

FIRE RESISTANT C A B L E

SHIELD[®]
TRUSTED WORLDWIDE



CONTENTS

SHIELD[®]
TRUSTED WORLDWIDE

FIRE RESISTANT CABLE

- > GENERAL INTRODUCTION.....
- > PREMIUM SOLID CONDUCTOR CORE
- > PREMIUM STRANDED CONDUCTOR CORE
- > PREMIUM-X SOLID CONDUCTOR CORE
- > PREMIUM-X STRANDED CONDUCTOR CORE
- > PREMIUM-XPLUS SOLID CONDUCTOR CORE
- > PREMIUM-XPLUS STRANDED CONDUCTOR CORE
- > FLAME RETARDANT POWER-LIMITED FIRE ALARM CABLE...
- > STANDARDS FOR FIRE TEST.....
- > CERTIFICATION.....

INTRODUCTION

SHIELD provides wide range of fire resistant cables independently approved by LPCB and UL.

Fire Resistant Cable are used for fire resistant and circuit integrity, essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damage by acid forming gases.

SHIELD fire resistant cable are manufactured in according to the major international standard; BS 6387 C-W-Z - BS 7629 - IEC 60331-21 - EN 50200 - BS 8434-2 and UL 1424.

The material and the structure used for this type of cables depends on the performance required: fire time exposition, fire temperature and extra burning events.

Fire performance classes: Flame retardant (FRLS), Low smoke fumes (LS), Fire resistant (FRHF), Low smoke, Halogen free and Fire retardant (HF), Flame Retardant Power-Limited (FPL, FPLR) .

Typical applications for this type of cables are transmission of analogue, digital signal and control systems.

Features

- Reduced Installation time and cost
- Easy to install and Superb Working Flexibility
- All in one - Easy to Strip Outer Sheath
- No Separate Foil
- No Additional Fibre Wraps
- Cable Construction Provides High Level Data Protection
- Better Reeling and damage resistant
- Weather and moisture resistant

Range of Cables

Approved and certified by LPCB

- Premium Fire Resistant cable
- Premium-X Fire Resistant cable
- Premium-X Plus Fire Resistant cable

Approved and certified by UL

- Flame Retardant Power-Limited Fire Alarm Cable

FIRE RESISTANT CABLE

PREMIUM - SOLID CONDUCTOR CORE



568a(cl-10)/02

Multi-Core, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm² , 2,5mm²

Conductor:

Plain annealed copper wire, solid acc. to EN 60228

Insulation:

Special mix Silicon Rubber type EI2 in acc. to BS EN 50363-1

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape 0,023 mm

Collective Screen:

0,026 mm Aluminium / PET tape over copper drain wire

Outer Sheath:

Low Smoke, Halogen Free - type LTS3 in acc. To BS 7655-6.1

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|-------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | BS EN 50200 PH120 |
| - Fire Resistant Test | BS6387 C-W-Z |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |

| | |
|----------------------------------|----------------------|
| Construction Reference Standard: | BS 6387 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |

OTHER REFERENCES:

- BS EN 60228
- BS 6234
- BS 50363
- BS 7655 1.1
- BS 7655 6.1
- EN 50200 - Annex E

IDENTIFICATION OF CORES

- 2 Cores : ● ●
- 3 Cores : ● ● ●
- 4 Cores : ● ● ● ●

FIRE RESISTANT CABLE

PREMIUM - SOLID CONDUCTOR CORE

ELECTRICAL DATA

CHARACTERISTICS

| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² |
|---------------------------------|-----------|----------------------|----------------------|
| DC Resistance per core at 20° C | max Ω/km | 12,6 | 7,7 |
| Insulation Resistance at 20° C | min MΩ*km | 200 | 200 |
| Mutual Capacitance | max nF/km | 120 | 140 |
| Inductance | max mH/km | 1 | 1 |
| Test Voltage - Core/Core | V | 2000 | 2000 |
| Test Voltage - Core/Screen | V | 2000 | 2000 |
| L/R Ratio | max μH/Ω | 40 | 60 |
| Operating Voltage | V | 300/500 | 300/500 |
| During Installation | | -5° C up to +50° C | -5° C up to +50° C |
| Fixed Installation | | -40° C up to +75° C | -40° C up to +75° C |
| Insulation Operation | | -40° C up to +180° C | -40° C up to +180° C |
| Min. Bending Radius | mm | 8 x cable diameter | 8 x cable diameter |

Fire Resistant



Min. Bending Radius
8 x cable diameter



Low Smoke Halogen Free



| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Solid | Red | SD-XPC215-R |
| 2 Core | 2.5mm ² | Solid | Red | SD-XPC225-R |
| 2 Core | 1.5mm ² | Solid | White | SD-XPC215-W |
| 2 Core | 2.5mm ² | Solid | White | SD-XPC225-W |

FIRE RESISTANT CABLE

PREMIUM - STRANDAD CONDUCTOR CORE



568a(cl-10)/02

Multi-Core, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm², 2.5 mm², 4mm²

Conductor:

Plain annealed copper wire, Strand acc. to EN 60228

Insulation:

Special mix Silicon Rubber type EI2 in acc. to BS EN 50363-1

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape 0,023 mm

Collective Screen:

0,026 mm Aluminium / PET tape over copper drain wire

Outer Sheath:

Low Smoke, Halogen Free - type LTS3 in acc. To BS 7655-6.1

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|-------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | BS EN 50200 PH120 |
| - Fire Resistant Test | BS6387 C-W-Z |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |

| | |
|----------------------------------|----------------------|
| Construction Reference Standard: | BS 6387 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |

OTHER REFERENCES:

- BS EN 60228
- BS 6234
- BS 50363
- BS 7655 1.1
- BS 7655 6.1
- EN 50200 - Annex E

IDENTIFICATION OF CORES

- 2 Cores : ● ●
- 3 Cores : ● ● ●
- 4 Cores : ● ● ● ●

FIRE RESISTANT CABLE

PREMIUM - STRANDAD CONDUCTOR CORE

| ELECTRICAL DATA | | | | | CHARACTERISTICS | |
|---------------------------------|-----------|----------------------|----------------------|----------------------|------------------------|---|
| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² | 4 mm ² | | |
| DC Resistance per core at 20° C | max Ω/km | 12,6 | 7,7 | 4,8 | Fire Resistant |  |
| Insulation Resistance at 20° C | min MΩ*km | 200 | 200 | 200 | | |
| Mutual Capacitance | max nF/km | 120 | 140 | 160 | | |
| Inductance | max mH/km | 1 | 1 | 1 | Min. Bending Radius |  |
| Test Voltage - Core/Core | V | 2000 | 2000 | 2000 | 8 x cable diameter | |
| Test Voltage - Core/Screen | V | 2000 | 2000 | 2000 | | |
| L/R Ratio | max μH/Ω | 40 | 60 | 60 | | |
| Operating Voltage | V | 300/500 | 300/500 | 300/500 | Low Smoke Halogen Free |  |
| During Installation | | -5° C up to +50° C | -5° C up to +50° C | -5° C up to +50° C | | |
| Fixed Installation | | -40° C up to +75° C | -40° C up to +75° C | -40° C up to +75° C | | |
| Insulation Operation | | -40° C up to +180° C | -40° C up to +180° C | -40° C up to +180° C | | |
| Min. Bending Radius | mm | 8 x cable diameter | 8 x cable diameter | 8 x cable diameter | | |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Stranded | Red | ST-XPC215-R |
| 2 Core | 2.5mm ² | Stranded | Red | ST-XPC225-R |
| 2 Core | 4.0mm ² | Stranded | Red | ST-XPC240-R |
| 2 Core | 1.5mm ² | Stranded | White | ST-XPC215-W |
| 2 Core | 2.5mm ² | Stranded | White | ST-XPC225-W |
| 2 Core | 4.0mm ² | Stranded | White | ST-XPC240-W |

FIRE RESISTANT CABLE

PREMIUM-X - SOLID CONDUCTOR CORE

Multi-Core, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



568c-(cl-10)-02



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm² , 2,5mm²

Conductor:

Plain annealed copper wire, solid

Insulation:

Special mix Silicon Rubber

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape

Collective Screen:

Aluminium / PET tape over copper drain wire

Outer Sheath:

Thermoplastic Low Smoke, Halogen Free - LSZH.

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|-------------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | IEC 60331-21 |
| - Fire Resistant Test | EN50200 PH120 + Annex E |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |

| | |
|----------------------------------|----------------------|
| Construction Reference Standard: | BS 7629 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |

OTHER REFERENCES:

- BS 6387 - Cat. C-W-Z
- BS EN 50200 PH120
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IES 60331-21

IDENTIFICATION OF CORES

- 2 Cores : ● ●
- 3 Cores : ● ● ●
- 4 Cores : ● ● ● ●

FIRE RESISTANT CABLE

PREMIUM-X - SOLID CONDUCTOR CORE

ELECTRICAL DATA

CHARACTERISTICS

| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² |
|---------------------------------|-----------|---------------------|---------------------|
| DC Resistance per core at 20° C | max Ω/km | 12,1 | 7,4 |
| Insulation Resistance at 20° C | min MΩ*km | 200 | 200 |
| Mutual Capacitance | max nF/km | 120 | 140 |
| Inductance | max mH/km | 1 | 1 |
| Test Voltage - Core/Core | V | 2000 | 2000 |
| Test Voltage - Core/Screen | V | 2000 | 2000 |
| L/R Ratio | max μH/Ω | 40 | 60 |
| Operating Voltage | V | 300/500 | 300/500 |
| Outer Sheath Nominal Value | mm | 7,5 | 8,7 |

Fire Resistant



Min. Bending Radius
8 x cable diameter



Low Smoke Halogen Free



Temperature Range :

| | °C | -5° C up to +50°C | -5° C up to +50°C |
|-------------------------|-------|---------------------|---------------------|
| During Installation | °C | -5° C up to +50°C | -5° C up to +50°C |
| Fixed Installation | °C | -40° C up to +75°C | -40° C up to +75°C |
| Insulation Operation | °C | -40° C up to +180°C | -40° C up to +180°C |
| Min. Bending Radius | mm | 8 x cable diameter | 8 x cable diameter |
| Maximum Pulling Tension | N | 143 | 238 |
| Weight Approx | kg/km | 97 | 140 |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Solid | Red | SD-YPC215-R |
| 2 Core | 2.5mm ² | Solid | Red | SD-YPC225-R |
| 2 Core | 1.5mm ² | Solid | White | SD-YPC215-W |
| 2 Core | 2.5mm ² | Solid | White | SD-YPC225-W |

FIRE RESISTANT CABLE

PREMIUM-X - STRANDED CONDUCTOR CORE



568c-(cl-10)-02

Multi-Core, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm², 2,5mm², 4mm²

Conductor:

Plain annealed copper wire, 7 Stranded

Insulation:

Special mix Silicon Rubber

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape

Collective Screen:

Aluminium / PET tape over copper drain wire

Outer Sheath:

Thermoplastic Low Smoke, Halogen Free - LSZH.

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|-------------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | IEC 60331-21 |
| - Fire Resistant Test | EN50200 PH120 + Annex E |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |

| | |
|----------------------------------|----------------------|
| Construction Reference Standard: | BS 7629 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |

OTHER REFERENCES:

- BS 6387 - Cat. C-W-Z
- BS EN 50200 PH120
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IES 60331-21

IDENTIFICATION OF CORES

- 2 Cores : ● ●
- 3 Cores : ● ● ●
- 4 Cores : ● ● ● ●

FIRE RESISTANT CABLE

PREMIUM-X - STRANDED CONDUCTOR CORE

| ELECTRICAL DATA | | | | | CHARACTERISTICS | |
|---------------------------------|-----------|---------------------|---------------------|-------------------|--|--|
| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² | 4 mm ² | | |
| DC Resistance per core at 20° C | max Ω/km | 12,1 | 7,4 | 4,6 | Fire Resistant |  |
| Insulation Resistance at 20° C | min MΩ*km | 200 | 200 | 200 | | |
| Mutual Capacitance | max nF/km | 120 | 140 | 160 | | |
| Inductance | max mH/km | 1 | 1 | 1 | Min. Bending Radius 8 x cable diameter |  |
| Test Voltage - Core/Core | V | 2000 | 2000 | 2000 | | |
| Test Voltage - Core/Screen | V | 2000 | 2000 | 2000 | | |
| L/R Ratio | max μH/Ω | 40 | 60 | 60 | | |
| Operating Voltage | V | 300/500 | 300/500 | 300/500 | Low Smoke Halogen Free |  |
| Outer Sheath Nominal Value | mm | 7,8 | 9,3 | 10,6 | | |

Temperature Range :

| | | | | |
|-------------------------|-------|---------------------|---------------------|---------------------|
| During Installation | °C | -5° C up to +50°C | -5° C up to +50°C | -5° C up to +50°C |
| Fixed Installation | °C | -40° C up to +75°C | -40° C up to +75°C | -40° C up to +75°C |
| Insulation Operation | °C | -40° C up to +180°C | -40° C up to +180°C | -40° C up to +180°C |
| Min. Bending Radius | mm | 8 x cable diameter | 8 x cable diameter | 8 x cable diameter |
| Maximum Pulling Tension | N | 143 | 236 | 379 |
| Weight Approx | kg/km | 101 | 151 | 210 |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Stranded | Red | ST-YPC215-R |
| 2 Core | 2.5mm ² | Stranded | Red | ST-YPC225-R |
| 2 Core | 4.0mm ² | Stranded | Red | ST-YPC240-R |
| 2 Core | 1.5mm ² | Stranded | White | ST-YPC215-W |
| 2 Core | 2.5mm ² | Stranded | White | ST-YPC225-W |
| 2 Core | 4.0mm ² | Stranded | White | ST-YPC240-W |

ENHANCED FIRE RESISTANT CABLE

PREMIUM-XPLUS - SOLID CONDUCTOR CORE



568j(cl-04)/01

Multi-Core, Mica-XLPE+ Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm² , 2,5mm²

Conductor:

Plain annealed copper wire, solid

Insulation:

Mica Tape + Crossed Linked polyethylene - XLPE + Silicon Rubber

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape

Collective Screen:

Aluminium / PET tape over copper drain wire

Outer Sheath:

Thermoplastic Low Smoke, Halogen Free - LSZH.

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|---------------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | IEC 60331-21 |
| - Fire Resistant Test | BS 8434-2 / EN50200 PH120 |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |
| Sunlight resistance | UL 1581 section 1200 |

| | |
|---|--|
| For enhanced fire resistant cable in fire detection and fire alarm systems building | BS 5839-1 : 2003 (clause 26.2e Enhanced) |
| Construction Reference Standard: | BS 7629-1:2015 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |
| Reference Standard for Circuit Integrity | |
| - | BS 5266-1:2016 |
| - | BS 8519 |

OTHER REFERENCES:

| | |
|-------------------|---------------|
| - BS 8434-2 | - BS 6234 |
| - BS 6387 C-W-Z | - BS 6360 |
| - BS EN 50200 | - BS 7655 1.1 |
| - BS EN 50267-2-1 | - BS 7655 6.1 |

IDENTIFICATION OF CORES

- 2 Cores : ● ●
- 3 Cores : ● ● ●
- 4 Cores : ● ● ● ●

ENHANCED FIRE RESISTANT CABLE

PREMIUM-XPLUS - SOLID CONDUCTOR CORE

ELECTRICAL DATA

CHARACTERISTICS

| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² |
|---------------------------------|-----------|---------------------|---------------------|
| DC Resistance per core at 20° C | max Ω/km | 12,3 | 7,6 |
| Insulation Resistance at 20° C | min MΩ*km | 1000 | 1000 |
| Mutual Capacitance | max nF/km | 150 | 150 |
| Inductance | max mH/km | 1 | 1 |
| Test Voltage - Core/Core | V | 2000 | 2000 |
| Test Voltage - Core/Screen | V | 2000 | 2000 |
| L/R Ratio | max μH/Ω | 40 | 60 |
| Operating Voltage | V | 300/500 | 300/500 |
| Outer Sheath Nominal Value | mm | 10,3 | 11,3 |

Fire Resistant



Min. Bending Radius
10 x cable diameter



Low Smoke Halogen Free



Temperature Range :

| | | | |
|-------------------------|-------|---------------------|---------------------|
| During Operation | °C | -30° C up to +90°C | -30° C up to +90°C |
| During Installation | °C | -5° C up to +50°C | -5° C up to +50°C |
| Min. Bending Radius | mm | 10 x cable diameter | 10 x cable diameter |
| Maximum Pulling Tension | N | 143 | 238 |
| Weight Approx | kg/km | 141 | 186 |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Solid | Red | SD-ZPC215-R |
| 2 Core | 2.5mm ² | Solid | Red | SD-ZPC225-R |
| 2 Core | 1.5mm ² | Solid | White | SD-ZPC215-W |
| 2 Core | 2.5mm ² | Solid | White | SD-ZPC225-W |

ENHANCED FIRE RESISTANT CABLE PREMIUM-XPLUS - STRANDED CONDUCTOR CORE



568j(cl-04)/01

Multi-Core, Mica-XLPE+ Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



APPLICATION

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

CONSTRUCTION

Formation:

2 Cores

Section:

1,5 mm² , 2,5mm², 4mm²

Conductor:

Plain annealed copper wire, 7 stranded

Insulation:

Mica Tape + Cross Linked Polyethylene - XLPE + Silicon Rubber

Colour Code:

Blue, Brown

Wrapping:

at least 1 layer of plastic tape

Collective Screen:

Aluminium / PET tape over copper drain wire

Outer Sheath:

Thermoplastic Low Smoke, Halogen Free - LSZH.

Colour Outer Sheath:

Red or White

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|----------------------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |
| - Fire Performance* | IEC 60331-21 |
| - Fire Resistant Test | BS 8434-2 / EN 50200 PH120 |

| | |
|--------------------------------------|------------------------|
| Limiting Oxygen Index (LOI) | (min 37%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 0,5%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |
| Sunlight resistance | UL 1581 section 1200 |

| | |
|---|--|
| For enhanced fire resistant cable in fire detection and fire alarm systems building | BS 5839-1 : 2003 (clause 26.2e Enhanced) |
| Construction Reference Standard: | BS 7629-1:2015 |
| Type of Cable: | Fire Resistant Cable |
| Low Voltage Directive: | 2014/35/UE |
| Reference Standard for Circuit Integrity | |
| - | BS 5266-1:2016 |
| - | BS 8519 |

OTHER REFERENCES:

| | |
|-------------------|---------------|
| - BS 8434-2 | - BS 6234 |
| - BS 6387 C-W-Z | - BS 6360 |
| - BS EN 50200 | - BS 7655 1.1 |
| - BS EN 50267-2-1 | - BS 7655 6.1 |

IDENTIFICATION OF CORES

- 2 Cores: ● ●
- 3 Cores: ● ● ●
- 4 Cores: ● ● ● ●

ENHANCED FIRE RESISTANT CABLE

PREMIUM-XPLUS - STRANDED CONDUCTOR CORE

ELECTRICAL DATA

CHARACTERISTICS

| Conductor Cross-section | Nom. | 1,5 mm ² | 2,5 mm ² | 4 mm ² |
|---------------------------------|-----------|---------------------|---------------------|-------------------|
| DC Resistance per core at 20° C | max Ω/km | 12,3 | 7,6 | 4,7 |
| Insulation Resistance at 20° C | min MΩ*km | 1000 | 1000 | 1000 |
| Mutual Capacitance | max nF/km | 150 | 150 | 150 |
| Inductance | max mH/km | 1 | 1 | 1 |
| Test Voltage - Core/Core | V | 2000 | 2000 | 2000 |
| Test Voltage - Core/Screen | V | 2000 | 2000 | 2000 |
| L/R Ratio | max μH/Ω | 40 | 60 | 60 |
| Operating Voltage | V | 300/500 | 300/500 | 300/500 |
| Outer Sheath Nominal Value | mm | 10,6 | 11,7 | 13,0 |

Fire Resistant



Min. Bending
Radius 10 x
cable diameter



Low Smoke
Halogen Free



Temperature Range :

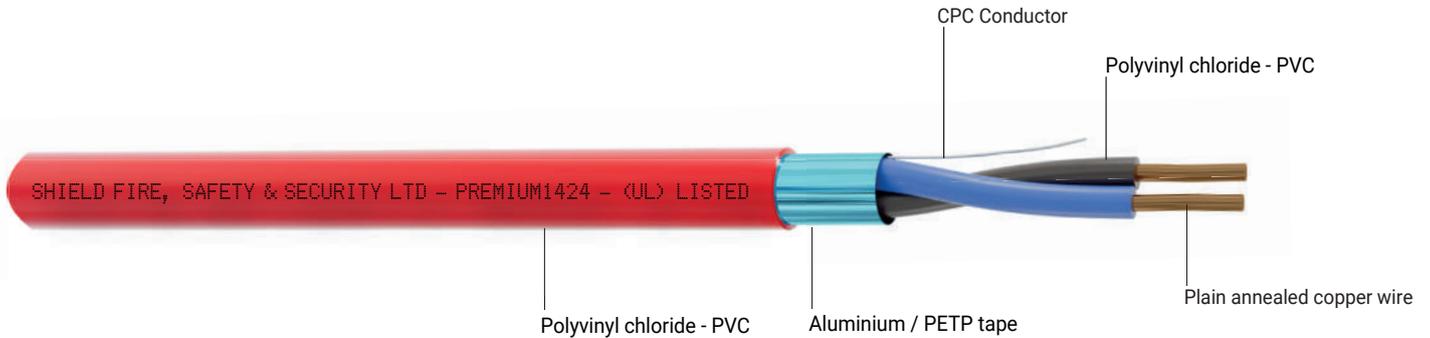
| | °C | -30° C up to +90°C | -30° C up to +90°C | -30° C up to +90°C |
|-------------------------|-------|---------------------|---------------------|---------------------|
| During Operation | °C | -30° C up to +90°C | -30° C up to +90°C | -30° C up to +90°C |
| During Installation | °C | -5° C up to +50°C | -5° C up to +50°C | -5° C up to +50°C |
| Min. Bending Radius | mm | 10 x cable diameter | 10 x cable diameter | 10 x cable diameter |
| Maximum Pulling Tension | N | 143 | 236 | 379 |
| Weight Approx | kg/km | 145 | 191 | 259 |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|--------------------|----------------|--------------|------------------|
| 2 Core | 1.5mm ² | Stranded | Red | ST-ZPC215-R |
| 2 Core | 2.5mm ² | Stranded | Red | ST-ZPC225-R |
| 2 Core | 4.0mm ² | Stranded | Red | ST-ZPC240-R |
| 2 Core | 1.5mm ² | Stranded | White | ST-ZPC215-W |
| 2 Core | 2.5mm ² | Stranded | White | ST-ZPC225-W |
| 2 Core | 4.0mm ² | Stranded | White | ST-ZPC240-W |

FLAME RETARDANT POWER-LIMITED FIRE ALARM CABLE



Multi-Core, PVC-Insulation, Collective Screen, PVC-Sheath



APPLICATION

These cables are designed to connect electronic instrumentation, analog and digital signal circuits. This cable does not spread flame to the top of the tray in the Vertical-Tray Flame Test in UL 1666.

CONSTRUCTION

Formation:

2 Cores

Section:

14AWG

Conductor:

Plain annealed copper wire, solid

Insulation:

Polyvinyl chloride - PVC

Colour Code:

Black,Red

Wrapping:

at least 1 layer of plastic tape 0,023 mm

Collective Screen:

0,026 mm Aluminium / PETP tape over tinned copper drain wire

Outer Sheath:

Polyvinyl chloride - PVC

Colour Outer Sheath:

Red

Cable Printing:

SHIELD FIRE, SAFETY & SECURITY LTD - PREMIUM1424 - (UL) LISTED E527496-
FLAME RETARDANT POWER LIMITED FIRE ALARM CABLE - TYPE FPLR - XXXX AWG -
SHIELDED - 105°C BATCH N. XXXX XX

TECHNICAL DATA & STANDARD REFERENCES

Fire Propagation:

| | |
|--------------------------|-------------|
| - Test on single cable | IEC 60332-1 |
| - Test on bunched cables | IEC 60332-3 |

| | |
|--------------------------------------|-----------------------|
| Limiting Oxygen Index (LOI) | (min 30%) |
| Smoke Density | IEC 61034 |
| Amount of halogen acid gas: | IEC 60754-1 (max 15%) |
| Acidity (ph value) and conductivity: | IEC 60754-2 |

| | |
|----------------------------------|------------------|
| Construction Reference Standard: | UL-1424 |
| Type of Cable: | Fire Alarm cable |
| Low Voltage Directive: | 2014/35/UE |
| Vertical Tray Flame Test | UL1666 |

OTHER REFERENCES:

- NEC code, sec. FPLR,
- UL 1666
- ASTM D 1239
- NF C 32-020
- IRAM IAP

IDENTIFICATION OF CORES

- 2 Cores: ● ●
- 3 Cores: ● ● ●
- 4 Cores: ● ● ● ●

FLAME RETARDANT POWER-LIMITED FIRE ALARM CABLE

| ELECTRICAL DATA | | | | | CHARACTERISTICS | |
|---------------------------------|-----------|-------|-------|-------|--|---|
| Conductor Cross-section | Nom. | 14AWG | 16AWG | 18AWG | Fire Resistant |  |
| DC Resistance per core at 20° C | max Ω/km | 8,5 | 13,5 | 22,4 | | |
| Insulation Resistance at 20° C | min MΩ*km | 100 | 100 | 100 | Min. Bending Radius 8 x cable diameter |  |
| Mutual Capacitance | max nF/km | 250 | 250 | 250 | | |
| Inductance | max mH/km | 1 | 1 | 1 | Low Smoke Halogen Free |  |
| Test Voltage - Core/Core | V | 3000 | 3000 | 3000 | | |
| Test Voltage - Core/Screen | V | 2000 | 2000 | 2000 | | |
| L/R Ratio | max μH/Ω | 60 | 40 | 40 | | |
| Operating Voltage | V | 300 | 300 | 300 | | |
| Outer Sheath Nominal Value | mm | 5,8 | 4,5 | 4,3 | | |

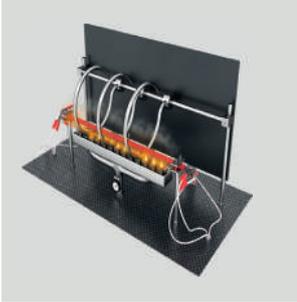
Temperature Range :

| | | | | |
|-------------------------|-------|---------------------|---------------------|---------------------|
| During Installation | °C | -5° C up to +50°C | -5° C up to +50°C | -5° C up to +50°C |
| Fixed Installation | °C | -30° C up to +70°C | -30° C up to +70°C | -30° C up to +70°C |
| Insulation Operation | °C | -30° C up to +105°C | -30° C up to +105°C | -30° C up to +105°C |
| Min. Bending Radius | mm | 8 x cable diameter | 8 x cable diameter | 8 x cable diameter |
| Maximum Pulling Tension | N | 209 | 133 | 82 |
| Weight Approx | kg/km | 73 | 46 | 36 |

| No. of Core | Conductor Size | Conductor Type | Outer Sheath | Ordering Part No |
|-------------|----------------|----------------|--------------|------------------|
| 2 Core | 14AWG | Solid | Red | SD-ULR214 |
| 2 Core | 16AWG | Solid | Red | SD-ULR216 |
| 2 Core | 18AWG | Solid | Red | SD-ULR218 |

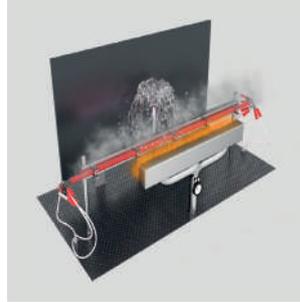
STANDARDS FOR FIRE TEST

FIRE RESISTANCE (Cat. C)



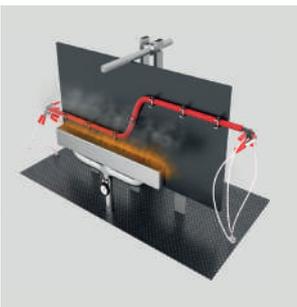
The cable is exposed to fire at the 950°C for 180 minutes.

FIRE AND WATER RESISTANCE (Cat. W)



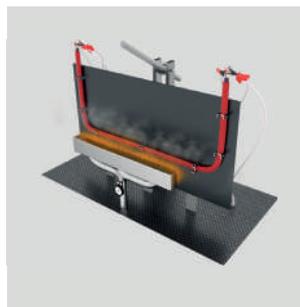
The cable is exposed for 15 minutes to flame at 650°C and for additional 15 minutes to fire and water spray.

FIRE RESISTANCE WITH MECHANICAL SHOCKS (Cat. Z)



The cable is mounted on a vertical panel and shocked with a steel bar for 15 minutes while submitted to the action of a flame.

FIRE RESISTANCE (EN 50200 PH 15-30-60-90-120)



This test is carried out to verify the circuit integrity of cables exposed to fire at 830°C and mechanical shocks.

CLASSIFICATION

| | |
|-----------------|----------------------------|
| EN 50200 PH 15 | Flame exposure for 15 min |
| EN 50200 PH 30 | Flame exposure for 30 min |
| EN 50200 PH 60 | Flame exposure for 60 min |
| EN 50200 PH 90 | Flame exposure for 90 min |
| EN 50200 PH 120 | Flame exposure for 120 min |

FIRE RESISTANCE BS EN 50200 annex E



This test is carried out to verify circuit integrity during a fire. The cable is exposed to a flame at 830°C and mechanical shocks for 15 minutes and additional 15 minutes to flame, mechanical shocks and water spray.

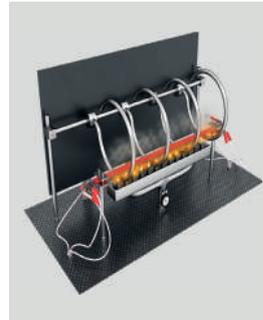
STANDARDS FOR FIRE TEST

FIRE RESISTANCE (BS 8434-2)



This test is carried out to verify circuit integrity during a fire. The cable is exposed to a flame at 930°C and mechanical shocks for 60 minutes and additional 60 minutes to flame, mechanical shocks and water spray..

FIRE RESISTANCE (IEC 60331-21, CEI 20-36)



This test is carried out to verify circuit integrity even during a fire. A sample of cable is held on a flame at about 750°C for a period of minimum 90 min, under rated voltage.

FLAME PROPAGATION TEST ON A SINGLE CABLE (IEC 60332-1)



A 60 cm long sample of cable is vertically fixed with two clamps inside a small cabin, open on the front. The cable is subjected to the action of a flame produced by a calibrated Bunsen burner. The application time of the flame is according to the cable diameter (60-480 seconds). At the end of the test the burnt portion of cable must not be 50 mm close to the higher clamp.

FIRE PROPAGATION TEST ON BUNCHED CABLES (IEC 60332-3)



Samples of cables 3,5 m long in quantities required by standard are installed on a ladder inside a metallic cabinet. They are subjected to the action of a flame at 750°C for a specific time (20 or 40 minutes). Cables must not burn for more than 2,5 m.

BS EN 60754-1:2014

To comply with this standard the cable must emit Zero Halogens (less than 0.5mg) when subjected to fire conditions.

BS EN 61034-2:2005

To comply with this standard the cable must have Low Smoke Emission when subjected to fire conditions

LAB APPROVALS

LPCB® www.redbookfire.com

Certificate of Product Approval
Certificate Number: 568agc-cl-01 Issue: 01

SHIELD FIRE SAFETY & SECURITY LTD
Unit 3, Endeavour Drive, Basildon, Essex, SS14 3WF, United Kingdom

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

| | |
|--|--|
| Product(s) Cable Types as listed below: PREMIUM | Standard(s) (see Appendix for details) BS 7629-1:2015 (Class PH120) EN 50200:2015 (Class PH120) EN 50200:2015 Annex E (30 mins) BS 5839-1:2013 (Clause 26.2d Standard) EN 60754-2:2014 |
|--|--|

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for BRE Global Ltd. **Obada Piracha** Certification Manager 16 August 2022 16 August 2022
Date of Issue Date of First Issue

BF1345 Rev 2.1 Page 1 of 2 © BRE Global Ltd, 2022

PREMIUM FIRE RESISTANT CABLE

LPCB® www.redbookfire.com

Certificate of Product Approval
Certificate Number: 568c-(cl-10) Issue: 01

SHIELD FIRE SAFETY & SECURITY LTD
Unit 3, Endeavour Drive, Basildon, Essex, SS14 3WF, UK

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

| | |
|--|---|
| Product(s) Cable Types as listed below: PREMIUM-X | Standard(s) (see Appendix for details) BS 7629-1:2015 (Standard 60) BS 6387:2013 (Category CWZ) EN 50200:2015 (Class PH120) EN 50200:2015 Annex E (30 mins) BS 5839-1:2013 (Clause 26.2d Standard) EN 60754-2:2014 |
|--|---|

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for BRE Global Ltd. **Obada Piracha** Certification Manager 16 August 2022 16 August 2022
Date of Issue Date of First Issue

BF1345 Rev 2.1 Page 1 of 2 © BRE Global Ltd, 2022

PREMIUM-X FIRE RESISTANT CABLE

LPCB® www.redbookfire.com

Certificate of Product Approval
Certificate Number: 568j-(cl-04) Issue: 01

SHIELD FIRE, SAFETY & SECURITY LIMITED
Unit 3 Endeavour Drive, Basildon, Essex, SS14 3WF, United Kingdom

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

| | |
|--|---|
| Product(s) Cable Types as listed below: PREMIUM-XPLUS | Standard(s) (see Appendix for details) BS 7629-1:2015 (Enhanced 120) EN 50200:2015 (Class PH120) BS 8434-2:2003+A2:2009 (120 mins) BS 5839-1:2013 (Clause 26.2e Enhanced) BS 6387:2013 (Category CWZ) EN 60332-3-24:2009 |
|--|---|

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for BRE Global Ltd. **Obada Piracha** Certification Manager 26 July 2022 22 June 2018
Date of Issue Date of First Issue

BF1345 Rev 2.1 Page 1 of 2 © BRE Global Ltd, 2022

PREMIUM-XPLUS FIRE RESISTANT CABLE

LAB APPROVALS

CERTIFICATE OF COMPLIANCE

Certificate Number E527496
Report Reference E527496-20220414
Issue Date 2022-APRIL-14

Issued to: SHIELD FIRE SAFETY & SECURITY LTD
Unit 3, Endeavour Dr
Basildon, SS14 3WF United Kingdom

This certificate confirms that POWER-LIMITED FIRE ALARM CABLE
representative samples of Models FPL, FPLR

Have been evaluated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1424

Additional Information: See UL Product iQ® at <https://iq.ulprospector.com> for additional
information.

This Certificate of Compliance indicates that representative samples of the product described in the certification
report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only
the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides
authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's
Follow-Up Services.

Look for the UL Certification Mark on the product.

||



Bruce Mahneholz, Conformity Assessment Director
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact UL Customer Service at <http://ul.com/about/locations>



Page 1 of 1

FLAME RETARDANT POWER-LIMITED FIRE ALARM CABLE CABLE



SHIELD

TRUSTED WORLDWIDE

SHIELD FIRE, SAFETY & SECURITY LTD
Unit 3, Endeavour Drive, Basildon-Essex, SS14 3WF, United Kingdom
Tel: +44 1708 377731 Fax: +44 1708 347637,
E-mail: Shielduk@shieldglobal.com www.shieldglobal.com