INSTRUCTION MANUAL

ATyS p M

Automatic Transfer Switching Equipment

EN

www.socomec.com

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Innovative Power Solutions

www.socomec.com
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This manual is available for download in French, English, German, Italian, Spanish, Dutch, Portugese, Russian, Polish, Turkish and Chinese.

INDEX

1. GENERAL SAFETY INSTRUCTIONS

- This manual provides instructions on safety, connections and operation of the ATyS M transfer switch manufactured by SOCOMEC.
- Whether the ATyS is sold as a loose product, as a spare, as an enclosed solution or as any other configuration, this device must always be installed and commissioned by qualified and experienced personnel, in line with the manufacturers recommendations, following good engineering practices and after having read and understood the details in the latest release of the relative product instruction manual.
- Maintenance on the product and any other associated equipment including but not limited to servicing operations must be performed by adequately trained and qualified personnel.
- Each product is shipped with a label or other form of marking including rating and other important specific product information. One must also refer to and respect markings on the product prior to installation and commissioning for values and limits specific to that product.
- Using the product outside the intended scope, outside SOCOMEC recommendations or outside the specified ratings and limits can cause personal injury and/or damage to equipment.
- This instruction manual must be made accessible so as to be easily available to anyone who may need to read it in relation with the ATyS.
- The ATyS meets the European Directives governing this type of product and includes CE marking on each product.
- No covers other than that for auto/manu on the ATyS should be opened (with or without voltage) as there may still be dangerous voltages inside the product such as those from external circuits.
- **Do not handle any control or power cables connected to the ATyS when voltage may be present on the product directly through the mains or indirectly through external circuits.**
- Voltages associated with this product may cause injury, electric shock, burns or death. Prior to carry out any maintenance or other work on live parts or other parts in the vicinity of exposed live parts, ensure that the switch including all control and associated circuits are de-energized.

DANGER	WARNING	CAUTION
RISK: Electric shock, burns, death	**RISK:** Possible personal injury	**RISK:** Equipment damage

- As a minimum the ATyS M comply with the following international standards:

  - IEC 60947-6-1
  - GB 14048-11
  - EN 60947-6-1
  - VDE 0660-107
  - BS EN 60947-6-1
  - NBN EN 60947-6-1
  - IEC 60947-3
  - IS 13947-3
  - EN 60947-3
  - NBN EN 60947-3
  - BS EN 60947-3

  The information provided in this instruction manual is subject to change without notice, remains for general information only and is non-contractual.

2. INTRODUCTION

ATyS p M “Automatic Transfer Switching Equipment” (ATSE) is designed for use in power systems for the safe transfer of a load supply between a normal and an alternate source. The changeover is done in open transition and with minimum supply interruption during transfer ensuring full compliance with IEC 60947-6-1, GB 14048-11 and other international TSE standards as listed.
The ATyS p M is a full load break (switch type) derived transfer switching equipment where the main components are proven technology devices also fulfilling requirements in IEC 60947-3 standards.
As a Class PC ATSE, the ATyS p M is capable of “making and withstanding short circuit currents” assigned to IEC 60947-3 utilization categories of up to AC23A, GB 14048-11, IEC 60947-6-1 and equivalent standards with utilization categories of up to AC33B.

ATyS p M transfer switches ensure:

- Power Control and Safety between a normal and an alternate source.
- A complete product delivered as a fully assembled and tested solution.
- Intuitive HMI for emergency / local operation.
- Integrated and robust switch disconnection.
- Window with clearly visible position indication I – 0 - II.
- An inherent failsafe mechanical interlock.
- Stable positions (I – 0 – II) non affected by typical vibration and shocks.
- Constant pressure on the contacts non affected by network voltage.
- Energy Efficient with virtually no consumption whilst on the normal, alternate or off positions.
- Extremely rugged, error free and built in padlocking facility (configurable).
- Straight forward installation with effective ergonomics.
- Programmable secure motorization controls interface.
- User configurable I/O with communication through Modbus® (RS485) Optional
- ATS configuration through a keypad as well as through EasyConfig programming software.
- Auxiliary contacts for switch positions I – 0 - II (optional).
- “Product availability” output.
- Ample accessories to suit specific requirements.
- Fully integrated ATS controller specifically designed for Mains / Mains and Mains / Genset applications.

2.1. The ATyS family product range

Just the right ATyS for your application…

ATyS: Small Footprint

Back to Back Configuration

125A - 3200A

ATyS p
Power / Genset Management

ATyS g
Simple Genset Management

ATyS t
Transformer Management

40A - 125A

ATyS d S
Small Genset with DPS

ATyS d
RTSE (DPS)

ATyS S (RTSE)
Small Genset

ATyS r
RTSE

(1)**ATyS** UL
RTSE

ATyS M: Modular Profile

40A - 160A

ATyS p M
Evolved Genset Management

ATyS g M
Simple Genset Management

ATyS t M
Transformer (building) Management

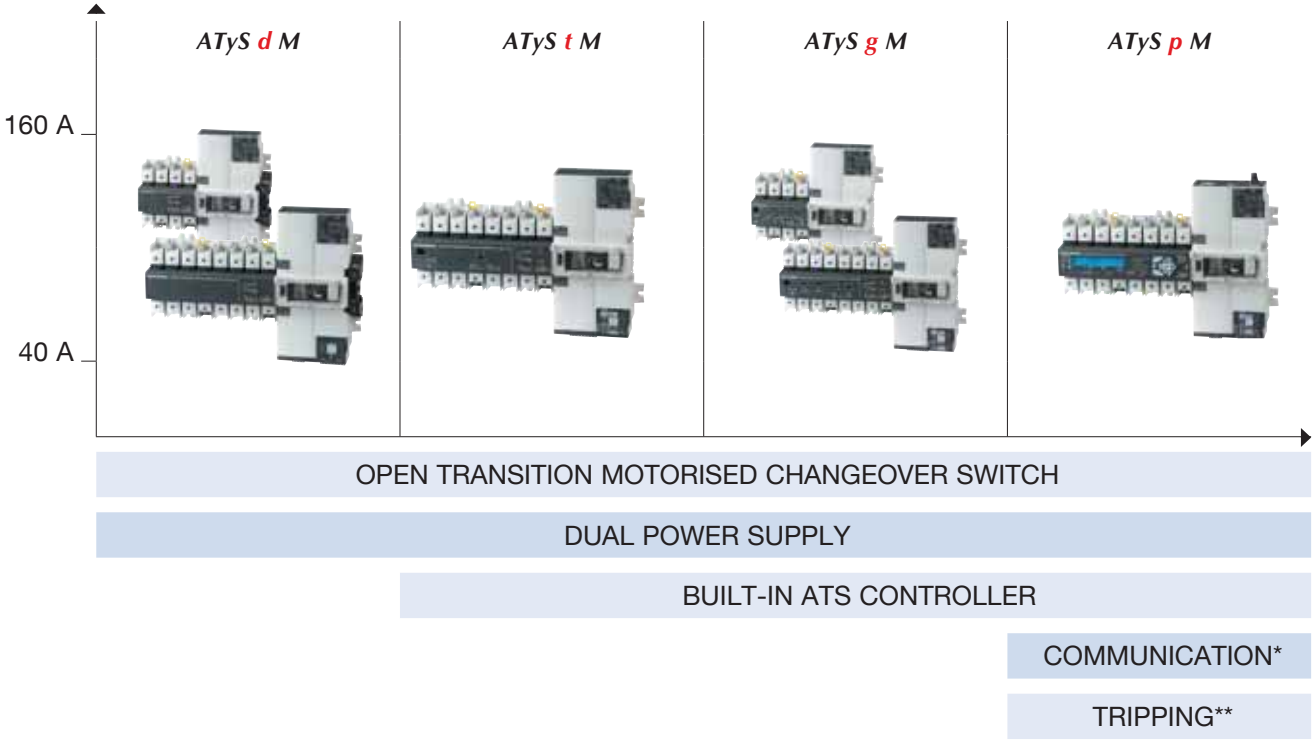
ATyS d M
RTSE (DPS)

Side by Side Configuration

(1) The UL version of ATyS r is available from 100 - 400A

2.2. The ATyS M Range Key Features

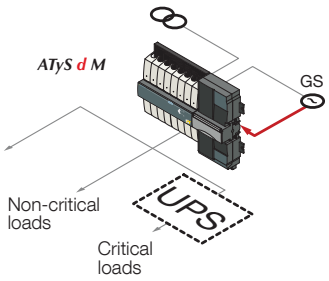
Selecting the right ATyS M will depend on the application, the functionality required as well as the nature of the installation in which the ATyS M will be installed. Below is an outline product selection chart listing the key features of each product to help you select the right ATyS M for your needs.



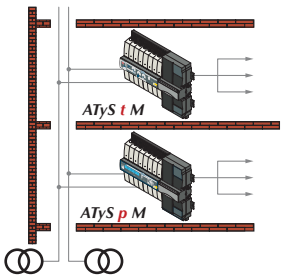
** Specific version. ** Return to zero without external energy source.*

A product for virtually all power changeover applications from 40 to 160 A

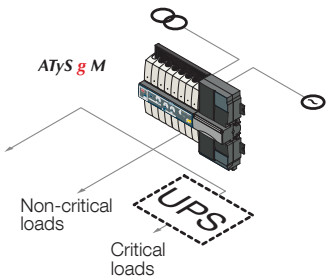
> Network/Genset
> Genset/Genset
> Network/Network
Applications with an External ATS Control



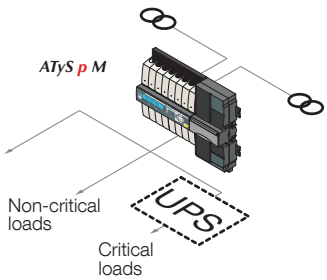
> Network/Network
Building applications



> Network/Genset
Genset Applications for Standby Power



> Network/Genset
> Network/Network



2.2.1. Selection guide

Six ratings 40/63/80/100/125/160 A

	ATyS d M	*ATyS t M*	*ATyS g M*	*ATyS p M*
APPLICATIONS				
Normal/Backup without automatic controller	•			
Normal/Backup with built-in automatic controller		•	•	•
Stable positions	•	•	•	•
Load changeover	•			
FUNCTIONS				
POWER SUPPLY				
External	•			
Integrated		•	•	•
OPERATION				
Backup manual operation of the 3 positions	•	•	•	•
Electrical (dry contact) control of positions I, 0 and II	•			•*
Automatic control of positions I, 0 and II		•	•	•
Return to 0 position feature upon loss of source				•
MONITORING				
3 voltages on networks I and II		•	•	•
Frequency on networks I and II		•	•	•
Phase rotation on networks I and II				•
Asymmetry of networks I and II				•
AUTOMATIC CONTROLLER CONFIGURATION				
By potentiometer and micro-switch		•	•	
By screen + keyboard				•
V_n, F_n, V threshold, F threshold		•	•	•
Driving with or without priority		•	•	•
Adjustable operating timers		•	•	•
Control type (impulse or switch/contactor)	•			
DISPLAY				
Position, fully visualised breaking	•	•	•	•
LED: source status, automatic mode, fault LED		•	•	•
LED: switch positions, supply, tests, control				•
V, F, timers, number of operations, last event				•
REMOTE CONTROL				
Outputs				
Generator start/stop order			•	•
Product availability (not fault and not manual mode)			•	•*
Source available		•		•*
Programmable output (source, availability, fault)				•*
Inputs				
Test on load			•	•*
Retransfer			•	•*
Automatic mode inhibit		•	•	•*
Position 0 order		•		•*
Priority		•	•	•
Other programmable inputs (test off-load, position control, etc.)				•*
Remote control				
Human/Machine Interface (***D10*** and ***D20***)				•
RS485 communication (MODBUS)				•**

** 3 inputs/3 outputs (programmable).*

*** Product reference is different: communication by RS485 connection (MODBUS) allows up to 31 ATyS M to be connected to a PC or a PLC over 1500 m.*

3. QUICK START

3.1. Quick Start ATyS p M

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Innovative Power Solutions

QUICK START EN 40 - 160A (4P)

ATyS p M

Automatic
Transfer Switching Equipment

Preliminary operations

Check the following upon delivery and after removal of the packaging:

- Packaging and contents are in good condition.
- The product reference corresponds to the order.
- Contents should include:
  - Qty 1 x ATyS M
  - Qty 1 x Emergency handle extension rod
  - Qty 1 x Set of terminals
  - Quick Start instruction sheet

Warning

⚠ Risk of electrocution, burns or injury to persons and / or damage to equipment.

This Quick Start is intended for personnel trained in the installation and commissioning of this product. For further details refer to the product instruction manual available on the SOCOMEC website.

- This product must always be installed and commissioned by qualified and approved personnel.
- Maintenance and servicing operations should be performed by trained and authorised personnel.
- Do not handle any control or power cables connected to the product when voltage may be, or may become present on the product, directly through the mains or indirectly through external circuits.
- Always use an appropriate voltage detection device to confirm the absence of voltage.
- Ensure that no metal objects are allowed to fall in the cabinet (risk of electrical arcing).

Failure to observe good enginering practises as well as to follow these safety instructions may expose the user and others to serious injury or death.

⚠ Risk of damaging the device

- In case the product is dropped or damaged in any way it is recommended to replace the complete product.

Accessories

- Bridging bars 125A or 160A.
- Control voltage transformer (400Vac -> 230Vac).
- Voltage sensing and power supply tap.
- Terminal shrouds.
- Auxilliary contact blocks.
- Polycarbonate enclosure.
- Polycarbonate extension box.
- Power Connection Terminals.
- ATyS D10 remote display unit.
- ATyS D20 remote control and display unit.

www.socomec.com
www.socomec.com/en/atys-p-m
To download, brochures, catalogues and technical manuals.

Printing informations: 1 color Black. White paper 90g/m².
Printing size: 420x297. Final size 210x297. This page visible first.
A separate sheet for each language.

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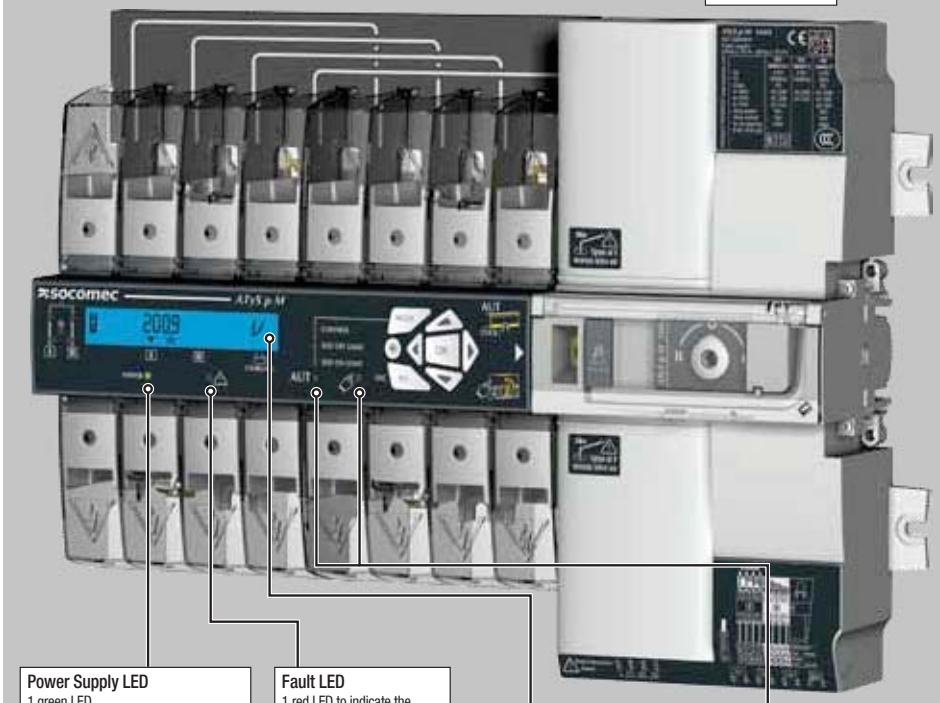
SOCOMEC SAS, 1-4 RUE DE WESTHOUSE, 67235 BENFELD, FRANCE

542 934 C - 12/16 - EN

Installation and Commissioning

STEP 1 Cabinet / Back Plate Installation
STEP 2 Connecting the POWER section
STEP 3 CONTROL / AUX POWER terminal connections
STEP 4 CHECK
STEP 5 PROGRAMMING
STEP 6A Automatic Operation
STEP 6B Emergency Manual Operation
STEP 6C Padlocking



STEP 3

CONTROL / AUX POWER Terminals and wiring

Type	Terminal no.	Description	Characteristics	Recommended connection cross-section
Inputs	207	Common point for inputs	Do not connect to any power supply Supply from the product	0.5 to 2.5 mm² (rigid) 0.5 to 1.5 mm² (stranded)
	208	I1: programmable input		
	209	I2: programmable input		
	210	I3: programmable input		
Outputs	43/44	O1: programmable output	Resistive load 2A 30Vdc 0.5A 230Vac Pmax: 60W or 115VA Umax: 30Vdc or 230Vac	
	53/54	O2: programmable output		
	63/64	O3: programmable output		
	73/74	G: generator stat signal		
Remote interface connection	RJ	ATyS D10/D20 human/machine interface	Maximum distance 3 m	RJ45 8/8 straight cable Cat. 5
Serial connection (specific version)	RS485	Connection RS485 0: interconnection of cable shielding upstream and downstream of RS485 bus –: negative terminal of RS485 bus +: positive terminal of RS485 bus	RS485 bus insulated	LiYCY shielded twisted pair, 0.5 to 2.5 mm²

Type	Terminal no.	Status of the contact	Description	Output characteristics	Recommanded connection cross-section
Auxiliary contact block *1309 0001*	11/12/14	11 — 14 / 12	Changeover switch in position I	250V AC 5A AC1 - 30 Vdc 5A	0.5 to 2.5 mm² (rigid) 0.5 to 1.5 mm² (stranded)
	21/22/24	21 — 24 / 22	Changeover switch in position II		
	01/02/04	01 — 04 / 02	Changeover switch in position 0		
Auxiliary contact block *1309 0011*	11/12/14	11 — 14 / 12	Changeover switch in position I		
	21/22/24	21 — 24 / 22	Changeover switch in position II		
	01/02/04	01 — 04 / 02	Changeover switch in position 0		

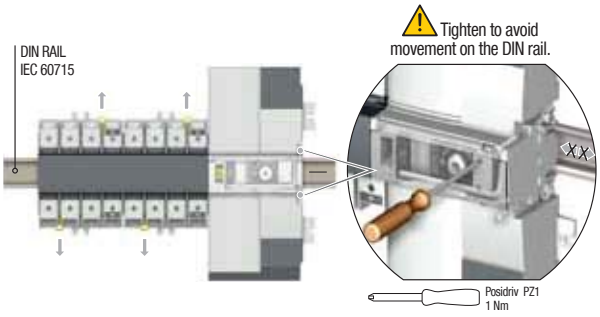
STEP 1

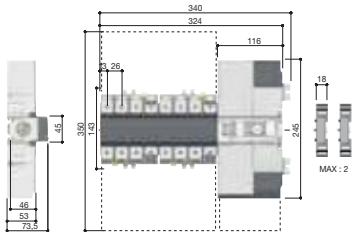
Installation

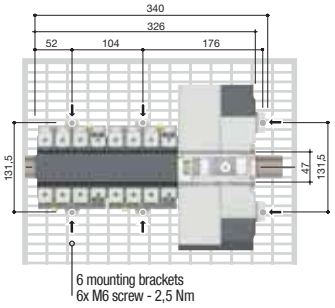
Caution: Ensure that the product is installed on a flat rigid surface.

Recommended orientation

Recommended	Ok	Ok	Ok	Ok	Ok

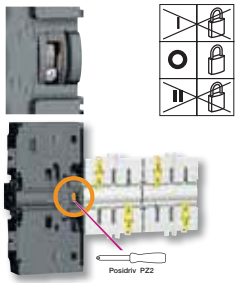




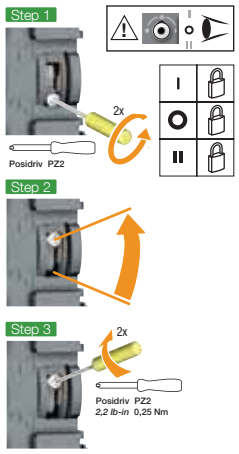


Padlocking configuration

The ATyS M is delivered with padlocking configured to the 0 position.



To allow padlocking in all positions (I - 0 - II), configure the ATyS M as follows before installation. (Screw is located at the back of the product).

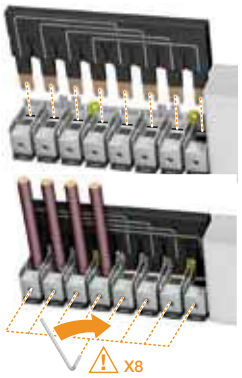


STEP 2

Power Terminal Connections

It is essential to tighten all used terminals, with cables and/or bridging bars, before use.

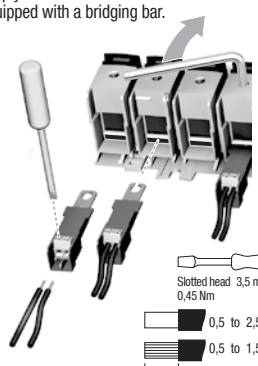
Load side bridging bar.
125A: 1309 4006
160A: 1309 4016



Hexagonal Metric Allen size 4
5,0 Nm

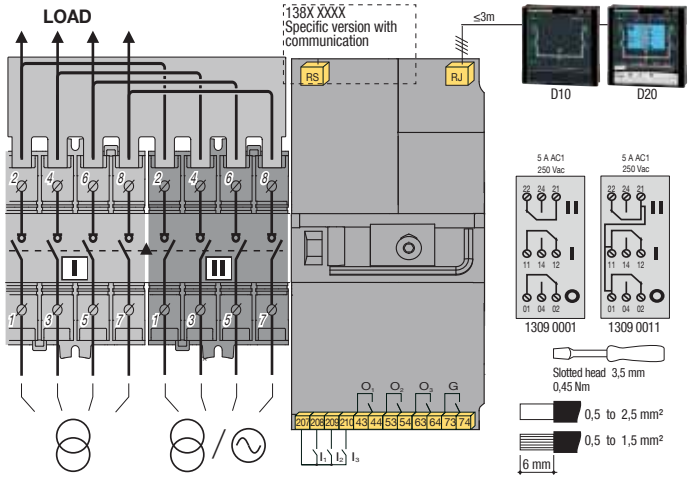
10 to 70 mm²
15mm

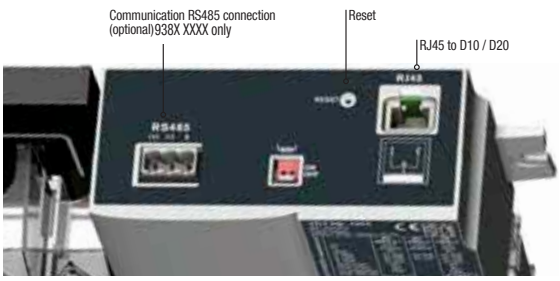
Voltage taps provide 2x ≤ 1.5mm² connections. They can be fitted in any terminals on the source supply side. Do not use on the load side when equipped with a bridging bar.



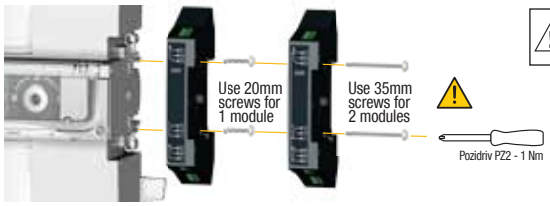
Slotted head 3,5 mm
0,45 Nm
0,5 to 2,5 mm²
0,5 to 1,5 mm²
6 mm

Ensure that the product is in Manual Mode (front cover open).





Auxiliary contacts: Fitting of auxiliary contacts: 1309 0001 or 1309 0011
To fit an AC, the switch must first be put in position 0. An auxiliary contact module comprises: one NO/NC changeover contact for each position (I-0-II). To install use the long screws supplied with the module.



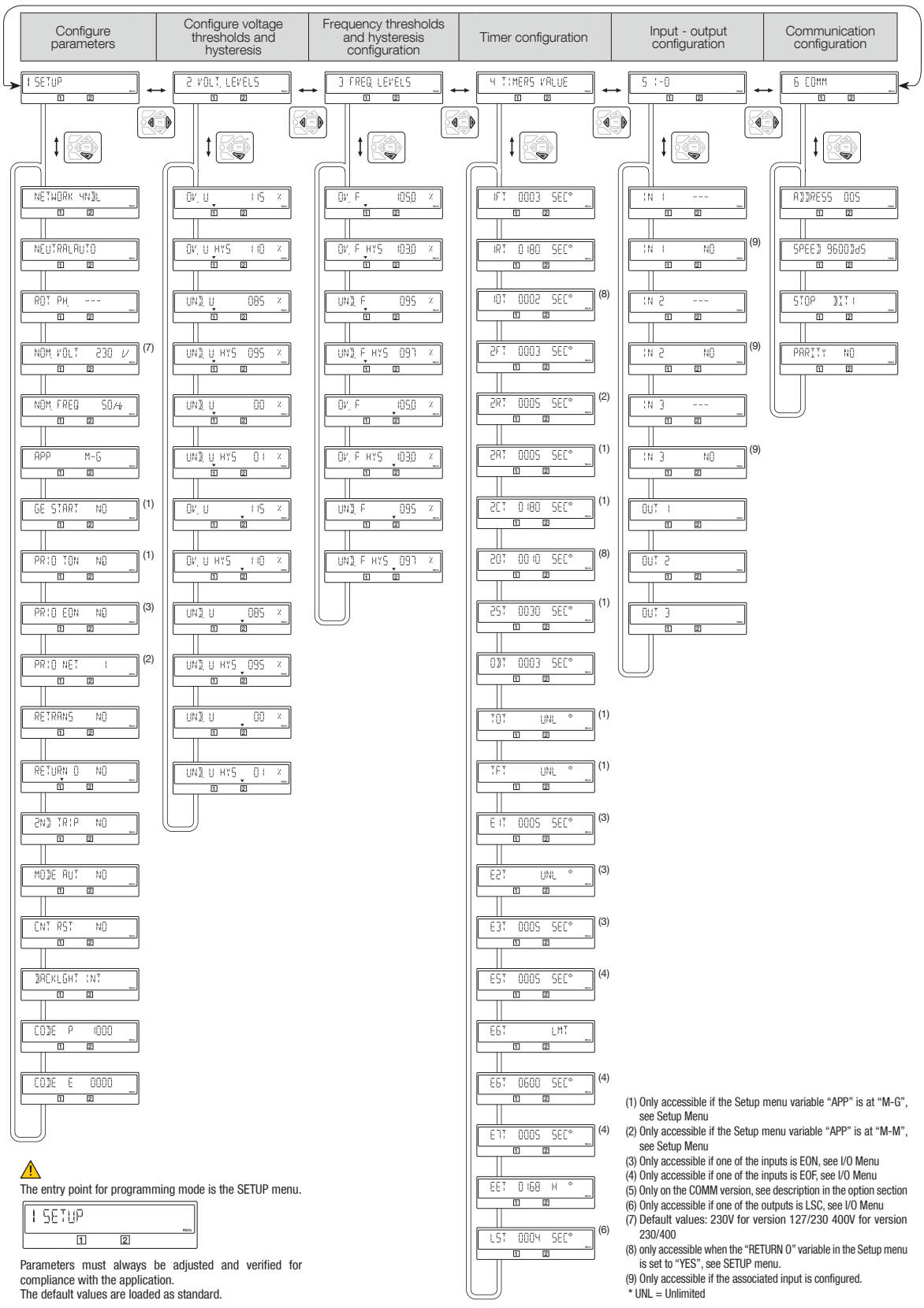
STEP 4 *Check*

Whilst in manual mode, check the wiring and if ok power up the product.

STEP 5 *Programming*

Product programming
Programming access is possible in Automatic mode, when the product is in position I with source 1 available, and in Manual mode in any position and with at least one available source.

Note: For complete programming details: download the instruction manual from the Socomec website.

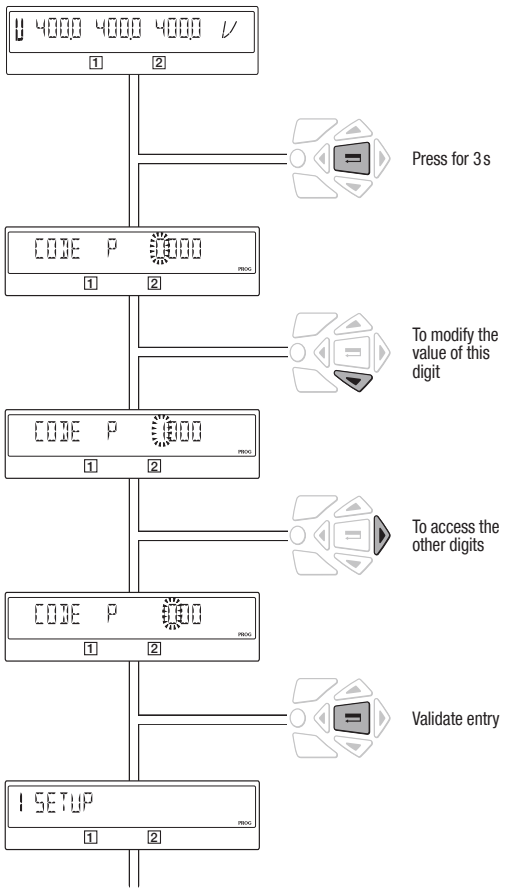


The entry point for programming mode is the SETUP menu.

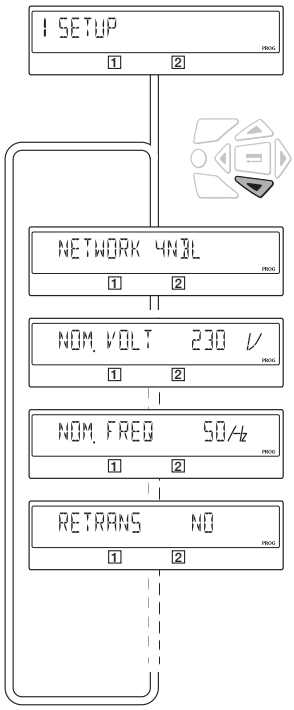
Parameters must always be adjusted and verified for compliance with the application.
The default values are loaded as standard.

(1) Only accessible if the Setup menu variable "APP" is at "M-G", see Setup Menu
(2) Only accessible if the Setup menu variable "APP" is at "M-M", see Setup Menu
(3) Only accessible if one of the inputs is EON, see I/O Menu
(4) Only accessible if one of the inputs is EOF, see I/O Menu
(5) Only on the COMM version, see description in the option section
(6) Only accessible if one of the outputs is LSC, see I/O Menu
(7) Default values: 230V for version 127/230 400V for version 230/400
(8) only accessible when the "RETURN 0" variable in the Setup menu is set to "YES", see SETUP menu.
(9) Only accessible if the associated input is configured.
* UNL = Unlimited

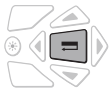
To access programming
Default code: 1000



Browsing



Exit programming



Press the validate button for 3 seconds.

TIMERS		Setting range	Defaut Value
1FT	Loss of source 1 Validation timer.	0 to 60 sec	3 sec
1RT	Source 1 return validation timer.	0 to 3600 sec	180 sec
2FT	Loss of source 2 Validation timer.	0 to 60 sec	3 sec
2RT	Source 2 return validation timer.	0 to 3600 sec	5 sec
2AT	Standby network stability validation before transfer	0 to 3600 sec	5 sec
2CT	Run on timer.	0 to 600 sec	180 sec
ODT	Dead band timer.	0 to 20 sec	3 sec
Parameters		**Setting range**	**Default value**
NEUTRAL	Neutral position on the switch AUTO: neutral position is automaticaly detected when the product is supplied the first time. LEFT: neutral must be connected to the left that means on the terminal 1 from each switch. RIGHT: neutral must be connected to the right that means on the terminal 7 from each switch.	AUTO LEFT RIGHT	AUTO
NOM. VOLT.	Nominal voltage Phase/phase or phase/neutral in 1BL and 41NBL	From 180 to 480 Vac	400Vac (230/400V version) 230Vac (127/230V version)
NOM. FREQ.	Nominal Frequency	50 or 60Hz	50Hz
APP	Type of application M-G: network - Genset M-M: network - network	M-G M-M	M-G
RETRANS	Retransfer inhibit feature, press on Validation button required to allow retransfer form Gen to Main	YES or NO	NO
NETWORK	Network configuration*	3NBL / 4NBL / 41NBL / 1BL (230/400V version) 4NBL / 3NBL / 2NBL / 42NBL (127/230V version)	4NBL

* The wiring must be adapted to the network configuration. Below, the main configuration types.

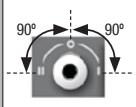
3 phase / 4 wire	3 phase / 3 wire	2 phase / 3 wire	2 phase / 2 wire	1 phase / 2 wire
4NBL 4BL	3NBL 3BL	2NBL	2BL	1BL

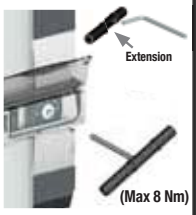
STEP 6A *Automatic operation*

Close the front cover as shown to put the product into automatic mode.

STEP 6B *Manual operation*

- Open the front cover as shown to put into manual mode.
- Use the handle situated in the front panel under the cover to operate the transfer switch.
- Check the changeover switch position on the indicator before operating.

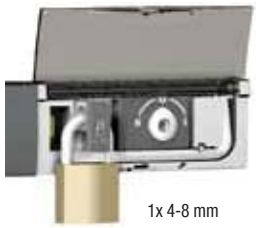




To simplify operation use the handle with the extension provided.

STEP 6C *Padlocking mode*

- In order to padlock put the product in manual mode.
- Pull the locking mechanism and insert a padlock as shown.
- As standard padlocking in the 0 position. Configurable to I-0-II (see step 1).



1x 4-8 mm

4. ATYS P M VERSIONS

The ATyS p M is available as a 4P product with integrated 230/400 Vac control voltage taken directly off the power section.
On option it is available with RS485 communication.(Modbus Slave).

4.1. Product presentation

This quick-acting source transfer switch incorporates:

1. 2 mechanically interlocked switches including an electronic control-command module.
2. A quick-acting electric control unit enabling automatic or manual system operation.
3. Electrical specifications compliant with product standards, and a version identification.
4. Changeover switch wiring identification.
5. Control connections.
6. An RJ45 connection for a remote interface D10 / D20.
7. A connector for RS485 communication (Modbus), for the version with communication.

CAUTION

Ensure that the load is connected to the top of the switch with the motorisation on the right hand side as shown.

4.2. Specifications and advantages

1 - Power section:
A fully integrated and interlocked transfer switch, with high electrical performance offering microprocessor control and monitoring.

2 - Operation:
A flexible operating mechanism enabling quick motorised transfer in automatic mode or locally in manual mode for emergency operations. Features a locking device to ensure (in position zero) a secured isolation of the load (padlocked).

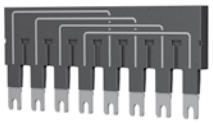
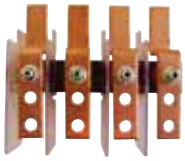
4.3. Supply types

The power supply of ATyS p M is required to be 230VAC ±30% at a frequency of 50/60 Hz and has been developed so as to meet most network configurations.

Product's working ranges:

	Version 230 / 400 VAC		Version 127 / 230 VAC	
	Umin	Umax	Umin	Umax
Ph-N	160	305	160	305
Ph-Ph	277	528	160	305

5. OPTIONAL ACCESSORIES

Auxiliary contacts	Each product can take up to 2 auxiliary contact blocks. Each accessory integrates 1 NO/NC auxiliary contact (for each position I, O and II) 1309 0001 or NO/NC for 1309 0011. Characteristics: 250 VAC / 5 A maximum.		*Ref. : 1309 0001* *Ref. : 1309 0011*
Bridging bars	To provide a common point on the outgoing side of the switch (load side).		*2 Refs are available: Rating ≤ 125A : 1309 4006 and rating 160A: 1309 4016*
Remote control interfaces D10/D20	- Use. Adapted to applications requiring the changeover switch to be fitted inside the cabinet. Product self-supplied via the RJ45 connection lead with ATyS M. Maximum connection distance: 3 m. - D10. For transferring source and changeover switch statuses to the cabinet front panel. IP rating: IP21. - D20. In addition to the D10 interface functions, enables configuration, checking, tests and measurements display. IP rating: IP21. - Door mounted. 2 holes, ø 22.5. Connection to ATyS M via the Socomec 1599 2009 connection cable.		*Ref. D10 : 1599 2010* *Ref. D20 : 1599 2020*
Connecting cable for remote interfaces	For connecting between a remote interface and a checking product. RJ45 3 m straight uninsulated cable.		*Ref. : 1599 2009*
Voltage sensing and power supply tap	It allows connection of 2 x 1.5 mm^2 voltage sensing or power cables. The single-pole voltage sensing tap can be mounted in the terminals without reducing their connecting capacity. Do not use with the bridging bar.		*Ref. : 1399 4006* *2 parts/ref.*
Terminal shrouds	Protection against direct contacts with terminals or connecting parts. Other features: Perforations allowing remote thermographic inspection without removal. Possibility of sealing.		*Ref. : 2294 4016* *2 parts/ref.*
Enclosure	Fully dedicated to ATyS M use, this polycarbonate enclosure provides easy access to a compact, enclosed transfer switch.		*Ref. : 1309 9006*
Extension unit	Combined with the polycarbonate enclosure, the extension box creates extra space for routing cables with a larger diameter.		*Ref. : 1309 9007*
Power connection terminals	The power connection terminals allow conversion of the cage terminals into bolt-on type connection terminals, enabling connection of up to two 35mm^2 cables or one 70mm^2 cable. Each power connection terminal is provided with separation screens.		*Ref. : 1399 4017* *For complete conversion, order 3 times the reference.*
Auto-transformer	For use with ATyS M in 400 VAC three-phase applications without a distributed neutral. As the ATyS M has integrated measurement and power supply circuits, a neutral connection is required for 400 VAC three-phase applications. When no neutral connection is available this autotransformer (400/230 VAC, 400 VA) provides the 230 VAC required for the ATyS M to function.		*Ref. : 1599 4121*

6. TECHNICAL DATA

Ratings		40A	63 A	80 A	100 A	125 A	160 A
Frequencies		50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Thermal current Ith at 40 °C (A)		40	63	80	100	125	160
Thermal current Ith at 50 °C (A)		40	63	80	100	110*	125
Thermal current Ith at 60 °C (A)		40	50	63	80	100*	125
Thermal current Ith at 70 °C (A)		40	40	50	63	80*	100
Rated assigned insulation voltage Ui (V) (Power circuit)		800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV) (power circuit)		6	6	6	6	6	6
Rated insulation voltage U_i (V) (control circuit)		300	300	300	300	300	300
Rated impulse withstand voltage U_{imp} (kV) (control circuit)		2.5	2.5	2.5	2.5	2.5	2.5
Rated operational currents (A) IEC 60947-3 at 415VAC at 40 °C	AC 21A / 21 B	40/40	63/63	80/80	100/100	125/125	160/160
	AC 22A / 22 B	40/40	63/63	80/80	100/100	125/125	125/160
	AC 23A / 23 B	40/40	63/63	80/80	100/100	125/125	125/160
Rated operational currents (A) IEC 60947-6-1 415Vac at 40 °C	AC 33B / AC32B **AC 33iB	40/40	63/63	80/80	100/100	125/125	125**/160
Fuse protected short-circuit withstand if using gG DIN fuses	Fuse protected short-circuit withstand (kA eff)	50	50	50	50	50	40
	Associated fuses (gG DIN)	40	63	80	100	125	160
Short-circuit capacity	Rated short-term withstand current: Icw 1s (kA eff)	4	4	4	4	4	4
	Rated short-term withstand current: Icw 30ms (kA eff)	10	10	10	10	10	10
Switching time at In excluding loss of supply sensing time and excluding any delay timers applicable.	I-II or II-I (ms)	180	180	180	180	180	180
	Duration of “electrical blackout” at Un (ms)	90	90	90	90	90	90
	I-O / O-I / II-O / O-II (ms)	45	45	45	45	45	45
Consumption	Inrush current(A)	20	20	20	20	20	20
	Consumption in stabilised state (VA)	6	6	6	6	6	6
Mechanical characteristics	Number of changeovers	10000	10000	10000	10000	10000	10000
Connection cross-section (⚠ not compatible with aluminium cables)	Minimum size (Cu mm^2), flexible and rigid	10	10	10	10	10	10
	Maximum size (Cu mm^2), flexible and rigid	70	70	70	70	70	70
Equipment class (According to IEC 60947-6-1)		PC	PC	PC	PC	PC	PC
EMC environment		A	A	A	A	A	A

* Possibility of reaching 125A with bigger connection cross-sections and use of the 160A bridging bar.

** AC 33iB 160A according to GB 14048.11.

This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

7. ENVIRONMENTAL CONDITIONS

Humidity

- 80 % humidity without condensation at 55 °C
- 95 % humidity without condensation at 40 °C

Temperature

- -20 +40 °C without de-rating
- 40 °C < t ≤ 70 °C with de-rating (see Technical Characteristics)

Altitude

- Max 2000 m without de-rating

Correction factors:

	2 000 m < A ≤ 3 000 m	3 000 m < A ≤ 4 000 m
UE	0.95	0.80
Ie	0.85	0.85

Storage

- 1 year maximum
- Maximum storage temperature: +55 °C
- 80 % humidity without condensation at 55 °C

IP rating

- IP41 in the SOCOMEC polycarbonate modular enclosure see «10.1. Polycarbonate enclosure», page 22
- IP2x for non-enclosed modular product

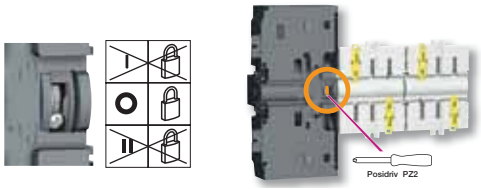
Protection class: Class 1

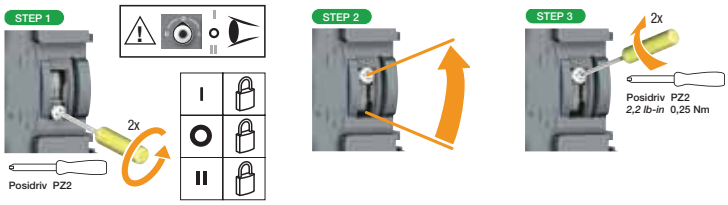
8. PRODUCT INSTALLATION

Prior to installation of the product ensure that the padlocking setting screw (located at the back of the product) is configured as per your requirements.
For locking in Positions I, II and 0, refer to the following procedure

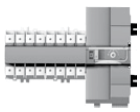
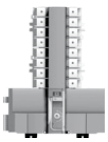
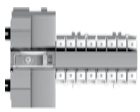
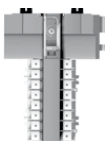
8.1. Changing the padlocking configuration

To configure the locking in the 3 positions:
STEP1: loosen the screw at the back of the product as shown below.
STEP2: slide the screw upwards.
STEP3: tighten the screw in the top position as shown.

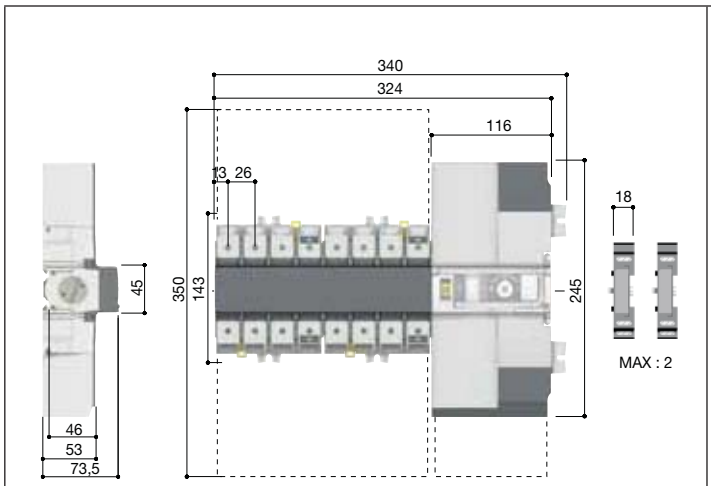




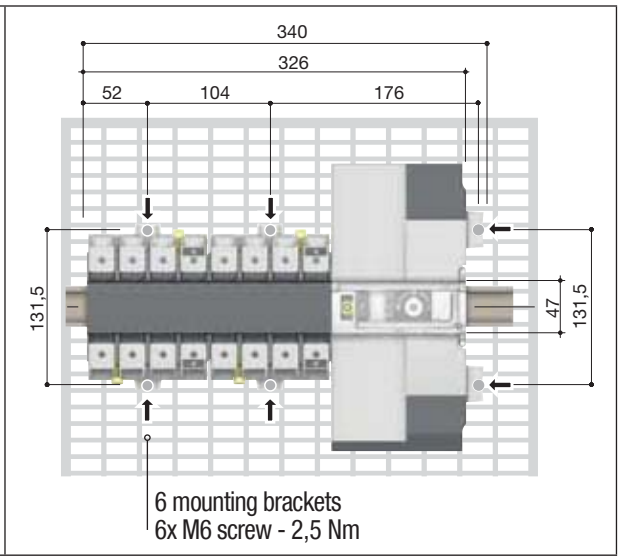
8.2. Recommanded orientation

					
Recommended	Ok	Ok	Ok	Ok	Ok

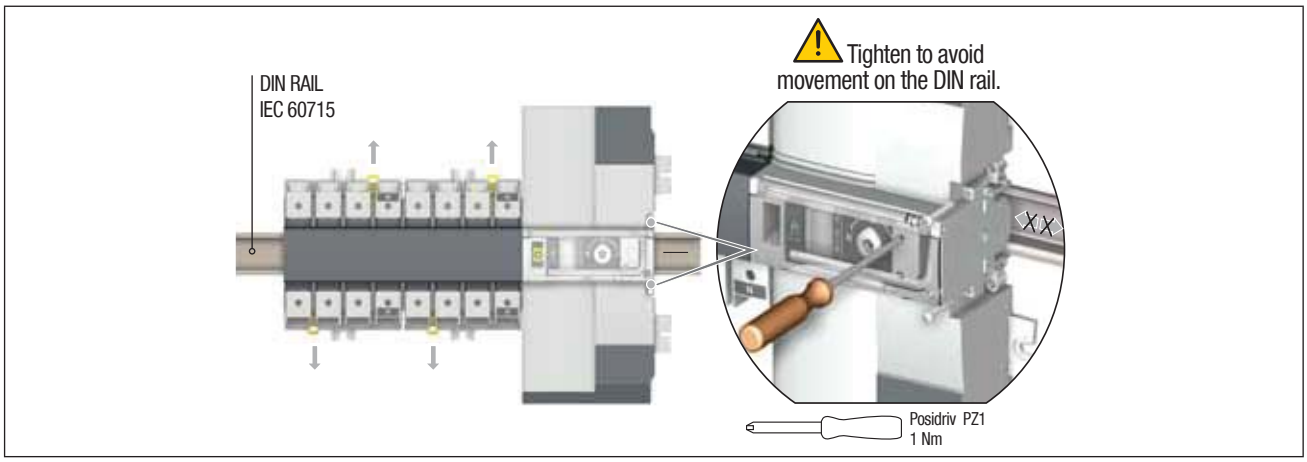
8.3. Dimensions



8.4. Back plate mounted



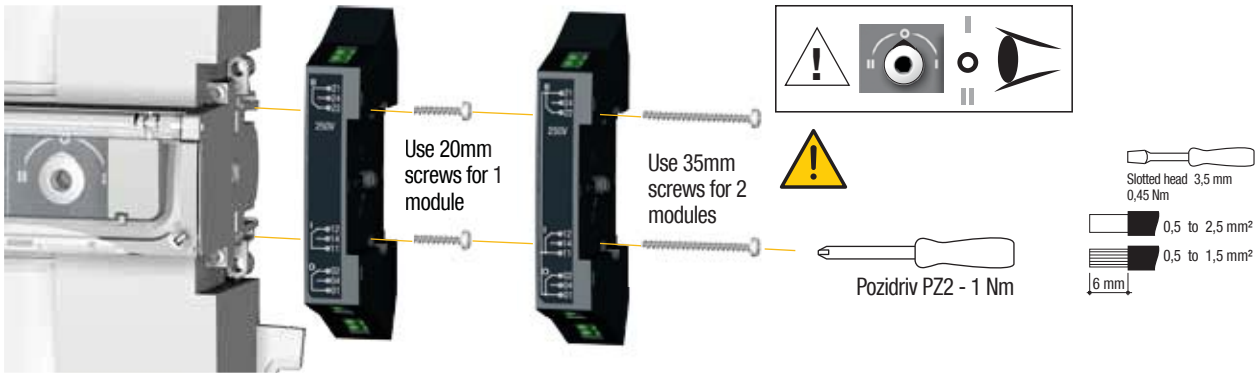
8.5. DIN rail mounted



9. INSTALLATION OF OPTIONAL ACCESSORIES

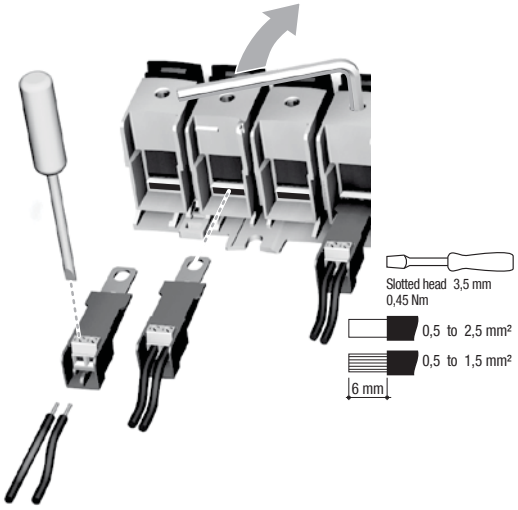
9.1. Auxilliary contacts

Ref. 1309 0001 or ref. 1309 0011.
To fit an AC, the switch must first be put in the 0 position. An auxiliary contact module comprises: one NO/NC changeover contact for each position (I-0-II). To install use the screws supplied with the module.



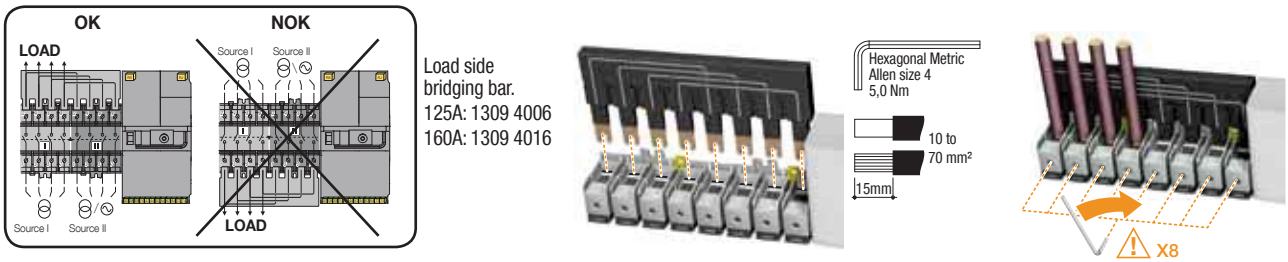
9.2. Voltage sensing and power supply tap

Ref. 1399 4006.
This provides 2 connection terminals for conductors with cross-section ≤ 1.5 mm².
The single pole terminals can be fitted in any of the terminal cages without reducing the cage connection capacity.
2 parts/ref. Do not use in case of use of the bridging bar.



9.3. Bridging bars 4P

Ratings ≤ 125A: ref. 1309 4006; 160A: ref. 1309 4016



Make sure that the bridging bar is fitted to the correct set of terminals.
There are two references available: one for ratings up to 125A, and another for 160A rating.

9.4. Terminal shrouds

Ref. 2294 4016