



SPX
& SPZ

**POWERSYNTAX
CONNECTOR
SERIES**

syntax
no compromise

SPX & SPZ PowerSyntax

SPX and SPZ are the new PowerSyntax series of single pole electrical connectors. PowerSyntax are specifically suited for the electrical supply management from 650A in continuous work up to 750A for brief periods (see technical data table at the bottom of this page). Although fully intermateable with the original (and all the previous Syntax versions), the new SPX PowerSyntax features a number of mechanical and technical enhancements which have been designed and incorporated to redefine the standards on this category of connectors as for safety, reliability, ease of handling and robustness in the harshest conditions.

TYPICAL APPLICATIONS

- Electrical power systems
- Power distribution
- Outdoor concerts and sporting events
- Outdoor broadcasting
- Theatres
- Mobile generators
- Industrial vehicles
- Railway installations
- Military installations
- Load banks
- Backup power systems
- Electrical power supply companies
- Heavy industry







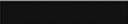













GENERAL FEATURES

- Intermateable with other versions
- CE compliant
- EN/ESI compliant
- Contact retained within the thermoplastic housing with a flame-retardant UL94-VO plastic pin.
This method ensures quick assembling and disassembling. No special extracting tools are needed
- Heavy-duty ergonomic hand grip, with sides specifically designed for easy pushing/pulling when mating/unmating
- Metric thread M40 cable gland IP68 watertight compliant with EN/CE, adapters available for cables over 32 mm diameter
- Screw and Crimp terminals to facilitate cables from 25mm² to 300 mm²
- Mechanically keyed to prevent mating errors
- Permanent marking to identify phase/line and safety information embossed on connector's body
- Multipoint contact area
- Silver Plated Contacts
- High Impact bodies
- EN harmonized color coding (Europe). Also available in UK, Australia and USA color codes

TECHNICAL DATA

Number of contacts:	single pole
Maximum continuous current rating with 300 mm ² cable:	650A
Maximum current with 300 mm ² cable:	750A
Test Voltage:	4500 V AC
Short Circuit Rating:	35.5kA peak
Insulation Resistance:	>5000 MOhm @500V
IP rating when mated:	IP67
Protection against electric shock:	IP2X
Contact resistance:	<0.1 mOhm
Housing material:	high temperature thermoplastic
Flammability:	UL94 V0
Coupling method:	bayonet lock with secondary locking pin
Number of mating cycles:	>500
Operating temperature:	-30°C/+125°C

IDENTIFICATION COLOR CODES

	GROUND	NEUTRAL	LINE 1	LINE 2	LINE 3
EUROPE					
UK					
AUSTRALIA					
U.S.A.					

EUROPEAN SERIES EXAMPLE

	LINE SOURCE	LINE DRAIN	PANEL SOURCE	PANEL DRAIN
LINE 1	 LINE 1 - Line Source	 LINE 1 - Line Drain	 LINE 1 - Panel Source	 LINE 1 - Panel Drain
LINE 2	 LINE 2 - Line Source	 LINE 2 - Line Drain	 LINE 2 - Panel Source	 LINE 2 - Panel Drain
LINE 3	 LINE 3 - Line Source	 LINE 3 - Line Drain	 LINE 3 - Panel Source	 LINE 3 - Panel Drain
NEUTRAL	 NEUTRAL - Line Source	 NEUTRAL - Line Drain	 NEUTRAL - Panel Source	 NEUTRAL - Panel Drain
GROUND	 GROUND - Line Source	 GROUND - Line Drain	 GROUND - Panel Source	 GROUND - Panel Drain



LINE SOURCE

Innovative ergonomic hand grip for easy handling.
Finger protection IP2X to prevent accidental touching of live contact parts.

Contact to housing retention through flame-retardant UL94-VO plastic cotter pin.

No special tools required for assembling.

Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin.

Set Screw termination for cables 25 mm² -150 mm²

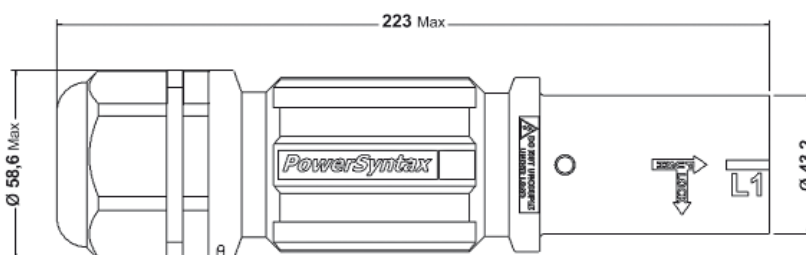
Crimp termination for cables up to 300 mm²

Watertight IP68 plastic cable gland M40 for cable strain relief retention range 15 - 32 mm.

Permanent markings to identify phase/line and safety information are embossed on connector's shell.

No additional information sticker is applied.

400A and 650A versions available.



LINE DRAIN

Innovative ergonomic hand grip for easy handling.
Finger protection IP2X to prevent accidental touching of live contact parts.

Contact to housing retention through flame-retardant UL94-VO plastic cotter pin.

No special tools are required for assembling.

Bayonet lock with secondary locking pin.

Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin.

Set Screw termination for cables 25mm² -150 mm²

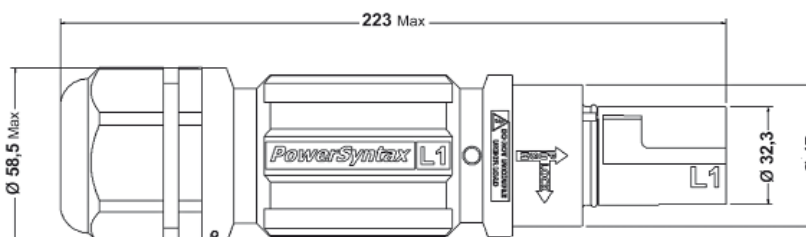
Crimp termination for cables up to 300 mm²

Watertight IP68 plastic cable gland M40 for cable strain relief retention range 15 - 32 mm.

Permanent markings to identify phase/line and safety information are embossed on connector's shell.

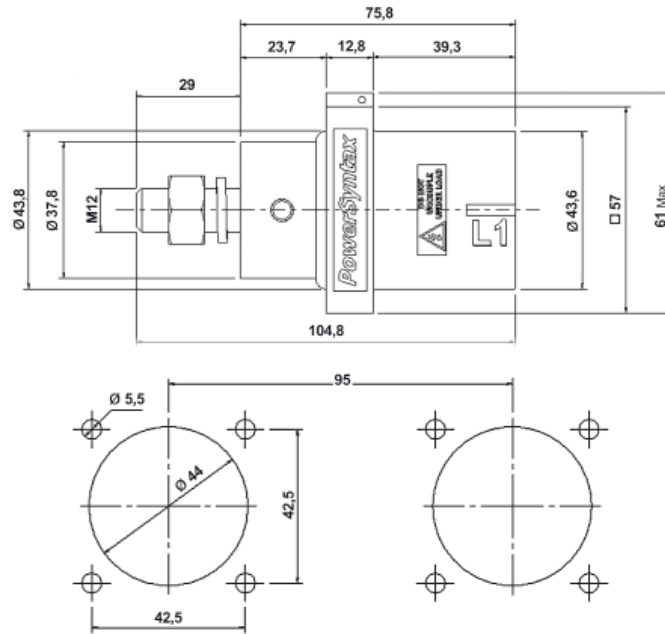
No additional information sticker is applied.

400A and 650A versions available.



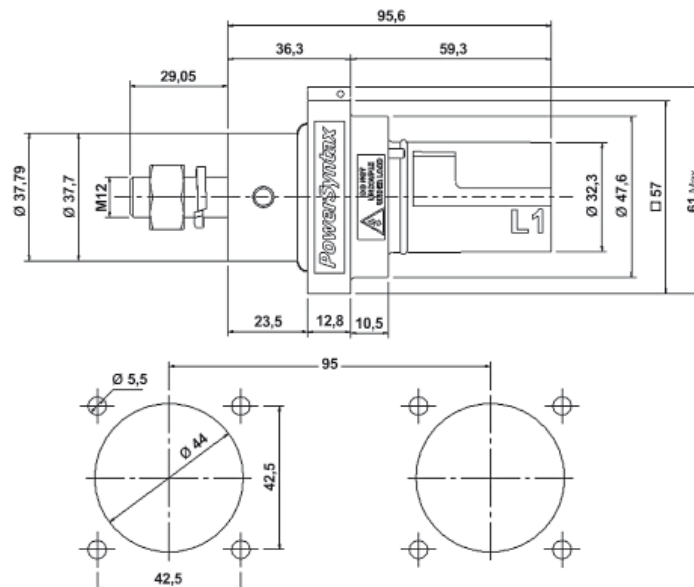
PANEL SOURCE

Specific housing for protection cap lacing moulded on the plastic body of the flange.
Finger protection IP2X to prevent accidental touching of live contact parts.
Contact to housing retention through flame-retardant UL94-VO plastic cotter pin. No special tools are required for assembling.
Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin.
Front or rear panel mount. M12 Thread for cable attachment.
Permanents markings to identify phase/line and safety information are embossed on connector's shell. No additional information sticker is applied.
400A and 650A versions available.

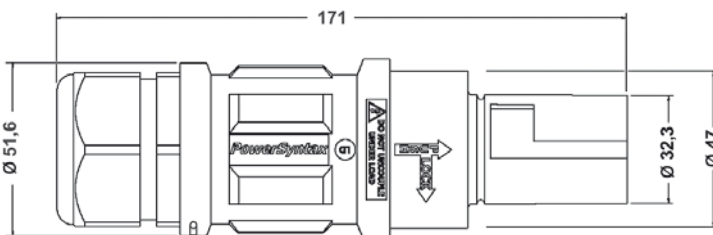
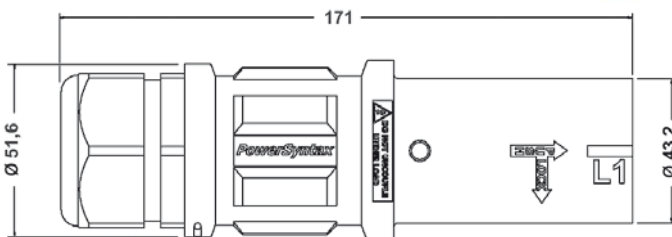


PANEL DRAIN

Specific housing for protection cap lacing moulded on the plastic body of the flange.
Finger protection IP2X to prevent accidental touching of live contact parts.
Contact to housing retention through flame-retardant UL94-VO plastic cotter pin. No special tools are required for assembling
Bayonet lock with secondary locking pin.
Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin.
Front or rear panel mount. M12 Thread for cable attachment.
Permanents markings to identify phase/line and safety information are embossed on connector's shell. No additional information sticker is applied.
400A and 650A versions available.



SPZ PowerSyntax Short size



LINE SOURCE

Innovative ergonomic hand grip for easy handling.
Finger protection IP2X to prevent accidental touching of live contact parts. Contact to housing retention through flame-retardant UL94-VO plastic cotter pin.
No special tools required for assembling.
Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin. Set Screw termination for cables 25 mm² - 95 mm².
Watertight IP68 plastic cable gland M40 for cable strain relief retention range 15 - 28 mm. Permanent markings to identify phase/line and safety information are embossed on connector's shell.
No additional information sticker is applied.
400A version available.

LINE DRAIN

Innovative ergonomic hand grip for easy handling.
Finger protection IP2X to prevent accidental touching of live contact parts. Contact to housing retention through flame-retardant UL94-VO plastic cotter pin.
No special tools are required for assembling. Bayonet lock with secondary locking pin. Special ergonomic Release-key (supplied separately) for the releasing of the secondary locking pin. Set Screw termination for cables 25mm² - 95 mm². Watertight IP68 plastic cable gland M40 for cable strain relief retention range 15 - 28 mm. Permanent markings to identify phase/line and safety information are embossed on connector's shell.
No additional information sticker is applied.
400A version available.

Two sizes available



PROTECTION CAP PowerSyntax

PASSIVE SAFETY



New important details, such as newly conceived protection caps with special lacing, have been introduced in the design. A specific housing for the cap's lacing has been moulded on the flange of the panel-mount versions and on the body of the inline versions. The protection caps are laced to the connector's body through a special high-resistance cable made up of seven stainless strands, and covered by anti-scratch teflon black tubing.

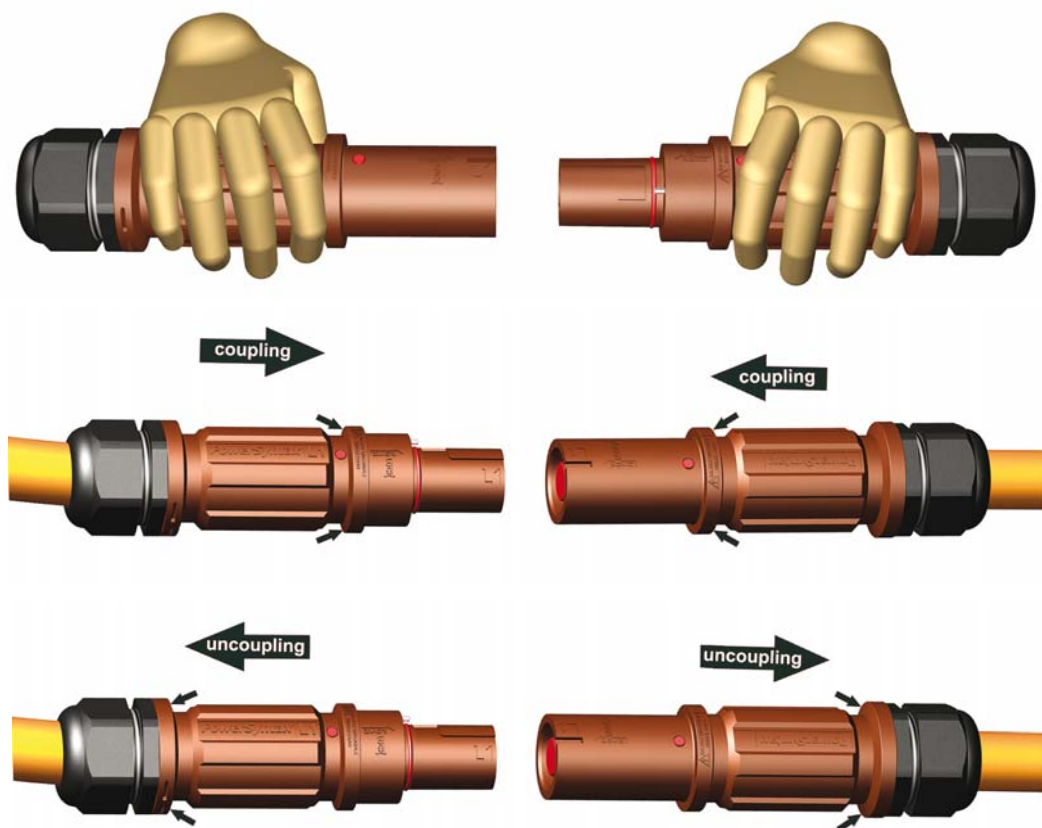
The use of protective caps results in:

- **Extended life span of the connectors** - the mating faces are protected against impact damage and abrasion.
- **Improved safety** - also when the connectors are uncoupled, the contact is protected against dust and water.

Specific housing for protection cap lacing moulded on cap (Pic. 1) for panel version (Pic. 2) and inline version (Pic. 3).

ERGONOMICS

The external shell has an ergonomic design which grants optimal hand grip also when operating with gloves. The shape of the shell ensures optimal handling. In particular, the sides of the hand grip are specifically designed for easy pushing/pulling of the connector when mating/unmating.



SECONDARY LOCK AND RELEASE KEY

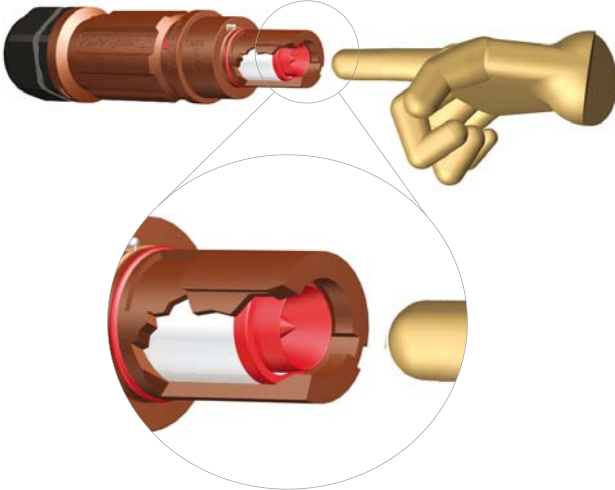
The secondary lock is obtained through a simple locking pin on the drain connector which snaps into a slot on the mating source connector and prevents accidental disconnection under load. As an extra safety device, each pole is mechanically keyed to prevent connection errors.



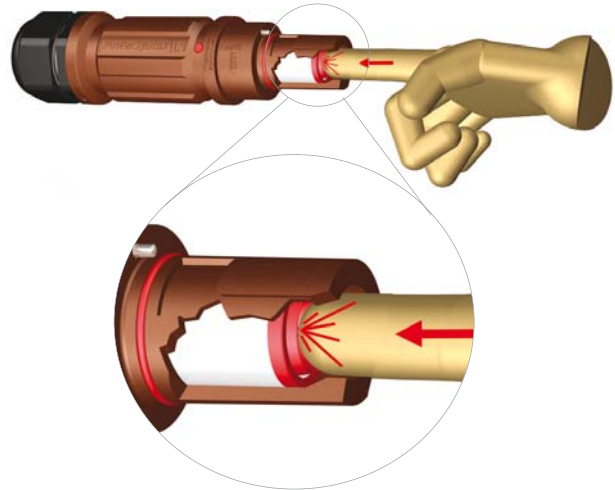
ELECTRICAL PROTECTION OF CONTACTS



Both gender contacts are compliant with electrical safety standard IP2X, which guarantees touch-proof protection of live parts.
On Drain connectors, the protective plastic elements feature a sharp-pointed insulated tip which prevents the possibility of pushing the contact inwards with fingers and are also designed so as to provide mechanical locking in case of improper pushing of the contact.



Released contact position

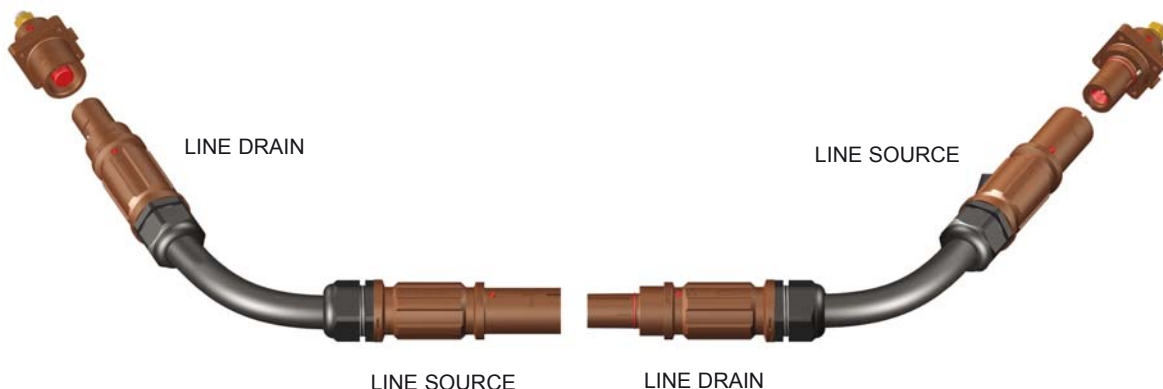


Furthest back position of the contact when pressed with fingers or improper tools

DAISY-CHAIN HOOK-UP PATTERN

PANEL SOURCE

PANEL DRAIN



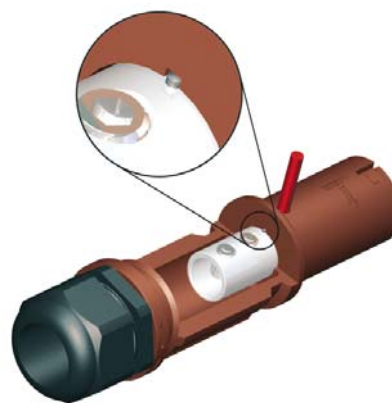
CABLE RETENTION SYSTEM

The Metric M40 cable gland nuts supplied with the connector are available with different clamping ranges for cables up to 32 mm diameter. In addition to the 25, 35, 50, 70, 95 and 120 mm² retention sleeves already available on the previous Power Syntax Series, the cable retention system on the new SPX now allows the use of reduction sleeves for cables up to 150 mm² diameter.

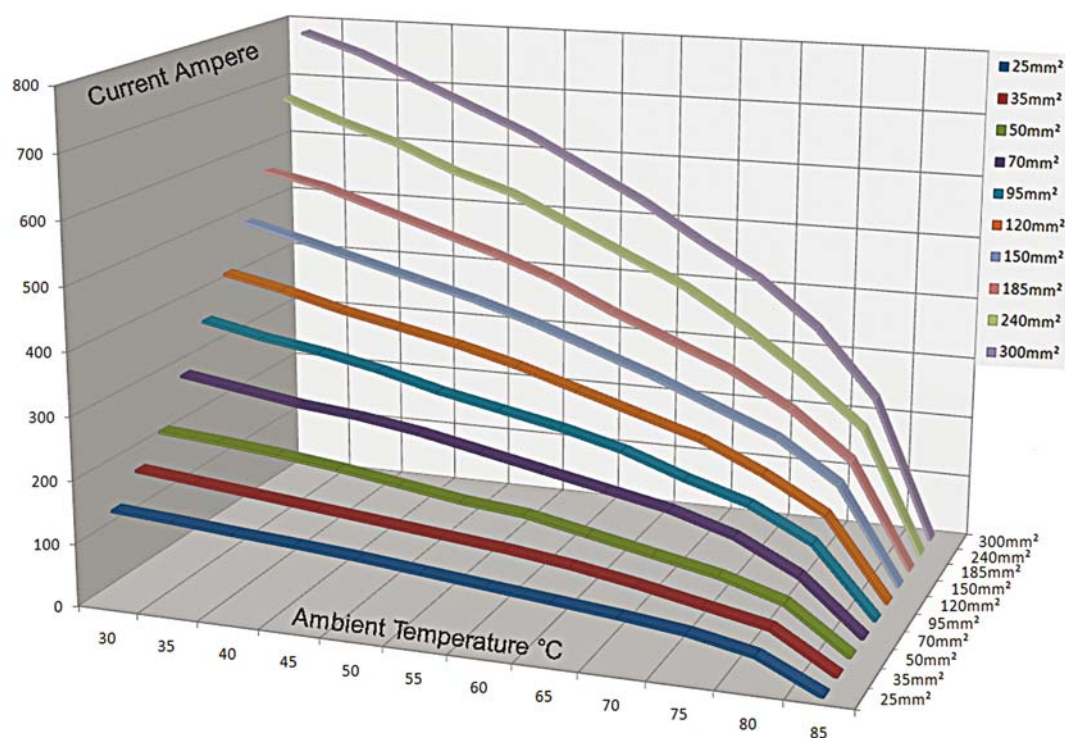


DRIVEN CONTACT RETENTION

The contact retention on the thermoplastic housing is obtained through the well-known cotter pin method. Now, this tried and tested system also features a drive pin for easier assembling. The plastic cotter pin is UL94-VO flame-retardant.



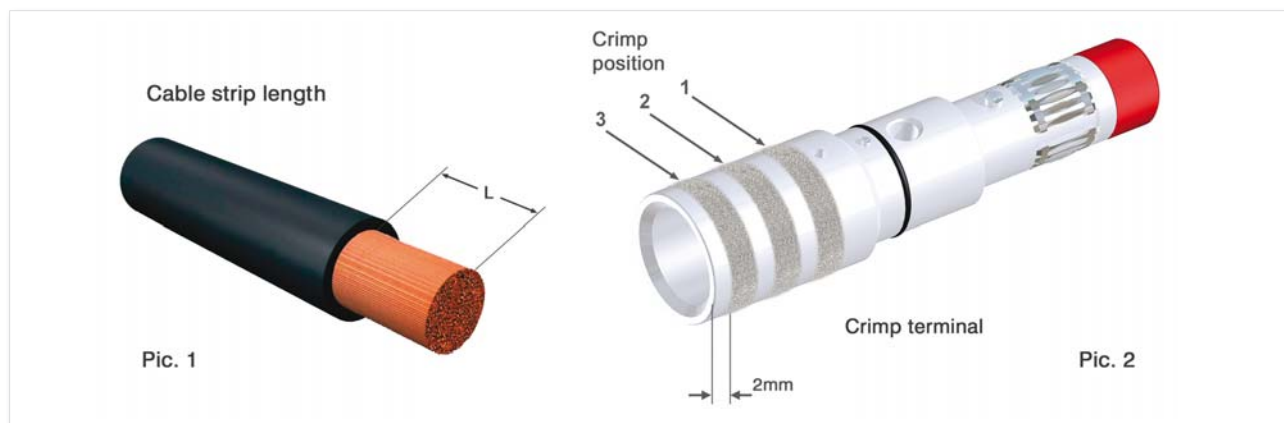
RATED CURRENT



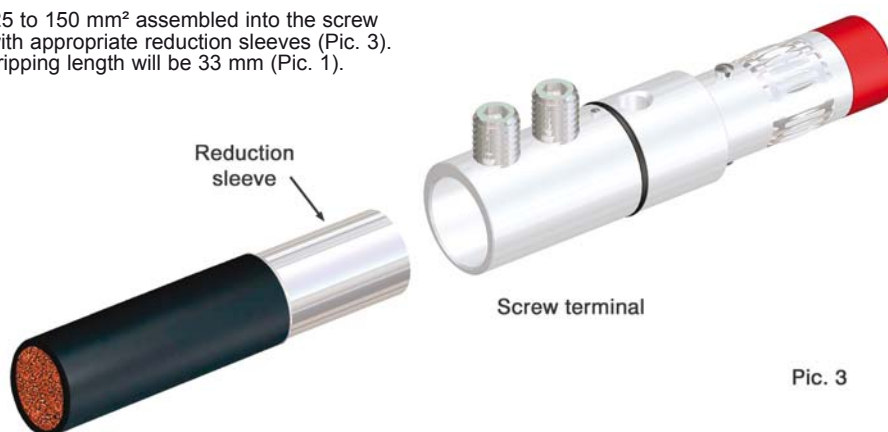
DATA FOR 85° C CABLE RATINGS

ASSEMBLING DATA & TOOLS PowerSyntax

CRIMPING DATA	cable size 185 mm ²	cable size 240 mm ²	cable size 300 mm ²
Insulation strip length = L (Pic.1)	42 mm	42 mm	42 mm
Number of compressions (Pic.2)	2	3	3
Hand operated hydraulic crimp tool	HTC131-C	HTC131-C	HTC131-C
Cordless hydraulic crimp tool	B131-C	B131-C	B131-C
Crimp die set	ME 37-C	ME 48-C	ME 60-C



Cables with size 25 to 150 mm² assembled into the screw contact terminal with appropriate reduction sleeves (Pic. 3). In this case the stripping length will be 33 mm (Pic. 1).



PART NUMBER EXPLANATION

CONNECTOR SERIES	
Power Syntax Series	SPX

MAXIMUM CURRENT RATING	
Up to 400 Amp SCREW (25 to 150 mm²)	4
Up to 750 Amp CRIMP (185 to 300 mm²)	7

CONNECTOR STYLE	
Line Drain	LD
Line Source	LS
Panel Drain M 12 Thread	PD
Panel Source M 12 Thread	PS

KEY COMPOSITION	
Earth	E
Neutral	N
Phase 1	1
Phase 2	2
Phase 3	3

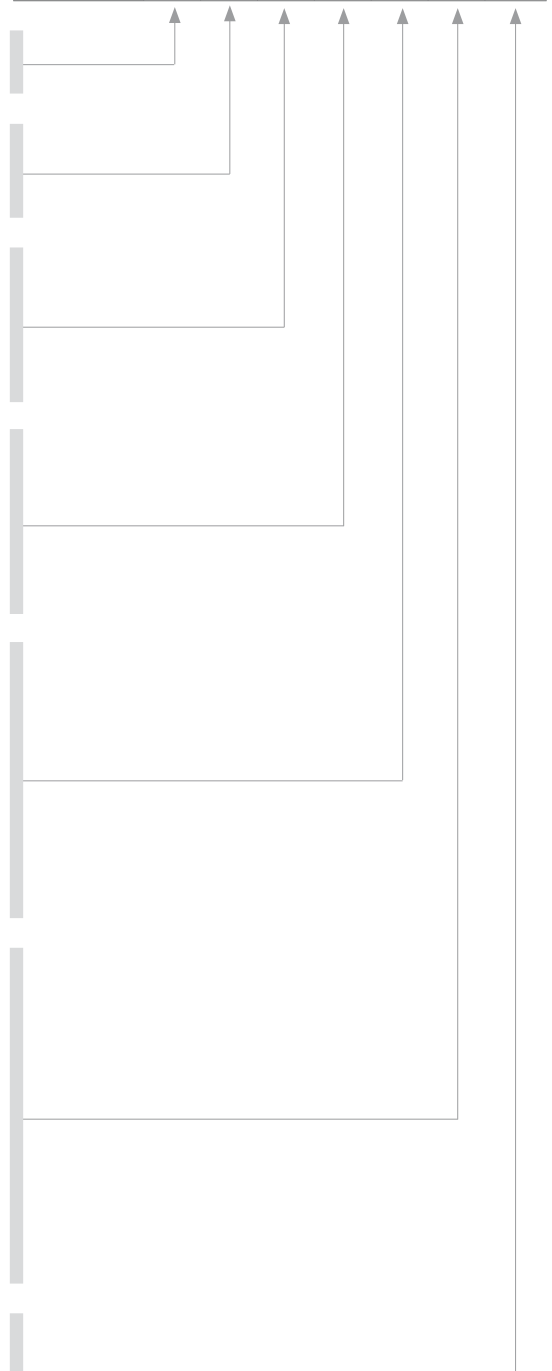
INSULATOR COLOR	
GREEN	GN
BLUE	BL
BROWN	BR
BLACK	BK
GREY	GY
RED	RD
YELLOW	YE
WHITE	WH

CABLE CONDUCTOR SIZE (For 25-150 mm² cables the reduction sleeves are included)	
25 mm²	025
35 mm²	035
50 mm²	050
75 mm²	075
95 mm²	095
120 mm²	120
150 mm²	150
185 mm²	185
240 mm²	240
300 mm²	300

CABLE GLAND	
M 40 x 1,5 Clamping Range 15 - 23 mm diameter	MQ
M 40 x 1,5 Clamping Range 19 - 28 mm diameter	MP
M 40 x 1,5 Clamping Range 22 - 32 mm diameter	MR

ACCESSORIES	
Secondary lock	SPXTKEY
Protective plastic cap kit for source connectors	SPXDCS-SC
Protective plastic cap kit for drain connectors	SPXD-SC

Part N.							
EXAMPLE Part N.	SPX	4	LD	1	BR	120	MR



PART NUMBER EXPLANATION

CONNECTOR SERIES							
Power Syntax Series		SPZ					
MAXIMUM CURRENT RATING							
Up to 400 Amp SCREW (25 to 95 mm²)		4					
CONNECTOR STYLE							
Line Drain		LD					
Line Source		LS					
KEY COMPOSITION							
Earth		E					
Neutral		N					
Phase 1		1					
Phase 2		2					
Phase 3		3					
INSULATOR COLOR							
GREEN		GN					
BLUE		BL					
BROWN		BR					
BLACK		BK					
GREY		GY					
RED		RD					
YELLOW		YE					
WHITE		WH					
CABLE CONDUCTOR SIZE (For 25-95 mm² cables the reduction sleeves are included)							
25 mm²		025					
35 mm²		035					
50 mm²		050					
75 mm²		075					
95 mm²		095					
CABLE GLAND							
M 40 x 1,5 Clamping Range 15 - 23 mm diameter		MQ					
M 40 x 1,5 Clamping Range 19 - 28 mm diameter		MP					
ACCESSORIES							
Secondary lock		SPXTKEY					
Protective plastic cap kit for source connectors		SPXDCS-SC					
Protective plastic cap kit for drain connectors		SPXD-SC					

Part N.							
EXAMPLE Part N.	SPZ	4	LD	1	BR	025	MQ

NOTE

NOTE

VALENTINI

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