

# Fire Alarm® Control Cable – Type MC – Dual Rated Type MC/FPLP

## Plenum Rated Technical Specifications

### Armor

Interlocked Galvanized Steel Strip (Painted Red)

### 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)



MC CABLES

### 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, R14141
- NFPA 262 (formerly UL 910) Plenum Rated - Type FPLP
- Made in USA of US and/or imported materials

Product Code		Trade Size	Grounding Conductor AWG	Approx. Weight/ 1,000ft (lbs)	Approx. Armor O.D. (In)
250' Coil	1000' Reel				
<b>Solid TFN</b>					
1801R42-00	1801R60-00	18-2 Solid (Black, White)	18 bare	110	0.470
1803R42-00	1803R60-00	18-4 Solid (Black, White, Red, Blue)	18 bare	130	0.430
1805R42-00	1805R60-00	18-6 Solid (Black, White, Red, Blue, Yellow, Orange)	18 bare	170	0.490
1810R42-00	1810R60-00	16-2 Solid (Black, White)	16 bare	120	0.470
1813R42-00	1813R60-00	16-4 Solid (Black, White, Red, Blue)	16 bare	147	0.491
<b>Solid THHN</b>					
1834R42-00	1834R60-00	14-2 Solid (Black, White)	14 Solid (Green)	142	0.471
1837R42-00	1837R60-00	14-4 Solid (Black, White, Red, Blue)	14 Solid (Green)	192	0.529
1835R42-00	1835R60-00	12-2 Solid (Black, White)	12 Solid (Green)	177	0.514
1840R42-00	1840R60-00	12-4 Solid (Black, White, Red, Blue)	12 Solid (Green)	249	0.584
<b>Twisted Shielded Pairs</b>					
1895R42-05	1895R60-05	16-2 Solid (1 TSP) (Blue, White) †	16 Solid (Green)	147	0.526
1895R42-06	1895R60-06	16-2 Solid (1 TSP) (Black, Red) †	16 Solid (Green)	147	0.526
4901R42-00	4901R60-00	16-2 Solid (1 TSP) (Black, White) & un-shielded 12-2 Solid (Black, Red) †	12 Solid (Green)	236	0.606
1828R42-00	1828R60-00	14-2 Solid (1 TSP) (Black, White) †	14 Solid (Green)	217	0.565
1828R42-05	1828R60-05	14-2 Solid (1 TSP) (Blue, White) †	14 Solid (Green)	217	0.565
1881R42-00	1881R60-00	14-4 Solid (2 TSP) (Black, Red) (Blue, White) †	14 Solid (Green)	255	0.690
<b>Specialty Colors</b>					
1828R42-05	1828R60-05	14-2 Solid (1TSP) (Blue, White) †	14 Solid (Green)	217	0.565
1834R42-05	1834R60-05	14-2 Solid (Blue, White)	14 Solid (Green)	195	0.627
1834R42-06	1834R60-06	14-2 Solid (Black, Red)	14 Solid (Green)	195	0.627
1834R42-23	1834R60-23	14-2 Solid (Orange, Yellow)	14 Solid (Green)	195	0.627
1834R42-37	1834R60-37	14-2 Solid (Brown, Purple)	14 Solid (Green)	195	0.627
1834R42-44	1834R60-44	14-2 Solid (Gray, Gray*)	14 Solid (Green)	195	0.627
1835R42-05	1835R60-05	12-2 Solid (Blue, White)	12 Solid (Green)	177	0.514
1837R42-05	1837R60-05	14-4 Solid (Blue, Blue*, White, White*)	14 Solid (Green)	192	0.529
1837R42-06	1837R60-06	14-4 Solid (Black, Black*, Red, Red*)	14 Solid (Green)	192	0.529
1895R42-06	1895R60-06	16-2 Solid (1 TSP) (Black, Red) †	16 Solid (Green)	147	0.526

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

\* One conductor insulation has identifying stripe

† All drain wires are 18AWG Tinned Copper in TSP construction

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**For the electrical properties of Fire Alarm® Control Cable and twists per foot information, see page 30.**

# Fire Alarm® Control Cable Performance Charts



Conductor Size AWG	$X_L$ , Reactance <sup>1</sup>	$R_{ac}$ , Resistance, 75°C <sup>2</sup>	$Z$ , Effective <sup>3</sup> Impedance
<b>Electrical Properties (ohms to neutral per 1000 feet)</b>			
18	0.047	7.77	6.24
16	0.043	4.89	3.93
14	0.042	3.07	2.48
12	0.04	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.

Conductor Size AWG	Twisted Pair <sup>1</sup>	Twisted Shielded Pair <sup>2</sup>
<b>Mutual Capacitance (pico farads per foot)</b>		
18	30	47.3
16	33.5	54.8
14	36.3	60.7
12	38.8	66.4

<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.

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

$$= 0.1404 \text{ Log}_{10}(\text{GMD}/\text{GMR}) \times 10^{-3} \text{ Henrys to neutral per 1000 feet}$$

Size	Total Number of Conductors Including Ground	Conductor Diameter	Length of Lay	Twists per Foot
<b>Twists per Foot</b>				
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	2.4
12	5	0.125	5.1	2.4