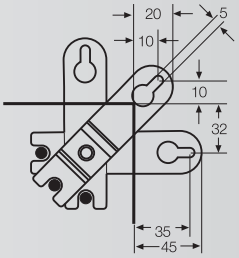
Dust protection cover
for door fasteners after removing the key operation device

- can be retrofitted
- set with 10 pieces

FP AL 40

4 stainless steel external brackets

- for external fixing of enclosures



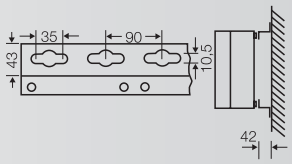
FP MS 1

RAL 7016

Profile for wall mounting

- for ENYSTAR distribution board assemblies up to 810 x 1260 mm
- with 8 screws, washers and nuts for fastening of enclosures

length	1980 mm
Material	sendzimir galvanised steel profile with structured powder coating



Varnish pen RAL 7016

RAL 7016

12 ml

	Enclosures with door and closing plates Empty enclosures FP 0...	Circuit breaker boxes FP 1...
Application area	**Suitable for indoor installation and outdoor installation, protected against weather influences** However, pay attention to the climatic effects on the installed equipment , for example, high or low ambient temperatures or formation of condensed water see technical information	
Ambient temperature - Average value over 24 hours - Maximum value - Minimum value	– + 70° C – 25° C	+ 35° C + 40° C – 5° C The ambient temperature for enclosures with electrcal funtions (distribution boards) is reduced by the installed equipment technology!
Relative humidity - short-time	Adhere to the assembly instructions issued by the manufacturer.	50% at 40° C 100% at 25° C
Fire protection in the event of internal faults	Demands placed on electrical devices from standards and laws: Minimum requirements - Glow wire test in accordance with IEC 60 695-2-11: - 650° C for boxes and cable glands - 850° C for conducting components	
Burning behaviour - Glow wire test IEC 60 695-2-11 - UL Subject 94	960° C V-2 flame-retardant self-extinguishing	960° C V-2 flame-retardant self-extinguishing
Degree of protection against mechanical load	IK 08 (5 Joule)	IK 08 (5 Joule)
Toxic behaviour	halogen-free [1] silicone-free	halogen-free [1] silicone-free

[1] “Halogen-free” in accordance with IEC 754-2 “Common test methods for cables - Determination of the amount of halogen acid gas”.

For material properties see technical data.

ENYSTAR distribution boards comply with the requirements of the IEC 61 439-3

Distribution boards assembled and wired according to manufacturer data without essential deviations from the original type or system.

To meet these requirements for Hensel ENYSTAR Distribution boards, the following must be noted:

1. The distribution boards must consist of the verified enclosures documented in this list.

2. The wiring of the equipment must be carried out with the cross-sections and conductor types indicated in Table “Rating of insulated conductors in switchgear assemblies”, Index Technics.

3. Once the distribution board is completed, a routine test must be carried out in accordance with this standard.

4. The test must be certified with a test report.

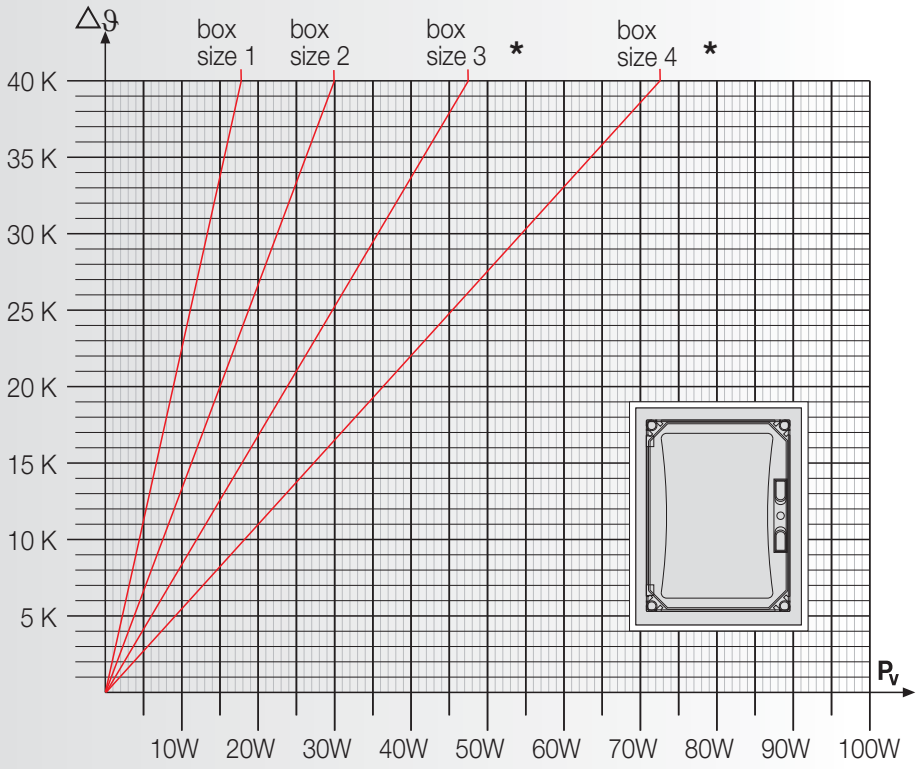
5. The assembly must be provided with a manufacturer’s identification mark.
   Compliance with important data such as
   - limit of temperature rise
   - dielectric strength
   - IP degrees of protection
   - creepage distances and clearances
   is verified for this system.

Standards and regulations

- IEC 61 439-3
  ... low-voltage switchgear and controlgear assemblies intended to be in places where unskilled persons have access to their use - distribution boards
- IEC 60 999, connecting devices
  Safety requirements for screw-type and screwless-type clamping units for electrical copper conductors
- DIN EN 50 262
  Metric threaded cable glands for electrical installations
- DIN 43 880
  Built-in equipment for electrical installations; overall dimensions and related mounting dimensions
- IEC 60 529 / DIN VDE 0470 Teil 1
  Degrees of protection provided by enclosures (IP-Code)

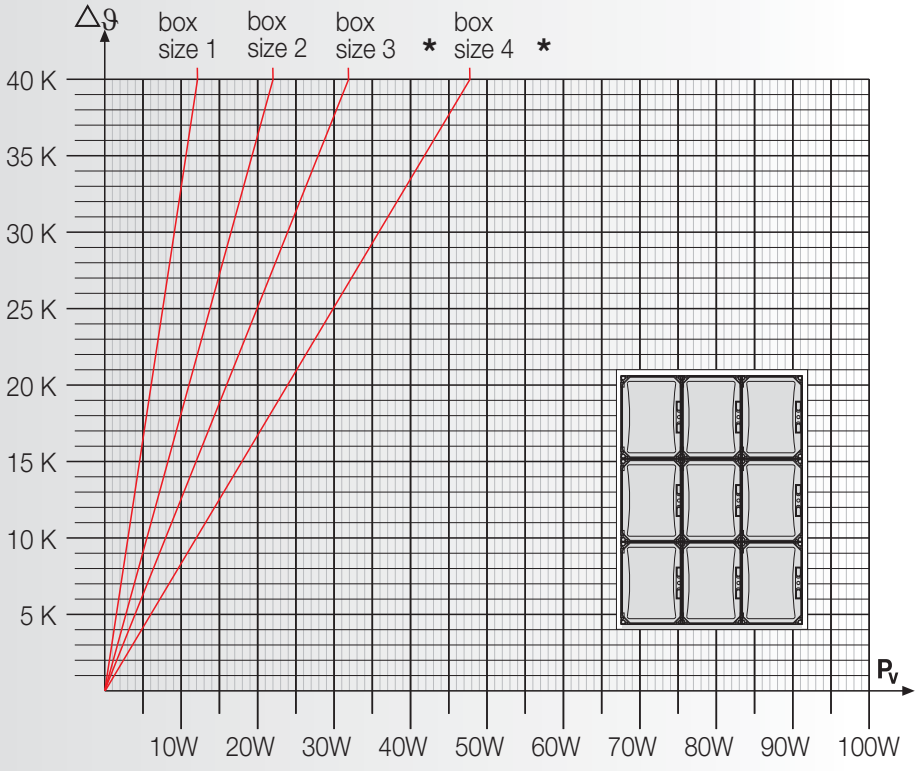
Temperature rise (Δϑ) with ENYSTAR enclosures by power dissipation of electrical devices

Single enclosures



*** with/without extension frame**

Assembled enclosures



*** with/without extension frame**

Note!

The maximally permissible operating temperature inside the enclosures (ϑ_{imax}) is determined by:

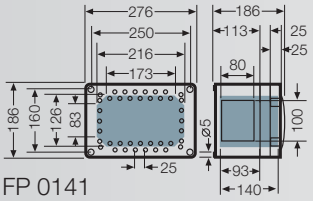
1st Maximally permissible ambient temperature of the installed electrical devices (please consider data of the equipment manufacturers)

2nd Category temperature of the internal wiring and the inserted cables

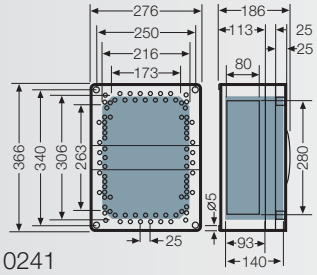
3rd Temperatur resistance of the enclosure materials and the cable entries etc.

Example: Computation of the maximum rated power dissipation (P_V)	
Maximally permissible operating temperature inside the enclosure(s) (ϑ_{imax}):	e.g. 55° C
Ambient temperature of the enclosure(s) (ϑ_U):	25° C
Maximally permissible heating up inside the enclosure:	$\Delta\vartheta = \vartheta_{imax} - \vartheta_U$ = 55° C - 25° C = 30 K
Maximum permissible power dissipation of the installed equipment inclusive wiring (P_V) in accordance with diagram:	
Enclosure size 3 (540 x 270 x 163 mm):	
Single enclosure:	P_V = 36 W
Enclosures in assemblies:	P_V = 24 W

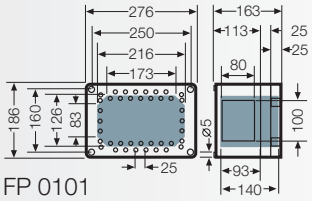
Example: Computation of the operating temperature inside the enclosure (ϑ_i)	
Ambient temperature of the enclosure(s) (ϑ_U):	25° C
Rated power dissipation of the installed electrical equipment (P_V):	24 W
Heating up inside the enclosures in accordance with diagram over:	$\Delta\vartheta$
Enclosure size 3 (540 x 270 x 163 mm):	
Single enclosures:	$\Delta\vartheta$ = 20 K; $\vartheta_i = \vartheta_U + \Delta\vartheta$ = 25° C + 20 K = 45° C
Assembled enclosures:	$\Delta\vartheta$ = 30 K; $\vartheta_i = \vartheta_U + \Delta\vartheta$ = 25° C + 30 K = 55° C



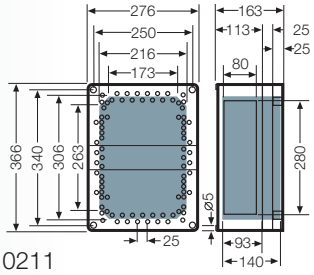
FP 0141
FP 0151



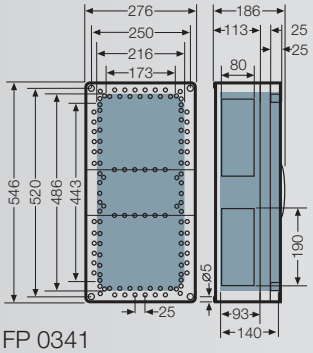
FP 0241
FP 0251



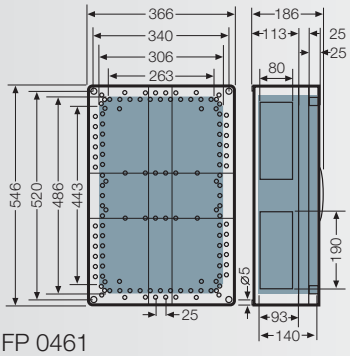
FP 0101
FP 0121



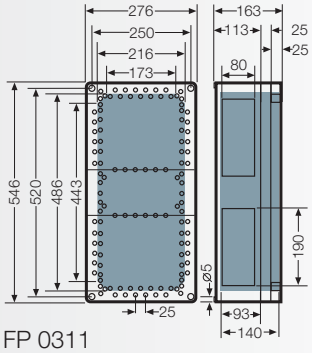
FP 0211
FP 0231



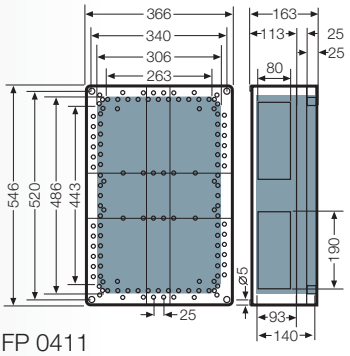
FP 0341
FP 0351



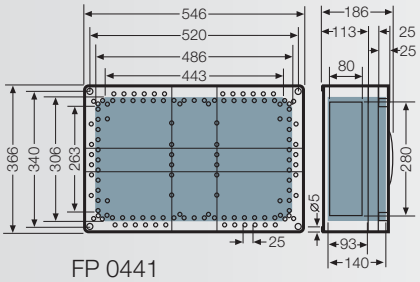
FP 0461
FP 0471



FP 0311
FP 0331

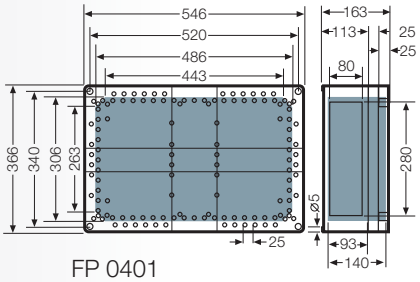


FP 0411
FP 0431

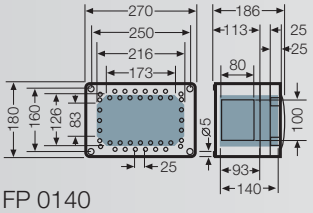


FP 0441
FP 0451

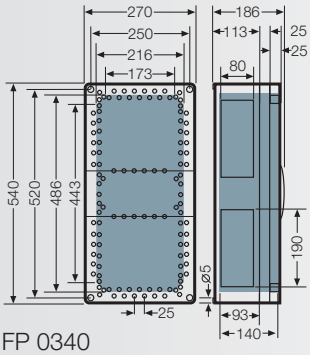
= usable installation space



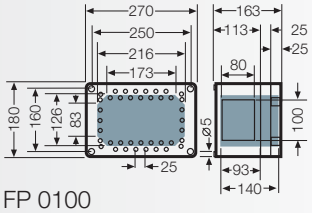
FP 0401
FP 0421



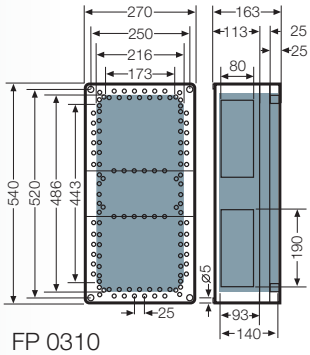
FP 0140
FP 0150



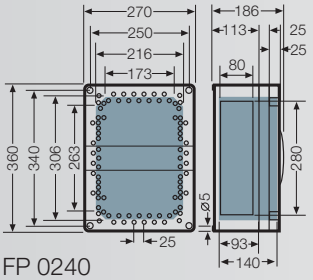
FP 0340
FP 0350



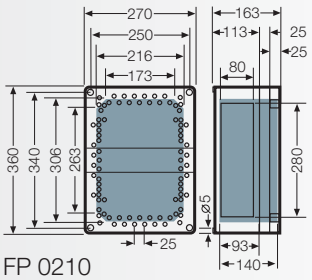
FP 0100
FP 0120



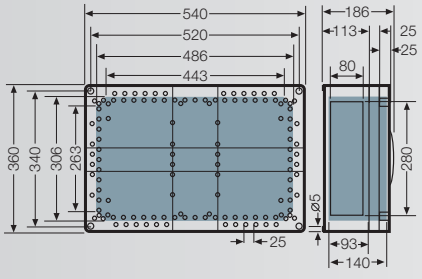
FP 0310
FP 0330



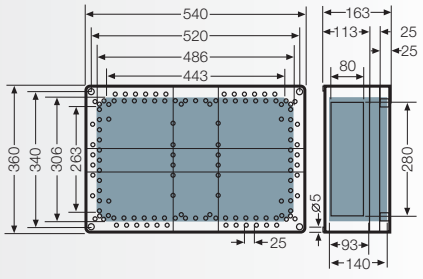
FP 0240
FP 0250



FP 0210
FP 0230



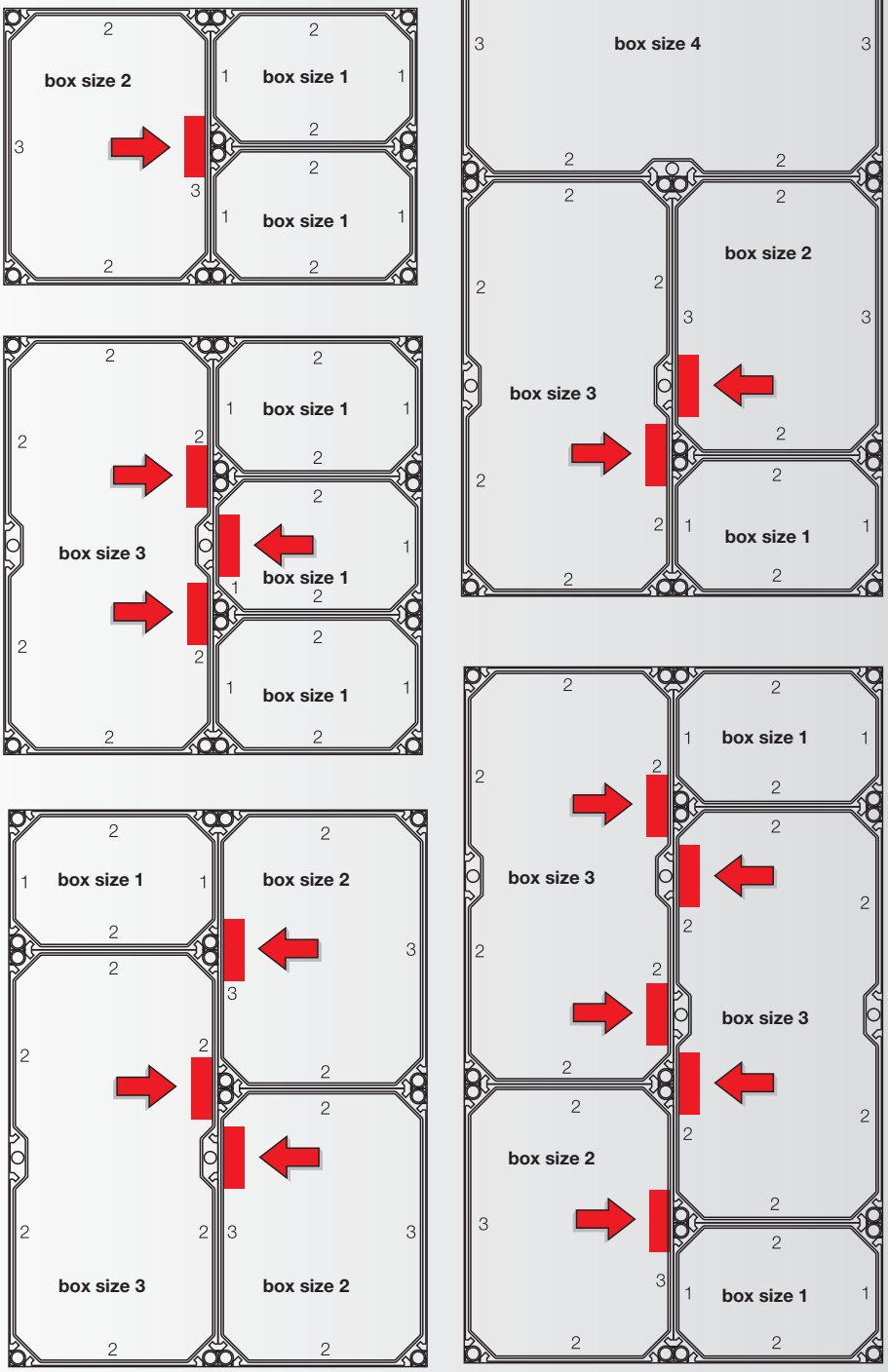
FP 0440
FP 0450



FP 0400
FP 0420

Combination of enclosures with connectors and wall separators

At this point a wall separator is necessary for the enclosure combination.



Fast assembly and mounting

All necessary gaskets are integral part of the enclosures. The enclosures are interconnected among themselves by easily pushing-in of connectors. No tools are necessary.

Connectors are attached to the enclosures in sufficient number. For reconstruction or extensions of existing distribution boards connectors FP GV 10 (set consists of 10 pieces) can be supplemented.

The connection of enclosures is not only co-ordinated with enclosures of the same size.
By means of wall separators also different sized enclosures can be combined.

Wall separators provide for high rigidity and tightness at the connection points of the enclosures, degree of protection IP 66.

Combination with connectors and wall separators

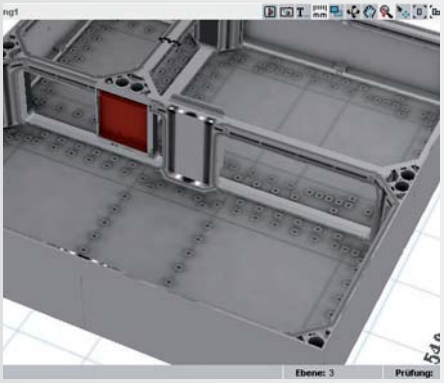
Assembly of enclosures quickly and easily.

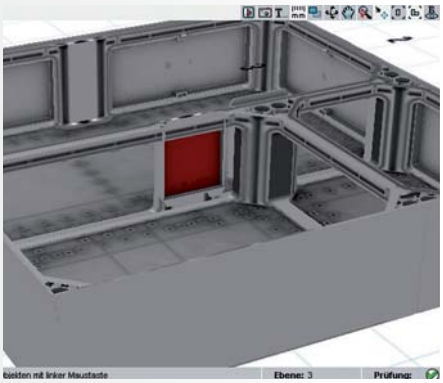
Pushing-in of connectors for the assembly of enclosures of different sizes.

Configurator ENYGUIDE supports project engineering

ENYGUIDE figures out independently the necessary accessories like the number of wall separators.

(Wall separators are red coloured in the drawing.)

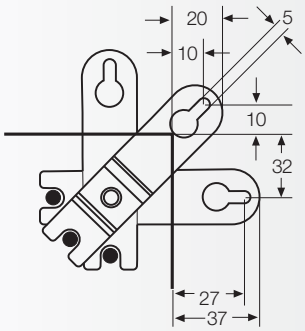


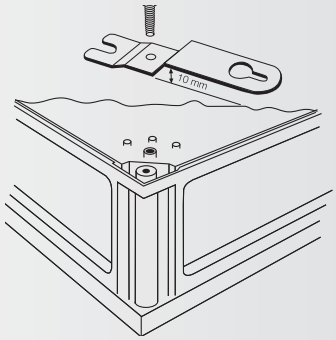


ENYGUIDE
www.enyguide.eu

External brackets made from stainless steel
for external box fixing

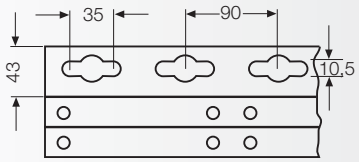
FP AL 40 (4 pieces)

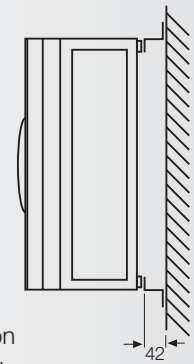




Mounting profile
for wall-mounting of ENYSTAR distribution boards,
steel profile, length 1980 mm
FP MS 1

Fixing matrix of mounting profile





Note:
Please fix mounting profile in vertical position as possible in order to give occation to cable routing behind the assembly.

For cutting to the required length fix mounting profile for example with a clamp to a desk.

Transport
Regarding transportation it is recommendable to protect the assembly against deflection. For that please screw the assembly to a solid timber.

Step 1:

Assembly of enclosures according to layout

Step 2:

Removal of the frames with doors

ENYSTAR is an open enclosure construction for the quick assembly of distribution boards.

Bases are open in all four directions. This enables a fast and efficient assembly to distribution boards.

All gaskets are already integrated. Degree of protection IP 66.

Step 3:

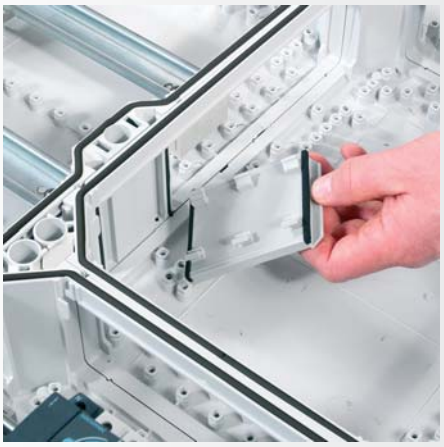
Enclosure connection

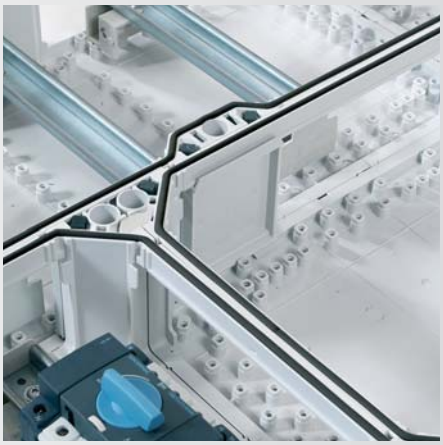
All enclosures of the distribution systems are firmly connected fast and simply with connectors. Connectors are attached to the enclosures always in sufficient number.

Step 4:

Inserting wall separators

Wall separators are used everywhere, where different sizes of enclosure walls are combined. Wall separators provide for high rigidity and tightness at the connection points of the enclosures, degree of protection IP 66.



Step 5:

Closing of walls via closing plates

Closing plates are fixed with enclosure connectors. Two enclosure connectors are always included to a closing plate.


Closing of walls with flanges for the cable entry or with closing plates

A wide range of flanges for the cable entry is available. Flanges are affixed to enclosures with connectors. Connectors are attached to the enclosures always in sufficient number. The remaining enclosure walls are closed with closing plates.


Step 5:

Installation of cable inserts

Saw the box fin. Afterwards the cable insertion is fixed via enclosure connectors and the rubber entries can be inserted.

The cable is fed into the box from the front.

Assembly of box fin

Cutting out box walls. Then insert box fin and secure via wedges.

Step 6:

Device mounting via mounting plates or DIN rails

Installation devices can be fixed on mounting plates with self-threading screws.

DIN rails are mounted right away on the bottom of bases or via spacers in heights of 29.5 mm or 53.5 mm.

Step 7:

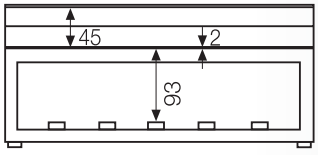
Device installation into covers

Pre-drill the cut-outs at the corners. Then saw out the cut-outs from the cover by using a piercing saw with coarse toothed saw blades for plastics (e.g. Bosch T 101B).

Install devices.

Cover is snapped in the door-frame from the rear.

Afterward, the door-frame with door and the cover is screwed on base of enclosure.

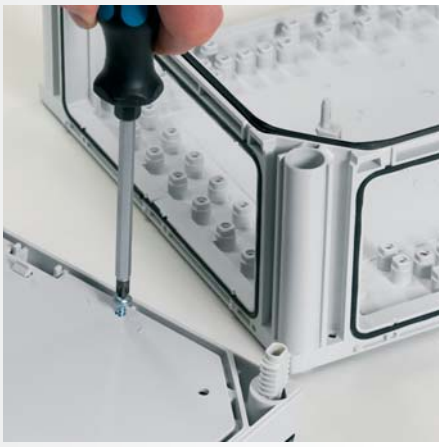


Installation depth for equipment installation in covers

Step 8:

Sealing

Installable in all enclosures, except for enclosures for DIN rail mounted devices. Sealing device is screwed on enclosure bottom. Drill-out pre-moulded knockout for sealing device (Ø 5 mm) and screw together cover with door-frame.



Subsequently, screw door-frame with door and cover on base of enclosure. Seal the cover.

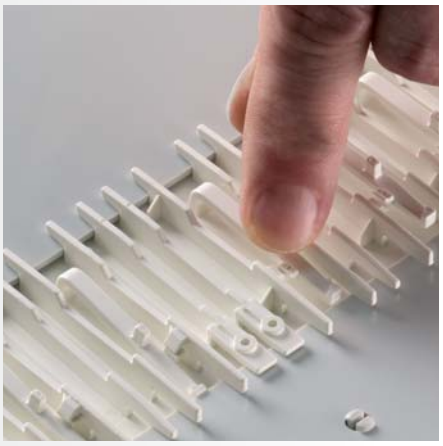
Step 9:

Sealing of unused DIN rail openings in enclosures for DIN rail equipment with attached blanking strip

Note:

Spare equipment openings in covers are to be covered with blanking strips to prevent accidental contact (blanking strips are attached for 50 % of equipment openings). Circuit breaker boxes can be fitted with any DIN rail equipment, if per row (12 modules 12 x 18 mm) the assigned back-up fuse of 80 A won't be exceeded.

Locking of the cover in box for miniature circuit breakers (MCB).



Installation of PE and N terminals in FIXCONNECT® **plug-in technology**

Arrow marks in the enclosure bottoms indicate the fixing position of the terminal support.