

# Fire Alarm® Control Cable – Type MC – FPLP

## Fully Plenum Rated Technical Specifications

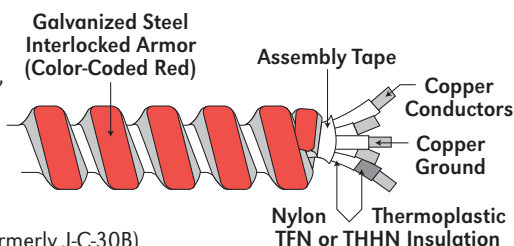


### Specification Description

Specification	Fire Alarm® Control Cable
Armor	Galvanized Interlocking Steel Strip (red-striped)
Conductors	Solid Copper
Conductor Insulation	TFN 18 & 16 AWG and/or THHN 14 & 12 AWG
Assembly	Polyester Assembly Tape; Twisted Shielded: Laminated Aluminum/Mylar® Shield with Tinned Copper drain wire
Maximum Temperature Rating	FPLP: 105°C (dry) MC: 90°C (dry)
Grounding	One or more grounding conductors may be bare or insulated green, see chart below
Neutral Conductor	White (where applicable)
Maximum Voltage Rating	300V (FPLP) 600V (MC)

### References & Ratings

- UL 66, 83, 1424, 1479, 1569, 1581, 2556, File Reference E80042
- NEC® 300.22(C), 392, 330, 430.2, 501, 502, 503, 530, 504, 505, 518, 530, 645, 725, 760, 760.154(A)
- Cable Tray Rated, install per NEC®
- Federal Specification A-A-59544 (formerly J-C-30B)
- UL Classified 1, 2, and 3 hour through (Fire) penetration product, R-14141
- NFPA 262 (formerly UL 910) Plenum Rated - Type FPLP
- Made in USA of US and/or imported materials



**For the electrical properties of Fire Alarm® Control Cable and twists per foot information, see page 35.**

### Product Codes, Trade Sizes, Conductors, Packaging & Weights

Product Code				Trade Size	Grounding Conductor AWG	Approx. Weight/1000 Feet (lbs.)	Armor Minimum O.D. (inches)
250' Coil	500' Reel	750' Reel	1000' Reel				
Solid TFN							
1801R42-00	1801R45-00	1801R47-00	1801R60-00	18-2 Solid (black, white)	18 bare	115	0.410
1803R42-00	1803R45-00	1803R47-00	1803R60-00	18-4 Solid (black, white, red, blue)	18 bare	130	0.430
1805R42-00	1805R45-00	1805R47-00	1805R60-00	18-6 Solid (black, white, red, blue, yellow, orange)	18 bare	170	0.490
1810R42-00	1810R45-00	1810R47-00	1810R60-00	16-2 Solid (black, white)	16 bare	130	0.420
1813R42-00	1813R45-00	1813R47-00	1813R60-00	16-4 Solid (black, white, red, blue)	16 bare	155	0.440
Solid THHN							
1834R42-00	1834R45-00	1834R47-00	1834R60-00	14-2 Solid (black, white)	14 (solid green)	175	0.470
1837R42-00	1837R45-00	1837R47-00	1837R60-00	14-4 Solid (black, white, red, blue)	14 (solid green)	230	0.510
1835R42-00	1835R45-00	1835R47-00	1835R60-00	12-2 Solid (black, white)	12 (solid green)	215	0.495
1840R42-00	1840R45-00	—	1840R60-00	12-4 Solid (black, white, red, blue)	12 (solid green)	295	0.565
Twisted Shielded Pairs							
1850R42-00	1850R45-00	1850R47-00	1850R60-00	18-2 Solid (1 TSP) (black, white)	†	120	0.420
1827R42-00	1827R45-00	1827R47-00	1827R60-00	18-2 Solid (1 TSP) (black, red) & 14-2 Solid (1 TSP) (black, white)	†	290	0.640
1860R42-00	1860R45-00	1860R47-00	1860R60-00	16-2 Solid (1 TSP) (black, white)	†	135	0.430
1843R42-00	1843R45-00	1843R47-00	1843R60-00	16-4 Solid (2 TSP) (black, white) (red, blue)	†	160	0.450
—	—	—	1895R60-05	16-2 Solid (1 TSP) (blue, white)	16 AWG Solid Green	—	—
1895R42-06	1895R45-06	1895R47-06	1895R60-06	16-2 Solid (1 TSP) (black, red)	16 AWG Solid Green	190	0.500
4901R42-00	4901R45-00	4901R47-00	4901R60-00	16-2 Solid (1 TSP) (black, white) & un-shielded 12-2 Solid (black, red)	12 AWG Solid Green	280	0.585
1828R42-00	1828R45-00	1828R47-00	1828R60-00	14-2 Solid (1 TSP) (black, white)	14 AWG Solid Green	170	0.470
—	—	—	1828R60-05	14-2 Solid (1 TSP) (blue, white)	14 AWG Solid Green	—	—
1881R42-00	1881R45-00	—	—	14-4 Solid (2 TSP) (black, red) (blue, white)	14 Solid Green	230	0.565
Specialty Colors							
1828R42-05	1828R45-05	1828R47-05	1828R60-05	14-2 (1 TSP) (blue/white)	14 (solid green)	175	0.470
1834R42-05	1834R45-05	1834R47-05	1834R60-05	14-2 Solid (blue, white)	14 (solid green)	175	0.470
1834R42-06	1834R45-06	1834R47-06	1834R60-06	14-2 Solid (black, red)	14 (solid green)	175	0.470
1834R42-23	1834R45-23	1834R47-23	1834R60-23	14-2 Solid (orange, yellow)	14 (solid green)	175	0.470
1834R42-37	1834R45-37	1834R47-37	1834R60-37	14-2 Solid (brown, purple)	14 (solid green)	175	0.470
1834R42-44	1834R45-44	1834R47-44	1834R60-44	14-2 Solid (gray, gray*)	14 (solid green)	175	0.470
—	1835R42-05	—	—	12-2 Solid (blue, white, green)	12(solid green)	215	0.495
—	1835R45-05	—	—	12-2 Solid (blue, white, green)	12(solid green)	215	0.495
—	—	—	1835R60-05	12-2 Solid (blue, white)	12 (solid green)	—	—
1837R42-05	1837R45-05	1837R47-05	1837R60-05	14-4 Solid (blue, blue*, white, white*)	14 (solid green)	230	0.510
1837R42-06	1837R45-06	1837R47-06	1837R60-06	14-4 Solid (black, black*, red, red*)	14 (solid green)	230	0.510
1895R42-06	1895R45-06	1895R47-06	1895R60-06	16-2 (1 TSP) (black/red)	16 (solid green)	230	0.510

NOTE: All dimensions and weights are subject to normal manufacturing tolerances.

† 18AWG Tinned copper drain wire; Metal Sheathed Type FPLP Cable

\* One conductor insulation has identifying stripe

All drain wires are 18AWG Tinned Copper

# Fire Alarm® Control Cable Performance Charts

## Electrical Properties (ohms to neutral per 1000 feet)

Conductor Size AWG	XL, Reactance <sup>1</sup>	Rac, Resistance, 75°C <sup>2</sup>	Z, Effective <sup>3</sup> Impedance
18	.047	7.77	6.24
16	.043	4.89	3.93
14	.042	3.07	2.48
12	.040	1.93	1.57

<sup>1</sup> In Steel Armor

<sup>2</sup> To correct for 90°C, multiply by 1.048

<sup>3</sup> Effective Impedance is defined as  $R \cos(\Theta) + X \sin(\Theta)$  where  $\Theta$  is the power factor angle of the circuit. Effective impedance values shown in the table above are valid at 80% power factor.

## Mutual Capacitance (pico farads per foot)

Conductor Size AWG	Twisted Pair <sup>1</sup>	Twisted Shielded Pair <sup>2</sup>
18	30.0	47.3
16	33.5	54.8
14	36.3	60.7
12	38.8	66.4

<sup>1</sup> Between conductors

<sup>2</sup> Between one conductor and the other conductor(s) plus the shield

## Inductance (L) to neutral, per 1000 feet is typically 0.0002mH for sizes 18 AWG through 250 kcmil

$$[L = 0.1404 \log_{10}(\text{GMD/GMR}) \times 10^{-3} \text{ Henrys to neutral per 1000 feet}]$$

## Twists per Foot

Size	Total Number of Conductors Including Ground	Conductor Diameter	Length of Lay	Twists per Foot
18	2	0.08	2.4	5
18	3	0.08	2.8	4.3
18	4	0.08	3.2	3.8
18	5	0.08	3.3	3.7
16	2	0.09	2.7	4.4
16	3	0.09	3.2	3.8
16	4	0.09	3.6	3.3
16	5	0.09	3.7	3.3
14	2	0.105	3.15	3.8
14	3	0.105	3.7	3.3
14	4	0.105	4.2	2.9
14	5	0.105	4.3	2.8
12	2	0.125	3.75	3.2
12	3	0.125	4.4	2.7
12	4	0.125	5.0	2.4
12	5	0.125	5.1	2.4