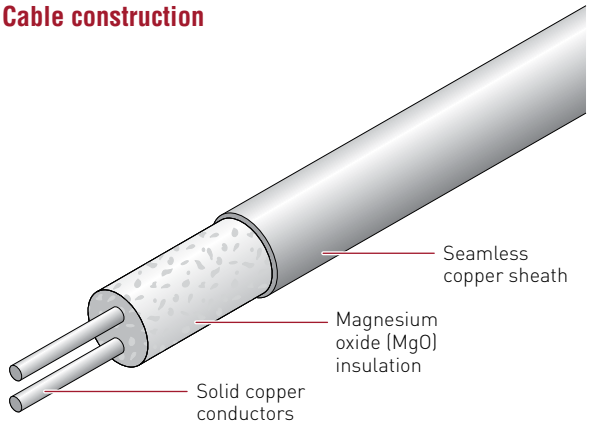
PYROTENAX SYSTEM 1850

2-HOUR FIRE-RATED, MINERAL INSULATED COPPER SHEATHED WIRING CABLE

For critical and essential circuit protection during a fire

Cable construction



PRODUCT OVERVIEW

Pyrotenax System 1850 MI cable is a UL Classified/ ULC Listed 2-hour fire-resistive cable tested to the UL 2196/ ULC-S139 fire test standards. When installed in accordance with Thermal Building Solutions 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 Integrity System (FHIT and FHITC), System No. 1850, of the UL and ULC 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 fireproofing.

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 310.15(B)(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 Thermal Building Solutions.

For additional information, contact your Thermal Building Solutions representative or call (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)	Low-smoke, zero halogen polyolefin - refer to System 1850Z DataSheet H59153
Number of conductors	1, 2, 3, 4, or 7 standard[1]

[1] Contact Thermal Building Solutions for custom configurations.

CABLE TEMPERATURE RATING

Continuous exposure temperature	250°C (482°F)
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 and hazardous locations: 105°C (221°F) maximum	Nonhazardous and hazardous locations: 120°C (248°F) maximum[2] Optional epoxy resin available for 200°C (392°F)[2]
Cable configurations	For #6 AWG and larger single conductor cables	For all single and multiconductor cables	For all single and multiconductor cables
Tail sleeving (PVC)			
Standard sleeve length	–	12 in (300 mm) or 36 in (900 mm)[3]	12 in (300 mm) or 36 in (900 mm)[3]
Maximum exposure temperature	–	105°C (221°F)	105°C (221°F)[2]
Tail AWG size	Refer to product installation instructions	16 AWG – 500 kcmil solid	16 AWG – 500 kcmil solid

[2] For entire termination to achieve maximum temperature of epoxy resin seal, silicone fiberglass sleeving must be used (refer to Termination Kits data sheet).

[3] If longer tail lengths are required, contact Thermal Building Solutions.

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, epoxy resin seal and 12 in (300 mm) PVC insulated tails are standard.

600 V WIRING CABLE SPECIFICATIONS

Cable reference number	Conductor size (AWG)	Allowable ampacity NEC 75°C/90°C (A)	Allowable ampacity CEC 75°C/90°C (A)	Nominal coil length[4] [ft / (m)]	Nominal weight [lb/1000 ft / (kg/km)]	NPT gland size (in)
Single conductor						
1/10-277	10[5]	50 / 55	50 / 55	1742 / (531)	154 / (229)	1/2
1/8-298	8	70 / 80	70 / 80	1522 / (464)	179 / (266)	1/2
1/6-340	6	95 / 105	95 / 105	1178 / (359)	236 / (351)	1/2
1/4-402	4	125 / 140	125 / 140	818 / (249)	332 / (494)	1/2
1/3-449	3	145 / 165	145 / 165	667 / (203)	409 / (609)	3/4
1/2-449	2	170 / 190	170 / 190	667 / (203)	444 / (661)	3/4
1/1-496	1	195 / 220	195 / 220	546 / (166)	492 / (732)	3/4
1/1/0-512	1/0	230 / 260	230 / 260	496 / (151)	601 / (896)	3/4
1/2/0-580	2/0	265 / 300	265 / 300	387 / (118)	771 / (1150)	3/4
1/3/0-621	3/0	310 / 350	310 / 350	553 / (168)	939 / (1400)	3/4
1/4/0-684	4/0	360 / 405	360 / 405	455 / (139)	1128 / (1682)	1
1/250-746	250 kcmil	405 / 455	405 / 455	383 / (117)	1341 / (2000)	1-1/4
1/350-834	350 kcmil	505 / 570	505 / 570	284 / (86)	1675 / (2498)	1-1/4
1/500-1000	500 kcmil	620 / 700	620 / 700	197 / (60)	2403 / (3584)	1-1/4
Two conductor						
2/16-340	16	– / 18	– / –	1095 / (334)	189 / (281)	1/2
2/14-371	14[5]	20 / 25	20 / 25	957 / (292)	236 / (351)	1/2
2/12-402	12[5]	25 / 30	25 / 30	788 / (240)	275 / (409)	1/2
2/10-449	10[5]	35 / 40	35 / 40	635 / (194)	353 / (525)	3/4
Three conductor						
3/16-355	16	– / 18	– / –	1009 / (307)	210 / (312)	1/2
3/14-387	14[5]	20 / 25	20 / 25	852 / (260)	257 / (382)	1/2
3/12-480	12[5]	25 / 30	25 / 30	554 / (169)	395 / (588)	3/4
3/10-480	10[5]	35 / 40	35 / 40	560 / (171)	419 / (623)	3/4
3/8-590	8	50 / 55	50 / 55	371 / (113)	637 / (948)	3/4
3/6-621	6	65 / 75	65 / 75	325 / (99)	738 / (1098)	3/4
3/4-746	4	85 / 95	85 / 95	225 / (69)	1079 / (1606)	1-1/4
3/3-834	3	100 / 115	100 / 115	180 / (55)	1339 / (1993)	1-1/4

600 V WIRING CABLE SPECIFICATIONS

Cable reference number	Conductor size (AWG)	Allowable ampacity NEC 75°C/90°C (A)	Allowable ampacity CEC 75°C/90°C (A)	Nominal coil length[4] [ft / (m)]	Nominal weight [lb/1000 ft / (kg/km)]	NPT gland size (in)
Four conductor						
4/16-387	16	– / 18 (14)[6]	– / –	851 / (259)	254 / (378)	1/2
4/14-465	14[5]	20 (16) / 25 (20)[6]	20 (16) / 25 (20)[6]	589 / (180)	366 / (545)	3/4
4/12-465	12[5]	25 (20) / 30 (24)[6]	25 (20) / 30 (24)[6]	568 / (173)	376 / (559)	3/4
4/10-590	10[5]	35 (28) / 40 (32)[6]	35 (28) / 40 (32)[6]	353 / (108)	606 / (902)	3/4
4/8-590	8	50 (40) / 55 (44)[6]	50 (40) / 55 (44)[6]	358 / (109)	658 / (979)	3/4
4/6-730	6	65 (52) / 75 (60)[6]	65 (52) / 75 (60)[6]	234 / (71)	1008/ (1500)	1-1/4
Seven conductor						
7/16-449	16	– / 14 (13)[6]	– / –	605 / (184)	338 / (503)	3/4
7/14-496	14[5]	16 (14) / 20 (18)[6]	16 (14) / 20 (18)[6]	499 / (152)	428 / (637)	3/4
7/12-543	12[5]	20 (18) / 24 (21)[6]	20 (18) / 24 (21)[6]	419 / (128)	528 / (786)	3/4
7/10-621	10[5]	28 (25) / 32 (28)[6]	28 (25) / 32 (28)[6]	335 / (102)	716 / (1065)	1

[4] If longer lengths are required, contact Thermal Building Solutions.

[5] For 14 AWG, 12 AWG and 10 AWG, refer to appropriate sections of NEC and CEC governing conductor overcurrent protection limitations.

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

Notes:

- 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.

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

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

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

TERMINATED CABLE

QUICKTERM KIT

Nonhazardous Locations

PYROPAK KIT (MASTIC COMPOUND 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

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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