



## SWITCHED INTERLOCKED SOCKET OUTLETS 16-32-63A



## REFERENCE STANDARDS

**EN 60309-1**  
Plugs, socket outlets and couplers for industrial purposes.  
*Part 1: general requirements.*

**EN 60309-2**  
Plugs, socket outlets and couplers for industrial purposes.  
*Part 2: dimensional interchangeability requirements for pin and contact-tube accessories of harmonised configurations.*

**EN 60309-4**  
Plugs, socket-outlets and couplers for industrial purposes.  
*Part 4: switched socket-outlets and connectors with or without interlock.*

## VERSIONS WITH MECHANICAL INTERLOCK

	With switch-disconnector
	With switch-disconnector and fuse
	Molded case circuit breaker with thermal magnetic trip unit

## TECHNICAL CHARACTERISTICS

Rated current:	<b>16A-32A-63A</b>
Rated voltage:	<b>100÷690V~</b>
Frequency:	<b>50±60Hz</b>
Insulating voltage:	<b>500/690V~</b>
Protection degree:	<b>IP66/IP67/IP69</b>
Operating ambient temperature according to the reference standard:	<b>-25°C +40°C</b>
Minimum operating ambient temperature:	<b>-40°C</b>
Max. operating ambient temperature:	<b>+60°C</b>
Self-extinguishing GW test:	<b>960°C</b>
Self-extinguishing UL94:	<b>V0</b>
Material:	<b>Thermosetting</b>
IK degree at 20°C:	<b>IK10 (20J)</b>
Switch-disconnectors 16A-32A-63A:	<b>COMMAND Series</b>
Fuse:	
16A-32A	<b>gG 10,3x38mm</b>
63A	<b>gG 22x58mm</b>
Colour:	<b>Grey RAL7037</b>
Insulation class:	<b>Class II (double insulation) □</b>

## BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited Resistance	Resistant	Limited Resistance	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant

## CABLE ENTRY

Maximum entry with cable glands

Rated current (A)	Single socket		Socket with switchboard		
	Upper	Lower	Upper	Lower	Side
16A / 32A	M32	M32	M32	M32	M32
63A	M40	M40	M40	M40	M32

## WIRING OPERATIONS

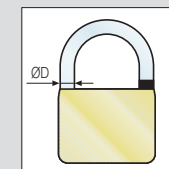
Wiring capacity of the terminals (mm<sup>2</sup>)

Rated current (A)	Socket outlets	
	Min	Max
16A	1,5	4
32A	2,5	10
63A	6	25

## PADLOCK TO BE USED

Choice of padlock for socket knob, fuse door and switchboard door

Rated current (A)	Padlock arc diameter (mm)
16A-32A	5
63A	6,3





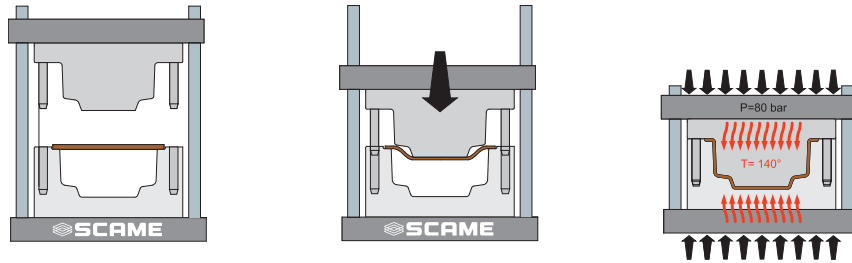
## SPECIAL CHARACTERISTICS

### ADVANCE-GRP CHARACTERISTICS

The **ADVANCE-GRP** product line includes a series of 16A, 32A, 63A, 125A interlocked sockets (compliant with EN60309-4 standards) and the casings to contain them. It's the most complete range of interlocked sockets produced in GRP (*Glass Reinforced Polyester*) thermosetting material.

A unique feature which enhances the exceptional mechanical strength of **ADVANCE-GRP** products is the **SMC** (*Sheet Moulding Compound*) production process used for the casings.

**SMC** is a technology which uses exclusively non-woven sheets, pre-impregnated with polyester resin. This method consists in preparing the sheet material inside a mould which, equipped with a negative mould, presses the composite so as to allow compaction.



**SMC** is an advanced technology which enhances the quality of the raw material without reducing the high-strength characteristics during transformation; it's a high-performing technology in terms of the mechanical performance of the resultant product (glass fibre length, homogeneity of the material, integrity of the fibres).

On the contrary, the **BMC** (*Bulk Moulding Compound*) technology is a technology for moulding composite materials which uses a raw material available in "blocks" (short, charged fibres) which are subjected to high thermomechanical stress during the transformation process, consequently diminishing the mechanical properties of the details, thereby reducing the impact strength and flexural strength.

The glass-fibre reinforced polyester used in **ADVANCE-GRP** guarantees excellent mechanical strength and a long lifetime: this material is highly resistant to contamination, completely corrosion resistant and suited for applications requiring the use of components with low smoke emission and no halogens, **LSOH** (*Low Smoke Zero Halogen*) components. The outstanding properties of the material are also guaranteed over time, thanks to the high **RTI** value (*Relative Temperature Index*), measured to be 20,000h. Numerous verifications and tests have been carried out, even UV resistance tests, in order to guarantee the long duration of the material's initial performance.

The thickness of the walls is sufficient to offer an excellent alternative to aluminium, stainless steel or cast iron.



### OUTSTANDING HEAT AND FIRE RESISTANCE

The glass-fibre reinforced polyester used in **ADVANCE-GRP** guarantees excellent heat and fire resistance: it does not propagate flames, emit halogens or smoke.

This material has outstanding flame retardancy: Glow Wire 960°C according to EN 60695-2-1; V0 according to UL94. It's suited for applications requiring the use of components with low smoke emission and no halogens, **LSOH** (*Low Smoke Zero Halogen*).



### OUTSTANDING IMPACT RESISTANCE

The glass-fibre reinforced polyester used in **ADVANCE GRP** and the high thickness of the casing walls guarantee an excellent mechanical resistance to impacts.

The **SMC** technology used to produce the casings makes **ADVANCE-GRP** an indestructible product.

The impact resistance of the casings is higher than 20J (IK10) according to EN50102, even under limit temperature conditions (-40°C +60°C).



### RESISTANCE TO CHEMICAL AGENTS

The **ADVANCE-GRP** interlocked sockets and casings, thanks to the glass-fibre reinforced polyester with which they are produced, have excellent resistance to aggressive chemical substances, saline solutions, diluted acids, hydrocarbons, mineral oils, alcoholic substances. They are ideal for use in highly corrosive atmospheres.



### RESISTANCE TO ATMOSPHERIC AGENTS

The structure and materials used also make **ADVANCE-GRP** a product suited for the most extreme environmental conditions. The double degree of protection IP66 and IP67 (IP66 for 125A), guarantees an excellent seal against the entry of solid objects or liquids into the casings.

Outstanding resistance to UV radiation, exceptional reliability under environmental stress and use at both low and high ambient temperatures (-40°C +60°C).



## APPLICATION EXAMPLES



## TECHNICAL DATA SWITCH DISCONNECTORS

		without fuse			with and without fuse		
		16A	32A	63A	125A		
Rated insulation voltage <b>Ui</b>	Vac	690	690	690	750		
	Vdc	400	400	-	750		
Rated impulse withstand voltage <b>Uimp</b>	kV	4	4	8	12		
Thermal current <b>Ith</b>	A	30	40	63	200		
Thermal current <b>Ithe</b>	A	30	40	63	-		
Nominal current rating <b>Ie</b>	<b>AC21A</b>	Resistive loads, including moderate overloads	415V A	16	32	63	200
			500V A	16	32	63	-
			690V A	16	32	63	160
	<b>AC22A</b>	Mixed resistive and inductive loads, including moderate overloads	415V A	16	32	63	200
			500V A	16	32	63	-
			690V A	16	32	63	160
	<b>AC23A</b>	Switching off motor loads or other highly inductive loads (3 phase/3 pole)	415V A	16	32	63	135
			500V A	16	32	40	125
			690V A	16	25	30	80
	<b>AC3</b>	Squirrel-cage motor: starting, switching off motor during running (3 phase/ 3 pole)	400V A	-	28,5	40	-
			690V A	12	20	25	-
	<b>DC21A</b>	Resistive loads, including Moderate overloads	300V A	20(*)	32(*)	-	160(*)
		<b>DC22A</b>	Mixed resistive and inductive loads, including moderate overloads	250V A	25(*)	32(*)	-
			600V A	10(*)	10(*)	-	-
	Rated short-time withstand current <b>Icw</b> (s)		A	400	400	1500	4000
	Short-circuit protection	Conditional short-circuit current	kAeff	10	10	10	24
		Associate fuse size for conditional short-circuit current - Type gG	A	16	32	63	
		Rated short-circuit making capacity <b>Icm</b>	A	1500	1500	2850	24000
Rated current <b>UL</b> without fuse	General applications - Single-phase and Three-phase	600V A	32	40	63	125	
	AC motor, all-pole interruption - Single-phase	120V Hp	1,5	2	3	7,5	
		240V Hp	3	5	7,5	20	
	AC motor, B, C, D, all-pole interruption - Three-phase	240V Hp	7,5	10	10	40	
		480V Hp	10	15	20	75	
600V Hp	15	20	25	100			
Permissible wire range	Flexible wire	mm <sup>2</sup>	1,5-10	1,5-10	10-35	10-70	
		AWG	16-8	16-8	10-2	8-1/10	
	Rigid wire	mm <sup>2</sup>	1,5-16	1,5-16	10-35	10-70	
		AWG	16-8	16-8	10-2	8-1/10	

(\*) 2+2 poles in series





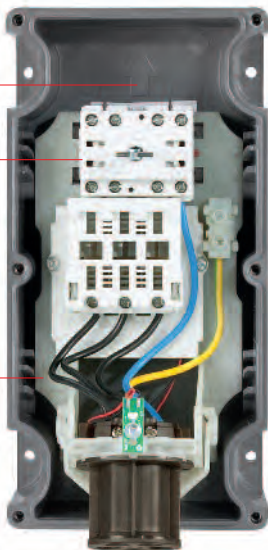
## ■ TECHNICAL CHARACTERISTICS 16A-32A-63A VERSIONS

### WITH FUSES

Ample space for easy wiring

Switch-disconnector with mechanical lock that can be accessorized with auxiliary contacts

Easily extractable support



### WITH MCB

Outdoor wall fastening

Under-plate cable runway

Threaded metal inserts

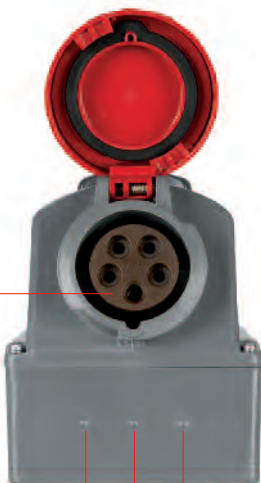
Indicator light

Possibility for plug-inserted control microswitch assembly



### BOTTOM VIEW

Module in high-temperature resistant engineering polymer



Possible entry from bottom side (input-output also)

### TOP VIEW



Self-centering punch marks to facilitate drilling

Single-piece waterproof gasket



Dual mechanical lock

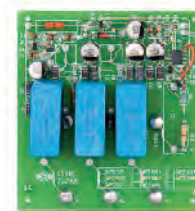
High-strength material with superior UV and chemical resistance

Ergonomic knob which can be padlocked in position 0 and 1, manoeuvrable even with gloves

Fuse inspection door, tamper-proof, lockable, with assisted opening

Cover entirely separate from the base for easy installation

Captive stainless steel closing screws



### I-Device

An electronic device controls (*Intelligence Device*) the status of the interlocked socket, monitoring the electrical functionality:

- operation of the signalling and control card is guaranteed even when the load is not connected;

- **INDICATOR LIGHT ON**
  - indicates that the fuses are not open and all the phases are present;
  - indicates that the socket outlet is powered correctly;

- ⚡ **INDICATOR LIGHT FLASHING**
  - signals the interruption of one or more fuses;
  - signals the absence of a phase\*;

- **INDICATOR LIGHT OFF**
  - indicates that the socket outlet is not powered.

\* for single-phase products in the event of phase/neutral loss led signaling appears off.



## SWITCHED INTERLOCKED SOCKET OUTLETS



## VERSIONS



Version with transformer.  
SELV transformer 230/24V~ 150VA

Version without transformer.

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*Part 2: dimensional interchangeability requirements for pin and contact-tube accessories of harmonised configurations.*

## TECHNICAL CHARACTERISTICS

Rated current:	<b>16A-32A</b>
Rated voltage:	<b>20+50V~</b>
Frequency:	<b>50+60Hz</b>
SELV transformer 220/24V:	<b>150VA</b>
Insulating voltage:	<b>500/690V~</b>
Protection degree:	<b>IP66/IP67/IP69</b>
Operating ambient temperature according to the reference standard:	<b>-25°C +40°C</b>
Minimum operating ambient temperature:	<b>-40°C</b>
Max. operating ambient temperature:	<b>+60°C</b>
Self-extinguishing GW test:	<b>850°C (socket housing) 960°C (enclosure)</b>
Material:	<b>Thermosetting</b>
IK degree at 20°C:	<b>IK10</b>
Colour:	<b>Grey RAL7037</b>
Insulation class:	<b>Class III</b>

## BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited Resistance	Resistant	Limited Resistance	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant

## APPLICATION EXAMPLES





## SWITCHED INTERLOCKED SOCKET OUTLETS 125A



## REFERENCE STANDARDS

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*Part 1: general requirements.*

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*Part 2: dimensional interchangeability requirements for pin and contact-tube accessories of harmonised configurations.*

**EN 60309-4**  
Plugs, socket-outlets and couplers for industrial purposes.  
*Part 4: Switched socket-outlets and connectors with or without interlock.*

## VERSIONS WITH MECHANICAL INTERLOCK

	With switch-disconnector
	With switch-disconnector and fuse
	With fuse and switch-disconnector
	With molded case circuit breaker with thermal magnetic trip unit
	With molded case circuit breaker with thermal magnetic and residual current release trip units
	With contactor

## TECHNICAL CHARACTERISTICS

Rated current:	<b>125A</b>
Rated voltage:	<b>100÷690V~</b>
Frequency:	<b>50÷60Hz</b>
Insulating voltage:	<b>500/690V~</b>
Switched socket outlets with interlock degree of Protection:	<b>IP66</b>
Minimum operating ambient temperature:	<b>-40°C</b>
Maximum operating ambient temperature:	<b>+60°C</b>
Self-extinguishing GW test:	<b>960°C</b>
Self-extinguishing UL94:	<b>V0</b>
Switched socket outlets with interlock material:	<b>Thermosetting</b>
Impact Resistance:	<b>IK10 (20J)</b>
Switch-disconnectors: 125A	<b>Switch ABB OT 160</b>
MCCB:	<b>ABB T-MAX</b>
Fuse: 16A-32A	<b>gG 10,3x38mm</b>
63A	<b>gG 22x58mm</b>
125A	<b>NH00</b>
Sockets colour:	<b>Grey RAL7037</b>
Insulation class:	<b>Class II (double insulation) □</b>

## BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited Resistance	Resistant	Limited Resistance	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant

## CABLE ENTRY

Maximum entry with cable glands

Rated current (A)	Single socket	
	Upper	Lower
125A	M63	M63

## WIRING OPERATIONS

Wiring capacity of the terminals (mm<sup>2</sup>)

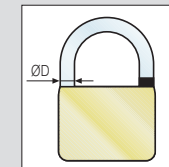
Rated current (A)	Socket outlets		Plugs	
	Min	Max	Min	Max
125A	50	95 (*)	25	50

(\*) In case of flexible cable max 70 mm<sup>2</sup>.

## PADLOCK TO BE USED

Choice of padlock for socket knob, fuse door and switchboard door

Rated current (A)	Padlock arc diameter (mm)
125A	6,3







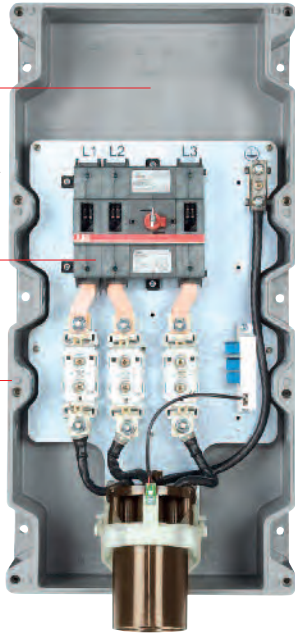
## ■ TECHNICAL CHARACTERISTICS VERSION 125A

### WITH FUSES

Ample space for easy wiring

Switch-disconnector with mechanical lock that can be accessorized with auxiliary contacts

Punched marks for easy closure of the cover



### WITH MCCB + RCD

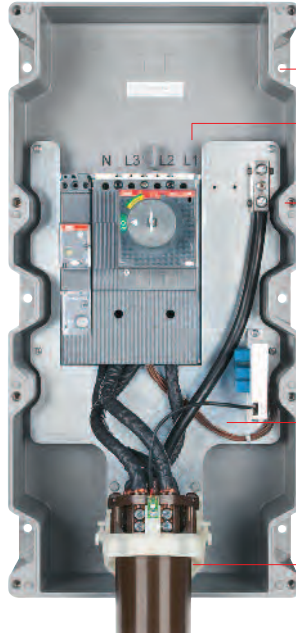
Outdoor wall fastening

Under-plate cable runway

Threaded metal inserts

Easily extractable bottom plate

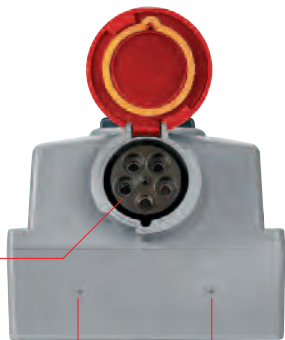
Possibility to assemble microswitch



### BOTTOM VIEW

Module in high-temperature resistant engineering polymer

Possible entry from bottom side (input-output also)

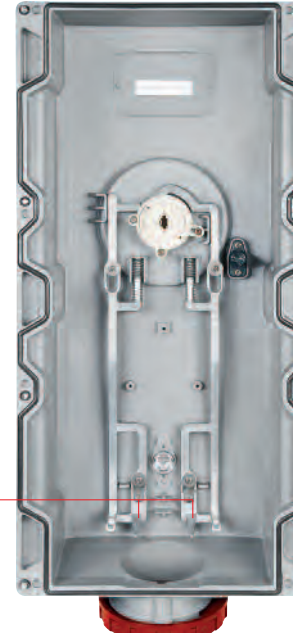


### TOP VIEW

Self-centering punch marks to facilitate drilling



Single-piece waterproof gasket



Dual mechanical lock

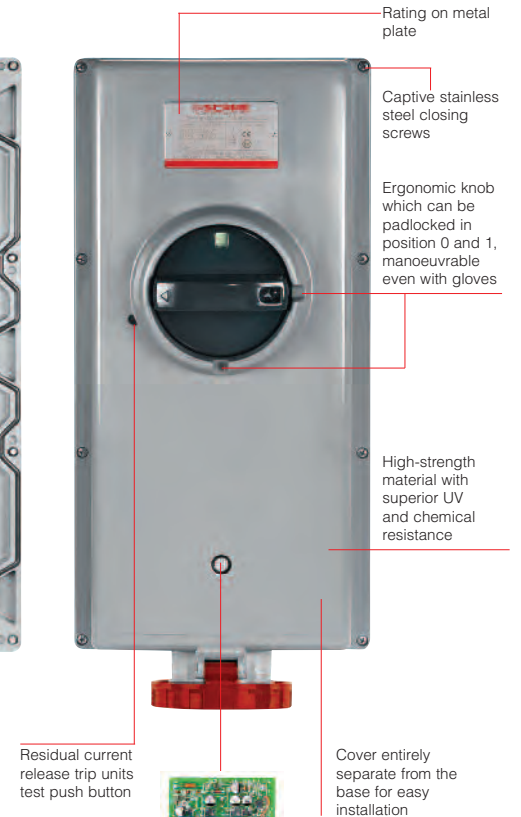
Thermal magnetic protection:

Thermal-magnetic and residual current protection:

Version with contactor: **Contactor CL09 GE POWER CONTROL**

**Molded case circuit breaker**  
**ABB Tmax T1B (16kA) with thermal magnetic trip unit TMD (adjustable thermal threshold 0,7...1 x In fixed magnetic threshold 10 x In)**

**Molded case circuit breaker**  
**ABB Tmax T1B (16kA) with thermal magnetic trip unit TMD (adjustable thermal threshold 0,7...1 x In fixed magnetic threshold 10 x In) + residual current release trip units RC221/1 (adjustable residual current trip 0,03 - 0,1 - 3A and time limit for non-trip instantaneous)**



Residual current release trip units test push button

### I-Device

An electronic device controls (*Intelligence Device*) the status of the interlocked socket, monitoring the electrical functionality:  
 - operation of the signalling and control card is guaranteed even when the load is not connected;

- **INDICATOR LIGHT ON**
  - indicates that the fuses are not open and all the phases are present;
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- ⚡ **INDICATOR LIGHT FLASHING**
  - signals the interruption of one or more fuses;
  - signals the absence of a phase\*;
- **INDICATOR LIGHT OFF**
  - indicates that the socket outlet is not powered.

\* for single-phase products in the event of phase/neutral loss led signaling appears off.