



2-hour fire-rated, mineral insulated, copper-sheathed wiring cable

Mineral insulated (MI) wiring cable for critical and essential circuit protection when survival throughout a fire is essential.

Pyrotenax® System 1850™ MI cable is classified by Underwriters Laboratories as 2-hour fire resistive. When installed in accordance with Tyco Thermal Controls installation procedures, the result is a UL/ULC 2-hour fire-resistive system. This certification meets the requirements of an “Electrical Circuit Protective System” as referred to in Articles 695 and 700 of the National Electrical Code (NEC). The details of this system appear in Electrical Circuit Protective System (FHIT), System No. 10, of the UL Fire Resistance Directory.

System 1850 cables are manufactured using only inorganic materials, copper and magnesium oxide, and arrive on the job site with a UL fire-resistive classification that

does not require additional conduit or fire-proofing.

Unlike a conduit and wire system, System 1850 unjacketed single conductor cables, configured according to Section 332.80(B) of the National Electrical Code or Section 4-004(10) of the Canadian Electrical Code, do not require derating and can be installed using the “free air” ratings of Table 310.17 (NEC) or Table 1(CEC).

Applications include wiring for critical life-safety circuits in high-rise buildings, subways, tunnels, airports, and health care facilities.

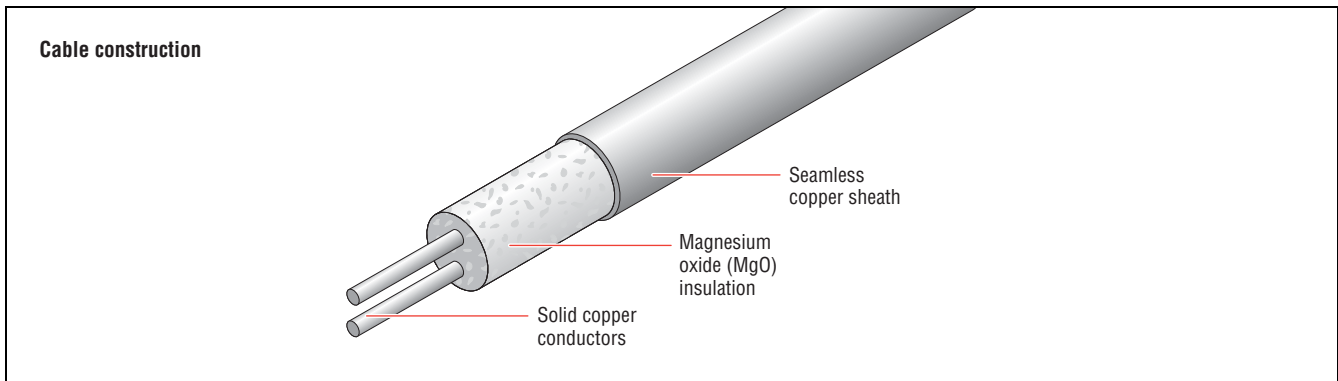
System 1850 can be found in the following environments:

- High-rise buildings – emergency feeders for fire pumps, elevators, smoke extraction and pressurization fans, fire alarm wiring, etc.

- Hospitals and other institutions where mobility is limited, to preserve power and allow time for egress.
- Historic buildings where it can be installed unobtrusively, as well as to assure preservation of fire fighting systems.
- Tunnels and subways for smoke extraction fans, where its zero smoke properties make it unique.
- Airports, stadiums, hotels, banks, etc.

System 1850 MI cable terminations are typically field installed. Factory terminated cable sets are also available in a range of sizes and lengths. For details on terminated cable sets, contact Tyco Thermal Controls.

For additional information, contact your Tyco Thermal Controls representative or call Tyco Thermal Controls at (800) 545-6258.



Cable Construction

Sheath	Seamless soft-drawn copper
Insulation	Highly compressed magnesium oxide (MgO)
Conductor type	Copper
Insulation voltage rating	600 V
Conductor size	16 AWG – 500 kcmil
Jacket (optional)	Polymer
Number of conductors	1, 2, 3, 4, or 7 standard*

* Contact Tyco Thermal Controls for custom configurations.

Cable Temperature Rating

Continuous exposure temperature	250°C (482°F); 90°C (194°F) with optional jacket
Maximum exposure temperature	1010°C (1850°F)

Bending Radius

	NEC	CEC
Cables ≤ 3/4" diameter	5 times cable diameter	6 times cable diameter
Cables > 3/4" diameter	10 times cable diameter	12 times cable diameter

Termination Kits

	QuickTerm™ kit	Pyropak® kit	Pyropak® kit
Seal type	Self-amalgamating tape	Mastic compound	Epoxy resin
Gland fitting	Brass	Brass	Brass
Cable seal rating	Nonhazardous locations: 90°C (194°F) maximum	Nonhazardous locations: 105°C (221°F) maximum Hazardous locations: see approvals	Nonhazardous locations: 200°C (392°F) maximum Hazardous locations: see approvals
Cable configurations	For #6 AWG and larger single conductor cables	For all single and multiconductor cables	For all single and multiconductor cables
Tail sleeving			
Standard sleeve length	–	12 in (300 mm) or 36 in (900 mm)*	12 in (300 mm) or 36 in (900 mm)*
Maximum exposure temperature	–	105°C (221°F)	105°C (221°F)**
Tail AWG size	Refer to product installation instructions	16 AWG – 500 kcmil solid	16 AWG – 500 kcmil solid

* If longer tail lengths are required, contact Tyco Thermal Controls.

** If higher temperature ratings are required, contact Tyco Thermal Controls for details.

Notes:

- For field-terminated cables, tails are obtained by stripping back the cable sheath; refer to the product installation instructions for details.
- For factory-terminated cables, an epoxy resin seal and 12 in (300 mm) tails are standard.

600 V Wiring Cable Specifications

AWG	Current rating NEC (75°C/90°C)	Current rating CEC (75°C/90°C)	Cable reference no.	Nominal coil length (ft / (m))**	Nominal weight (lb/1000 ft / (kg/km))	NPT gland size (in)	Conductor resistance (ohms/1000 ft)
Single conductor							
16	-/24	-/-	1/16-215	3086 / (941)	84 / (125)	1/2	4.09
14	30/35	20/20	1/14-230	2708 / (825)	98 / (146)	1/2	2.58
12	35/40	25/25	1/12-246	2384 / (727)	117 / (174)	1/2	1.62
10	50/55	40/40	1/10-277	1742 (531)	154 / (230)	1/2	1.02
8	70/80	65/70	1/8-298	1519 / (463)	179 / (267)	1/2	0.641
6	95/105	95/100	1/6-340	1178 / (359)	236 / (352)	1/2	0.403
4	125/140	125/135	1/4-402	818 / (249)	332 / (495)	1/2	0.253
3	145/165	145/155	1/3-449	667 / (203)	409 / (610)	3/4	0.201
2	170/190	170/180	1/2-449	656 / (200)	444 / (662)	3/4	0.159
1	195/220	195/210	1/1-496	546 / (166)	492 / (734)	3/4	0.126
1/0	230/260	230/245	1/1/0-512	500 / (152)	601 / (896)	3/4	0.100
2/0	265/300	265/285	1/2/0-580	390 / (119)	771 / (1150)	3/4	0.079
3/0	310/350	310/330	1/3/0-621	552 / (168)	939 / (1400)	3/4	0.063
4/0	360/405	360/385	1/4/0-684	455 / (139)	1128 / (1682)	1	0.050
250 kcmil	405/455	405/425	1/250-746	383 / (117)	1341 / (2000)	1-1/4	0.042
350 kcmil	505/570	505/530	1/350-834	285 / (89)	1675 / (2498)	1-1/4	0.030
500 kcmil	620/700	620/660	1/500-1000	199 / (61)	2403 / (3584)	1-1/4	0.021

600 V Wiring Cable Specifications (Continued)

AWG	Current rating NEC (75°C/90°C)	Current rating CEC (75°C/90°C)	Cable reference no.	Nominal coil length (ft / (m))**	Nominal weight (lb/1000 ft / (kg/km))	NPT gland size (in)	Conductor resistance (ohms/1000 ft)
Two conductor							
16	-/18	-/-	2/16-340	1096 / (334)	189 / (282)	1/2	4.09
14	20/25	15/15	2/14-371	956 / (291)	236 / (352)	1/2	2.58
12	25/30	20/20	2/12-402	788 / (240)	275 / (410)	1/2	1.62
10	35/40	30/30	2/10-449	635 / (194)	353 / (526)	3/4	1.02
8	50/55	45/45	2/8-512	475 / (145)	473 / (705)	3/4	0.641
6	65/75	65/65	2/6-590	360 / (110)	663 / (989)	3/4	0.403
4	85/95	85/85	2/4-684	407 / (124)	877 / (1308)	1	0.253
3	100/110	100/105	2/3-768	323 / (98)	1067 / (1591)	1-1/4	0.201
2	115/130	115/120	2/2-865	255 / (78)	1353 / (2018)	1-1/4	0.159
1	130/150	130/140	2/1-975	201 / (61)	1717 / (2561)	1-1/4	0.126
Three conductor							
16	-/18	-/-	3/16-355	1008 / (307)	210 / (313)	1/2	4.09
14	20/25	15/15	3/14-387	851 / (259)	257 / (383)	1/2	2.58
12	25/30	20/20	3/12-480	554 / (169)	395 / (589)	3/4	1.62
10	35/40	30/30	3/10-480	559 / (170)	419 / (625)	3/4	1.02
8	50/55	45/45	3/8-590	370 / (113)	633 / (944)	3/4	0.641
6	65/75	65/65	3/6-621	329 / (100)	738 / (1101)	3/4	0.403
4	85/95	85/85	3/4-746	227 / (69)	1065 / (1588)	1-1/4	0.253
3	100/110	100/105	3/3-834	182 / (55)	1334 / (1989)	1-1/4	0.201
Four conductor							
16	-/18 (14)*	-/-	4/16-387	851 / (259)	254 / (379)	1/2	4.09
14	20 (16)/25 (20)*	15 (12)/15 (12)*	4/14-465	589 / (180)	366 / (546)	3/4	2.58
12	25 (20)/30 (24)*	20 (16)/20 (16)*	4/12-465	575 / (175)	376 / (561)	3/4	1.62
10	35 (28)/40 (32)*	30 (24)/30 (24)*	4/10-590	357 / (109)	606 / (904)	3/4	1.02
8	50 (40)/55 (44)*	45 (36)/45 (36)*	4/8-590	363 / (111)	658 / (981)	3/4	0.641
6	65 (52)/75 (60)*	65 (52)/65 (52)*	4/6-730	237 / (72)	1008 / (1503)	1-1/4	0.403
Seven conductor							
16	-/14 (13)*	-/-	7/16-449	613 / (187)	338 / (504)	3/4	4.09
14	16 (14)/20 (18)*	12 (11)/12 (11)*	7/14-496	505 / (154)	428 / (638)	3/4	2.58
12	20 (18)/24 (21)*	16 (14)/16 (14)*	7/12-543	424 / (129)	528 / (787)	3/4	1.62
10	28 (25)/32 (28)*	24 (21)/24 (21)*	7/10-621	327 / (100)	716 / (1068)	1	1.02
8	40 (35)/44 (39)*	36 (32)/36 (32)*	7/8-710	252 / (77)	982 / (1464)	1-1/4	0.641

* On 4 and 7 conductor cable, the higher ampacity applies if one conductor is used as a neutral.

** If longer lengths are required, contact Tyco Thermal Controls.

Note:

- To obtain cable diameter: use last three or four digits in the cable reference number and move decimal point three places to the left; result is cable diameter in inches. Example: cable reference 4/10-590 is 0.590" diameter; cable reference 1/500-1000 is 1.000" diameter.
- For cable sizes up to 3/4" in diameter, add suffix "H" for HDPE jacket or "V" for PVC jacket after cable reference number. Example: cable reference 1/1-496H would be supplied with an HDPE jacket over the copper sheath. Optional jacket is not available for cables greater than 3/4" in diameter.

Approvals

BULK CABLE



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D
Class II, Div. 1 and 2, Groups E, F, G
Class III



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D
Class II, Div. 1 and 2, Groups E, F, G
Class III



Specification Tested

FM Specification Tested 2-hour fire-resistive cable



UL Classified, 2-hour fire-resistive cable,
tested to UL 2196



ULC Listed, 2-hour fire-resistant cable,
tested to ULC-S139-00

TERMINATED CABLE

QUICKTERM KIT



Nonhazardous Locations

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PYROPAK KIT (MASTIC COMPOUND SEAL)



Nonhazardous Locations

Hazardous Locations

Class I, Div. 2, Group D
Class II, Div. 1 and 2, Groups F, G
Class III

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PYROPAK KIT (EPOXY RESIN SEAL)



Nonhazardous Locations

Hazardous Locations

Class I, Div. 1 and 2, Groups A, B, C, D
Class II, Div. 1 and 2, Groups E, F, G
Class III

Note: Overall approval of the terminated cable depends on the termination kit used.

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