



ITT

Electronic Components

Veam Powerlock



Engineered for life

POWERLOCK Applications

The Veam POWERLOCK connector series for field installable power distribution systems offers the ultimate in safety and reliability under the most severe operating conditions.

POWERLOCK is available in four standard formats which allow complete hook up through the standard daisy chain principle. There are two Source connectors, one for panel mounting and one for cable attachment. These are identified as Panel Source and Line Source. The other two types are Drain connectors. These connectors are identified as Panel Drain and Line Drain.

Typical applications for POWERLOCK include three phase motors, generators, load banks, lighting distribution panels and in-house supplies. POWERLOCK connectors serve a very diverse industry base which includes outdoor concerts, carnivals, sporting events, television outdoor broadcast, theatres, electricity supply companies and many heavy industrial environments such as construction.



Reliable connections for field installable power distribution systems such as mobile generators.

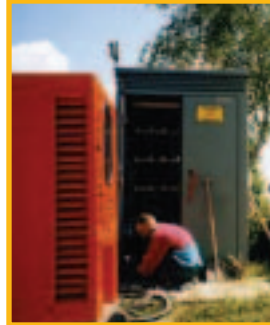


Industrial power distribution boxes are often equipped with Powerlock connectors.

The ITT "Engineered Blocks" symbol and the composite ITT INDUSTRIES logo are registered trademarks of ITT Industries. © 2006



POWERLOCK Applications



We offer a wide variety of devices for electricity supply companies.

Fuse carriers with integrated Powerlock connectors provide a safe and efficient connection to a power distribution board.



Insulated rotary clamps provide a compact connection to a slotted busbar.



Insulated G-Style clamps for direct connection to a live low voltage busbar.

In addition to our POWERLOCK series, we also offer these connectivity solutions:

Harsh environments



APD

In-line and bulkhead connectors resistant to harsh environmental conditions (contaminants, vibration and shock).



CA-Bayonet

Signal and power connectors with exceptional sealing against the ingress of fluids and will withstand the effects of high vibrations.

Audio



CIR-LK

Quick coupling and uncoupling. High impact heavy duty coupling mechanism. Bayonet connector for audio applications, 4 to 53 channels.

Entertainment & Lighting



TOURLOCK

Intermateable connectors with CIR-LK series, higher resistance to the physical shocks and tearings. IP67 protection.



VSC

Heavy duty ribbed coupling ring. Extended female ground contacts for first mate, last break. Threaded circular 19-pin connector with replaceable crimp or solder contacts.

Table of Contents

| | |
|--|-------|
| Applications | 2-3 |
| Additional ITT Products | 4 |
| Product Overview | 6 |
| Powerlock Series | 7-10 |
| Powerlock Finger Test & Secondary Lock Assembly Instructions | 11 |
| Technical Data | 12 |
| Special Products | 13 |
| Insulator Kits | 14-15 |
| Snaplock Series | 16-18 |
| NRG Sequential Mating System | 19 |
| Powerlock NRG Cabinet Assembly | 20 |
| Insulated G Style Clamp | 21 |
| - Short Length Extension Arm | |
| - Long Extension Arm | |
| - Right Angle Extension Arm | |
| Insulated Horizontal Clamp | 22 |
| - Short Length Extension Arm | |
| - Long Extension Arm | |
| - Right Angle Extension Arm | |
| Insulated Dual G Style Clamp | 23 |
| Rotary Clamp / Generator Connector | 23 |
| Insulated Overhead Line Clamp / Generator Connector | 24 |
| Insulated T-Piece Connector | 24 |
| Insulated Underground Cable Generator Connector | 25 |
| Fault Re-energising Fuse Way Connector | 25 |
| JW4ST Fuse Carrier with Integral Generator Input | 26 |
| JW4ST82 Fuse Carrier | 26 |
| Cable Multi-Converter Connector | 27 |
| Screw In End Cap Fuse / Pole Mounted | 27 |
| Fully Inserted Cable Support | 28 |
| Powerlock Application Kits | 29 |
| Product Safety Information | 30 |

Product Overview

POWERLOCK



SNAPLOCK



| | | |
|-----------------------------------|---|---|
| Number of Contacts | 1 | 1 |
| Max. Current Rating | 660A | 250A |
| AWG | 4 - 6/0 | 4 - 0/0 |
| Contact Termination | 25-300mm ² | 25-70mm ² |
| Contact Type | Crimp, set screw Threaded post M12 | Crimp, threaded post M12 |
| Contact Retention Systems | Nylon pin | Retention clip |
| Contact Extraction System | Nylon pin | Extraction tool |
| Mating Method | Bayonet | Bayonet |
| Operating Voltage | 1000Vac | 415Vac |
| Signal / Power Layouts | Power only | Power only |
| Operating Temperature | -30 to 125C° -22 to 257F° | -30 to 125C° -22 to 257F° |
| Environmental Resistance | up to IP67 | up to IP67 |
| Sealing | when mated | when mated |
| Protection against electric shock | IP2X | IP2X (male connectors only) |
| Mating Cycle | 500 | 500 |
| Shell Material Finish | High temperature thermoplastic | High temperature thermoplastic |
| Flammability | UL94-V0 | UL94-V0 |
| Shell Color | green, black, red blue, yellow, brown grey, white | green, black, red blue, yellow, brown grey, white |



NRG Box - sequential mating system for Powerlock connectors, comes in a 19" rack



Rotary Clamp - to provide a compact connection to a slotted busbar



Powerlock MultiConverter - to convert lugged cable to Powerlock



Insulated Overhead Line Clamp / Generator Connectors - to connect directly to low voltage overhead line system



Insulated Underground Cable Connector - to convert solid alloy cable cores to Powerlock



Insulated T-Piece Connector - to split or to combine phases by the quickest and safest possible means



Insulated G-Style Clamps - for direct connection to a live low voltage busbar. Long and right angle extension arms available



Fuse Carrier with Integrated Generator Input Connector - to provide a safe and efficient connection to a power distribution board



Insulated Horizontal Clamps - for direct connection to a live low voltage busbar. Long and right angle extension arms available



Screw In End Cap Fuse / Pole Mounted - to allow for direct connection of a generator cable to a pole mounted fuse unit.



Insulated Dual G Style Clamp - for direct connection of 2 cables to a live low voltage busbar

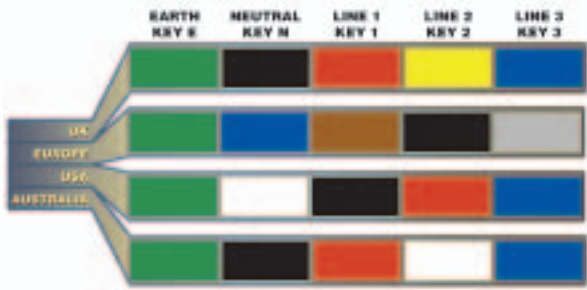
POWERLOCK Order Codes

POWERLOCK
Ordering and Identification Codes

ORDER CODE

NLDFT
1
BK
L
C240
M40A

| |
|--|
| Type NLDFT=Line Drain (female contact) NLS = Line Source (male contact) NPDFT = Panel Drain (female contact) NPS = Panel Source (male contact) |
| Key Position E=Earth N=Neutral 1=Line 1 2=Line 2 3=Line 3 |
| Colour GN = Green BK = Black R = Red Y = Yellow BL = Blue BN = Brown W = White GY = Grey |
| Locking L = Secondary Locking pin fitted to Drain Connector |
| Contact Type C240 = 240-300mm ² crimp C50 = 50mm ² crimp C185 = 185mm ² crimp C35 = 35mm ² crimp C150 = 150mm ² crimp S120 = 120mm ² set screw C120 = 120mm ² crimp T4 = 400A threaded post C107 = 107mm ² crimp (panel connectors) C95 = 95mm ² crimp T6 = 660A threaded post C70 = 70mm ² crimp (panel connectors) |
| Cable grip Description Clamping Range M40S 15-23mm M40A cable gland 19-28mm M40B cable gland 22-32mm |



Example:
NLDFT-1-BK-L-C240-M40A

Harmonised Colour Coding

On March 31st 2004, the IEE published Amendment No. 2 to BS7671:2001 (the IEE Wiring Regulations). This amendment specifies new cable core colours for electrical installations in the UK. These colours harmonise Europe to one specification for colour coding.

Electrical installation work commencing after March 31st 2004 may use the new harmonised colours or the pre-existing colours, but not both. Work commencing on site after March 31st 2006 will be required to comply with the harmonised cable core colours and must not use the old colours.

The new Harmonised Colours are as follows:



To comply with these new regulations we have a wide range of insulator kits available. See page 14 for more information. These will enable you to replace the powerlock insulator with the new Harmonised Colour version while retaining the original contact assembly.

Accessories

Reduction sleeves are used with the standard double set screw 120mm² contacts to facilitate smaller cable cross sections. The sleeves are telescopic and are used in conjunction with each other. Reduction sleeve kits are also available.

| | ITT Part Number |
|---|--------------------|
| LL0023N Secondary Locking Release Key | AN389900010 |
| R95 Reduction Sleeve | A3099000100 |
| R95 -R70 Reduction Sleeve Kit | A00602825 |
| R95 to R50 Reduction Sleeve Kit | A00602831 |
| R95 to R35 Reduction Sleeve Kit | A00602840 |
| R95 to R25 Reduction Sleeve Kit | A00602830 |
| PCLD-5-M40A/S Protective cap for Line Drain plug with M40A or M40S gland | 024-7592-000 |
| PCLD-6-M40B Protective cap for Line Drain plug with M40B gland | 024-7592-100 |
| PCLS-5-M40A/S Protective cap for Line Source plug with M40A or M40S gland | 024-7593-000 |
| PCLS-5-M40B Protective cap for Line Source plug with M40B gland | 024-7593-100 |
| PCPS-5-M40A/S Protective cap for Panel Source receptacle | AN0800150 |
| PCPD-5-M40A/S Protective cap for Panel Drain receptacle | AN0800160 |
| Environmental locking cap for Line Drain with M40A or M40S gland | PCS-NLD-***-M40A/S |
| Environmental locking cap for Line Source with M40A or M40S gland | PCS-NLS-***-M40A/S |
| Environmental locking cap for Line Drain with M40B gland | PCS-NLD-***-M40B |
| Environmental locking cap for Line Source with M40B gland | PCS-NLS-***-M40B |
| Environmental locking cap for Panel Source | PCS-NPS-*** |
| Environmental locking cap for Panel Drain | PCS-NPD-*** |

*** specify the phase and color (E-GN, N-BL, 1-BN, 2-BK or 3-GY)



Line Source



**Line Source
400A, Earth Green**



**Line Source
660A, Earth Green**

There are two Line Source connectors for cable attachment, normally referred to as a 400A and 660A version. Both are supplied with a male contact incorporating a rigid IP2X finger proof nose, a slot for the secondary locking pin and a cable gland. The contacts are secured in the housing by using a nylon cotter pin.



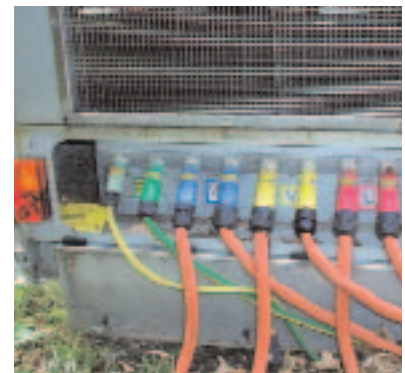
The 400A version has a set screw termination where two threaded set screws are tightened to compress a reduction sleeve which has been fitted to the conductor stranding. The set screw contact is normally used in combination with 120mm² cable. Smaller cable sections can be terminated by selecting the appropriate reduction sleeves and sliding them on in sequence over the exposed conductor stranding. In combination with these sleeves set screw contacts can handle cables from 25mm² to 120mm².

The 660A version has a crimp termination for cable cross sections from 35 mm² to 300mm² cable. The 660A contact is normally used in combination with 240mm² cable. It is essential to use the recommended crimp tool and die to ensure a satisfactory crimp. Consult Customer Service for details on pull off loads and mV drop values expected.

There are a wide range of cables used in the market to ensure that a satisfactory result is obtained when POWERLOCK connectors are terminated onto to the end of cables, the type and method needs to be evaluated. For more details around termination, please refer to the *POWERLOCK Termination Guide* which is available on www.ittcannon.com.

The *POWERLOCK Termination Guide* provides guidelines on:

- how to perform a crimped termination
- what type of crimp tools and dies to use with recommendations
- how to perform a set screw termination
- terminating a threaded post panel type connector
- typical test results obtained when terminating connectors onto a range of cables



Reliable connections for field installable power distribution systems such as mobile generators.

Line Drain



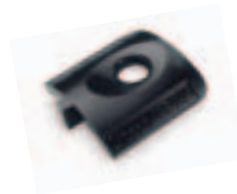
**Line Drain
400A, Earth Green**



**Line Drain
660A, Earth Green**

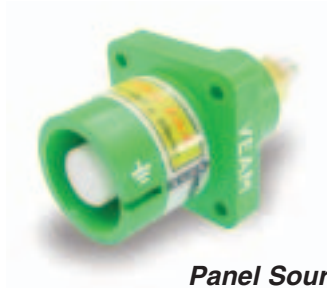
There are two Line Drain connectors for cable attachment, normally referred to as a 400A and 660A version. Both are supplied with a female contact incorporating a rigid IP2X spring loaded finger proof nose, an O-ring and a cable gland to guarantee the IP67 rating when the connectors are mated.

The insulator is fitted with a spring loaded secondary locking pin which engages when insulators are mated, preventing unintentional uncoupling through cable torsion or inquisitive hands. The locking pin is disengaged by means of a remote secondary locking release key.



The contacts are secured in the housing by using a nylon cotter pin.

Panel Source & Panel Drain



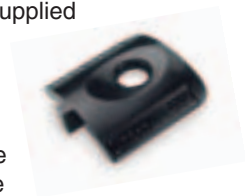
**Panel Source
400A, Earth Green**



**Panel Drain
400A, Earth Green**

There are four connectors for panel mounting, a Panel Source and Panel Drain in both 400A and 660A version. The Panel Source connectors are supplied with a male contact incorporating a rigid IP2X finger proof nose and a slot for the secondary locking pin. The Panel Drain connectors are supplied with a female contact incorporating a rigid IP2X spring loaded finger proof nose and an O-ring to guarantee the IP67 rating when the connectors are mated.

The insulator is fitted with a spring loaded secondary locking pin which engages when the insulators are mated, preventing unintentional uncoupling through cable torsion or inquisitive hands. The locking pin is disengaged by means of a remote secondary locking release key.



Panel receptacles are supplied fully assembled with contacts. An M12 nut and spring washer are also supplied loosely fitting onto the contact. Termination to the panel connector is made by fitting the cable lug or other accessory using the nut and washer.

For further details on cable termination, please refer to the *POWERLOCK Termination Guide*.

Powerlock Termination Guide is available on www.ittcannon.com.

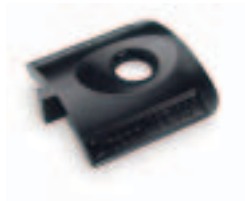


Industrial power distribution boxes are often equipped with Powerlock panel connectors.

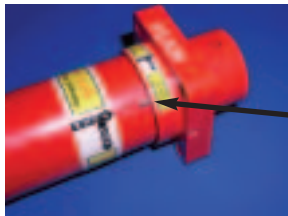
Powerlock Finger Test and Secondary Lock Assembly Instructions

Secondary Locking Release Key

The Secondary Locking Release Key is used to push the secondary locking pin back, which then enables the connectors to be rotated and uncoupled. The visuals below show the sequence for using the key for unmating the connectors.

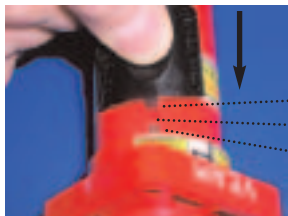


Secondary Locking Release Key



Locked condition

Secondary locking pin in locked position



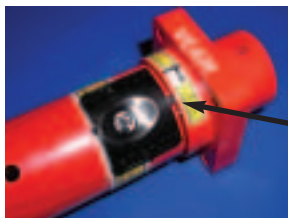
Key fitted into slot in insulator

1. Push key in this direction
2. Key tab fitted into slot in the insulator
3. Slot in insulator
4. Secondary locking pin



Key fully fitted

Key fitted into slot, which depresses pin



Connector rotated

Connector rotated to unlatch



Connector unmated

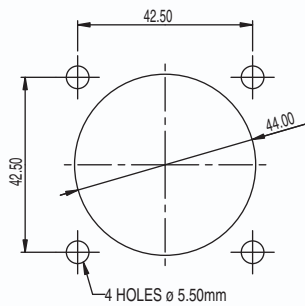
Connectors unlatched and key removed

Technical Data

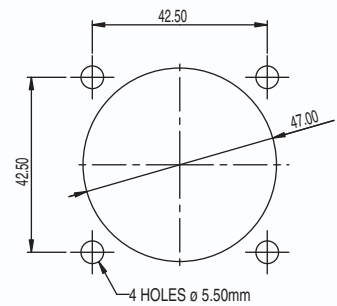
| | 120mm ² Set Screw | 300mm ² Crimp |
|--------------------------------------|------------------------------|--------------------------|
| Maximum current rating: | 400A | 660A |
| Maximum rated voltage to earth: | 2KVac / 3KVdc | 2KVac / 3KVdc |
| Minimum flashover: | 9.5K Vdc or Ac peak | 9.5K Vdc or Ac peak |
| Operating temperature range: | -30°C to +125°C | -30°C to +125°C |
| Insulation resistance: | >5 M ohms @ 500Vdc | >5 M ohms @ 500Vdc |
| Ingress protection (mated): | IP67 | IP67 |
| Protection against electrical shock: | IP2X | IP2X |
| Flammability: | UL94-V0 | UL94-V0 |

PANEL CUT-OUT DIMENSIONS

Cut-out for Panel Source

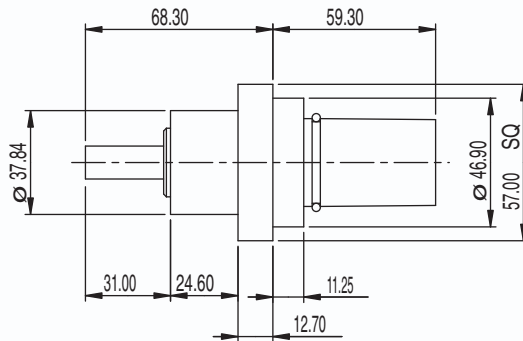


Cut-out for Panel Drain

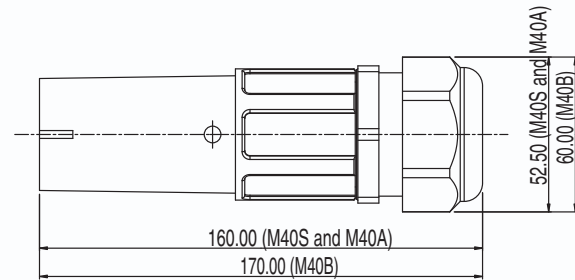


CONNECTOR DIMENSIONS

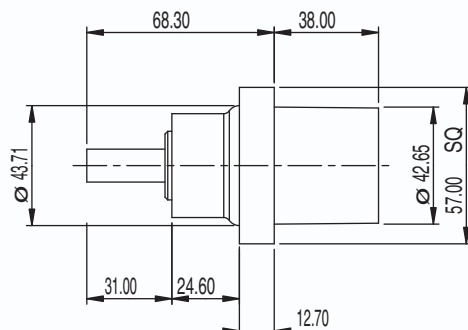
Panel Drain



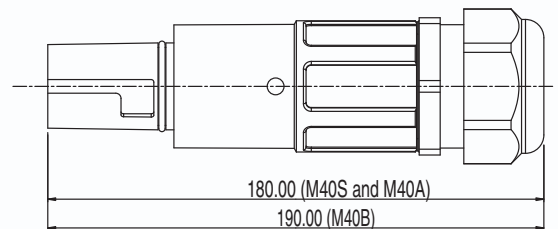
Line Source



Panel Source



Line Drain



Special Products



DIN Fuse Carrier Adaptor

This fuse carrier adaptor was developed to provide a safe and efficient Powerlock connection to DIN fuse carrier racks which are mounted on most of the European power distribution boards. There are Full Blade and Half Blade versions available which gives the user an option to select what side needs to be fed.



Twin Busbar Adaptor

The twin busbar adaptor allows the user to connect two 660A Powerlock connectors to a single connection point on a low voltage busbar.



Powerlock Lug Connector

These devices allow for the conversion of Powerlock plug and socket system to a standard nut and bolt fixing.

The units are simply connected to the Powerlock line connectors and locked to avoid accidental disconnection.



Sliding Collar Design

This new design eliminates the need for separate secondary locking key while still having a secondary locking protection. A patented sliding collar mechanism permanently fitted on the Line Source or Panel Source connector compresses the spring loaded secondary locking pin and releases the connector.



Receptacle with Backshell

Powerlock receptacles are also available with backshells instead of threaded post termination. The backshell offers the possibility to have a sealed IP67 termination on the back of the receptacle.

Powerlock Insulator Kits

NOTE: Insulator kits are used to convert old UK colour coded powerlock connectors to new harmonised colours as explained on page 7.

LINE DRAIN

Line Drain insulator kit consists of a marked and labelled insulator, O-ring on the nose, secondary locking pin, and nylon pin. M40 cable glands are ordered separately.

| Description | | 400A or 660A Kit | Cable Glands |
|-----------------------------------|----|------------------|--|
| Insulator Kit NLD-1-BN (brown) | L1 | 320-7720-031 | M40S 15-23mm 368-7514-000 or M40A 19-28mm 368-7514-001 or M40B 22-32mm 368-7514-002 |
| Insulator Kit NLD-2-BK (black) | L2 | 320-7720-032 | |
| Insulator Kit NLD-3-GY (grey) | L3 | 320-7720-033 | |
| Insulator Kit NLD-N-BL (blue) | N | 320-7720-030 | |
| Insulator Kit NLD-E-GN (green) | E | 320-7720-034 | |

LINE SOURCE

Line Source insulator kit consists of a marked and labelled insulator and nylon pin. M40 cable glands are ordered separately.

| Description | | 400A or 660A Kit | Cable Glands |
|-----------------------------------|----|------------------|--|
| Insulator Kit NLS-1-BN (brown) | L1 | 320-7721-031 | M40S 15-23mm 368-7514-000 or M40A 19-28mm 368-7514-001 or M40B 22-32mm 368-7514-002 |
| Insulator Kit NLS-2-BK (black) | L2 | 320-7721-032 | |
| Insulator Kit NLS-3-GY (grey) | L3 | 320-7721-033 | |
| Insulator Kit NLS-N-BL (blue) | N | 320-7721-030 | |
| Insulator Kit NLS-E-GN (green) | E | 320-7721-034 | |

PANEL DRAIN

Panel Drain insulator kit consists of a marked and labelled insulator, O-ring on the nose, secondary locking pin and nylon pin.

| Description | | 400A | 660A |
|-----------------------------------|----|-------------|-------------|
| Insulator Kit NPD-1-BN (brown) | L1 | 078214-7030 | 078214-7060 |
| Insulator Kit NPD-2-BK (black) | L2 | 078214-7031 | 078214-7061 |
| Insulator Kit NPD-3-GY (grey) | L3 | 078214-7034 | 078214-7064 |
| Insulator Kit NPD-N-BL (blue) | N | 078214-7033 | 078214-7063 |
| Insulator Kit NPD-E-GN (green) | E | 078214-7035 | 078214-7065 |



Powerlock Insulator Kits

PANEL SOURCE

Panel Source insulator kit consists of a marked and labelled insulator and a nylon pin.

| Description | | 400A | 660A |
|-----------------------------------|----|-------------|-------------|
| Insulator Kit NPS-1-BN (brown) | L1 | 078214-7020 | 078214-7010 |
| Insulator Kit NPS-2-BK (black) | L2 | 078214-7021 | 078214-7011 |
| Insulator Kit NPS-3-GY (grey) | L3 | 078214-7024 | 078214-7014 |
| Insulator Kit NPS-N-BL (blue) | N | 078214-7023 | 078214-7013 |
| Insulator Kit NPS-E-GN (green) | E | 078214-7025 | 078214-7015 |

Panel Drain Insulator for use with Application Device Clamps

Panel Drain insulator kit for use with Application Device Clamps consist of a marked and labelled insulator, O-ring on the nose, secondary locking pin and a nylon pin.

| Description | | Order Code |
|-------------------------------------|----|-------------|
| Insulator Kit NPDFT-1-BN-L-T6-NF | L1 | 078214-7050 |
| Insulator Kit NPDFT-2-BK-L-T6-NF | L2 | 078214-7051 |
| Insulator Kit NPDFT-3-GY-L-T6-NF | L3 | 078214-7054 |
| Insulator Kit NPDFT-N-BL-L-T6-NF | N | 078214-7053 |

Panel Source Insulator for use with Application Device Clamps

Panel Source Insulator for use with Application Device Clamps consist of a marked and labelled insulator and a nylon pin.

| Description | | Order Code |
|---------------------------------|----|-------------|
| Insulator Kit NPS-1-BN-T6-NF | L1 | 078214-7040 |
| Insulator Kit NPS-2-BK-T6-NF | L2 | 078214-7041 |
| Insulator Kit NPS-3-GY-T6-NF | L3 | 078214-7044 |
| Insulator Kit NPS-N-BL-T6-NF | N | 078214-7043 |

Insulators for use with JW4ST & JW4ST82 Fuse Carriers

(cotter pin is ordered as a separate part)

| Description | | Order Code |
|----------------------------------|----|--------------|
| Insulator Kit LVD400/401-1-BN | L1 | 135-7501-000 |
| Insulator Kit LVD400/401-2-BK | L2 | 135-7501-001 |
| Insulator Kit LVD400/401-3-GY | L3 | 135-7501-002 |
| Insulator Kit LVD400/401-N-BL | N | 135-7501-003 |

cotter pin for above

A3299000100

NOTE:

To exchange insulators on application devices, please contact your local sales office for instructions.

Snaplock Connector Series



TECHNICAL DATA

| | |
|------------------------------------|---|
| Rated voltage: | 415Vac |
| Rated current: | 250A continuous 400A 1 sec peak (dependant on cable CSA used) |
| Ingress protection: | IP67 when mated |
| Operating temperature range: | -30°C to +125°C |
| Protecting against electric shock: | IP2X (male connectors) |
| Flammability: | UL94-V0 |

The Snaplock connector series is a miniature power cable hook up system offering high current capability while maintaining minimal physical dimensions.

Snaplock offers a commercially viable option to historical hard wiring techniques. In addition, Snaplock offers improved safety characteristics through utilization of insulated bodies, sealing mechanisms, locking mechanisms and protected current carrying elements.

The speed of connection and disconnection offers great savings in equipment down time, servicing and maintenance procedures. The security of the connection is maintained by a simple but very effective locking mechanism which can be utilized as a temporary or permanent lock.

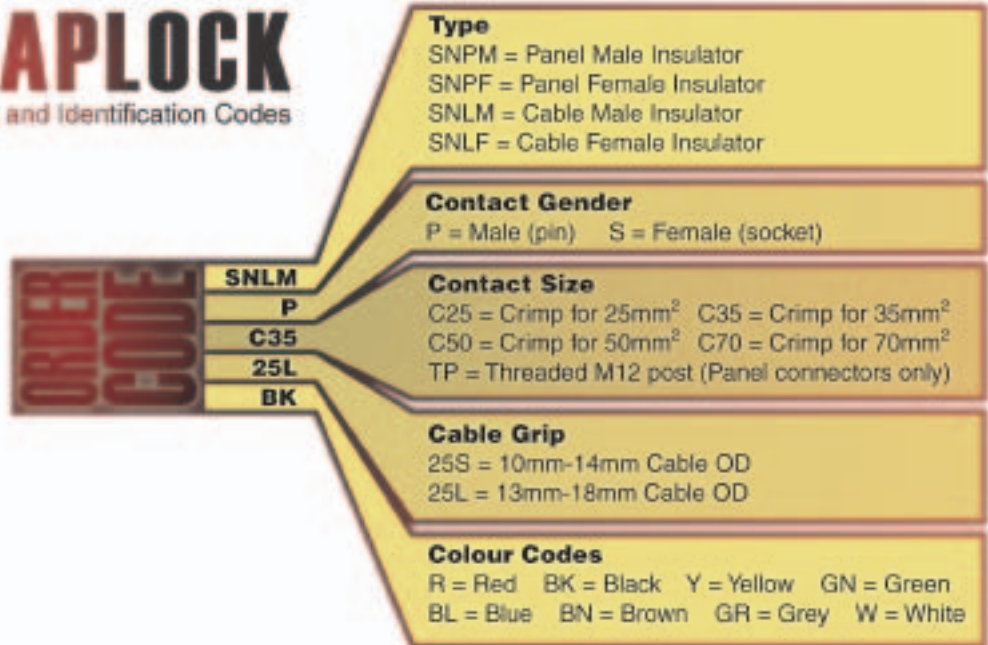
The contact elements are based on our proven multi-lam band technology which ensures low contact resistance thus minimizing power loss, low physical insertion forces with a self wiping action, and high number of mating cycles. The male contact elements are protected by a non-conductive tip which makes physical contact with the current carrying element impossible.

The contacts are held in the insulators via a clip retention system. This allows for fast, simple assembly and good retention of the contact sets, especially where vibration is an environmental concern. Contact termination to the cable conductor is by standard compression crimp or threaded M12 post (panel connectors). Connectors for panel mounting and cable mounting are available. All connectors are IP67 sealed when mated through utilization of integral sealing rings and cable strain relief.

Snaplock Order Code

SNAPLOCK

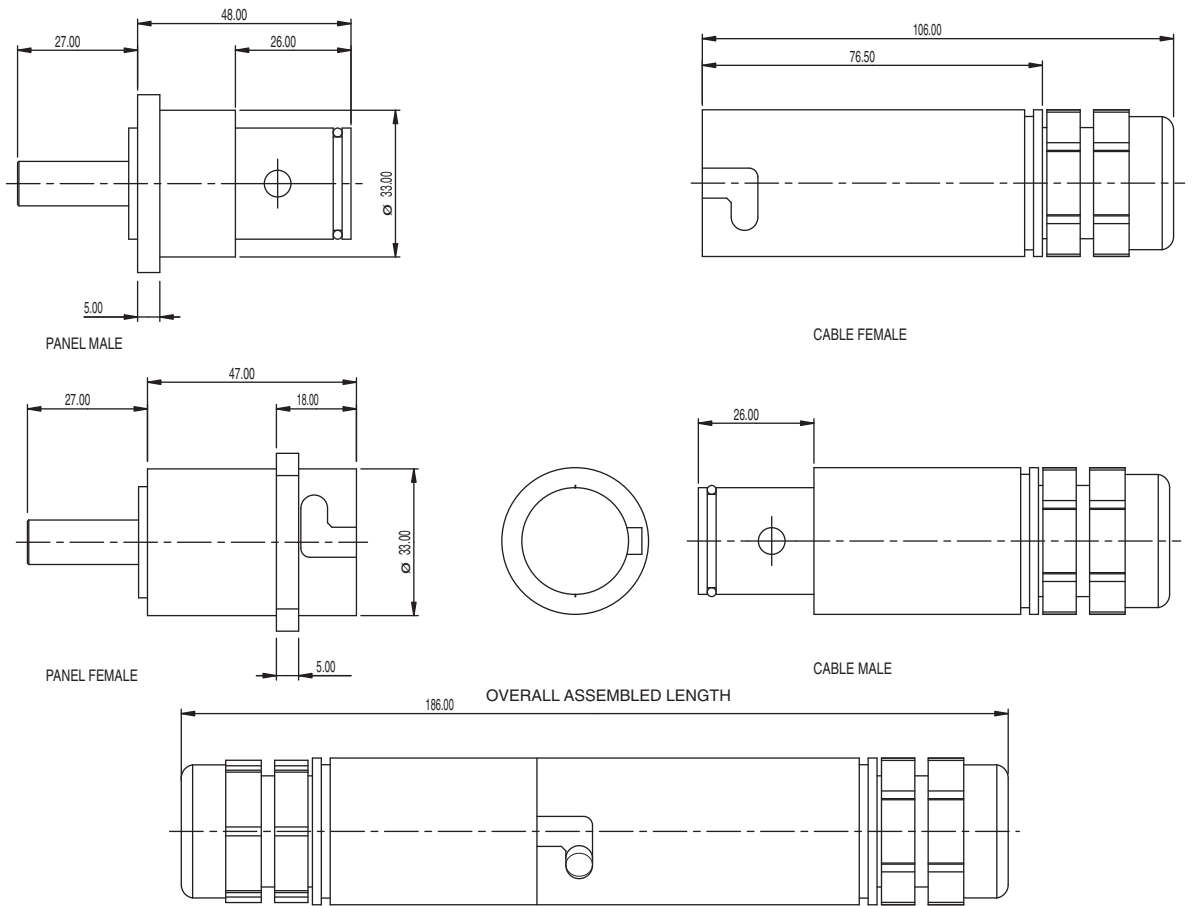
Ordering and Identification Codes



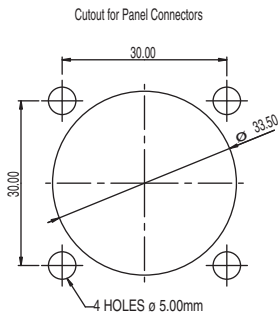
Example: SNLM-P-C35-25L-BK

Snaplock Connector Series

CONNECTOR DIMENSIONS



PANEL CUT-OUT DIMENSIONS



NRG Sequential Mating System



The NRG Sequential mating system comes in a 19" rack format and guarantees the proper sequence of mating and un-mating a set of POWERLOCK connectors.

The patented cam operated covers on each of the panel connectors ensure that the correct sequence of Ground, Neutral, Phase 1, Phase 2 and Phase 3 is adhered too.

Once connected, the system can be locked by a key to prevent un-mating of the system by unauthorized people. For further safety, the unit also features a micro-switch connection on the keylock that can be hooked up to a circuit breaker. When the keylock is disabled the circuit breaker will trip and isolate the panel from the main power, thus preventing the disconnection of the unit while under load.

A primary keylock can also be used when the system is idle to prevent unauthorized connection of the power cables.

With two current rating options of 400A and 600A, the NRG box is available as either a Panel Source or Panel Drain unit, each having an IP65 rating when mated. The NRG system is completely compatible and intermateable with all original POWERLOCK connectors. European, USA, UK and Australian colour code versions are available.

| Description | Description Code | ITT Part Number |
|--|------------------|-----------------|
| NRG Box 3 Phase, Neutral and Earth for connection with 400A Line Drain Connectors | NRG-5-PS-E-400 | A00045006 |
| NRG Box 3 Phase, Neutral and Earth for connection with 400A Line Source Connectors | NRG-5-PD-E-400 | A00045007 |
| NRG Box 3 Phase, Neutral and Earth for connection with 660A Line Drain Connectors | NRG-5-PS-E-600 | A00045008 |
| NRG Box 3 Phase, Neutral and Earth for connection with 660A Line Source Connectors | NRG-5-PD-E-600 | A00045009 |



Mechanical Safety

Plug connectors locked when underload.



Electrical Safety

Connectors / Switch for remote control.

Powerlock NRG Cabinet Assembly

The Powerlock Power Distribution Cabinet has been designed and tested to conform to the requirements for CE marking by implementing the requirements of the Low Voltage Directive (LVD) 73/23/EEC which is implemented as the Electrical Equipment (Safety) Regulations 1994.

It complies with the following specifications:
BS EN 60439-1:1999, BS EN 60439-5:1996 and IEC 60529:1992

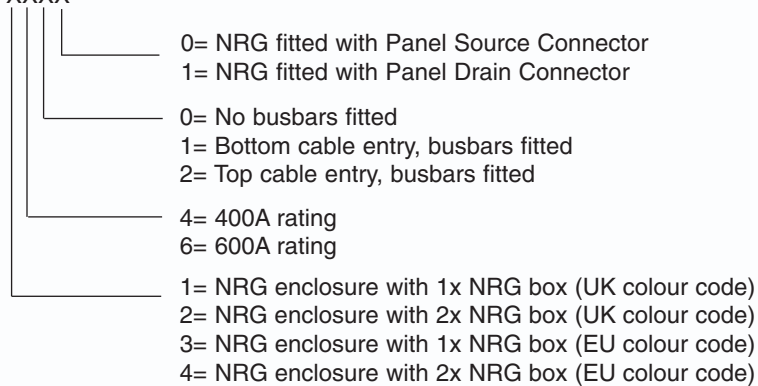
The cabinet is fitted with either 1 or 2 NRG sequential units rated at 400A or 600A. These units allow safe connection in the correct sequence of Powerlock connectors (Ground, Neutral, Phase 1, Phase 2, Phase 3). The unit incorporates a key lockable switch which can be connected to auxiliary safety circuits. Once locked, it prevents unmating of the system by unauthorized personnel.

The cabinet is fitted with external access and blanking panels which are designed to aid in the routing of cables both into and out of the cabinet. An information plate is fitted onto the side of the cabinet incorporating data for traceability. The cabinet door incorporates 2 door locks (triangular key type) for security. When latched, the cabinet has an IP34D environmental rating. For additional security, a padlock can also be fitted. Fixing plates are provided to enable the unit to be securely fixed during installation, prior to electrical operation.

The cabinet is fitted with generic safety signs. These signs give warning of the potential electrical hazard, together with mandatory signs regarding cabinet security and isolation. All signs supplied conform to the current requirements of the Health and Safety (Safety Signs and Signals) Regulations.

Part Number Structure

078214-XXXX



Insulated G Style Clamp

- Completely insulated which allows for direct connection of a generator cable to a live low voltage busbar.
- The clamp is fixed to the busbar by means of an insulated box spanner which meets the requirements of IEC 60900 (live working, hand tools for use up to 1000Vac and 1500Vdc).

A POWERLOCK generator input connection point is incorporated within the clamp to allow for direct connection of the generator cable end.

These devices are rated at 660A continuous. The clamps are also keyed to distinguish between phases and prevent connection errors.

Short Length Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated G Style Clamp, Neutral Key Position / Blue | LVB200-N-BL-S | A00045S2N |
| Insulated G Style Clamp Line 1 Key Position / Brown | LVB200-1-BN-S | A00045S21 |
| Insulated G Style Clamp Line 2 Key Position / Black | LVB200-2-BK-S | A00045S22 |
| Insulated G Style Clamp Line 3 Key Position / Grey | LVB200-3-GY-S | 078214-6000 |
| Insulated Handle | LVL200H | A00044027 |

Long Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated G Style Clamp, Neutral Key Position / Blue | LVB200-N-BL-E | A00044E3N |
| Insulated G Style Clamp Line 1 Key Position / Brown | LVB200-1-BN-E | A00044E31 |
| Insulated G Style Clamp Line 2 Key Position / Black | LVB200-2-BK-E | A00044E32 |
| Insulated G Style Clamp Line 3 Key Position / Grey | LVB200-3-GY-E | A00044E43 |
| Insulated Handle | LVL200H | A00044027 |

Right Angle Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated G Style Clamp, Neutral Key Position / Blue | LVB200-N-BL-R | 078214-6023 |
| Insulated G Style Clamp Line 1 Key Position / Brown | LVB200-1-BN-R | 078214-6020 |
| Insulated G Style Clamp Line 2 Key Position / Black | LVB200-2-BK-R | 078214-6021 |
| Insulated G Style Clamp Line 3 Key Position / Grey | LVB200-3-GY-R | 078214-6022 |
| Insulated Handle | LVL200H | A00044027 |

Insulated Horizontal Clamp

- Completely insulated which allows for direct connection of a generator cable to a live low voltage busbar.
- The clamp is fixed to the busbar by means of an insulated box spanner which meets the requirements of IEC 60900 (live working, hand tools for use up to 1000Vac and 1500Vdc).

A POWERLOCK generator input connection point is incorporated within the clamp to allow for direct connection of the generator cable end.

These devices are rated at 660A continuous. The clamps are also keyed to distinguish between phases and prevent connection errors.

Short Length Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated Horizontal Clamp, Neutral Key Position / Blue | LVK600-N-BL-S | 078214-6213 |
| Insulated Horizontal Clamp Line 1 Key Position / Brown | LVK600-1-BN-S | 078214-6210 |
| Insulated Horizontal Clamp Line 2 Key Position / Black | LVK600-2-BK-S | 078214-6211 |
| Insulated Horizontal Clamp Line 3 Key Position / Grey | LVK600-3-GY-S | 078214-6212 |
| Insulated Handle | LVK60LH | A00044L8H |

Long Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated Horizontal Clamp, Neutral Key Position / Blue | LVK600-N-BL-E | 078214-6203 |
| Insulated Horizontal Clamp Line 1 Key Position / Brown | LVK600-1-BN-E | 078214-6200 |
| Insulated Horizontal Clamp Line 2 Key Position / Black | LVK600-2-BK-E | 078214-6201 |
| Insulated Horizontal Clamp Line 3 Key Position / Grey | LVK600-3-GY-E | 078214-6202 |
| Insulated Handle | LVK60LH | A00044L8H |

Right Angled Extension Arm



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated Horizontal Clamp, Neutral Key Position / Blue | LVK600-N-BL-R | A00044R9N |
| Insulated Horizontal Clamp Line 1 Key Position / Brown | LVK600-1-BN-R | A00044R91 |
| Insulated Horizontal Clamp Line 2 Key Position / Black | LVK600-2-BK-R | A00044R92 |
| Insulated Horizontal Clamp Line 3 Key Position / Grey | LVK600-3-GY-R | A00044R95 |
| Insulated Handle | LVK60LH | A00044L8H |

Insulated Dual G Style Clamp

- Completely insulated which allows for direct connection of a generator cable to a live low voltage busbar.
- The clamp is fixed to the busbar by means of an insulated box spanner which meets the requirements of IEC 60900 (live working, hand tools for use up to 1000Vac and 1500Vdc).

A POWERLOCK generator input connection point is incorporated within the clamp to allow for direct connection of the generator cable end.

These devices are rated at 660A continuous. The clamps are also keyed to distinguish between phases and prevent connection errors.



| Description | Description Code | ITT Part Number |
|--|------------------|-----------------|
| Insulated Dual G Style Clamp, Neutral Key Position / Blue | LVB1200-N-BL | 078214-6113 |
| Insulated Dual G Style Clamp Line 1 Key Position / Brown | LVB1200-1-BN | 078214-6110 |
| Insulated Dual G Style Clamp Line 2 Key Position / Black | LVB1200-2-BK | 078214-6111 |
| Insulated Dual G Style Clamp Line 3 Key Position / Grey | LVB1200-3-GY | 078214-6112 |
| Insulated Handle | LVL200H | A00044027 |

Rotary Clamp / Generator Connector

- Compact unit incorporates a Line Source Finger Proof connector with a rotary type clamp, suitable for use on slotted Bus-bars. The handle meets the requirements of IEC 60900 (live working, hand tools for use up to 1000Vac and 1500Vdc).
- The clamp is manufactured in high conductivity material and is suitable for 660A continuous operation.
- The rotary wheel is manufactured from hardened steel which eliminates problems associated with hole elongation.
- An ergonomic fully insulated handle is available for fixing the clamp to a slotted bus-bar.



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Rotary Style Clamp, Neutral Position / Color Coded and Keyed | LVE500-N-BL | 078214-6103 |
| Rotary Style Clamp, Line 1 Position / Color Coded and Keyed | LVE500-1-BN | 078214-6100 |
| Rotary Style Clamp, Line 2 Position / Color Coded and Keyed | LVE500-2-BK | 078214-6101 |
| Rotary Style Clamp, Line 3 Position / Color Coded and Keyed | LVE500-3-GY | 078214-6102 |
| Insulated Handle | LVE500H | A00044054 |

Insulated Overhead Line Clamp / Generator Connector

This device allows for direct connection of a generator unit to Low Voltage overhead line systems.

The unit consists of an insulated Line Clamp, 3 metres of 50mm² flexible copper cable and a POWERLOCK generator input cable.

The methods of connection is:

1. The copper or alloy overhead wire is cleaned to ensure good connection points.
2. The clamp is hooked onto the wire and tightened via the insulated clamp body.
3. The flexible cable is then strapped to the pole.
4. At the cable end, a POWERLOCK generator connection point is provided for connection of the generator cable.

The generator connection point offers all standard safety features associated with the POWERLOCK range, such as keys to distinguish phases, IP67 sealing and individual phase color coding.



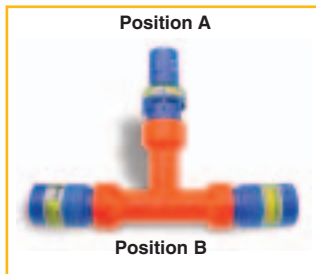
| Description | Description Code | ITT Part Number |
|--|------------------|-----------------|
| Insulated Overhead Line Clamp, Neutral Key Position / Blue | LVF600-N-BL | 078214-6303 |
| Insulated Overhead Line Clamp Line 1 Key Position / Brown | LVF600-1-BN | 078214-6300 |
| Insulated Overhead Line Clamp Line 2 Key Position / Black | LVF600-2-BK | 078214-6301 |
| Insulated Overhead Line Clamp Line 3 Key Position / Grey | LVF600-3-GY | 078214-6302 |

Insulated T-Piece Connector

The insulated T-Piece connector allows the user the option to split one phase into two or combine two phases into one by the quickest and safest possible means.

The Input and Output connectors are color coded and mechanically keyed the same to prevent connection errors.

All connectors are IPX2 rated when mated and come with the Secondary Locking as standard.



Order Information

Position A (x1): Panel Drain Finger Proof (PDFT) or Panel Source (PS)

Position B (x2): Panel Drain Finger Proof (PDFT) or Panel Source (PS)

Phase: 1, 2, 3, N, E

Color: Red (R), Yellow (Y), Blue (BL), Black (BK), Green (GN)
Brown (BN), Grey (GY), White (W)

Amperage: 400 Amps (T4), 660 Amps (T6)

Version shown: APDFT-BPS-3-BL-T4

Insulated Underground Cable Generator Connector

This compact unit incorporates a POWERLOCK generator input connection point with a rear termination area to accept solid alloy cable cores.

This enables a temporary mobile generator to be connected to an underground cable when repair work is undertaken.

The cable is excavated, cut and the POWERLOCK connector then fitted to the cable cores via 2 set screws. The generator cable end can then directly link into the underground cable.

After completion of the repair, the POWERLOCK fittings are simply removed and the main cable spliced using existing methods.



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Insulated Underground Cable Generator Connector Neutral Key Position/ Blue | LVJ900-N-BL | 078214-9033 |
| Insulated Underground Cable Generator Connector Line 1 Key Position/ Brown | LVJ900-1-BN | 078214-9030 |
| Insulated Underground Cable Generator Connector Line 2 Key Position/ Black | LVJ900-2-BK | 078214-9031 |
| Insulated Underground Cable Generator Connector Line 3 Key Position/ Grey | LVJ900-3-GY | 078214-9032 |
| Insulated Ratchet Tightening Tool | LVJ900H | A0004406H |

Fault Re-energising Fuse Way Connector

The two way JP and JS carriers offer a safe and reliable means of connecting Fault Re-energising equipment to feeder cabinet bus-bars.

These units consist of:

1. One outlet connector (RED), which is connected to the LV side of the fuse way. This is the supply to the Fault Re-energising equipment.
2. One inlet connector (BLACK), which is connected to the outgoing Feeder side. This is the return from the Fault Re-energising equipment.
3. A dummy isolating fuse ensures mechanical alignment of the wedge clamping system and electrical separation of the LV and Feeder circuits.

These carriers are available in both JS (92mm) and JP (82mm) centers.



| Description | Description Code | ITT Part Number |
|------------------------|------------------|-----------------|
| JP Carrier 82mm center | LVD402-82 | A00044241 |
| JS Carrier 92mm center | LVD402-92 | A00044242 |

JW4ST Fuse Carrier with Integral Generator Input Connector

JW4ST (35/8 inch pitch) fuse carrier was developed to provide a safe and efficient means of connecting a mobile generator supply cable to fully shrouded or non-shrouded distribution boards. The unit complies with the requirements of EATS 37.2.

The generator cable (when fitted with POWERLOCK Line Drain cable coupler) can be plugged directly into the Fuse Carrier and used to feed either the Low Voltage bus-bar or feeder circuit.

The fuse generator connector is finger proof to avoid accidental touching of live elements.

The input connectors are color coded and mechanically keyed to prevent connection errors. Line 1 units will only accept a Line 1 generator connector.

The integral generator connector also accepts generator connectors with the patented secondary locking device which eliminates the potential of accidental disconnection under load conditions.

Because this unit is direct replacement for the existing standard JW4ST fuse unit, it offers a safe, fast and cost effective method of upgrading existing distribution boards to have generator input points. It is not necessary to make any modifications to the cabinet other than remove an existing fuse way and replace with the JW4ST system



| Description | Description Code | ITT Part Number |
|--|------------------|-----------------|
| JW4ST fuse unit with integral generator connection point, Neutral Key Postion/Blue | LVD400-N-BL | 078214-9013 |
| JW4ST fuse unit with integral generator connection point, Line 1 Key Postion/Brown | LVD400-1-BN | 078214-9010 |
| JW4ST fuse unit with integral generator connection point, Line 2 Key Postion/Black | LVD400-2-BK | 078214-9011 |
| JW4ST fuse unit with integral generator connection point, Line 3 Key Postion/Grey | LVD400-3-GY | 078214-9012 |

JW4ST82 Fuse Carrier with Integral Generator Input Connector

JW4ST82 (31/4 inch pitch) fuse carrier was developed to provide a safe and efficient means of connecting a mobile generator supply cable to fully shrouded or non-shrouded distribution boards. The unit complies with the requirements of EATS 37.2.

The unit accept standard BS88-5 fuses (not supplied).

The JW4ST82 fuse unit also offers the ability to make a direct connection to many pole mounted transformer fuse units.



| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| JW4ST82 fuse unit with integral generator connection point, Neutral Key Postion/ Blue | LVD401-N-BL | 078214-9023 |
| JW4ST82 fuse unit with integral generator connection point, Line 1 Key Postion/ Brown | LVD401-1-BN | 078214-9020 |
| JW4ST82 fuse unit with integral generator connection point, Line 2 Key Postion/ Black | LVD401-2-BK | 078214-9021 |
| JW4ST82 fuse unit with integral generator connection point, Line 3 Key Postion/ Grey | LVD401-3-GY | 078214-9022 |

Cable Multi-Converter

The Multi-Converter enables any user to easily convert lugged cable to POWERLOCK within minutes ensuring all safety and security of basic POWERLOCK connector series. A POWERLOCK connection point is incorporated within the unit to allow for direct connection of the generator cable end.



Color coding appears on both POWERLOCK and main body of the device for easy recognition of Phases to prevent connection errors. Available in both Source and Drain formats, this device assures the correct connection whether it be POWERLOCK or Lug to maximize cable management.



| SOURCE Part Code | | DRAIN Part Code | |
|--------------------------------------|-------------|--|--------------|
| Multi-Converter Source Neutral, Blue | 078214-9053 | Multi-Converter Drain Neutral, Blue | 078214-9063 |
| Multi-Converter Source Earth, Green | 078214-9055 | Multi-Converter Drain Earth, Green | 078214-9065 |
| Multi-Converter Source Brown PH1 | 078214-9050 | Multi-Converter Drain Brown PH1 | 078214-9060 |
| Multi-Converter Source Black PH2 | 078214-9051 | Multi-Converter Drain Black PH2 | 078214-9061 |
| Multi-Converter Source Grey PH3 | 078214-9052 | Multi-Converter Drain Grey PH3 | 078214-9062 |
| | | Multi-Converter Tightening Tool for Source and Drain | 274-7630-000 |



Screw In End Cap Fuse / Pole Mounted

This device allows for direct connection of a generator cable to a 200A transformer pole mounted fuse unit. The existing fuse unit is unscrewed from the holder and replaced with the POWERLOCK unit, which incorporates a dummy fuse to allow for the outgoing circuit only. This enables the generator feed cable to be directly plugged into the pole mounted unit in order to feed the overhead Low Voltage transmission lines.

| Description | Description Code | ITT Part Number |
|---|------------------|-----------------|
| Screw in end cap fuse Neutral Key Position / Blue | LVC300-N-BL | 078214-9043 |
| Screw in end cap fuse Line 1 Key Postion / Brown | LVC300-1-BN | 078214-9040 |
| Screw in end cap fuse Line 2 Key Postion / Black | LVC300-2-BK | 078214-9041 |
| Screw in end cap fuse Line 3 Key Postion / Grey | LVC300-3-GY | 078214-9042 |

Fully Insulated Cable Support

The insulated cable support will handle 25mm² - 300mm² cables at LV pillar level, or higher to accommodate substation LV boards and / or customer switchgear. The support is easily transportable due to the removable base. It is fully insulated and complements our range of mobile generator accessories.



| Description | Description Code | ITT Part Number |
|-------------------------|------------------|-----------------|
| Insulated Cable Support | LVCS100 | 078214-9910 |

POWERLOCK Application Kits

Different variations available, please contact Customer Service

3 Phase and Neutral G-Clamp Kit ITT Part # 078214-9900



Consists of:

LVS200-1-BN
LVS200-2-BK
LVS200-3-GY
LVS200-N-BL
LVL200H

Watertight Protective Case

3 Phase JP Fuse Carrier Kit - ITT Part # 078214-9905 JS Fuse Carrier Kit - ITT Part # 078214-9906



Consists of:

LVD400-1-BN LVD401-1-BN
LVD400-2-BK LVD401-2-BK
LVD400-3-GY LVD401-3-GY
(fuses available by request)

Watertight Protective Case

3 Phase and Neutral Underground Connector Kit ITT Part # 078214-9903



Consists of:

LVJ900-1-BN
LVJ900-2-BK
LVJ900-3-GY
LVJ900-N-BL
LVJ900H

Watertight Protective Case

3 Phase and Neutral Overhead Line Kit ITT Part # 078214-9904



Consists of:

LVF600-1-BN (3M)
LVF600-2-BK (3M)
LVF600-3-GY (3M)
LVF600-N-BL (3M)

Watertight Protective Case

3 Phase Rotary Clamp Kit ITT Part # 078214-9901



Consists of:

LVE500-1-BN
LVE500-2-BK
LVE500-3-GY
LVE500H

Watertight Protective Case

3 Phase and Neutral Rotary Clamp Kit ITT Part # 078214-9902



Consists of:

LVE500-1-BN
LVE500-2-BK
LVE500-3-GY
LVE500-N-BL
LVE500H

Watertight Protective Case

Product Safety Information

THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOG. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/ CATALOG COULD RESULT IN HAZARDOUS SITUATIONS.

1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

- a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.
- b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning. Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually

apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations. For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

“Engineered for life” is a registered trademark of ITT Industries, © 2005. All other trademarks or registered trademarks are property of their respective owners. All data subject to change without notice.

Product Warranty

ITT Industries, Cannon manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues. A limited warranty applies to Cannon products. Except for obligations assumed by Cannon under this warranty, Cannon shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence or strict liability arising in connection with the design, manufacture, sale, use or repair of the products. Product availability, prices and delivery dates are exclusively subject to our respective order confirmation form; the same applies to orders based on development samples delivered. This publication is not to be construed as an offer. It is intended merely as an invitation to make an offer. By this publication, Cannon does not assume responsibility or any liability for any patent infringements or other rights of third parties which may result from its use. Reprinting this publication is generally permitted, indicating the source. However, Cannon's prior consent must be obtained in all cases.



ITT

Veam Powerlock Customer Support Locations

GERMANY

Cannonstrasse 1
Weinstadt, 71384
phone: 49.7151.699.0
fax: 49.7151.699.217

HONG KONG

Unit 901 & 912, West Tower
Shun Tak Center
168-200 Connaught Road
Central
phone: 852.2732.2720
fax: 852.2732.2919

ITALY

Corso Europa 41/43
Lainate (MI),
Italy 20020
phone: 39.02938721
fax: 39.0293872300

UK

Jays Close, Viabes Estate
Basingstoke, RG22 4BA
phone: 44.1256.311200
fax: 44.1256.323356

USA

100 New Wood Road
Watertown, CT 06795
phone: 1.860.274.9681
fax: 1.860.274.4963

www.ittcannon.com

©2006 ITT Industries, Inc. "Engineered for life" and "Cannon" are registered trademarks of ITT Industries, Inc. Specification and other data are based on information available at the time of printing, and are subject to change without notice.

VPL-04-06