



BS 7846  
Cert No. 814b, 814g

# FLAME-X 950 SERIES 2e

## (Flame-X 950 Enhanced) 300/500V

BS 7629-1, BS 6387, BS 5839-1

“Enhanced” grade fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire

### APPLICATIONS

For use in installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, emergency evacuation communicators. Recommended for systems, in particular building types, in which cables might need to operate correctly during a fire for periods in excess of those normally required for single phase evacuation of a building. Cables meeting the enhanced requirement should be used in buildings greater than 30 m in height, or with four or more evacuation zones, or for example hospitals, where there are progressive horizontal evacuation arrangements, or where a risk assessment identifies a possible need.

Standard length cable packing

500 or 1,000 m on drums.  
Other forms of packing and delivery are available on request.

### CONSTRUCTION

<b>Conductors:</b>	Plain annealed copper solid class 1 (for 1 – 2.5 mm <sup>2</sup> ) and stranded class 2 (for 4 mm <sup>2</sup> ) acc. to BS EN 60228 and special request
<b>Primary insulation:</b>	Fire resistant mica tape with a glass cloth
<b>Insulation:</b>	Special cross-linked heat resistant compound type EI2 acc. to BS EN 50363-1
<b>Screen:</b>	Helically applied aluminium / polyester tape and uninsulated circuit protective conductor
<b>Uninsulated circuit protective conductor:</b>	Tinned annealed copper conductor of the same nominal cross-sectional area and of the same class as the insulated conductors
<b>Outer sheath:</b>	Thermoplastic zero halogen low smoke compound type LTS 3 acc. to BS 7655-6.1
<b>Colour of sheath:</b>	Red or white. Other colours are available on special request.
<b>Core identification:</b>	2 core + ECC: brown, blue 3 core + ECC: brown, black, grey 4 core + ECC: blue, brown, black, grey



# CHARACTERISTICS

Maximum conductor operating temperature:	+70°C
Minimum operating temperature (for fixed application) after installation without movement:	-40°C
Lowest installation temperature:	0°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D; (D - overall cable diameter)

## Fire performance

Resistance to fire:	<p>Complies with the PH 120 ENHANCED fire resistant cable described in Clause 26.2 of BS 5839-1</p> <p>BS 6387 Category <b>C</b> – resistance to fire: 3 h at 950°C (IEC 60331)            Category <b>W</b> – resistance to fire with water: 15 min at 650°C plus 15 min with water spray            Category <b>Z</b> – resistance to fire with mechanical shock: 15 min at 950°C</p> <p>EN 50200 - PH 120            BS 8434-2 - 120 min</p>
Flame propagation:	BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 50266-2-2 (IEC 60332-3-22)
Smoke density:	BS EN 61034-2 (IEC 61034-2)
Gases evolved during combustion:	<p>BS EN 50267-2-1 (IEC 61034-2): &lt; 0.5% acid gas            BS EN 50267-2-2 (IEC 60754-2): pH<sup>3</sup> 4.3; conductivity ≤ 10 μSmm<sup>-1</sup></p>

## Approvals

LPCB	1.0, 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core
BASEC	1.0 mm <sup>2</sup> – 2-core, 1.5, 2.5, 4 mm <sup>2</sup> – 2-core, 3-core, 4-core,

## Technical and Electrical Characteristic

Number and cross-sectional area of conductor	Conductor class	Nominal cross-sectional area of protective conductor ECC	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at 20°C	Maximum ECC conductor resistance at 20°C
<b>n × mm<sup>2</sup></b>		<b>mm<sup>2</sup></b>	<b>mm</b>	<b>kg/km</b>	<b>Ω/km</b>	<b>Ω/km</b>
2 × 1 RE + ECC	1	1	8.1	77	18.1	18.2
2 × 1.5 RE + ECC	1	1.5	9.0	99	12.1	12.2
2 × 1.5 RM + ECC*	2	1.5	9.4	104	12.1	12.2
2 × 2.5 RE + ECC	1	2.5	10.4	142	7.41	7.56
2 × 2.5 RM + ECC*	2	2.5	10.9	148	7.41	7.56
2 × 4 RM + ECC	2	4	12.1	202	4.61	4.70
3 × 1 RE + ECC**	1	1	8.6	96	18.1	18.2
3 × 1.5 RE + ECC	1	1.5	9.6	126	12.1	12.2
3 × 2.5 RE + ECC	1	2.5	11.0	180	7.41	7.56
3 × 4 RM + ECC	2	4	12.9	258	4.61	4.70
4 × 1 RE + ECC**	1	1	9.5	121	18.1	18.2
4 × 1.5 RE + ECC	1	1.5	10.8	159	12.1	12.2
4 × 2.5 RE + ECC	1	2.5	12.8	230	7.41	7.56
4 × 2.5 RM + ECC*	2	2.5	13.7	242	7.41	7.56
4 × 4 RM + ECC	2	4	15.9	333	4.61	4.70

\* based on norm, without certificate    \*\* without standards

# Current Ratings and Voltage Drop

Ambient air temperature: 30°C. Conductor operating temperature: 70°C.  
Installation as specified in Appendix 4 of BS 7671 IEE Wiring Regulations

## Reference Method 1

(clipped direct)

Nominal area of conductor	1 two core cable* single phase A.C. or D.C.		1 three-core or 1 four-core cable*. three-phase A.C.	
	Current rating	Volts drop per ampere par metre	Current rating	Volts drop per ampere par metre
mm <sup>2</sup>	A	mV/m	A	mV/m
1.0	15	44	13.5	38
1.5	19.5	29	17.5	25
2.5	27	18	24	15
4.0	36	11	32	9.5

## Reference Method 3

(enclosed in conduit on a wall or ceiling, or in trunking)

Nominal area of conductor	1 two core cable* single phase A.C. or D.C.		1 three-core or 1 four-core cable*. three-phase A.C.	
	Current rating	Volts drop per ampere par metre	Current rating	Volts drop per ampere par metre
mm <sup>2</sup>	A	mV/m	A	mV/m
1.0	13	44	11.5	38
1.5	16.5	29	15	25
2.5	23	18	20	15
4.0	30	11	27	9.5

\* with protective conductor

## Rating factors for ambient temperature

Ambient temperature, °C	25	30	35	40	45	50
Rating factor	1.03	1.00	0.94	0.87	0.79	0.71

## Correction factors for groups

Number of cables in grouping	2	3	4	5	6	7	8	9	10
Rating factor	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48

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