

FLAME-X 950 SERIES 2

(Flame-X 950 Standard) **300/500V**

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

Fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire

CONSTRUCTION

Conductors:	Plain annealed copper solid class 1 (for 1 - 2.5 mm ²) and stranded class 2 (for 4 mm ²) acc. to BS EN 60228
Uninsulated circuit protective conductor:	Tinned annealed copper of the same nominal cross-sectional area and of the same class as the insulated conductors
Drain wire:	Tinned annealed copper wires class 2 acc. to BS EN 60228 (for cables with 7, 12, 19 – cores)
Insulation:	Special cross-linked heat resistant compound type EI2 acc. to BS EN 50363-1
Optional binder:	Non hygroscopic halogen free tape
Screen:	Aluminium/polyester laminated tape and uninsulated circuit protective conductor or drain wire
Outer sheath:	Thermoplastic zero halogen low smoke compound type LTS 3 acc. to BS 7655-6.1
Colour of sheath:	Red or white (other colours are permissible when agreed with the manufacturer)
Core identification:	2 core + ECC: brown, blue 3 core + ECC: brown, black, grey 4 core + ECC: blue, brown, black, grey 7, 12, 19 – core + Drain wire: numbering or for identification by colour: in each layer: brown (starting core), black (reference core)



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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)

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Fire performance

Resistance to fire:	BS 6387 Category C – resistance to fire: 3 h at 950°C (IEC 60331) Category W – resistance to fire with water: 15 min at 650°C plus 15 min with water spray Category Z – resistance to fire with mechanical shock: 15 min at 950°C BS EN 50200 Class PH30 (resistance to fire, with mechanical shock and with water: 30 min) BS 5839-1:2002 Clause 26.2d PH 30 Standard fire resistant cable
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:	BS EN 50267-2-1 (IEC 61034-2): < 0.5% acid gas BS EN 50267-2-2 (IEC 60754-2): pH $\geq$ 4.3; conductivity $\leq$ 10 μ Smm ⁻¹

Applications

Installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, offshore and marine emergency systems, emergency evacuation communicators.

Standard length cable packing:	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.
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Approvals

LPCB	1 mm ² to 4 mm ² 2-core, 3-core, 4-core
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Technical and Electrical Characteristics

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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 temperature 20°C	Maximum ECC conductor resistance at 20°C
n × mm ²		mm ²	mm	kg/km	Ω/km	Ω/km
2 × 1 RE + ECC	1	1	6.9	65	18.1	18.2
2 × 1.5 RE + ECC	1	1.5	7.8	86	12.1	12.2
2 × 1.5 RM + ECC*	2	1.5	8.2	91	12.1	12.2
2 × 2.5 RE + ECC	1	2.5	9.2	126	7.41	7.56
2 × 2.5 RM + ECC*	2	2.5	9.7	134	7.41	7.56
2 × 4 RM + ECC	2	4	10.9	187	4.61	4.70
2 × 6 RM + ECC*	2	6	12.0	251	3.08	3.11
3 × 1 RE + ECC**	1	1	7.3	81	18.1	18.2
3 × 1.5 RE + ECC	1	1.5	8.3	108	12.1	12.2
3 × 2.5 RE + ECC	1	2.5	9.7	160	7.41	7.56
3 × 4 RM + ECC	2	4	11.6	239	4.61	4.70
4 × 1 RE + ECC**	1	1	8.2	102	18.1	18.2
4 × 1.5 RE + ECC	1	1.5	9.5	138	12.1	12.2
4 × 1.5 RM + ECC*	1	1.5	10.2	147	12.1	12.2
4 × 2.5 RE + ECC	1	2.5	11.5	205	7.41	7.56
4 × 4 RM + ECC	2	4	14.6	310	4.61	4.70

* based on norm. without certificate

** without standards

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Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Conductor class	Nominal cross-sectional area of drain wire	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at 20°C	Maximum drain wire resistance at 20°C
n × mm ²		mm ²	mm	kg/km	Ω/km	Ω/km
7 × 1 RE**	1	0.5	10.4	150	18.1	36.7
7 × 1.5 RE	1	0.5	12.0	207	12.1	36.7
7 × 2.5 RE	1	0.5	13.9	300	7.41	36.7
12 × 1 RE**	1	0.5	13.6	247	18.1	36.7
12 × 1.5 RE	1	0.5	15.5	333	12.1	36.7
12 × 2.5 RE	1	0.5	18.3	496	7.41	36.7
19 × 1 RE*	1	0.5	15.7	356	18.1	36.7
19 × 1.5 RE	1	0.5	18.1	496	12.1	36.7

* 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

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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 ²	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
6.0	46	7.3	41	6.4

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 ²	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
6.0	38	7.3	34	6.4

* 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

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