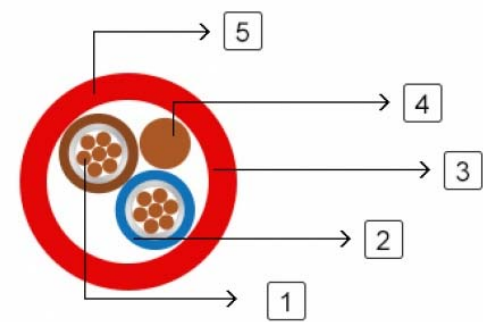


300/500V Mica+SR Insulated & Overall screened  
control cables (2-4 cores & Multicores)



FR200P M2GSH-U (PH120) (CU/MGT+SR/OS/LSZH 300/500V Class 1)  
FR200P M2GSH-R (PH120) (CU/MGT+SR/OS/LSZH 300/500V Class 2)

The cables are primarily intended for use in the following applications:

**Application:**

BS 5266-1 for emergency lighting of premises  
BS 5839-1 for fire detection and fire alarm systems in and around building  
BS 5839-8 for voice alarm systems  
BS 5839-9 for emergency voice communication systems.

**STANDARDS:**

Basic design to BS 7629-1

**FIRE PERFORMANCE**

**Circuit Integrity**

IEC 60331-21; BS 6387 CWZ; DIN VDE 0472-814(FE180);  
BS 8434-2 (120mins); BS 5839-1 Clause 26 2e; CEI 20-36/2-1; SS229-1; NBN C 30-004 (cat. F3); NF C32-070-2.3(CR1)

**Circuit Integrity with mechanical shock**

EN 50200(PH120); CEI 20-36/4-0

**Circuit Integrity with mechanical shock & water spray**

EN 50200 annex E

**System circuit integrity**

DIN 4102-12, E30 depending on lay system

**Flame Retardance (Single Vertical Wire Test)**

EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2;  
VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1\*; DIN VDE 0482-265-2-1\*

**Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**

EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1);  
CEI 20-22/3-4; EN 50266-2-4\*; DIN VDE 0482-266-2-4

**Halogen Free**

IEC 60754-1; EN 50267-2-1; DIN VDE 0482-267-2-1; CEI 20-37/2-1 ; BS 6425-1\*

**No Corrosive Gas Emission**

IEC 60754-2; EN 50267-2-2; DIN VDE 0482-267-2-2; CEI 20-37/2-2 ; BS 6425-2\*

**Minimum Smoke Emission**

IEC 61034-1&2; EN 61034 -1&2; DIN VDE 0482-1034-1&2; CEI 20-37/3-1&2; EN 50268-1&2\*; BS 7622-1&2\*

**No Toxic gases**

NES 02-713; NF C 20-454

Note: Asterisk \* denotes superseded standard.

**VOLTAGE RATING**

300/500 V

**CABLE CONSTRUCTION**

1. Conductors: Plain annealed copper wire, solid according to IEC(EN) 60228 class 1, stranded according to IEC(EN) 60228 class 2.

2. Insulation: Mica glass fire resistant tape covered by fire resistant silicone rubber compound type EI2 as per BS 7655-1.1.

Cabling: The cores are cabled together in concentric layers with suitable non-hygroscopic fillers.

3. Overall screen: Aluminum/polyester tape with tinned copper drain wire.

Circuit Protective Conductor: Uninsulated tinned copper conductor of the same section and class as the insulated conductors in the 2-, 3- and 4-core cables. Drain wire of 0.5mm<sup>2</sup> tinned copper conductor is provided in cables of more than 4 conductors.

4. Outer Sheath: Thermoplastic LSZH compound type LTS3 as per BS 7655-6.1 (Thermosetting LSZH compound type SW2-SW4 as per BS 7655-2.6 can be offered.)

**COLOUR CODE**

Insulation Colour

2 cores blue - brown

3 cores brown - black - grey

4 cores blue - brown - black - grey

(Colour Code Up To 4 Cores In Accordance to HD 308)

7 cores centre: brown 1st layer: brown - black - 4 cores white

12 cores centre: brown - black - white 1st layer: brown - black - 7 cores white

19 cores centre: brown 1st layer: brown - black - 4 cores white

2nd layer: brown - black - 10 cores white

(on request the cores can be one colour only, identified by printed numbers)

Sheath Colour: Colour red or white (other colours on request)

**Physical AND THERMAL PROPERTIES**

Temperature range during operation (fixed state): -30°C – +90°C

Temperature range during installation (mobile state): -20°C – +50°C

Minimum bending radius: 7.5 x Overall Diameter

**Electrical PROPERTIES**

**Dielectric test:** 2000 V r.m.s. x 5' (core/core)

**Insulation resistance** ≥300 MΩ x km (at 20°C)

**Short circuit temperature** 350°C

**CONSTRUCTION PARAMETERS**

Cable Code	No. of Core X Cross Section	Nominal Thickness	Insulation	Nominal Sheath Thickness	Nominal Diameter	Overall	Approx. Weight
	mm <sup>2</sup>	mm		mm	mm		kg/km
<b>2 core,</b>							
FR200P U(PH120)	M2GSH- 2x1.0	0.6		0.9	7.9		85
FR200P U(PH120)	M2GSH- 2x1.5	0.7		0.9	8.8		105
FR200P U(PH120)	M2GSH- 2x2.5	0.8		1.0	10.2		150
FR200P R(PH120)	M2GSH- 2x1.5	0.7		0.9	9.2		110
FR200P R(PH120)	M2GSH- 2x2.5	0.8		1.0	10.3		155
FR200P R(PH120)	M2GSH- 2x4.0	0.8		1.1	12.2		220
<b>3 core</b>							
FR200P U(PH120)	M2GSH- 3x1.0	0.6		0.9	8.4		105
FR200P U(PH120)	M2GSH- 3x1.5	0.7		0.9	9.3		130
FR200P U(PH120)	M2GSH- 3x2.5	0.8		1.0	10.8		190
FR200P R(PH120)	M2GSH- 3x1.5	0.7		0.9	9.4		135
FR200P R(PH120)	M2GSH- 3x2.5	0.8		1.0	10.9		190
FR200P R(PH120)	M2GSH- 3x4.0	0.8		1.1	13.0		280
<b>4 core</b>							
FR200P U(PH120)	M2GSH- 4x1.0	0.6		1.0	9.3		125
FR200P U(PH120)	M2GSH- 4x1.5	0.7		1.0	10.3		165
FR200P U(PH120)	M2GSH- 4x2.5	0.8		1.1	12.0		240
FR200P R(PH120)	M2GSH- 4x1.5	0.7		1.0	10.5		170
FR200P R(PH120)	M2GSH- 4x2.5	0.8		1.1	12.1		250
FR200P R(PH120)	M2GSH- 4x4.0	0.8		1.2	14.4		350
<b>7 core</b>							
FR200P U(PH120)	M2GSH- 7x1.0	0.6		1.0	10.5		175
FR200P U(PH120)	M2GSH- 7x1.5	0.7		1.1	12.1		230
<b>12 core</b>							

FR200P U(PH120)	M2GSH-	12x1.0	0.6	1.1	14.5	300
FR200P U(PH120)	M2GSH-	12x1.5	0.7	1.2	16.0	380
<b>19 core</b>						
FR200P U(PH120)	M2GSH-	19x1.0	0.6	1.2	17.5	470
FR200P R(PH120)	M2GSH-	19x1.5	0.7	1.3	17.5	470

**Electrical PROPERTIES**

Conductor Operating Temperature : 90°C

Ambient Temperature : 30°C

**Current-Carrying Capacities (Amp)**

Nominal Cross Section Area	Reference Method 4 (enclosed in an conduit insulated wall etc)	Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray), or Reference Method	
	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable singlephase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable singlephase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8
mm2	A	A	A	A	A	A	A
1.5	16.5	22	19.5	24	22	26	23
2.5	22	30	26	33	30	36	32
4	30	40	35	45	40	49	42

**Voltage Drop (Per Amp Per Meter)**

Nominal Cross Section Area	2-core cable d.c.	2-core cable single- phase a.c	3-core or 4-core cable 3-phase a.c.
1	2	3	4
mm2	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	27
2.5	19	19	16
4	12	12	10