Rail Products

Fire Resistant Modular Power Systems

Flexo

Characteristics

Cable Approvals

Conductor

nsulation

Core Id ntification

> Modular Power Systems are an innovative ‘plug & socket’ installation solution for power cable circuits. Typical applications are emergency lighting circuits in underground rail and road tunnels.

> The system objective is to significantly reduce the costly on-site electrical installation work traditionally necessary during infrastructure projects.

> This is achieved by delivering to site factory prepared cable harnesses. Ready for immediate installation, each harness is supplied with socket outlets located at customer specified positions.

> Commissioning of electrical equipment becomes a simple ‘plug & socket’ connection exercise.

> Every application is potentially unique and Prysmian engineers work with customers to design a system tailored to meet exact requirements. Continuous technical support is provided from design right through to installation.

Features & Benefits

Bedding

eath

iour

> LSOH system.

> Increased quality assurance and circuit reliability compared to traditional on-site termination.

> Speed of installation - typically 250m can be installed in 90 minutes.

> Reduction in on-site inventory of glands and junction boxes.

> Simple management of phase loading.

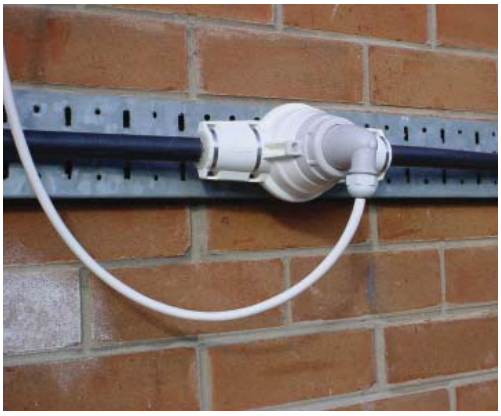
> ‘Plug & socket’ connection demands reduced skill level compared to traditional termination.

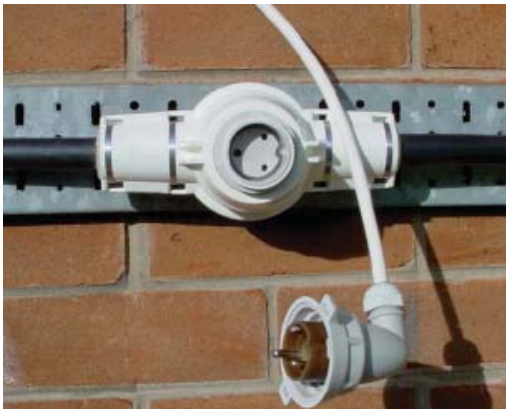
> Maintenance simplified by ease of appliance isolation and commissioning.

Fire Resistant Modular Power Systems

Applications

> Flexo Fire Resistant Modular Power Systems are designed for supplying permanent ambient and emergency lighting circuits. They have also proved to be ideal for supplying socket outlets used to deliver power to portable appliances. The inherent flexibility in its design has also led to the system being successfully deployed, on a temporary basis, during the construction phase of infrastructure projects.





System Construction

Flexo Fire Resistant Modular Power	=	Fire Resistant Harness Cable (FP400®)	+	Fire Resistant Plug and Socket	+	Fire Resistant Spur Cable (FP400™ or FP200 Flex™)

Approvals and Specifications

> Flexo Fire Resistant Modular Power Systems have been tested and certified (where appropriate) to the following standards:

Fire Performance Characteristic	FP400 & FP200 Flex	Modular Power Plug & Socket
Resistant to fire:	IEC331, BS6387 Category CWZ	BS6387 Category CWZ
Smoke emissions:	IEC61034-2, BSEN50268-2	BSEN50268 Part 1
Acid gas emmissions:	IEC60754-1, BSEN50267-2-1, Less than 0.5% acid gas	BSEN50267-2-1 Less than 0.5% acid gas
Flame propagation:	IEC60332-1-2, BSEN50265-2-1	BSEN50265-1
Flame propagation (cable bunches):	IEC60332-3, BSEN50266	Not applicable
Ingress protection index:	Not applicable	BSEN60529 IP67

Installation

> Installation of a Flexo Modular Power System is extremely simple, fast and cost efficient.

> The spur cable and plug can be connected to electrical apparatus (typically light fittings) prior to them being secured in position. The main cable harness, with integrated sockets, is supplied on standard drums that can be installed with simple cable laying equipment.

> Once in location, the sockets on the main harness align with the spur cable plug. Connection is made be a simple 'plug & socket' action.

Reputation

> With origins stretching back over 100 years, Prysmian has developed an enviable reputation for product quality and innovative design.

> Prysmian Components manufactures and supplies to accredited Business Management Systems BSEN9001 & 14001 and is certified to OH SAS18001.

Fire Resistant Modular Power Systems

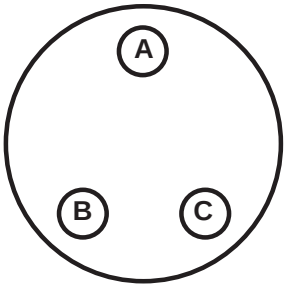
Lead Details

Harness Cable

Description	Prysmian FP400® Fire Resistant Cables (BS7846)
Voltage rating	600/1000V
Conductor	Plain annealed copper stranded (class 2)
Insulation	Mineral ceramic fire resistant tape accompanied by 90° C cross linked insulation
Bedding	Low smoke, zero halogen compound
Armour	Single layer of galvanised steel wires
Sheath	Low smoke, zero halogen compound
Sheath colour	Black
Number of cores	2, 3, 4 or 5 core
Conductor Size (see table 4 for availability)	2.5mm², 4mm², 6mm², 10mm², 16mm²

Plug and Socket

Pin A assignment	Earth
Pin B assignment	Neutral
Pin C assignment	Live
Plug configuration	3 Pin
Current rating	15A (continuous)
Over current protection option	15A 3 pin plug may be supplied with a miniature fuse holder to accept 32mm x 6.3mm standard fuses



Spur Cable - Typical Specifications

	Prysmian FP200 Flex™ Cable	Prysmian FP300™ Cable
Description	Prysmian FP200 Flex™ Fire Resistant Cable (BS7629)	Prysmian FP300™ Fire Resistant Cable
Voltage rating	300/500V	600/1000V
Conductor	Plain annealed copper stranded (class 2)	Plain annealed copper stranded (class 2)
Insulation	Insudite™	Mineral ceramic fire resistant tape enclosed by 90° C cross linked insulation
Armour/Screen	Aluminium/Polyester tape screen in contact with CPC*	None
Sheath	Low smoke, zero halogen compound	Low smoke, zero halogen compound
Sheath colour	Red or White	Orange or Black
Number of cores	2 core + CPC	3 core
Conductor Size	1.5mm², 2.5mm²	1.5mm², 2.5mm²

* CPC = Circuit Protective Conductor (full sized tinned annealed stranded copper)

Fire Resistant Modular Power Systems

Applications

> To accommodate the wide range of main harness cables sizes, Flexo Fire Resistant Modular Power outlets are available in 2 sizes: Outlet A and Outlet B.

> The table indicates the harness cable sizes that are accommodated by each outlet.

> Note: The number of outlets that can be supplied on a single harness is limited by the size of the drum.

Outlet Sizes

Size	4 Core	5 Core
2.5mm²	A	A
4mm²	A	A
6mm²	A	A
10mm²	A	B
16mm²	A	B

Accessories

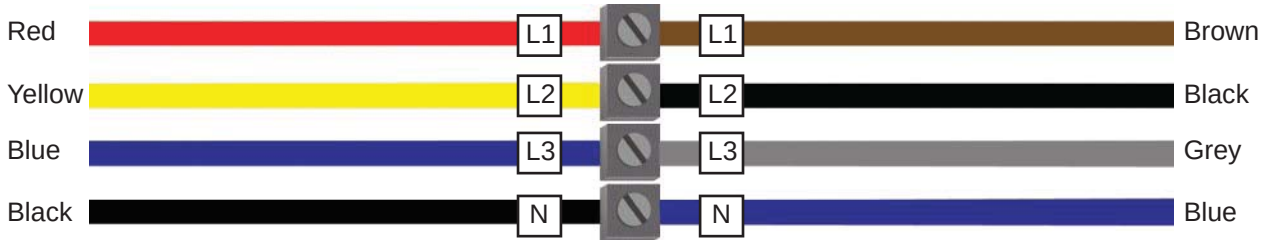
> FP400 Cable Joints accompany the Flexo Fire Resistant Modular Power System

- Prysmian part number: FRZHMPJ2-5 for straight joints.
- Prysmian part number: FRZHMB1-2 for branch joints.

Drums

	SE40	SE50
Flange Diameter	1800mm	2150mm
Barrel Diameter	1000mm	1300mm
Overall width	1000mm	1300mm

Harmonised Core Colours



Project References

> Over recent years, Prysmian has led the way in the development of modular power system solutions. This has enabled us to gain an enviable reputation and become an experienced partner in major projects. Flexo Modular Power Systems have been used in the following projects:

Nadd Al Hamar/Beirut Road Tunnel (Dubai)	BK Gulf
Merseyrail (UK)	Jarvis
Heathrow T5 (UK)	Laing O'Rourke
Strathclyde Passenger Transport (UK)	First Engineering
CTRL1 (UK)	Amec Spie
MTRC Tseung Kwan O Extention (Hong Kong)	Shinryo Corporation
KCRC West Rail Nam Cheong Station (Hong Kong)	BBZP JV
KCRC West Rail Nam Cheong Tunnel (Hong Kong)	China Overseas
KCRC West Rail Mei Foo Station (Hong Kong)	AMEC JV
Lieraasen Rail Tunnel (Norway)	Jermbaneverket Norweigian National Rail
Hong Kong Airport Rail Link (Hong Kong)	GEC
Heathrow Express (UK)	Laing Baily JV
Jubilee Line Extension (UK)	Drake & Scull
DLR Lewisham Tuneel (UK)	London Electricity Contracting
Quarry Bay Congestion Relief (Hong Kong)	AMEC
Channel Tunnel (UK & France)	Balfour Beatty & Spie Batignolles