

The 16A and 32A three pole plugs and socket-outlets (2P+⊕, 3P+⊕, 3P+N+⊕) have been upgraded both in the PE/PEW low voltage version and in the SIP/SIPW version with phase inverter.

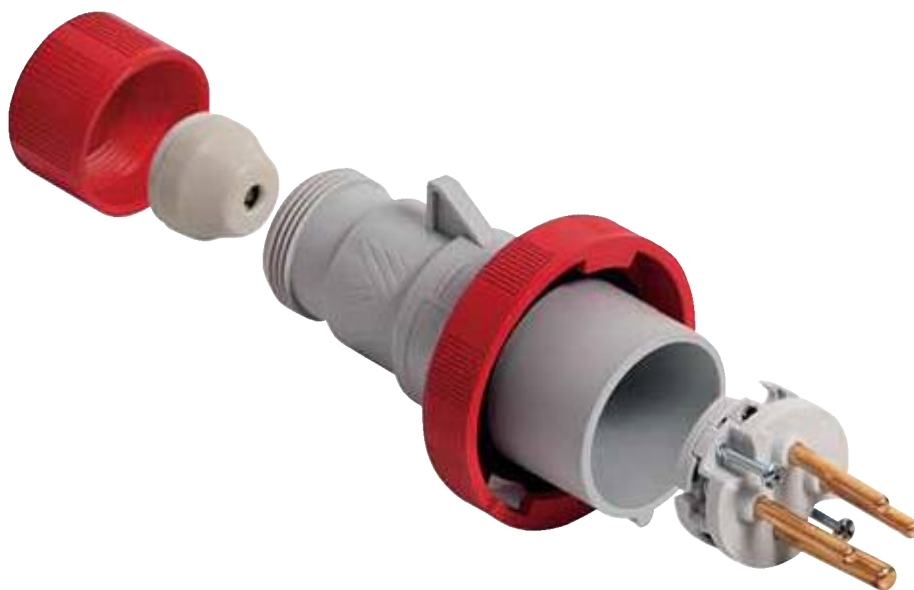
Main Innovations:

- **New “locknut” cable gland and new sturdy “grip” cable clamp** which can be manually tightened without tools or fixing screws.
The cable clamp automatically accommodates all allowed cable sizes without cutting cable glands or grommets.
Greatly reducing the assembly time.
- **Only 2 pre-fitted quick assembly captive screws are required to fix the plug or socket inserts.**
- **New unified plug and socket unit design.**
The plug/socket unit colour for all “standard” models is RAL 7035 light grey and RAL 9005 black for “Heavy Duty” models.
The voltage colour coding, optional for EN 60309-1 and EN 60309-2 standards, but useful to the users, is now included in the new cable gland, in the IP66/IP67 versions locknut or in the socket covers.
- **The new HD (Heavy Duty) versions** are available only in the IP66/IP67 type, able to withstand extreme weather conditions. More specifically, the materials have been changed to be more resistant to low temperatures. The contacts of HD models are nickel plated.
- **Certified** to recently approved variant 1 of the **European standards EN 60309-1 and EN 60309-2**, which gives industrial sockets and plugs the “versatile” **IP66/IP67** degree of protection conforming to EN 60529 standard.

16A and 32A Pluso sockets and plugs are identified with the same standard model type and catalogue. The special “Heavy Duty” models are identified with the PHW and SHPW prefix.

Composition of the part No.: e.g. **PEW 16 6 4 SV**
(low voltage)

item series	PEW
rated current in amperes	16
earthing contact position in hours	6
number of poles + earth	4
design of plug or socket	SV



These products are the ideal choice for the entertainment industry (to supply lighting equipment and mixer/dimmer assemblies) and are typically used on theatre stages, cinema sets, radio and television broadcasting studios, discos, fair stands, concert halls, public night events, both indoors and outdoors, and similar scenarios.

All models share the extraordinary features of the equivalent versions with grey finish.

The elegant black finish of all visible plastic parts and the labels in non reflecting grey, which are used when the markings are not printed, add a touch of discretion and make these products particularly suitable for scenarios and areas where plugs, sockets and harness should be invisible in absence of light. The range includes several models:

Mobile, wall-mounting, flush-mounting, with IP44 protection class or IP67 on request (mobile plugs and sockets have an IP66/IP67 protection class).

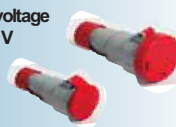
NOTE - Products are available with different voltage and/or frequency and current ratings on request.



PE...SV - PEW...SV pages 10-11
coupler plugs, low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A (IP66/IP67)



PE...PV - PEW...PV pages 12-13
coupler socket-outlets, low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A (IP66/IP67)
63A, 125A (IP67)



PHW...SV coupler plugs pages 14-15
PHW...PV coupler socket-outlets pages 16-17
low voltage
from over 50V up to 690V
16A, 32A, 63A, 125A
(IP66/IP67)
HEAVY DUTY



PE...SA - PEW...SA pages 18-19
angled coupler plugs
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A (IP67)



PE...SM - PEW...SM pages 20-21
wall-mounting plugs
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A, 63A, 125A (IP67)



PE...PP - PEW...PP pages 22-23
wall-mounting socket-outlets
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A, 63A, 125A (IP67)



PE...SI - PEW...SI pages 24-25
flush-mounting plugs
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A, 63A, 125A (IP67)



PE...PI - PEW...PI pages 26-27
flush-mounting inclined socket-outlets
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A, 63A, 125A (IP67)



PE...PQ - PEW...PQ pages 28-29
flush-mounting straight socket-outlets
low voltage
from over 50V up to 690V
16A, 32A (IP44)
16A, 32A, 63A, 125A (IP67)



SIP...SM - SIPW...SM page 30
wall-mounting plugs
with phase inverter
low voltage
16A, 32A (IP44)
16A, 32A (IP67)



SIP...SI - SIPW...SI page 31
flush-mounting plugs
with phase inverter
low voltage
16A, 32A (IP44)
16A, 32A (IP67)



SIP...SV - SIPW...SV page 31
plugs
with phase inverter
low voltage
16A, 32A (IP44)
16A, 32A (IP66/IP67)



PN...SV page 32
coupler plugs
low voltage
from over 50V up to 690V
16A (IP44)



PN...PV page 32
coupler socket-outlets
low voltage
from over 50V up to 690V
16A (IP44)



page 33
PN...PI flush-mounting inclined socket-outlets
PN...PQ flush-mounting straight socket-outlets
low voltage
from over 50V up to 690V
16A (IP44)



PB...PP page 34
wall-mounting socket-outlets
extra-low voltages
up to 50V
16A, 32A (IP44)



PB...PI page 35
flush-mounting socket-outlets
extra-low voltages
up to 50V
16A, 32A (IP44)



PB...PV page 35
couplers
extra-low voltages
up to 50V
16A, 32A (IP44)



PB...SM page 36
wall-mounting plugs
extra-low voltages
up to 50V
16A, 32A (IP44)



PB...SV page 37
plugs
extra-low voltages
up to 50V
16A, 32A (IP44)



PEW...CS pages 10-18-20-25-30
loose protective cover
accessories for
IP66/IP67 (optional)
16A, 32A, 63A, 125A



EN 60309-1 and EN 60309-2 standards

In 1990, **CENELEC** (European Electrotechnical Standards Committee) introduced the provisions of the international publications IEC 60309-1 and IEC 60309-2 into the two corresponding European standards EN 60309-1 and EN 60309-2 (classification CEI 23-12/1 and 23-12/2). **IEC** (*International Electrotechnical Commission*), the worldwide organisation for electrotechnical standardisation had adopted these publications basing them almost entirely on the EEC 17 Publication of 1958, now withdrawn, issued by the now dissolved organisation **CEEel**. This is why still today this system of industrial sockets and plugs is traditionally called by many "EEC". The European standards EN 60309-1 and -2 were then compulsorily adopted as national standards by all the CENELEC member states (which as from 1 May 2004, with the expansion of the EU, include Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Holland, Poland, Portugal, United Kingdom, Czech Republic, Slovakia, Slovenia, Spain, Sweden, Switzerland and Hungary). All conflicting national standards have at the same time been abolished.

Today, therefore, the manufacture of plugs and socket-outlets for industrial use has been harmonised throughout Europe. Before its termination, CEEel's members also included Bulgaria, Israel, former Yugoslavia (today Bosnia, Croatia, Macedonia, Serbia with Montenegro, Slovenia) and the former Soviet Union (today the Russian Federation).

In virtue of the correspondence with the IEC publications, this industrial plugs and socket-outlets system is widely known and appreciated in leading non-European countries such as Argentina, Australia, Brazil, Canada, China, Korea, Egypt, Japan, India, South Africa, Turkey and the USA. In Italy the above harmonisation is regulated by standards EN 60309-1 and EN 60309-2. In 1999 the fourth editions of the IEC publications were adopted as EN by the CENELEC and published in Italy in 2000.

The technical notes below and the products illustrated in the present booklet refer to series 1 versions, used in Europe on the basis of said European Standards and in countries of European technical-cultural origin (e.g.: most of Latin America, Australia, South Africa). A series 2 also exists, which differs for its rated current, voltage and frequency values and for its polarity and pole marking, adapting to North American installation standards and those of countries that have adopted this system (e.g. Mexico, Japan).

The Provisions of the Standards

Each model of plug and socket is unique and has a specific use. Each model has safety devices that make it impossible to insert a plug into a socket made for a different capacity, voltage, frequency and number of poles.

In the "low voltage" versions, the safety system is based on two references:

- a guiding groove on the socket that corresponds to a nib on the plug;
- an earthing contact of increased capacity with respect to the other contacts, and located in different hour positions according to the voltages used.

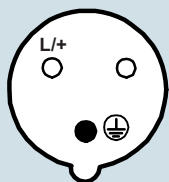
The 63A and 125A plugs have a pilot contact for operating an electric interlock.

Hour Position (h)

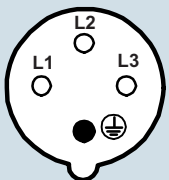
This position is determined by looking at the front of the socket and placing the major guiding groove at the 6 o'clock position and noting the hour position of the earthing contact.

Following are examples of three different polarities with the earth contact at the 6 o'clock position.

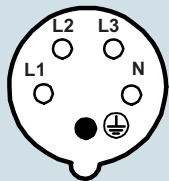
Socket - front view



major key



major key



major key

Low voltage over 50V up to 690V

Number of poles	frequency	rated operating voltage	hour position (h) earthing contact (*)		colour
	Hz	V	16A and 32A	63A and 125A	
2P+	50 and 60	100 - 130	4	4	yellow
	50 and 60	200 - 250	6	6	blue
	50 and 60	380 - 415	9	9	red
	50 and 60	480 - 500	7	7	black
	50 and 60	supply from isol. transf.	12	12	(**)
	100 - 300	> 50	-	-	(***)
	> 300 - 500	> 50	2	-	(***)
	direct current	> 50 - 250	3	3	(**)
	direct current	> 250	8	8	(**)
3P+	50 and 60	100 - 130	4	4	yellow
	50 and 60	200 - 250	9	9	blue
	50 and 60	380 - 415	6	6	red
	60	440 - 460 ☆	11	11	red
	50 and 60	480 - 500	7	7	black
	50 and 60	600 - 690	5	5	black
	50 60	380 440 ✱	3	-	red
	100 - 300	> 50	10	-	(***)
	> 300 - 500	> 50	2	-	(***)
3P+N+	50 and 60	57/100 - 75/130	4	4	yellow
	50 and 60	120/208 - 144/250	9	9	blue
	50 and 60	200/346 - 240/415	6	6	red
	50 and 60	277/480 - 288/500	7	7	black
	50 and 60	347/600 - 400/690	5	5	black
	60	250/440 - 265/460 ☆	11	11	red
	50 60	220/380 250/440 ✱	3	-	red
	100 - 300	> 50	-	-	(***)
	> 300 - 500	> 50	2	-	(***)
all types	all rated operating voltages and/or frequencies not covered by other configurations		1	1	(**)

☆ Mainly for marine installations

✱ Only for refrigerated containers (standardised by ISO)

(*) The positions indicated with dashes "-" are not standardised

(**) Colour according to voltage

(***) If necessary, green may be used together with the colour of the operating voltage for frequencies of over 60 Hz up to 500 Hz inclusive

The Provisions of the Standards

Each model of plug and socket is unique and has a specific use. Each model has safety devices that make it impossible to insert a plug into a socket made for a different capacity, voltage, frequency and number of poles.

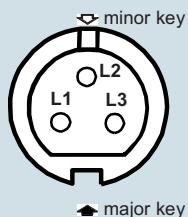
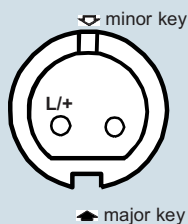
In the "extra-low voltage" versions with no earthing contact, the safety system is based on two references:

- a guiding groove (key way) on the plug that corresponds to a nib on the socket (major key) that is fixed at the 6 o'clock position
- another groove on the plug (minor key) and a nib on the socket (minor key) that can be positioned on different hours, according to the operating requirements.

Hour Position (h)

This position is determined by looking at the front of the socket and placing the major key way at the 6 o'clock position and noting the hour position of the minor key. Following are examples of two different polarities with the minor key at the 12 o'clock position.

Socket - front view



Extra low voltage up to 50V

Number of poles	frequency Hz	rated operating voltage V	hour position (h) minor key position (*)	colour	
2P	50 and 60	20 - 25	no key way		violet
	50 and 60	40 - 50	12		white
	> 100 - 200	20 - 25 and 40 - 50	4		(**)
	300	20 - 25 and 40 - 50	2		(**)
	400	20 - 25 and 40 - 50	3		(**)
	> 400 - 500	20 - 25 and 40 - 50	11		(**)
	d.c.	20 - 25 and 40 - 50	10		white
3P	50 and 60	20 - 25	no key way		violet
	50 and 60	40 - 50	12		white
	> 100 - 200	20 - 25 and 40 - 50	4		(**)
	300	20 - 25 and 40 - 50	2		(**)
	400	20 - 25 and 40 - 50	3		(**)
	> 400 - 500	20 - 25 and 40 - 50	11		(**)

(*) Positions 1, 8 and 9 are reserved for future standardisation. For constructional reasons, positions 5, 6 and 7 cannot be used.

(**) If necessary, green may be used together with the colour of the operating voltage for frequencies higher than 60 Hz up to 500 Hz inclusive.

Size of connectable conductors according to EN 60309-1

Conductor cross-sections in mm² usable in socket-outlets and plugs

rated operating voltage	rated current	fixed plugs* (rigid or semi rigid conductors)		plugs and couplers (rigid or semi fixed plugs rigid conductors)	
		min	max	min	max
over 50V up to 690V	16A	1.5	4	1	2.5
	32A	2.5	10	2.5	6
	63A	6	25	6	16
	125A	25	70	16	50
up to 50V	16A	4	10	4	10
	32A	4	10	4	10

For pilot contacts (63A ad 125A socket-outlets and plugs), refer to the conductors which can be used in the 16A socket-outlets and plugs with a rated voltage of over 50V.

* It is also possible to connect flexible conductors to fixed sockets and plugs. The equivalent section of the flexible conductor is generally one size smaller than the rigid or the semi rigid conductor. Please refer to EN 60309-1 and -2 norms.

Use of multipolar cables according to EN 60309-1

Min. and max. diameters of cables which clamped in couplers and plugs

rated operating voltage	rated current	approximate external cable ø in mm (cables type HO5 RR-F and HO7 RN-F)	
		min	max
over 50V up to 690V	16A	8.1	15.3
	32A	11.5	21.3
	63A	17.3	31.3
	125A	26.0	48.8
up to 50V	16A	13.5	22.8
	32A	13.5	22.8

Degrees of pollution

The pollution degrees define the environmental conditions.

To go into more detail, standard IEC 60664-1 clarifies that pollution is defined as any contribution of foreign matter, whether a solid, liquid or gaseous (ionised gas), that may negatively affect the dielectric strength of the surface resistivity of the insulating material.

Four degrees of pollution are defined and are described by conventional numbers based on the quantity of polluting agent or on the frequency with which the phenomenon occurs that reduces the dielectric strength and/or the surface resistivity.

pollution degree 1:

no pollution or only dry non-conductive pollution.

The pollution has no influence.

pollution degree 2:

only non-conductive pollution except that occasionally a temporary conductivity caused by condensation is to be expected.

pollution degree 3:

conductive pollution occurs or dry non conductive pollution occurs which becomes conductive due to condensation which is to be expected ¹³.

The **pollution degree 3** refers to an industrial or similar environment.

The **pollution degree 2** refers to a household or similar environment.

The third edition and the forthcoming fourth edition of EN 60309-1 standard (IEC 60309-1) specifies that the normal use environment for the industrial plugs and socket-outlets complying with this standard has a pollution degree 3 according to standard IEC 60664-1.

IP degree of protection and the EN 60529 standard

The minimum IP degree of protection is regulated by the CEI 64-8 installation standards (inclusion of the harmonisation documents of the CENELEC HD384 series and the IEC 60364 publication) which, in part 7, cover a number of special environments: construction and demolition sites, structures designed for agricultural or livestock breeding use, restricted conductor areas, caravans and caravan sites, environments with a greater risk in case of fire, public performance and entertainment areas, pools and, in the future, fountains and marinas and harbour areas. The standard is applicable to enclosures for electric materials with a rated power no greater than 72.5 kW. All the equipment must be installed according to the rule of art and must comply with any manufacturer's assembly instructions. When components of different degrees of protection are assembled, the resulting board or distribution system will assume the lowest degree of protection of the mounted components.

This has been assessed and applies:

- socket-outlets, when a plug of the same degree of protection is inserted or when the cover is closed (with counternuts tightened for IP67).
- plugs (with counternuts tightened for IP67).
- for cases, when all the covers are adequately closed.

The range of ILME products presented in this catalogue offers the following range of protection:

IP44: protection against the *penetration of solid foreign objects* with a diameter equal to or greater than 1 mm for protection against the intrusion of dangerous parts with an access calibre of Ø 1 mm (1st digit), and protected against the *dangerous effects of water spray* from all directions (2nd digit).

IP55: Protection against the *penetration of harmful quantities of powder* and against *access to dangerous parts* with an access calibre of Ø 1 mm (1st digit) and protected against the *dangerous effects of water jets* with a nozzle from all directions (2nd digit).

IP66: total protection against *dust* and access to *dangerous parts* with an accessibility calibre of Ø 1 mm (1st digit), and protected against *powerful water jets* such as sea waves (2nd digit).

IP67: Total protection against *powder* and against *access to dangerous parts* with an access calibre of Ø 1 mm (1st digit) and protected against the *effects of temporary immersion* (30') in water at a maximum depth of 1 meter (2nd digit).

The socket-outlets with IP55 degree of protection and those with double degree of protection IP66/IP67 ¹⁴ have a bayonet jointed lid, traditionally defined as "water-tight" and require plugs with IP67 degree of protection (with counternut and gasket) to preserve the degree of protection marked on the apparatus.

1st characteristic numeral

Personal protection against contact with hazardous parts

IP	External solid foreign bodies	Protection
0		none
1		against solid foreign objects with Ø greater or equal to 50 mm (e.g. hand)
2		against solid foreign objects with Ø greater or equal to 12 mm (e.g. finger)
3		against solid foreign objects with Ø greater or equal to 2.5 mm (e.g. tools and wires)
4		against solid foreign objects with Ø greater or equal to 1 mm (e.g. fine tools and wires)
5		dust-protected
6		dust-tight

2nd characteristic numeral

Protection of materials against harmful penetration of water

IP	Tests	Protection
0		none
1		against vertical drops of water
2		against drops of water at an angle of 15°
3		against drops of water at an angle of 60°
4		against water sprayed from all directions
5		against jets of water from all directions
6		against powerful jets of water (such as sea waves)
7		against the effect of temporary immersion in water at a depth of 1 metre
8		against the effects of continuous immersion in water

¹³ Pollution degree 4 was eliminated in the new standard edition as clearly illogical: conditions of persistent conductivity caused for example by conductive dust, rain or snow are definitely to be avoided throughout the project, and no isolating distance is capable of withstanding them.

¹⁴ The **IP66/IP67** degree of protection will officially be introduced in the next amendment 1 of the standards EN 60309-1 and EN 60309-2 (and of the relating IEC standards). It is already accounted for in the IP degree of protection standard EN 60529 as a "versatile" form of protection, covering the fact that the temporary immersion resistance test (protection IPX7) does not automatically comply with the two lower degrees of protection IPX6 and IPX5, tested with the respective jet tests. If the end user requires the equipment to resist both against temporary immersions and pressurized water jets, declaredly IP66/IP67 devices with double marking must be selected.

General characteristics

This chapter explains the technical characteristics of the PLUSO series plugs and socket-outlets for industrial purposes.

The range of products covers a wide number of different installation requirements.

The plugs and socket-outlets are suitable for fixed or mobile installations.

The fixed plugs and socket-outlets may be wall or flush-mounted.

Thanks to the wide range of the ILME enclosures of the FM, FC and BK series (types BC...) the flush-mounting plugs and socket-outlets can be assembled rapidly in a group configuration.

These construction features enable ILME plugs and socket-outlets to be suitable for use in the most demanding applications:

- the mechanical industry
- the shipbuilding industry
- the chemical and petrochemical industry
- the services sector
- the building industry
- the agricultural and livestock breeding sector

The following parameters must be considered when selecting the correct type of plugs and socket-outlets:

- rated current of the device to feed through plug and socket-outlet coupling;
- the rated voltage of the power supply and the type of distribution (single phase or three-phase, with or without the neutral conductor) to determine the number of poles for the hour position.
- The hour position "1h" is available for all those voltages or voltage ranges > 50V and for frequencies or ranges of frequencies not covered by the standards.
- The type of installation (fixed or mobile) to determine the construction type of the plug and socket (flush-mounting straight or inclined, wall, mobile, mobile angled).
- The location of the installation to determine the degree of protection required (IP44 or IP67) and the voltage (in some areas the installation standards require very low safety voltage).

The following types of plugs and socket-outlets are available:

- wall-mounting plugs and socket-outlets (low and extra-low voltage).
- plugs and socket-outlets and straight flush-mounting socket-outlets (low and extra-low voltage).
- plugs and inclined flush-mounting socket-outlets (low voltage)
- straight plugs and couplers (low and extra-low voltage).
- angled plugs (low voltage).
- 5-pole plugs with phase inverter (low voltage, SIP type).

Electrical Features

rated frequency:

0 Hz (direct current), and from 50 Hz to 500 Hz

rated operating voltage:

the standard identifies two main types of use:

- extra-low voltage socket-outlets (and relative plugs), (SELV safety requirements, in accordance with the CEI 64-8 installation standard), for effective voltage values of up to 50V inclusive
- low voltage socket-outlets (and plugs) for effective voltage values of over 50V and up to 690V

polarity:

the versions are designed with:

- 2 and 3 poles (extra-low voltage: 2P, 3P)
- 3, 4 and 5 poles (low voltage: 2P+⊕, 3P+⊕, 3P+N+⊕)

The 63A and 125A plugs and socket-outlets have an additional pilot contact.

rated current:

with 16A, 32A, 63A and 125A values (low voltage)

with 16A and 32A (extra-low voltage).

rated insulation voltage:

- 690V for low voltage plugs and socket-outlets
- 50V for extra-low voltage plugs and socket-outlets

minimum surface insulation distance: 10 mm (EN 60309-1)

minimum air insulation distance: 8 mm (for rated operating voltages higher than 500V)

breaking capacity:

1.25 times greater than the rated current value (test performed at a voltage of 1.1 times the operating voltage).

Mechanical features

- mechanical resistance

verified with the provisions of Article 24 of the EN 60309-1 standard (IEC 60309-1)

- resistance to chemical agents

please contact ILME SpA

- degree of protection

IP44 and IP67 according to EN 60529 (see information on page 6)

- resistance to glow-wire

in accordance with standard IEC 60695 -2 -11: for enclosures: 960 °C, 850 °C and 750 °C;

for inserts: 960 °C

- temperatures

ambient: -25 °C ÷ +40 °C; materials limit: -40 °C ÷ +125 °C

- self-extinguishing capacity

classification UL 94:

for enclosures **V2** and **HB**;

for 16A, 32A and 63A type inserts, **V2**;

for types 125A, **5VA** and **V0**

Materials

- enclosures and inserts in self-extinguishing insulating thermoplastic material
- anti-aging elastomer gaskets
- brass pins (nickel-plated for the 63A and 125A plugs and socket-outlets, on request for the 16A and 32A plugs and socket-outlets)
- self-centring brass contact tubes with zinc-plated steel spring
- zinc-plated steel assembly screws (stainless steel for the 63A and 125A socket-outlets)
- terminals with zinc-plated screws retained in their seats when unscrewed
- 32A, 63A and 125A plugs and socket-outlets with two fixing screws in the terminals as protection against accidental loss
- 63A and 125A plugs and socket-outlets terminals with zinc-plated steel plate for wire protection

The supply package

Plugs and socket-outlets are supplied with:

- anti-oil and anti-aging gaskets
- self-threading fixing screws

The following is available on request:




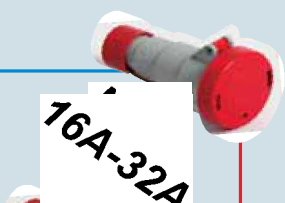

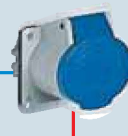


- cable glands, gaskets, lock nuts and sealing plugs for wall-mounting plugs and socket-outlets
- FM, FC and BK (types BC...) ILME enclosures for flush-mounting plugs and socket-outlets



Composition of the part No.: e.g. **PEW 125 12 3 PP**
 (low voltage)
 article series
 rated current in amperes
 earthing contact position in hours
 number of poles + earth
 design of plug or socket

PE (IP44) and PEW (IP67) socket-outlets and couplers

low voltage over 50V up to 690V

	wall-mounting socket-outlets	straight flush-mounting socket-outlets **	inclined flush-mounting socket-outlets **	coupler socket-outlets **				
IP67								
IP44								
	PE...PP page 22	PEW...PP page 23	PE...PQ page 28	PEW...PQ page 29	PE...PI page 26	PEW...PI page 27	PE...PV page 12	PEW...PV page 13
	16A 32A	16A 32A 63A 125A	16A 32A	16A 32A 63A 125A	16A 32A	16A 32A 63A 125A	16A 32A	16A * 32A * 63A 125A
	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕









* IP66/IP67

16A-32A

** Black versions for entertainment, precode PN...PQ/PI/PV/SV

PE (IP44) and PEW (IP67) plugs

low voltage over 50V up to 690V

	wall-mounting plugs	flush-mounting plugs	coupler plugs **	90° angled coupler plugs				
IP67								
IP44								
	PE...SM page 20	PEW...SM page 21	PE...SI page 24	PEW...SI page 25	PE...SV page 10	PEW...SV page 11	PE...SA page 18	PEW...SA page 19
	16A 32A	16A 32A 63A 125A	16A 32A	16A 32A 63A 125A	16A 32A	16A * 32A * 63A 125A	16A 32A	16A 32A
	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕	2P+⊕ 3P+⊕ 3P+N+⊕

* IP66/IP67

16A-32A

Composition of the part No.: e.g. **PB 16 12 2 PV**
(extra-low voltage)

article series
rated current in amperes
auxiliary reference in hours
number of poles
design of plug or socket

HEAVY DUTY plugs and socket-outlets type PHW (IP66/IP67)

low voltage over 50V up to 690V

coupler socket-outlets

coupler plugs

IP66/
IP67



NEW



PHW...PV
pages 16 - 17

PHW...SV
pages 14 - 15

16A
32A
63A
125A

16A
32A
63A
125A

2P+⊕
3P+⊕
3P+N+⊕

2P+⊕
3P+⊕
3P+N+⊕

phase inverters type SIP (IP44) and SIPW (IP67)

low voltage over 200V up to 415V

wall-mounting plugs
with phase inverter

flush-mounting plugs
with phase inverter

plugs with phase inverter

IP67

IP44



IP66/IP67



NEW

SIP...SM
page 30

SIPW...SM
page 30

SIP...SI
page 31

SIPW...SI
page 31

SIP...SV
page 31

SIPW...SV
page 31

16A
32A

16A
32A

16A
32A

16A
32A

16A
32A

16A
32A

3P+N+⊕

3P+N+⊕

3P+N+⊕

3P+N+⊕

3P+N+⊕

3P+N+⊕

PB plugs and socket-outlets

extra-low voltage up to 50V

wall-mounting
socket-outlets

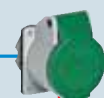
flush-mounting
socket-outlets

couplers

wall-mounting plugs

plugs

IP44



PB...PP
page 34

PB...PI
page 35

PB...PV
page 35

PB...SM
page 36

PB...SV
page 37

16A
32A

16A
32A

16A
32A

16A
32A

16A
32A

2P
3P

2P
3P

2P
3P

2P
3P

2P
3P