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PASSION FOR POWER.

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Safe product solutions for Photovoltaic plants conforming to standards

Grid, on-grid and off-grid systems

- PV Generator junction boxes
- Battery distributors
- Solar inverter collectors

ENYSUN



Solar powered by Hensel

The photovoltaic market is going to grow significantly in coming years as more and more investors and home owners are betting on solar power's high margin electricity. With our ENYSUN distribution board systems for photovoltaic plants conforming to standards, we support you in accessing this market. ENYSUN is a high value, modular system, which generates additional sales potential for you on the growing photovoltaic market.

Profit from a system which offers you clear competitive advantages on the market and which you can always rely on.











Hensel is the market leader in innovative products and services for electrotechnical building facility.

Founded in 1931, Hensel is now part of an international group of companies doing business around the world. It has its headquarters in Lennestadt, Germany and subsidiaries in the most important international markets to provide an international presence and assure that the company is never far away.

Successfully mastering the future means cooperation in dialog for Hensel. The exchange with market partners and the consistent focus on practical challenges is a transfer that provides valuable inspiration for further development of products and services. Where environmental influences, dust and moisture demand particularly demanding installation technology, Hensel enables safe energy distribution with innovative solutions. The program of modern installation and distribution systems for national and international applications have made HENSEL a market leader in tapping, fusing and distributing electrical energy in the low voltage sector.

Hensel guarantees its customers continually high standard of quality with decades of production expertise and a quality management system strictly in adherence with the DIN EN ISO 9001-2008 standard at all its factories.



ENYSUN Safe product solutions for photovoltaics





Photovoltaic solutions from Hensel

Standardised and pre-fabricated

Our ENYSUN product solutions provide a number of advantages when selecting and installing photovoltaic systems. The distributors are prefabricated making them quick and easy to connect. The PV generator junction boxes only need to be connected on site. With plug-in connectors compartible to MC4 they are easy to connect to PV strings and solar inverters. The new solar inverter collectors are pre-fabricated enclosure sets, which can be individually adapted on site.

Busbars, overvoltage protection devices and terminals are already installed.

Proven and tested Hensel quality

 All ENYSUN distribution system products fulfill the IEC 60 364-7-712 standard.
 The general fulfilment of this standard demonstrates Hensel ENYSUN product series' high quality. Using high quality materials means that you can always count on them functioning perfectly. ENYSUN distributors are totally insulated , impact resistant, dust proof and water-proof (degree of protection up to IP 65), UV resistant and resistant to corrosion

from rain, ice and snow.

Cable entry and ventilation

The formation of condensation water in closed boxes cannot be prevented in outdoor applications!

Combi climate glands in boxes with a high degree of protection prevent accumulations of condensation resulting from large temperature fluctuations caused by changing weather, intense solar radiation etc.

Your advantage:

Cable entry and ventilation in one.



ENYSUN Safe product solutions for photovoltaics



ENYSUN



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Standard requirements for the installation of photovoltaic plants





In the setting up of photovoltaic power supply systems a multitude of standards and regulations are to be observed.

The following standard requirements are listed in extract.

IEC 60 364-7-712 Electrical installations of buildings – Part 7-712: requirements for special installations or locations – Solar photovoltaic (PV) power supply systems

PV module

712.511.1

PV modules shall comply with the requirements of the relevant equipment standard, e.g. IEC 61215 for crystalline PV modules. PV modules of class II construction or with equivalent insulation are recommended if U_{OC STC}¹⁾ of the PV strings exceeds 120 V DC.

Generator junction boxes

712.413.2

Protection by use of **class II** or equivalent insulation should preferably be adopted on the DC side.

712.536.2.2.5.1

All junction boxes (PV generator and PV array boxes) shall carry a warning label indicating that active parts inside the boxes may still be live after isolation from the PV inverter.

712.512.1.1

Electrical equipment on the DC side shall be suitable for direct voltage and direct current.

IEC 61 439-1

Low-voltage switchgear and controlgear assemblies -Part 1: General rules

10.9.4 Testing of enclosures made of insulating material

For assemblies with enclosures made of insulating material, an additional dielectric test shall be carried out,...

For this additional test, the test voltage shall be equal to 1.5 times the values indicated in Table 8. In Table 8, a test voltage of 3110 V DC for assemblies up to 1000 V DC is required. The result for distribution boards of insulating material is a **test voltage of 3110 V x 1.5 = 4665 V.**

Solar inverters

712.434.1

The PV supply cable on the AC side shall be protected by a short circuit or an overcurrent protective device installed at the connection to the AC mains.

712.536.2.2.1

In the selection and erection of devices for isolation and switching to be installed between the PV installation and the public supply, the public supply shall be considered the source and the **PV installation shall be considered the load.**

Grid AC 230/400 V



ENYSUN System description Enclosure system

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	Ambient conditions	Ambient temperature for distribution boards according to IEC 61 439: - 5°C up to + 35° C, max. + 40° C Relative humidity: 50% at 40° C, 100% at 25° C	B
	Application area	The enclosures are suitable for protected outdoor installation However the climatic influences and effects on the equipment are to be considered.	syste
	Insulation	Insulated enclosures (Protection class II)	thes
•	Impact strength	Degree of protection against mechanical load IK 08 (5 Joule) in accordance with IEC 62 262	ton
	Protection against foreign solid objects and direct contact	Dust-proof Degree of protection IP 6 5	Ident
	Protection against ingress of water with harmful effects	Protected against water jets Degree of protection IP 6 <mark>5</mark>	epen
	Electrical parameters	Rated current: up to 630 A Rated insulation voltage: AC 690 V, DC 1000 V ¹⁾ , IEC 60 664 ¹⁾ the rated insulation voltage is possibly reduced by the installed equipment technology	Õ
		Material: Polycarbonat (PC)	
960°C	Burning behaviour	Glow wire test 960°C in accordance with IEC 60 695-2-11 flame-retardant, self-extinguishing	erial
E	UV resistance	The Material is examined and therefore qualified for outdoor installation (harsh environment and / or outdoor) during direct sun radiation	mat
	Chemical resistance	Resistance against acid 10% and lye 10%, petrol and mineral oil	int on
	Toxic behavour	Silicone- and halogen-free	ende
	Resistance to corrosion	Resistant against weather-related demand such as rains, ice and snow.	Depe



ENYSUN PV generator junction boxes





♦ SPD

Grid AC 230/400V

Solar modules

PV Generator junction box



 Connection: Ready for connection with plug-in connectors



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 Electrical data: Rated voltage: DC 1,000 V Rated current: up to 400 A Protective measure: Total insulation I

Solar inverter



BGB

- Ambient conditions:
- UV resistant
- Degree of protection: **IP 65**
- Stainless steel external brackets
- optional: Combi climate glands to reduce condensation formation in outdoor installations (order separately, see accessories).

Distribution board



ENYSUN **Outdoor application**



The materials used in Mi System enclosures are generally UV resistant meaning that the mechanical stability shall remain after UV exposure.

Direct solar radiation as well as power dissipation within a box can overheat the interior of the box. Exterior temperatures that are too low e.g. under -5°C can also influence the functioning of the equipment. Therefore climatic influence on the equipment needs to be taken into consideration.

The top of the box should be protected with a cover to protect against impact created by weather conditions such as rain, ice and snow.

Possible impact from chemical influences also needs to be taken into consideration when selecting an installation location, as well as IP degree of protection and climate impact.

Additional measures might be necessary such as ventilation (note degree of protection) to assure that the maximum ambient temperature allowed is not exceeded for the installed equipment as well as to prevent condensation from forming. Hensel combi climate glands (KBM) can be used in outdoor installations for cable entries and ventilation as well (see accessories).

Formation of condensed water in enclosures

How does condensed water occur in enclosures with a high degree of protection?

The internal temperature is higher than the external temperature due to the power dissipation of the built-in devices.

The warm air inside the enclosure attempts to accumulate moisture. This enters from outside through the seal as the enclosures are not gas-tight.

The internal temperature is reduced by cooling down the system e.g. by switching off the loads. The cooler air emits moisture which is collected as condensed water on the cooling inner surfaces.

In which areas does condensed water occur?

Formation of condensed water and retaliatory actions

The problem of condensed water forming only occurs in enclosures with a high degree of protection \geq IP 54 since the temperature adjustment that is carried out from inside to outside is too low due to the high density of the enclosure and its material.



Formation of condensed water for indoor installations:

In areas where high levels of air humidity and large temperature fluctuations are expected e.g. in laundry rooms, kitchens, car washes etc.

Formation of condensed water in protected outdoor installations (protected against weather influences) or unprotected outdoor installations:



Here condensed water can be formed dependent on the weather, high air humidity, direct sunlight and temperature differences compared to the wall



Product solutions see accessories outdoor application

Ambient conditions:

Degree of protection: IP 65

Stainless steel external brackets, optional: Combi climate glands to reduce condensation formation in outdoor installations, order separately, see accessories.





ENYSUN Overvoltage protection



Through the exposed assembly of photovoltaic generators on rooftops or in the free surface the lightning and surge protection is an important part of investment protection.

ENYSUN

Direct lightning strikes in the PV generator can for example destroy inverters (primary damage).

Since photovoltaic (PV) systems necessarily have a connection to the electrical installation of the building, damages throughout the whole plant can result from lightning strikes in the PV generator (secondary effect).

Protection measures

Basically, it should be ensured that no direct lightning strike to the PV generator is possible. Well-known manufacturers offer products for "separate lightning protection systems."

Is an external lightning protection system installed, a lightning current arrester type 1 for the AC supply is required in the building main distribution board.

Protection of solar inverters

To protect the inverter, both the DC input and AC output must be protected. When the inverter is installed at a distance of more than 10 m cable length to the buildings main power distribution, then a surge protection device (SPD) type 2 for the AC line shall be used to prevent overvoltage damage, such as switching overvoltage from the electrical power supply.

The experts answer all questions for lightning and surge protection!

For the string lines of the DC inputs special type 2 surge protection devices are to be provided, which are designed for direct voltage. The decisive factor is the individual lightning and surge protection concept.



* between lightning protection facility and PV plant

How to choose the correct overload protection for PV generator



are needed.

than 1,25 times $\mathrm{I}_{_{SC\,STC}}$ at any location. $(I_{SC STC} = Short Circuit Current Under$

Standard Test Condition)

be provided on the DC side of the PV inverter.

junction boxes:



- If DC lines are wired from one lightning protection zone into another, a surge protection device (SPD) must be installed in the proximity of the feed-through for cables.
- Is an outside lightning protection installed, then also an internal overvoltage protection is necessary.



PV generator junction boxes with surge arrester or DC generator disconnect switch



RAL

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PC



KV PV 1211

1 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- Connection cable length: 2 x 500 mm
- rated connecting capacity PE: 1.5-16 mm², Cu
- with stainless steel mounting plate for wall and post installations

rated voltage

U_{oc stc}= DC 1000 V

KV PV 2211

1 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 1 x DC generator disconnect switch
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- Connection cable length: 2 x 500 mm
- with stainless steel mounting plate for wall and post installations
- * Utilization category for switch disconnectors:
 DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{oc stc}= DC 1000 V



KV PV 2411

1 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- 1 x DC generator disconnect switch
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- Connection cable length: 2 x 500 mm
- rated connecting capacity PE: 1.5-16 mm², Cu
- with stainless steel mounting plate for wall and post installations
- * Utilization category for switch disconnectors:

DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{oc stc}= DC 1000 V



IP

65









ENYSUN PV generator junction boxes with DC/AC surge arrester

RAL

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String 1

WR 1

PC

IP

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WR



KV PV 1411

1 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
 current per PV string: DC 30 A max.
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- Connection cable length: 2 x 500 mm
- 1 x AC typ 2 surge arrester
- max. outgoing surge current AC (8/20) I_{total}: 40 kA
- protection level AC: < 2,5 kV
- 2 terminals per L/N/PE: 6 mm², Cu
- included cable entry: 2 AKM 25
- with stainless steel mounting plate for wall and post installations

rated voltage

U_{oc stc}= DC 1000 V AC 230/400 V



KV PV 1461 NEW

1 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 1 x DC type 1 surge arrester
- Iightning surge current DC (10/350) [L+/L- → PE] I_{imp}: 7 kA
- protection level DC: < 3 kV</p>
- plug-in connectors compatible to MC4
- Connection cable length: 2 x 500 mm
- 1 x AC typ 1 surge arrester
- Iightning surge current AC (10/350) [L+N → PE] I_{imp}: 14 kA
- protection level AC: < 4 kV</p>
- 2 terminals per L/N/PE: 6 mm², Cu
- included cable entry: 2 AKM 25
- with stainless steel mounting plate for wall and post installations

rated voltage

U_{OC STC}= DC 1000 V AC 230/400 V

Installation of KV PV ... generator junction box Possible in standard wall and post mounting.







Connection to solar inverter only with DC and AC surge arrester





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PV generator junction boxes with type 2 surge arrester

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Mi PV 1133

3 x PV string for 3 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 3 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V



PC

IP

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PV generator junction boxes with type 2 surge arrester

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Strina 1

- String 2

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+ **|**←170-+ **|**←15

String 1

Strina 2

-String 3

PC

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PC

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Mi PV 1121

2 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
 current per PV string: DC 15 A max.
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V

Mi PV 1242

4 x PV string for 2 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 2 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V

Tergrap

Mi PV 1263

6 x PV string for 3 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 3 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V









Mi PV 2111

ready for connection

rated current: DC 30 A

protection level DC: < 4 kV

*utilization category: DC-21 A

 lid fasteners for tool operation with stainless steel external brackets













rated voltage

2 x PV string for 2 x inverter input

1 x PV string for 1 x inverter input

current per PV string: DC 15 A max. 1 x DC type 2 surge arrester

suitable for outdoor installation, UV resistant

max. outgoing surge current DC (8/20) I_{total}: 40 kA

1 x DC Generator disconnect switch DC-21A

* Utilization category for switch disconnectors:

DC-21A = Switching ohmic loads inclusively moderate overload

plug-in connectors compatible to MC4 rated connecting capacity PE: 1.5-16 mm², Cu

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 2 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV
- 2 x DC Generator disconnect switch
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- Id fasteners for tool operation
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{00 STC}= DC 1000 V

U_{DC STC}= DC 1000 V



Customised solutions?

Contact us!

See check list in the appendix!

Mi PV 2233

3 x PV string for 3 x inverter input

- readv for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 30 A max.
- 3 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV
- 3 x DC Generator disconnect switch DC-21A
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- Iid fasteners for tool operation
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage









Mi PV 2121

ready for connection

rated current: DC 30 A

protection level DC: < 4 kV

*utilization category: DC-21 A

lid fasteners for tool operation with stainless steel external brackets







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Mi PV 2242

rated voltage

4 x PV string for 2 x inverter input

2 x PV string for 1 x inverter input

current per PV string: DC 15 A max. 1 x DC type 2 surge arrester

suitable for outdoor installation, UV resistant

max. outgoing surge current DC (8/20) I_{total}: 40 kA

1 x DC Generator disconnect switch DC-21A

* Utilization category for switch disconnectors:

DC-21A = Switching ohmic loads inclusively moderate overload

plug-in connectors compatible to MC4 rated connecting capacity PE: 1.5-16 mm², Cu

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 2 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV
- 2 x DC Generator disconnect switch
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- Id fasteners for tool operation
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{00 STC}= DC 1000 V

U_{DC STC}= DC 1000 V



Customised solutions?

Contact us!

See check list in the appendix!

Mi PV 2263

6 x PV string for 3 x inverter input

- readv for connection
- suitable for outdoor installation. UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 3 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV
- 3 x DC Generator disconnect switch DC-21A
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- Iid fasteners for tool operation
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{OC STC}= DC 1000 V









ENYSUN PV generator junction boxes with type 1 surge arrester





Mi PV 1271 🔤

2 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 1 x DC type 1 surge arrester
- Ightning surge current DC (10/350) [L+/L- → PE] I_{imp}: 50 kA
- protection level DC: < 4 kV</p>
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V











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– String 1 – String 2

PC

IP

65

8

WR 1

Mi PV 2271 NEW

2 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 15 A max.
- 1 x DC type 1 surge arrester
- Iightning surge current DC (10/350) [L+/L- → PE] I_{imp}: 50 kA
- protection level DC: < 4 kV</p>
- 1 x DC Generator disconnect switch DC-21A
- *utilization category: DC-21 A
- plug-in connectors compatible to MC4
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V





PV generator junction boxes with string overload and DC generator disconnect switch



RAL

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► 170→

String

🕂 String 3

- String 4

String 6

RAL

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▶ ←170→ + ◆15

String

🔶 Strina 3

String 4

String 6

PC

450

19 x M16/2

PC

450

IP

IP

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WR 1 🗸

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65

8

WR 1 <

65



Mi PV 3311

6 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 2 x 30 A
- current per PV string: DC 10 A max.
- 6 holder for fuses each + and -
- connection: 1.5-16 mm², Cu
 2 x DC Constant disconnect quit.
- 2 x DC Generator disconnect switch
- *utilization category: DC-21 A
- connection: 6-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 2 ASM 25
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

ed voltage	U _{OC STC} = DC 1000

Mi PV 3321

rat

6 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 2 x 30 A
- current per PV string: DC 10 A max.
- 6 holder for fuses each + and -
- connection: 1.5-16 mm², Cu
- 2 x DC Generator disconnect switch
- *utilization category: DC-21 A
- connection: 6-35 mm², Cu
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 3 ASM 25
- with stainless steel external brackets
- * Utilization category for switch disconnectors:
 DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{oc stc}= DC 1000 V

V







PV generator junction boxes with string overload and DC generator disconnect switch



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+ **|**←170→

- String 1

- String 12

PC

IP

15 x M16 15 x M20

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WR 1 🚽

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600



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Mi PV 3611

12 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 125 A max.
- current per PV string: DC 10 A max.
- for each 12 fuse holders + and -
- connection: 1.5-16 mm², Cu
- 1 x DC generator disconnect switch
- connection: M 10 (max. 1 x 120 mm² per pole)
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 12 ASM 20, 2 ASM 25
- with stainless steel external brackets

rated voltage

U_{oc stc}= DC 1000 V

Mi PV 3621

12 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 125 A max.
- current per PV string: DC 10 A max.
- for each 12 fuse holders + and -
- connection: 1.5-16 mm², Cu
- 1 x DC generator disconnect switch
- connection: M 10 (max. 1 x 120 mm² per pole)
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 12 ASM 20, 3 ASM 25
- with stainless steel external brackets

rated voltage

U_{oc stc}= DC 1000 V







PV generator junction boxes with string overload and DC generator disconnect switch



RAL

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+|←170→ +|←15

- String 1

- String 24

PC

15 x M16 15 x M20



Mi PV 3931

24 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 250 A
- current per PV string: DC 10 A max.
- for each 24 fuse holders + and -
- connection: 1.5-16 mm², Cu
- 1 x DC generator disconnect switch
- connection: M 10 (max. 1 x 120 mm² per pole)
- lid fasteners for tool operation
- included cable entry: 24 ASM 16, 24 ASM 20, 2 ASM 40
- with stainless steel external brackets

rated voltage

 $U_{\text{OC STC}}$ = DC 1000 V

Mi PV 3941

24 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 250 A
- current per PV string: DC 10 A max.
- for each 24 fuse holders + and -
- connection: 1.5-16 mm², Cu
- 1 x DC generator disconnect switch
- connection: M 10 (max. 1 x 120 mm² per pole)
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 24 ASM 16, 25 ASM 20, 2 ASM 40
- with stainless steel external brackets

rated voltage

U_{oc stc}= DC 1000 V



IP

900

2 x M20 4 x M32/40/50

8

475

15 x M16 15 x M20

WR 1 <

65











Mi PV 3781 8 x PV string for 1 x inverter input ready for connection

- suitable for outdoor installation, UV resistant
- rated current: DC 120 A
- current per PV string: DC 15 A max.
- 8 holder for fuses each + and -
- connection: 1.5-16 mm², Cu
- ready for installation of devices for string monitoring
- DIN-rails can be converted
- connection outgoing: 10-70 mm², Cu
- lid fasteners for tool operation
- included cable entry: 18 ASM 16, 2 ASM 32
- with stainless steel external brackets





Mi PV 3791

- 8 x PV string for 1 x inverter input
- ready for connection

rated voltage

- suitable for outdoor installation, UV resistant
- rated current: DC 120 A
- current per PV string: DC 15 A max.
- 8 holder for fuses each + and -
- connection: 1.5-16 mm², Cu
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-16 mm², Cu
- ready for installation of devices for string monitoring
- DIN-rails can be converted
- connection outgoing: 10-70 mm², Cu
- lid fasteners for tool operation
- included cable entry: 18 ASM 16, 1 ASM 25, 2 ASM 32 with stainless steel external brackets
- rated voltage

U_{00 STC}= DC 1000 V

U_{oc stc}= DC 1000 V



Applications:









PV generator junction boxes with string overload and DC generator disconnect switch





Mi PV 3731

3 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 400 A
- current per PV string: DC 120 A max.
- 3 fuse bases HRC 1 each + and -
- connection: M 10 (max. 1 x 120 mm² per pole)
- 1 x DC generator disconnect switch
- connection: M 10 (max. 2 x 150 mm² per pole)
- lid fasteners for tool operation
- included cable entry: 6 ASM 32, 2 ASM 50
- with stainless steel external brackets

rated voltage

U_{oc stc}= DC 1000 V

Mi PV 3741

3 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 400 A
- current per PV string: DC 120 A max.
- 3 fuse bases HRC 1 each + and -
- connection: M 10 (max. 1 x 120 mm² per pole)
- 1 x DC generator disconnect switch
- connection: M 10 (max. 2 x 150 mm² per pole)
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 1 ASM 20, 6 ASM 32, 2 ASM 50
- with stainless steel external brackets

rated voltage

U_{oc stc}= DC 1000 V









PV generator junction boxes with blocking diodes and DC generator disconnect switch





Mi PV 4311

12 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant
- rated current: DC 30 A
- current per PV string: DC 1.5 A max.
- 12 x blocking diodes + and 12 terminal blocks -
- connection: incoming 1.5-6 mm², Cu
- 1 x DC generator disconnect switch
- *utilization category: DC-21 A
- connection outgoing: 1.5-6 mm², Cu
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 14 ASM 20
- with stainless steel external brackets
- * Utilization category for switch disconnectors:

DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage	U _{0C STC} = DC 1000 V
---------------	---------------------------------

Mi PV 4321

12 x PV string for 1 x inverter input

- ready for connection
 - suitable for outdoor installation, UV resistant
 - rated current: DC 30 A
 - current per PV string: DC 1.5 A max.
 - 12 x blocking diodes + and 12 terminal blocks -
- connection: incoming 1.5-6 mm², Cu
- 1 x DC Generator disconnect switch DC-21A
- *utilization category: DC-21 A
- connection outgoing: 1.5-6 mm², Cu
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- included cable entry: 12 ASM 16, 15 ASM 20
- with stainless steel external brackets
- * Utilization category for switch disconnectors:
 DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{oc stc}= DC 1000 V













RAL

7032

7032

|←214-++15

PC

Mi PV 4631

24 x PV string for 1 x inverter input

- ready for connection
- suitable for outdoor installation, UV resistant rated current: DC 63 A
- current per PV string: DC 1.5 A max.
- 24 x blocking diodes + and 24 terminal blocks -
- connection: incoming 1.5-6 mm², Cu
- 1 x DC generator disconnect switch
- *utilization category: DC-21 A
- connection outgoing: 1.5-35 mm², Cu
- lid fasteners for tool operation
- included cable entry: 24 ASM 16, 24 ASM 20, 2 ASM 25
- with stainless steel external brackets
 - * Utilization category for switch disconnectors:

DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage	U _{oc stc} = DC 1000 \
---------------	---------------------------------

Mi PV 4641

24 x PV string for 1 x inverter input

- ready for connection
 - suitable for outdoor installation, UV resistant
- rated current: DC 63 A
- current per PV string: DC 1.5 A max.
- 24 x blocking diodes + and 24 terminal blocks -
- connection: incoming 1.5-6 mm², Cu
- 1 x DC generator disconnect switch
- *utilization category: DC-21 A
- connection outgoing: 1.5-35 mm², Cu
- 1 x DC type 2 surge arrester
- max. outgoing surge current DC (8/20) I_{total}: 40 kA
- protection level DC: < 4 kV</p>
- rated connecting capacity PE: 1.5-16 mm², Cu
- lid fasteners for tool operation
- included cable entry: 24 ASM 16, 24 ASM 20, 3 ASM 25
- with stainless steel external brackets
- * Utilization category for switch disconnectors: DC-21A = Switching ohmic loads inclusively moderate overload

rated voltage

U_{OC STC}= DC 1000 V



IP

900

65

65

900

8









ENYSUN PV generator junction boxes Empty boxes







Grid AC 230/400V

Solar modules

PV Generator junction box

Solar inverter



 Application: For self-assembling of PV generator junction boxes



 Electrical data: Rated voltage: DC 1000 V
 Protective measure: Total insulation I

Solar inverter collector

Distribution board



Ambient conditions:

- UV resistant
- Degree of protection: **IP 65**
- Stainless steel external brackets
- optional: Combi climate glands to reduce condensation formation in outdoor installations (order separately, see accessories).



Empty boxes Box walls without knockouts



KF PV 0100

box wall can be drilled individually for cable entry max. M 20

box walls without knockouts

rated voltage	DC 1000 V
mounting height	66 mm
mounting width	59 mm
max. installation depth	37 mm
wall thickness of the bottom part	2,3 mm



KF PV 0200

box wall can be drilled individually for cable entry max. M 20

box walls without knockouts

rated voltage	DC 1000 V
mounting height	76 mm
mounting width	69 mm
max. installation depth	42 mm
wall thickness of the bottom part	2,3 mm



IP

66





KF PV 0300

box wall can be drilled individually for cable entry max. M 32

box walls without knockouts

rated voltage	DC 1000 V
mounting height	94 mm
mounting width	114 mm
max. installation depth	52 mm
wall thickness of the bottom part	2.6 mm



KF PV 0400

box wall can be drilled individually for cable entry max. M 32

box walls without knockouts

rated voltage	DC 1000 V
mounting height	99 mm
mounting width	141 mm
max. installation depth	64 mm
wall thickness of the bottom part	2,8 mm



KF PV 0500

box wall can be drilled individually for cable entry max. M 40

box walls without knockouts

rated voltage	DC 1000 V
mounting height	133 mm
mounting width	173 mm
max. installation depth	79 mm
wall thickness of the bottom part	3 mm















RAL

9011

РС

0 V n



Empty boxes Box walls without knockouts



KF PV 0600

box wall can be drilled individually for cable entry max. M 50

box walls without knockouts

rated voltage	DC 1000 V
mounting height	180 mm
mounting width	230 mm
max. installation depth	95 mm
wall thickness of the bottom part	3 mm







KF PV 0700

box wall can be drilled individually for cable entry max. M 50

box walls without knockouts

rated voltage	DC 1000 V
mounting height	180 mm
mounting width	280 mm
max. installation depth	88 mm
wall thickness of the bottom part	3 mm







KV small-type distribution boards Box walls without knockouts

ENYSUN

PC

IP

65

RAL

7035



KV PC 8104

4.5 modules: 1 x 4.5 x 18 mm



- without PE and N terminal
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- for the installation of DIN rail equipment (DIN 43 880), top hat profile 35 mm
- with transparent lid, sealable
- Iocking device for hinged lid and sealing facility see accessories
- with cable entry cover
- protective cover can be cut out
- box walls without knockouts

rated insulation voltage

KV PC 8109

9 modules: 1 x 9 x 18 mm

- 1-row
- without PE and N terminal
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- for the installation of DIN rail equipment (DIN 43 880), top hat profile 35 mm
- with transparent lid, sealable
- Iocking device for hinged lid and sealing facility see accessories
- with cable entry cover
- protective cover can be cut out
- box walls without knockouts

rated insulation voltage

AC 690 V DC 1000 V

AC 690 V DC 1000 V





See Hensel main catalogue for further empty boxes and accessories!



PV generator junction boxes individual photovoltaic solutions



Photovoltaic

Generator junction boxes up to 1000 A made of insulation material in protection class: II, Degree of protection: up to IP 65



















ENYSUN Battery distributors







• Connection: Delivery with the necessary cable entries



 Electrical data: Rated voltage: < DC 120 V Rated current: up to DC 400 A



 Ambient conditions: Protective measure: Total insulation Degree of protection: IP 65
 Stainless steel external brackets

These application areas for PV systems are now new IEC 60 364-7-712 (Draft):



Electrical installation or public power supply system

specified by the

Stand-alone PV systems

OFF-GRID system

PV system with energy storage, not connected to the public power supply system

"PV system for supply to an installation which is not connected to a system for distribution of electricity to the public **(stand alone)**"

PV generator



PV generator junction boxes



Solar inverters

Source: Kostal

Solar inverter collectors

Energy storage work

Energy storage

- In PV system for consumer-oriented production as an alternative to a system for distribution of electricity to the public
- and for decentralized supply to an electrical installation without a public supply network is available (off-grid system).

e.g. Battery



Battery distributors

DC

AC



Stand-alone solar inverters

Source: SMA Solar Technology AG

ENYSUN distributors of Hensel for DC and AC areas in PV systems work safely and in conformity to the new standard (Draft) in all application areas.

Electrical installation



ENYSUN Battery distributors





Off-grid systems (stand-alone grid) with AC-coupling




Battery distributors with disconnect switch and protective devices for outgoing circuits to solar inverters

Mi PV 3301

1 x battery on 1 x inverter

- ready for connection
- for normal environment and protected outdoor
- rated current: DC 125 A max.
- current per inverter: DC 125 A max.
- 1 x fuse switch disconnector HRC 00, 2-pole
- connection: M 8 (max. 1 x 70 mm² per pole), Cu
- included cable entry: 4 ASM 40
- lid fasteners for tool operation
- with stainless steel external brackets
- in accordance with IEC 61 439-1/-2 and EN 50 272-2

Mi PV 3802

rat

1 x battery on 2 x inverter

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- 1 x fuse switch disconnector HRC 2
- rated current: DC 400 A
- connection: M 10 (max. 2 x 70 mm² per pole), Cu
- outgoing cables can be changed to top or bottom
- current per inverter: DC 125 A max.
- 2 x fuse switch disconnectors HRC 00, 2-pole
- rated current: DC 125 A max. connection: 4-70 mm², Cu
- outgoing cable can be above or below
- included cable entry: 8 ASM 40
- lid fasteners for tool operation
- with stainless steel external brackets
- in accordance with IEC 61 439-1/-2 and EN 50 272-2

rated voltage	DC 120 V
busbar rated current	400 A
prospective short circuit current (lcp)	70 kA

Mi PV 3903

1 x battery on 3 x inverter

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- 1 x fuse switch disconnector HRC 2
- rated current: DC 400 A
- connection: M 10 (max. 2 x 70 mm² per pole), Cu
- outgoing cables can be changed to top or bottom
- current per inverter: DC 125 A max.
- 3 x fuse switch disconnector HRC 00, 2-pole
- rated current: DC 125 A max.
- connection: 4-70 mm². Cu
- outgoing cable can be above or below
- included cable entry: 10 ASM 40
- lid fasteners for tool operation
- with stainless steel external brackets
- in accordance with IEC 61 439-1/-2 and EN 50 272-2

rated voltage	DC 120 V
busbar rated current	400 A
prospective short circuit current (Icp)	70 kA













RÊg





ENYSUN Battery distributors





Off-grid system (stand-alone grid) with **DC**-coupling

1.a PV Generator 2.a PV Generator junction box

3.a Charger (DC / DC)



---!

1.b Battery

2.b Battery distributor

3.b Inverter for Off-grid systems (DC / AC)

4.

AC distributiion board



Battery distributors with protective devices for outgoing circuits to solar inverters

PC

IP

Batterv

Charger

65

RAL

•150→ +170→ +15

7032

Inverter



Mi PV 3101

1 x battery on 1 x inverter

- ready for connection
- for normal environment and protected outdoor
- rated current: DC 80 A
- current per inverter: DC 80 A max.
- 1 x fuse switch disconnector HRC 00, 2-pole
- connection from above: M 8 (max. 1 x 35 mm² per pole), Cu
- connection from below: M 8 (max. 1 x 35 mm² per pole for battery and charger), Cu
- included cable entry: 2 ASM 25, 4 ASM 32
- lid fasteners for tool operation
- with stainless steel external brackets
- in accordance with IEC 61 439-1/-2 and EN 50 272-2

|--|--|

Mi PV 3302

1 x battery on 3 x inverter

- ready for connection
- for normal environment and protected outdoor
- rated current: DC 80 A
- current per inverter: DC 80 A max.
- 2 x fuse switch disconnectors HRC 00, 3-pole
- connection from above: M 8 (max. 1 x 35 mm² per pole), Cu
- connection from below: M 8 (max. 1 x 35 mm² per pole
- for battery and charger), Cu
- included cable entry: 2 ASM 25, 8 ASM 32
- lid fasteners for tool operation
- with stainless steel external brackets
- in accordance with IEC 61 439-1/-2 and EN 50 272-2

rated voltage

DC 120 V



- Inverter 2 - Inverter 3 Charger







EMC compliant busbar

The busbar system comes standard with N/PEN conductors in the phase conductor area. The N busbars have the same current carrying capacity as the phase conductor. These busbars are appropriate for:

- Harmonics created by the solar inverter.
- Unbalanced loads (Unbalanced load limit 4.6 kVA allowed by power supply companies) created by power supply companies.



Connection of large cable cross-sections

By using a cable insert in combination with strain relief for inverter-collectors from 140 kVA an easy connection of large cable cross-sections is possible.

When using a cable insertion the cables are inserted from the front. As a result, cables must not be inserted via cable glands.

To obtain degree of protection the strain relief keeps the cables connected centred within the stepped grommet. In addition, the cables are strain- and pressure relieved.













 Complete set: pre-fabricated and tested solar inverter collector solutions



Assessing simultaneity and load capacity of the installed protective devices in connection with power generating plants



 Electrical data: Rated voltage: AC 230/400 V Rated capacity: up to 220 kVA Degree of protection: up to IP 65 optional with surge arrester





Solar inverter collector supplied as set

PV inverter collectors are supplied as a complete set. All necessary parts are put together in one set.

The individual housings are ready for connection and tested. They can be mounted to distribution boards, in order to realize a customized assembly according to the individual locations.













PV inverter collectors can be extended with lightning and surge protection and residual current protection (RCD) basing on pre-engineered enclosure solutions, thus offering optimal solutions for all requirements.











Extension of terminal compartment for the 70 mm² connection

terminal for direct busbar connection KS 70 F





Solar inverter collectors with circuit-breaker boxes



Photovoltaic installations need special ratings.

Why are special solutions needed for PV plants?

The rating of photovoltaic installations differs significantly from normal building installations in that the installed devices are subject to a continuous load.

Power distribution in buildings

Protective device selection and rating to protect cables related to the current resp. the load of the consumer.



Select protective devices in the form of a fuse or miniature circuit breaker.

Applying the simultaneity factor

Influenced by heat from the simultaneity factor and load

Due to the low simultaneity factor, the installed distribution board is often dimensioned according to the number of modules.

In consumption plants, power dissipation fluctuates depending on the number of consumers switched on at any one time.

Low average effective power dissipation

Power loss Pv		
LANAAA/	Ø effective power loss	8
	tim	ne

Power distribution in photovoltaic plants

Protective device selection and rating to protect cables related to the current resp. load of the solar inverter on the

AC side.



Select protective devices in the form of a fuse or miniature circuit breaker.

PV plants have a simultaneity factor of 1!

Which is why the distribution boards in PV plants have to be dimensioned differently and not simply according to the number of modules.

Constant high loads lead to high average power dissipation during the energy production phase.

Power dissipation therefore needs to be reduced to the point where the maximum temperature for devices is not exceeded.



Protective device selection



Solar inverter collectors with circuit-breaker boxes



Hensel solar inverter collectors correct dimensioned and tested: e.g. circuit-breaker box

High power dissipation levels can lead to exceeding the maximum permitted temperature for devices meaning that protection devices can trip even when beneath rated current levels.

Photovoltaic installations require a special way of thinking about device dimensioning and selection! The equipment of a circuit breaker box can be inferred from the following table.

Table: Rating of solar inverter collector

Protection device for 1~ solar inverter with 1-pole miniature circuit breakers (MCB)							*1 MU = 9 mm	
Inverter		miniature circuit breal	ker		cable		glands	flange
maximum power output:	max. operating current	rated current	max. quantity	MU* between two MCB	minimum cable cross section	minimum out- side diameter		
2,8 kVA	12 A	16 A	6 per row	2	3 x 2,5 mm ²	11 mm	M 25	Mi FM 25
3,7 kVA	16 A	20 A	5 per row	2	3 x 2,5 mm ²	11 mm	M 25	Mi FM 25
4,8 kVA	21 A	25 A	4 per row	2	3 x 4 mm ²	13 mm	M 25	Mi FM 25
6,5 kVA	28 A	32 A	3 per row	2	3 x 6 mm ²	15 mm	M 25	Mi FM 25

Protection device for 3~ solar inverter with 1-pole miniature circuit breakers (MCB)							*1 MU = 9 mm	
Inverter		miniature circuit breal	ker		cable		glands	flange
maximum power output:	max. operating current	rated current	max. quantity	MU* between two MCB	minimum cable cross section	minimum out- side diameter		
8,4 kVA	12 A	16 A	6 per row	2	5 x 2,5 mm ²	13,5 mm	M 25	Mi FM 32
11,1 kVA	16 A	20 A	5 per row	2	5 x 2,5 mm ²	13,5 mm	M 25	Mi FM 32
14,4 kVA	21 A	25 A	4 per row	2	5 x 4 mm ²	15,5 mm	M 32	Mi FM 32
19,5 kVA	28 A	32 A	3 per row	2	5 x 6 mm ²	18 mm	M 32	Mi FM 32

Protection device for 3~ solar inverter with 3-pole miniature circuit breakers (MCB)							*1 MU = 9 mm	
Inverter		miniature circuit breal	ker		cable		glands	flange
maximum power output:	max. operating current	rated current	max. quantity	MU* between two MCB	minimum cable cross section	minimum out- side diameter		
8,4 kVA	12 A	16 A	2 per row	12	5 x 2,5 mm ²	13,5 mm	M 25	Mi FM 32
8,9 kVA	13 A	20 A	2 per row	12	5 x 2,5 mm ²	13,5 mm	M 25	Mi FM 32
11,7 kVA	17 A	25 A	2 per row	12	5 x 4 mm ²	15,5 mm	M 32	Mi FM 32
14,4 kVA	21 A	25 A	1 per row		5 x 4 mm ²	15,5 mm	M 32	Mi FM 32
19,5 kVA	28 A	32 A	1 per row		5 x 6 mm ²	18 mm	M 32	Mi FM 32

Wiring of the busbar and connection at the switch disconnector



Values are valid for max. ambient temperature of 35° C

1. Assessing simultaneity and load capacity



High simultaneity and load:

- Devices spaced apart allow a better radiation of the power dissipation.
- Additional slots assure increased air circulation in the enclosure.
- The larger enclosure increase the dissipated power loss.

2. Standard assembly support



Installation devices are to be properly installed automatically with the help of spacers.



At the same time the miniature circuit breaker is in the proper position relative to the cover plate.



ENYSUN Solar inverter collectors with circuit-breaker box





Mi PV 6532 🔤

Rated capacity: 30 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~
- rated operating current: AC 28 A per inverter
- maximum 9 x 1~ inverters or 3 x 3~ inverters
- connection: 1.5-16 mm², Cu
- 9 terminals per PE+N
- Outgoing:
- switch disconnector, 3-pole
- connection: 2,5-35 mm², Cu
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 63 A
- lid fasteners for hand operation
- order cable entries separately
- with stainless steel external brackets
- in accordance with IEC 61 439-1

rated voltage

AC 230/400 V







with circuit-breaker boxes



Mi PV 6632 🔤

Rated capacity: 30 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~
- rated operating current: AC 28 A per inverter
- maximum 9 x 1~ inverters or 3 x 3~ inverters
 connection: 1.5-16 mm², Cu
- connection: 1.5-16 mm
 9 terminals per PE+N
- a terminals per
 Outgoing:
- Outgoing:
 owitch diagona
- switch disconnector, 3-pole
 sampactize: 0.5.05 mm².0
- connection: 2,5-35 mm², Cu
 terminal new DF N few services
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 63 A
- 1 x AC type 2 surge arrester
- with connection directly to the terminals of the outgoing cables
- max. outgoing surge current AC (8/20) I_{total}: 40 kA
- protection level AC: < 2,5 kV</p>
- lid fasteners for hand operation
- order cable entries separately
- with stainless steel external brackets
- in accordance with IEC 61 439-1

rated voltage

AC 230/400 V



Mi PV 6732 🔤

Rated capacity: 30 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~
- rated operating current: AC 28 A per inverter
- maximum 9 x 1~ inverters or 3 x 3~ inverters
- connection: 1.5-16 mm², Cu
- 9 terminals per PE+N
- Outgoing:
- switch disconnector, 3-pole
- connection: 2,5-35 mm², Cu
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 63 A
- 1 x AC type 1 surge arrester
- with connection directly to the terminals of the outgoing cables
- lightning surge current AC (10/350) [L1+L2+L3+N → PE] I_{imp}: 100 kA
- protection level AC: < 4 kV</p>
- lid fasteners for hand operation
- order cable entries separately
- with stainless steel external brackets
- in accordance with IEC 61 439-1

rated voltage

AC 230/400 V





RAL IP PC 65 7032 600 ┥**←**170→ ✦**★**15 8 ê 325 2xM20 4xM32/40/50 8xM25/32 1xM25/32/40 З 1-4 5 5 3/5 3/5 max

9/3x

RAL PC 65 7032 600 ++170-++15 8 ê 305 8xM25/32 1xM25/32 2xM20 4xM32/40/50 1-45 3 3/5 3/5 max 9/3x



ENYSUN Solar inverter collectors with circuit-breaker box

Mi PV 6111 NEW

Rated capacity: 70 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~
- rated operating current: AC 28 A per inverter
- max. 18 x 1~ inverters or 6 x 3~ inverters
- Maximum quantity and ratings of MCBs according to table "Rating of PV solar inverter collector"
- connection: 1.5-16 mm², Cu
- 18 terminals per PE+N
- lid fasteners for hand operation
- Outgoing:
- switch disconnector, 3 pole with knife link
- connection: 35 mm², Cu
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 125 A
- lid fasteners for tool operation
- order cable entries separately
- with stainless steel external brackets
- in accordance with IEC 61 439-1

rated voltage	AC 230/400 V
busbar rated current	250 A
busbar system	5-pole

Mi PV 6123 📟

Rated capacity: 140 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~

- "Rating of PV solar inverter collector"

- switch disconnector, 3 pole with knife link
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 250 A
- lid fasteners for tool operation
- order cable entries separately
- with stainless steel external brackets
- in accordance with IEC 61 439-1

rated voltage	AC 230/400 V
busbar rated current	250 A
busbar system	5-pole







ENYSUN

- rated operating current: AC 28 A per inverter
- max. 36 x 1~ inverters or 12 x 3~ inverters
- Maximum quantity and ratings of MCBs according to table
- connection: 1.5-16 mm², Cu
- 36 terminals per PE+N
- lid fasteners for hand operation
- Outgoing:
- connection: M 10 (max. 1 x 240 mm² per phase), Cu







4

RAL

150+

7032

PC

IP

65

2

1 Wall 1

2

-170→

---- 1111

Mi PV 5611

Extension boxes

+	
150×10	_ 300 → +-170-
	AL 3 2 3 7032 3 Wall 3 2 3 ↓ ← 170-

- protection level AC: < 4 kV</p>
- for 3-phase TN
- defect display through red marking
- lid fasteners for hand operation
- Connection

rated voltage

AC 230/400 V

Mi PV 5711 NEW

12 modules 1 x 12 x 18 mm

- 1-row
- without PE and N terminal
- for installation of DIN rail equipment in accordance with DIN 43 880
- with blanking strips for unused DIN rail openings
- with wall gasket
- lid fasteners for hand operation



The.



ENYSUN Solar inverter collectors with circuit-breaker box





Mi PV 6544 NEW

Rated capacity: 220 kVA

- complete enclosure set, not assembled
- for normal environment and protected outdoor
- Feeding:
- for inverters up to 6.4 kVA, 1~ or 19.3 kVA, 3~
- rated operating current: AC 28 A per inverter
- max. 72 x 1~ inverters or 24 x 3~ inverters
- Maximum quantity and ratings of MCBs according to table "Rating of PV solar inverter collector"
 connection: 1.5-16 mm², Cu
- Connection: 1.5-16 mm²,
 72 terminals per PE+N
- Id fasteners for hand operation
- Outgoing:
- switch disconnector, 3 pole with knife link
- connection: M 10 (max. 1 x 240 mm² per phase), Cu
- 1 terminal per PE+N for copper conductors
- outgoing cable can be above or below
- maximum back-up fuse: 400 A
- lid fasteners for tool operation
- order cable entries separately
- with mounting profiles
- in accordance with IEC 61 439-1

rated voltage	AC 230/400 V
busbar rated current	400 A
busbar system	5-pole







Solar inverter collectors





Extension boxes

MI PV 5611 Surge protection device bo extension set ready for connection with wall gasket with pre-assembled connecting with terminals for direct connect with fuse bases 63 A, Neozed 1 x AC typ 2 surge arrester max. outgoing surge current AC protection level AC: < 2,5 kV for 3-phase TN defect display through red mark lid fasteners for hand operation Connection	cables tion on busbar c (8/20) I _{total} : 40 kA	65 F	
rated voltage	AC 230/400 V		
Mi PV 5621 EXAMPLE Surge protection device both Surge protection device both Surge protection device both Surge for connection with wall gasket with pre-assembled connecting with fuse switch disconnectors with fuse links 3 x 160 A 1 x AC typ 1 surge arrester lightning surge current AC (10/3) protection level AC: < 4 kV for 3-phase TN defect display through red markel lid fasteners for hand operation	eables HRC 00, 3-pole 50) [L1+L2+L3+N → PE] I_{imp} : 10 ing	00 KA	

Connection

rated voltage

AC 230/400 V

Mi PV 5711 NEW

12 modules 1 x 12 x 18 mm

- 1-row
- without PE and N terminal
- for installation of DIN rail equipment in accordance with DIN 43 880
- with blanking strips for unused DIN rail openings
- with wall gasket
- lid fasteners for hand operation



This.

2

1 Wall 1

2

-170→

RAL

+150+

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300

РС

IP

65



Boxes with electrical function for the assembly of solar inverter collectors



2

4 Wall 4

2

→ |←170→



Mi PV 1318

18 modules: 3 x 6 x 18 mm

- 3-row
- without PE and N terminal
- max. 18 x 1~ or 6 x 3~ inverters Maximum quantity and ratings of MCBs and flange selection according to table "Rating of PV solar inverter collector"
- for installation of DIN rail equipment in accordance with DIN 43 880
- with blanking strips for unused DIN rail openings
- lid fasteners for hand operation

Mi 1335

36 modules: 3 x 12 x 18 mm

- 3-row
- without PE and N terminal
- for installation of DIN rail equipment in accordance with DIN 43 880
- with blanking strips for unused DIN rail openings
- lid fasteners for hand operation



Mi PV 5511 Terminal box

extension set

- ready for connection
- with wall gasket
- terminals per PE+N
- 12 x 1.5-16 mm², Cu
- 1 x 4-35 mm², Cu
- with 100 A wiring between PE+N terminals and busbar
- lid fasteners for tool operation
- separately order flange for cable entry.

rated voltage	AC 230/400 V
rated current	AC 100 A

Mi PV 5521 NEW

Terminal box

- extension set
- ready for connection
- with wall gasket
- terminals per PE+N
- 9 x 1.5-16 mm², Cu
- 1 x 4-35 mm². Cu
- with 100 A wiring between PE+N terminals and busbar
- lid fasteners for tool operation
- separately order flange for cable entry.

rated voltage	AC 230/400 V
rated current	AC 100 A

See Hensel main catalogue for further boxes with electrical function.



			AC
IP 65	PC	RAL 7032	2 4 Wall 4 2
+	←30		← 170→
150-			

BAL

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PC

IP

65

RAL PC 1 Wall 1 7032

PC	7032 3 Wall 3	
	300	
	300	





ENYSUN Solar inverter collectors Box walls



Assignment of the enclosure walls

2 3 Wall 3 2

4 x M 40/50

Assignment of the enclosure walls via wall symbols, which are assigned to each product. Individual figures 1 indicate the wall in question.

Box walls with metric cable entries

Wall 1 1 x M 20 1 x M 32/40	
Wall 2 2 x M 20 10 x M 25 1 x M 32/40	
Wall 3 4 x M 25 3 x M 40/50	
Wall ₄ 1 × M 20 4 × M 25 1 × M 32/40 3 × M 40/50	
Wall ₅ 8 x M 32	



ENYSUN Solar inverter collectors as individual solutions



Photovoltaic

Solar inverter collectors up to 560 kVA made of insulation material, protection class II, degree of protection up to IP 65

























ENYSUN Empty boxes Accessories

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A. A.

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TSD 02

DIN rail

- for cable junction boxes D x020, D x120, KF x020, KD x020 and empty box KF PV 0100
- max. installation depth 32 mm, top hat profile 15 mm
- for the installation of terminal blocks
- with fixing screws

TSD 04

DIN rail

TSK 06 DIN rail

 for cable junction boxes D x040, KF x040, KD x040 and empty box KF PV 0200

for cable junction boxes K x060, KF x060, KF x060 and empty

max. installation depth: 44,5 mm, top hat profile 35 mm

- max. installation depth: 40 mm, top hat profile 15 mm
- for the installation of terminal blocks
- with fixing screws

box KF PV 0300

with fixing screws

4.4



4, 4

TSK 10

DIN rail

- for cable junction boxes K x100, KF x100, KD x100 and empty box KF PV 0400
- max. installation depth: 56,5 mm, top hat profile 35 mm
- for the installation of terminal blocks

for the installation of terminal blocks

with fixing screws

TSK 25 DIN rail

- for cable junction boxes K x250, KF x250, K x350, KF x350, KD x250, KD x350 and empty boxes KF PV 0500, KF PV 0600
- max. installation depth: 71.5 mm, top hat profile 35 mm
- for the installation of terminal blocks
- with fixing screws

TSK 35

DIN rail

- for cable junction boxes K x350, KF x350, KD x350, and empty box KF PV 0600
- max. installation depth: 80,5 mm, top hat profile 35 mm
- for the installation of terminal blocks
- with fixing screws

















ENYSUN Empty boxes Accessories





TSK 50

DIN rail

- for cable junction boxes K x500, KF x500 and empty box KF PV 0700
- max. installation depth: 80,5 mm, top hat profile 35 mm
- for the installation of terminal blocks
- with fixing screws

....

DK AL 2

External brackets 2 pieces

- for external wall fixing of cable junction boxes type D, K, KF, KD and empty box KF PV
- slot for wall mounting for screws up to 4.5 mm diameter
- Material: stainless steel V2A



V2A



ENYSUN KV Small-type distribution boards Accessories

BAL

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PC

PC



KV ES 3

locking device

- for small-type distribution boards 3 9 modules
- for KV 9325, KV 9363
- with profile cylinder lock

KV EB 04

cable entry cover

- for small-type distribution boards with 4.5 modules
- for replacement purposes (1 cable entry cover included with supply of the board)

KV EB 09

cable entry cover

- for small-type distribution boards with 9 modules
- for KV 9325, KV 9363
- for replacement purposes (1 cable entry cover included with supply of the board)

KV BP 04

Mounting plate

- for wall, pipe and post installation
- for outdoor box installation with KV XX04 and KV PC XX04
 assembly kit containing 1 stainless steel plate, screws and fixing brackets
- Attachment at horizontal or upright pipes possible
- for pipe / post installation additional tensioning straps and accessories are needed

diameter

KV BP 09

Mounting plate

- for wall, pipe and post installation
- for outdoor box installation with KV XX09 and KV PC XX09
- assembly kit containing 1 stainless steel plate, screws and fixing brackets
- Attachment at horizontal or upright pipes possible
- for pipe / post installation additional tensioning straps and accessories are needed

diameter

40 mm

40 mm





assen brack Attach for pir



Accessories for PV solar inverter collectors

DA 240

Terminal for direct connection up to 400 A

- for mounting onto switchgear with flat contact M10
- with insulating cover
 rated connecting capacity: 35-70 mm² s (round),Cu/Alu 50-185 mm² s (sector), Cu/Alu 35-50 mm² sol, Cu/Alu
- 70-240 mm² sol (sector) Cu/Alu
- 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.

tightening torque for terminal

22,0 Nm

Mi BA 6

blanking cover

- for sealing protection covers
- in Mi-HRC fuse boxes
- Width: 108 mm





ENYSUN Accessories Terminals for direct connection on busbar



Terminals for direct busbar connection

For solid (sol), stranded (s), flexible (f) copper conductors with gas-tight crimped end sleeve and for laminated wiring strip **Remarks:**

For observance of insulation resistance clearances of 10 mm are necessary between different potentials and of 15 mm between conductive metal parts.

	Туре	for busbars	Width	conductor cross section	wiring strip	tightening torque
	KS 16 F	x 5 mm	11 mm	1.5-16 mm ² Cu		4 Nm
ġ	KS 16 Z	x 10 mm	11 mm	1.5-16 mm² Cu		4 Nm
	KS 35 F	x 5 mm	16 mm	4-35 mm ² Cu	100 A: Mi VS 100 160 A: Mi VS 160	6 Nm
Ż	KS 35 Z	x 10 mm	16 mm	4-35 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	6 Nm
Ň	KS 70 F	x 5 mm	21 mm	10-70 mm² Cu	100 A: Mi VS 100 160 A: Mi VS 160	10 Nm
Ň	KS 70 Z	x 10 mm	21 mm	10-70 mm ² Cu	100 A: Mi VS 100 160 A: Mi VS 160	10 Nm
	KS 120 F	x 5 mm	25 mm	25-120 mm² Cu	250 A: Mi VS 250 400 A: Mi VS 400	20 Nm
Ņ	KS 120 Z	x 10 mm	25 mm	25-120 mm² Cu	250 A: Mi VS 250 400 A: Mi VS 400	20 Nm
	KS 240/12	12 x 5 mm / 12 x 10 mm	34 mm	35-240 mm ² Cu/Alu Aluminium conductors prior to connection in a relevant technical recor	must be prepared accordance with the mmendations.	40 Nm
<u>i</u>	KS 150	12 x 5 mm / 12 x 10 mm	34 mm	35-150 mm² Cu	630 A: Mi VS 630	20 Nm
	KS 185	20 x 10 mm / 25 x 10 mm / 30 x 10 mm	38 mm	95-185 mm ² Cu/Alu Aluminium conductors prior to connection in a relevant technical recor	must be prepared ccordance with the nmendations.	30 Nm
	KS 240 V	20 x 10 mm / 25 x 10 mm / 30 x 10 mm	38 mm		630 A: Mi VS 630	30 Nm
	KS 300	20 x 10 mm / 25 x 10 mm / 30 x 10 mm	38 mm	120-300 mm ² Cu/Alu Aluminium conductors prior to connection in a relevant technical recor	must be prepared iccordance with the mmendations.	



ENYSUN Accessories Terminals for direct connection on busbar

Mi busbar boxes



1) Terminals in the delivery of the functional boxes, see technical descriptions.

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Mi WD 2

wall gasket

- for the assembly of Mi boxes
- box walls 150 or 300 mm
- consisting of 1 seal, 4 wedge links, 1 bracket



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RAL 7035



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Mi SV 25

busbar connector

- 5-pole
- busbar rated current: 250 A
- with wall gasket
- for the assembly of Mi boxes containing busbars
- tightening torque for terminal: 6.0 Nm
- Busbars 250 A and 400 A can only be connected with busbar connector Mi SV 25. Connecting of busbars with different rated current only under care and attention of the corresponding short circuit and overload standards.

Mi SV 45

busbar connector

- 5-pole
- busbar rated current: 400 A or 630 A
- with wall gasket
- for the assembly of Mi boxes containing busbars
- tightening torque for terminal: 10.0 Nm

AS 12

blanking strip

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



DAE 12 NEW

spacer

- for improvement in the heat dissipation of DIN rail mounted devices
- consisting of 12 items





Mi FM 25

flange

- with fixing wedges and seal
- Box wall 300 mm
- knockouts: 19 x M 16/25



Mi FM 32

flange

- with fixing wedges and seal
- Box wall 300 mm
- knockouts: 8 x M 25/32, 1 x M 25/32/40



Mi FM 40

Mi FM 50

Mi FM 60

Mi FP 70

flange

flange

flange

flange

with fixing wedges and seal

with fixing wedges and seal

with fixing wedges and seal

with fixing wedges and seal using 1 cable entry

max. 72 mm external diameter

Box wall 300 mm knockouts: 3 x M 40/50/63

knockouts: 2 x M 20, 4 x M 32/40/50

Box wall 300 mm

- Box wall 300 mm knockouts: 2 x M 25/32, 5 x M 32/40











flange

- with fixing wedges and seal
- with extended cable arrangement space
- Box wall 300 mm
- knockouts: 3 x M 40/50/63





















- with fixing wedges and seal
- for 2 cables

flange

- max. 72 mm external diameter
- Box wall 300 mm
- sealing range: 2 x each Ø 30-72 mm

Mi FM 63





Mi FP 82

cable insert

- divisible for cable insertion from the front
- degree of protection IP 54 only with additional strain and pressure relief (e.g. Mi ZE 62)
- for 2 cables
- max. 72 mm external diameter
- Box wall 300 mm
- sealing range: 2 x each Ø 30-72 mm

Mi ZE 62

cable strain relief

- for 2 cables with max. 60 mm external diameter
- with fixing rail 284 mm long
- to be used only in connection with cable insertion Mi FP 82

ASM 12

for knockouts M 12

- Sealing range: Ø 4-6 mm
- ISO thread: M 12 x 1.5
- Bore-hole: Ø 12.3 mm
- Wall thickness up to 3 mm with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

ASM 16

for knockouts M 16

- Sealing range: Ø 5-10 mm
- ISO thread: M 16 x 1.5
- Bore-hole: Ø 16,3 mm

for knockouts M 20

Bore-hole: Ø 20,3 mm Wall thickness up to 3 mm with strain relief and locknut

Sealing range: Ø 6,5-13,5 mm ISO thread: M 20 x 1.5

- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)

for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)

- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

Ambient temperature: - 25° up to + 55° C Glow wire test IEC 60 695-2-11: 960°C

ASM 20



RAL IP PA 66









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ASM 25

for knockouts M 25

- Sealing range: Ø 11-17 mm
- ISO thread: M 25 x 1.5
- Bore-hole: Ø 25,3 mm
- Wall thickness up to 3 mmwith strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

ASM 32

for knockouts M 32

- Sealing range: Ø 15-21 mm
- ISO thread: M 32 x 1.5
- Bore-hole: Ø 32,3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

ASM 40

for knockouts M 40

- Sealing range: Ø 19-28 mm
- ISO thread: M 40 x 1.5
- Bore-hole: Ø 40,3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

ASM 50

for knockouts M 50

- Sealing range: Ø 27-35 mm
- ISO thread: M 50 x 1.5
- Bore-hole: Ø 50,3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

ASM 63

for knockouts M 63

- Sealing range: Ø 35-48 mm
- ISO thread: M 63 x 1.5
- Bore-hole: Ø 63,3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- Ambient temperature: 25° up to + 55° C
- Glow wire test IEC 60 695-2-11: 960°C

























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ASS 12

for knockouts M 12

- sealing range: Ø 2-5 mm
- ISO thread: M 12 x 1.5
- bore-hole:Ø 12.3 mm
- Wall thickness up to 3 mm with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C

ASS 16

for knockouts M 16

- sealing range: Ø 3-10 mm
- ISO thread: M 16 x 1.5
- bore-hole: Ø 16.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C



for knockouts M 20

- sealing range: Ø 5-13,5 mm
- ISO thread: M 20 x 1.5
- bore-hole: Ø 20.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C



ASS 25

for knockouts M 25

- sealing range: Ø 8-17 mm
- ISO thread: M 25 x 1.5
- bore-hole: Ø 25.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C



ASS 32

for knockouts M 32

- sealing range: Ø 12-21 mm
- ISO thread: M 32 x 1.5
- bore-hole: Ø 32.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C



















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ASS 40

for knockouts M 40

- sealing range: Ø 16-28,5 mm
- ISO thread: M 40 x 1.5
- bore-hole: Ø 40.3 mm
- Wall thickness up to 3 mm with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C

ASS 50

for knockouts M 50

- sealing range: Ø 21-35 mm
- ISO thread: M 50 x 1.5
- bore-hole: Ø 50.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C

ASS 63

for knockouts M 63

- sealing range: Ø 27-48 mm
- ISO thread: M 63 x 1.5
- bore-hole: Ø 63.3 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C











ENYSUN Accessories

Outdoor applications

Mi BF 44 🔤

ventilation flange

- Box wall 300 mm
- for ventilation of Mi-Distribution boards in the event of extremely high internal temperatures or a risk of water condensation
- for vertical installation on the lateral box walls

Mi DB 15

canopy

Mi DB 30 canopy

- for box wall 150 mm
- with fixing wedges and seal





Mi DB 01

canopy end plate

for 300 mm box walls

with fixing wedges and seal

for canopy width 150 mm and 300 mm

KBM 20

combi climate gland for knockouts M 20

- for the reduction of condensation by pressure compensation
- sealing range: Ø 6-13 mm
- ISO thread: M 20 x 1.5
- bore-hole: Ø 20.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M20 must be used per 6 litres (6000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M20 ≥ 3 pieces.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.



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Accessories Outdoor applications





KBM 25

combi climate gland for knockouts M 25

- for the reduction of condensation by pressure compensation
- sealing range: Ø 9-17 mm
- ISO thread: M 25 x 1.5
- bore-hole: Ø 25.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
 glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M25 must be used per 10 litres (10000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M25 ≥ 2 pieces
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.



KBM 32

combi climate gland for knockouts M 32

- for the reduction of condensation by pressure compensation
- sealing range: Ø 13-21 mm
- ISO thread: M 32 x 1.5
- bore-hole: Ø 32.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M32 must be used per 12 litres (12000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M32 ≥ 2 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.







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Accessories Outdoor applications

KBM 40 🔤

combi climate gland for knockouts M 40

- for the reduction of condensation by pressure compensation
- sealing range: Ø 16-28 mm
- ISO thread: M 40 x 1.5
- bore-hole: Ø 40.5 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
 ambient temperature - 25° to + 55°C
- ambient temperature 25 to + 55 C
 glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M40 must be used per 16 litres (16000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M40 ≥ 1 piece
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.

KBS 20

combi climate gland for knockouts M 20

- for the reduction of condensation by pressure compensation
- sealing range: Ø 6-13 mm
- ISO thread: M 20 x 1.5
- bore-hole: Ø 20.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M20 must be used per 6 litres (6000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M20 ≥ 3 pieces.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.









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Accessories **Outdoor** applications



KBS 25

combi climate gland for knockouts M 25

- for the reduction of condensation by pressure compensation
- sealing range: Ø 9-17 mm
- ISO thread: M 25 x 1.5
- bore-hole: Ø 25.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M25 must be used per
- 10 litres (10000 cm³) of enclosure volume. Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M25 ≥ 2 pieces
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.



KBS 32

combi climate gland for knockouts M 32

- for the reduction of condensation by pressure compensation
- sealing range: Ø 13-21 mm
- ISO thread: M 32 x 1.5
- bore-hole: Ø 32.5 mm
- Wall thickness up to 3.5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
- glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M32 must be used per 12 litres (12000 cm³) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands M32 ≥ 2 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.











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Accessories Outdoor applications

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RAL

7032



KBS 40 NEW

combi climate gland for knockouts M 40

- for the reduction of condensation by pressure compensation
- sealing range: Ø 16-28 mm
- ISO thread: M 40 x 1.5
- bore-hole: Ø 40.5 mm
- Wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature 25° to + 55°C
 glow wire test IEC 60 695-2-11: 960°C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M40 must be used per
- 16 litres (16000 cm³) of enclosure volume.
 Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm³ = 12.393 litres. Number of necessary combi climate glands
- M40 ≥ 1 piece
 When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands für cable entry, the unused climate glands can be sealed with sealing plugs.



VSB 13

sealing plug

- for sealing combi climate glands M20 or M25, which are not used for cable entry
- diameter 13 mm
- ambient temperature 25° to + 55°C

VSB 21

sealing plug

- for sealing combi climate glands M32, which are not used for cable entry
- diameter 21 mm
- ambient temperature 25° to + 55°C

BM 32 🔤

pressure compensation element for knockouts M 32

- 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 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.














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Accessories Locking facilities







Mi PL 2

Sealing cap

2 sealing caps for converting the lid fasteners

Mi SR 4

conversion set

- 4 fastening covers
- for converting lid fasteners for manual operation to tool operation

Mi SN 4

conversion set

- 4 manual actuators
- for converting lid fasteners from tool operation to manual operation

Mi DV 01

locking device insertion

only in connection with Mi PL 2, Mi SR 4 or Mi SN 4



111

Mi ZS 11

Lid lock with locking device

- Iocking device I
- Is being used instead of fasteners for hand or tool operation in order to prevent unauthorised opening of the lids
- consisting of: cylinder lock, keys, locking device insertion, dust cover

Mi ZS 12

Lid lock with locking device

- Iocking device II
- Is being used instead of fasteners for hand or tool operation in order to prevent unauthorised opening of the lids
- consisting of: cylinder lock, keys, locking device insertion, dust cover

Mi DR 04

lid fastener for tool operation

- triangle 8 mm
- is used instead of fasteners for hand- or tool operation, in order to make unauthorized opening of lids more difficult
- 4 locking devices with triangle 8 mm and key

Mi SA 2

dust protection cover

- for 2 lid fittings
- for box sizes 1 to 4
- set consisting of 4 parts



ENYSUN Accessories Wall mounting



Mi AL 40

Stainless steel external brackets

- for external box fixing
- set consisting of 4 fixing brackets, 4 screws

Mi MS 2

mounting profile

- for wall-mounted assembly of Mi-distribution boards up to 900 x 1200 mm
- with 8 screws M6 x 16, washers and nuts for mounting enclosures
- Length 1950 mm



material

sendzimir galvanised steel profile with structured powder coating



ENYSUN Technical data





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Technical data Operating and ambient conditions

	KF PV, KV PC, KV PV, Mi PV	Cable glands					
		AKM ASS					
Application area	KF PV-, KV PC-, KV PV-, Mi PV enclose harsh environment and / or outdoor. However the climatic influences and end	KF PV-, KV PC-, KV PV-, Mi PV enclosures and cable glands are suitable for the outdoor installation - harsh environment and / or outdoor. However the climatic influences and effects on the equipment are to be considered. ¹⁾					
Ambient temperature - Average value over 24 hours - Maximum value - Minimum value	+ 35° C + 55° C + 55° C + 55° C + 40° C + 70° C + 70° C + 70° C - 5° C - 25° C - 25° C						
Relative humidity - short-time	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	750° 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)						
Toxic behaviour	halogen-free ²⁾ silicone-free						
	 Supplementing references regarding outdoor installation - harsh environment and / or outdoor: The materials used for the Mi System are basically UV resistant, so that the mechanical resistance of the boxes is maintained during UV effect. Depending on the intensity of the UV effect e.g. transparent lids can become intransparent. The top side of the boxes should be protected by a cover against weather influences such as rains, ice and snow. Further on, also chemical influences have to be considered with the selection of the installation place - apart from the IP rating and climatic effects. In order to keep the maximum permissible ambient temperature of the installed equipment as well as for the prevention from condensation additional measures as ventilation and/or heating may be necessary. 						

2) "Halogen-free" in accordance with IEC 754-2 "Common test methods for cables - Determination of the amount of halogen acid gas".

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Technische Information

Outside diameter of conventional cable cross sections Short forms of cables

Outside diameter of conventional cable cross sections. The outside diameters are average values of different products.

_							
Cable cross section	NYM	NYY	NYCY NYCWY	Cable cross section	NYM	NYY	NYCY NYCWY
mm ²	mm Ø	mm Ø	mm Ø	mm ²	mm Ø	mm Ø	mm Ø
1x4	8	9	_	4x1,5	11	13,5	14
1x6	8,5	10	_	4x2,5	12,5	14,5	15
1x10	9,5	10,5	_	4x4	14,5	17,5	17
1x16	11	12	_	4x6	16,5	18	18
1x25	_	14	_	4x10	18,5	20	20
1x35	_	15	_	4x16	23,5	23	23
1x50	-	16,5	_	4x25	28,5	28	28
1x70	-	18	_	4x35	32	26-30	29
1x95	-	20	_	4x50	-	30-35	34
1x120	-	21	_	4x70	-	34-40	37
1x150	_	23	_	4x95	-	38-45	42
1x185	_	25	_	4x120	-	42-50	47
1x240	_	28	_	4x150	-	46-53	52
1x300	_	30	_	4x185	_	53-60	60
2x1,5	10	12	_	4x240	_	59-71	70
2x2,5	11	13	_	4x25/16	_	_	30
2x4	_	15	_	4x35/16	-	_	30
2x6	_	16	_	4x50/25	_	_	34-37
2x10	_	18	_	4x70/35	-	-	40
2x16	_	20	_	4x95/50	_	_	44,5
2x25	_	_	_	4x120/70	_	_	48,5
2x35	_	_	_	4x150/70	_	_	53
3x1,5	10,5	12,5	13	4x185/95	-	_	-
3x2,5	11	13	14	4x240/12	- C	_	_
3x4	13	16	16	5x1,5	12	15	15
3x6	15	17	17	5x2,5	13,5	16	17
3x10	18	19	18	5x4	15,5	16,5	18
3x16	20	21	21	5x6	18	19	20
3x25	-	26	_	5x10	20	21	-
3x35	-	_	_	5x16	26	24	-
3x50	-	_	_	5x25	31,5	_	-
3x70	-	_	_	7x1,5	13	16	-
3x95	_	_	_	7x2,5	14,5	16,5	-
3x120	-	_	_	19x1,5	-	22	-
3x150	-	_	_	24x1,5	-	25	-
3x185	_	_	_				
3x240	_	_	_				
3x25/16	_	27	27				
3x35/16	-	28	27				
3x50/25	_	32	32				
3x70/35	_	32-36	36				
3x95/50	_	37-41	40	Short fo	rms of cat	oles	
3x120/70	_	42	43	NYM	Light plast	ic-sheathe	d cable
3x150/70	_	46	47	NYY	Platic-shea	athed cable	e
3x185/95	_	52	48-54	NYCY	Platic-shea	athed cable	e with
3x240/120	_	57-63	60		concentric	conductor	•
3x300/150	_	63-69	_	NYCWY	Platic-shea	athed cable	e with
					CONCENTINC	unuunated	CONTRACTOR



Technische Information Technical data Assignment of cable outside diameters to cable entries



Outside diame	eters of cables	Cable entry
min. mm Ø	max. mm Ø	metric
3	6,5	ASM/AKM/ASS 12
5	10	ASM/AKM/ASS 16
6,5	13,5	ASM/AKM/ASS 20
10	17	ASM/AKM/ASS 25
14	21	ASM/AKM/ASS 32
20	28	ASM/AKM/ASS 40
25	35	ASM/AKM/ASS 50
35	48	ASM/AKM/ASS 63
5,5	13	AXM 20
8	17	AXM 25
12	21	AXM 32
17	28	AXM 40
Outside diame	eters of cables	Cable entry
min. mm Ø	max. mm Ø	metric
4,8	11	ESM 16
6	13	ESM 20
9	17	ESM 25
9	23	ESM 32
17	30	ESM 40
_	_	
Outside diame	eters of cables	Cable entry
min. mm Ø	max. mm Ø	metric
3,5	12	STM 16
5	16	STM 20
13	26.5	STM 32
13	34	STM 40
_		
Outside diame	eters of cables	Cable entry metric
min. mm Ø	max. mm Ø	
5	10	EDK 16
9	13	EDK 25
8	23	EDK 32
11	30	EDK 40
Outside diam	the standard	O-hilo contrac
	eters of cables	metric
Pobroposhk	max. mm Ø	
	5	EDD 16
NI 10		
IVI 20		EDR 20
M 25		EDR 25
M 32		EDR 32
M 40		EDR 40
	262	

Cable glands

Degree of protection: up to IP 67 With strain relief and counternut.

Grommets ESM

Degree of protection: IP 55 Grommets are inserted into knock outs. No nut is necessary!

Stepped grommets STM

Degree of protection: IP 55 Stepped grommets are inserted into knock outs. No nut is necessary!

Grommets EDK

Degree of protection: IP 65 Grommets are inserted into knock outs. No nut is necessary!

Grommets for conduits EDR

Degree of protection: IP 65 Grommets for concuits are inserted into knock outs. No nut is necessary!



Hensel cable entries comply with the following standards and regulations

Metric cable entries for electrical installations

- DIN EN 60 423

Conduits for electrical purposes - Outside diameter of conduits for electrical installations and threads for conduits and fittings

- IEC 60 529 Degrees of protection provided by enclosures (IP-Code)



ENYSUN Technical data Material properties

						Cher	nical re	esistan	ce ¹⁾	
used with product	material	Glow wire test IEC 60 695-2-11	UL Subject 94	Temperatur- beständigkeit	Säure 10 %	Lauge 10 %	Alkohol	Benzin (MAK) 2)	Benzol (MAK) 2)	Mineralöl
Lid of Mi distribution boards door of KV Small-type distribution boards	PC (polycabonate)	960° C	V-2	-40° C / +120° C	+	+	0	+	_	+
KV PC / KF PV Bottom parts of Mi	PC-GFS (polycarbonate)	960° C	V-0	-40° C / +120° C	+	+	0	+	_	+
KV PC / Mi	PUR (polyurethane)	_	_	-25° C / +80° C	0	+	0	0	_	+
KV PC	TPE (thermoplastic elastomer)	750° C	_	-25° C / +100° C	+	+	+	0	0	0
ASM	PA (polyamide)	960° C	V-0	-40° C / +100° C	+	0	+	+	+	+
ASS KBM / KBS	PA (polyamide)	960° C	V-2	-40° C / +100° C	+	0	+	+	+	+
ASM / ASS	CR/NBR (polychloroprene - nitrile rubber)	_	_	-20° C / +100° C	+	+	+	0	_	0
ASS	TPE (Evoprene)	-	-	-20° C / +100° C	+	-	+	_	-	-
ASS	CR (chloroprene rubber)	-	-	-30° C / +100° C	+	+	+	0	_	0
KBM/KBS	EPDM ethylene propylene diene monomer rubber	-	-	-40 C / +130° C	+	+	+	_	_	_

as at: March 2012

(+ = resistance; 0 = partially resistance; - = not resistant)

1) The specifications on chemical resistance are a general guide. In individual cases it may be necessary to check resistance in combination with other chemicals and ambient conditions (temperature, concentration, etc.)

2) (MAK) - Maximum allowable concentration (work place)



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Technical data Standards and requirements

Standards and requirements

- IEC 61 439-1 Low voltage switchgear and controlgear assemblies Part 1: General rules

- IEC 61 439-2 Part 2: Power switchgear and controlgear assemblies
- IEC 60 999, 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 Degrees of protection provided by enclosures (IP-Code)
- IEC 60 364-7-712
 Electrical installations of buildings
 Requirements for special installations or locations Solar photovoltaic (PV) power supply systems



ENYSUN Check list for PV generator junction boxes

E	Λ	Y	5	U	Λ
			D)C	7

□ Request/offer □ Order				Date:	AC
Gustav Hensel GmbH & Co. KG · In 57368 Lennestadt · www.hensel-elect	ndustrial Electr ric.de • www.e	ical Power Distribution	Systems		
Contractor:	F	Project:			
Name:					
Address:					
Tel. (for any questions)::					
 rated voltage: DC 1000 V (U_{oc stc}) protection class II suitable for outdoor installation, UV ready for connection with external stainless steel bracket 		 Deckelverschlü material: therm colour: grey, R. degree of prote 	isse für Werkzeugbei ioplastic AL 7032 ection IP 65	tätigung	
Number of boxes:	piece	es			
Number of strings per box:	□ 1	□ 2	□ 3	□ 4	•
Current per string:	🗆 15 A	🗆 30 A			
Connection of strings	🗆 Multi Con	tact MC4-compatible	• •		
coming from FV modules.	Screw co	nnection and termina	ls		
Cable cross-section:	<u> </u>	mm²			
Solar inverter feeding (MPP tracker)	□ 1	□ 2	□ 3	۵	
Connection of conductors	🗆 Multi Con	tact MC4-compatible	• • •		
going to inverter:	C Screw cor	nnection and termina	ls		
Cable cross-section:	•	mm²			
Overvoltage protection:	🗆 no	🗅 Тур 1	🗆 Тур 2	□ Floating re	emote indication
Manufacturer:	Dehn	Phoenix	OBO Better	mann	
DC generator disconnect switch:	🗆 yes	🗆 no			
String overload protection:	🗆 yes	🗆 no			
Blocking diodes:	🗆 yes	🗆 no			
Earthing					
Cable type and diameter:	□ NYY 1 x 1	6 mm²	•		
Cable entry:	Cable gla	nds			
Combi climate glands			also for add	litional ventilation	
	•				
Notes:					



ENYSUN Check list for solar inverter collectors

ENY	SUN
	DC

Request/offer	□ Order				Date:		
Gustav Hensel (57368 Lennestadt	GmbH & Co. KG · Elektroins · www.hensel-electric.de • V	stallations- und Ve vww.enysun.eu	erteilungssy	steme			
Contractor:			I	Project:			
Name:							
Address:							
Tel. (for any questions):							
 protection class suitable for outd with external state 	ll 🗖 loor installation, UV resistan iinless steel bracket	t		material: tcolour: gre	hermoplastic ey, RAL 7032		
Rated voltage:		□ AC 230/400 V	/				
nverter Manufacturer/ ype:							
Quantity:	(pieces)						
Dutput:	(kVA)						
Current:	(A)						
Solar inverter connection: 1~/3~						0/0	
	Type of cable:						
able going	Number of conductors:						
o inverter:	Cross-section:						
	Conductor material:						
RCD (residual cu	urrent protective):	🗆 no	□ yes	🗆 Тур А	🗅 Тур В		
Vire protection	to solar inverter:		fuse eleme	ent 🛛 fuse swi	tch disconnector		
	Type of cable:						
Cable going	Number of conductors:						
o alstribution oard:	Cross-section:						
	Conductor material:						
Overvoltage pro	tection:	🗆 no	🗆 Type 1	🗆 Type 2	floating	remote indication	
Manufacturer:		Dehn	D Phoeniz	x 🛛 OBO Be	ttermann		
Cable entry:		□ with strain relief		□ without	☐ without strain relief		
Installation site:		unprotectedindoors	outdoors	□ protecte	protected outdoors		
Degree of prote	ction:	□ IP 65	□ IP 54	🗆 IP 44			
Notes:							





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	Singapore	Italy	Turkey	Australia
	Sri Lanka	Israel	Ukraine	New Zealand
	Taiwan	Serbia and		
	Thailand	Montenearo		
	Thanki la	Montoniogro		



FFF

FFFFF

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