110 V Flexible Underground Mine Lighting Cable (XL-Polyolefin / TPU)

110 V Flexible Underground Mine Lighting Cable is purpose-built for permissible 110 V / 120 V underground machine lighting harnesses (continuous miners, roof bolters, loading machines, longwall chock luminaires) as well as suspended tunnel, shaft-station, and belt-transfer point lighting strings. Its chemically cross-linked flame-retardant polyolefin insulation and extra-tough thermoplastic polyurethane (TPU) outer jacket resist rock-fall impact, coal abrasion, hydraulic emulsion, and repeated flexing through luminaire packing glands.

1. CABLE CONSTRUCTION

1. Lighting Conductors (2–9×)	Extra-flexible bunch-stranded annealed copper conductors manufactured to ASTM B-174 in 18 AWG, 16 AWG, 14 AWG, 12 AWG, and 10 AWG.
2. XL-FR Polyolefin Insulation	Chemically cross-linked, non-chlorinated thermosetting flame-retardant polyolefin rated +90°C continuous for superior thermal and pinch stability.
3. Round Cabled Assembly	2 to 9 color-coded conductors cabled into a concentric round profile with central filler (where needed) and low-friction separator tape for clean stripping.
4. Optional Copper Braid Shield	Full-coverage flexible copper wire braid shield available upon request for enhanced crush/cut protection or grounded metallic screen requirements.
5. Extra-Tough TPU Outer Jacket	Heavy-duty abrasion-, oil-, moisture-, and tear-resistant Thermoplastic Polyurethane (TPU) outer sheath in Black (standard) or Safety Orange (optional).

Cross-Section Reference

110V Underground Mine Lighting Cable cutaway (5-conductor example): ASTM B-174 flexible copper cores, cross-linked FR polyolefin insulation, binder tape (optional Cu braid), and black TPU jacket.

2. ELECTRICAL & MECHANICAL CHARACTERISTICS

Rated Voltage	110 V AC / DC underground mine lighting systems and machine luminaire circuits
Conductor Counts & Sizes	2 to 9 conductors across 18 AWG, 16 AWG, 14 AWG, 12 AWG, and 10 AWG (40 standard constructions)
Temperature Rating	+90°C maximum continuous conductor operating temperature
Conductor Standard	ASTM B-174 extra-flexible stranded copper
Shielding & Jacket Options	Unshielded standard or full copper braid on request | Black TPU standard; Orange TPU optional
Outside Diameter Tolerance	±5% of nominal outside diameter for reliable luminaire gland sealing

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3. DIMENSIONAL, GROUNDING & AMPACITY SPECIFICATIONS

Table 1: 18 AWG (0.82 mm²) & 16 AWG (1.31 mm²) — 110 V Underground Lighting Cable (2 to 9 Conductors)

Construction	Core Area (mm²)	Conductors	Insulated Core OD (in / mm)	Nominal Cable OD (in / mm)	Approx. Weight (lb/kft / kg/km)
2 × 18 AWG	0.82	2	0.115 / 2.9	0.440 / 11.2	87 / 129
3 × 18 AWG	0.82	3	0.115 / 2.9	0.460 / 11.7	100 / 149
4 × 18 AWG	0.82	4	0.115 / 2.9	0.488 / 12.4	116 / 173
5 × 18 AWG	0.82	5	0.115 / 2.9	0.520 / 13.2	135 / 201
6 × 18 AWG	0.82	6	0.115 / 2.9	0.560 / 14.2	156 / 232
7 × 18 AWG	0.82	7	0.115 / 2.9	0.560 / 14.2	163 / 243
8 × 18 AWG	0.82	8	0.115 / 2.9	0.640 / 16.3	198 / 295
9 × 18 AWG	0.82	9	0.115 / 2.9	0.660 / 16.8	215 / 320
2 × 16 AWG	1.31	2	0.125 / 3.2	0.460 / 11.7	106 / 158
3 × 16 AWG	1.31	3	0.125 / 3.2	0.480 / 12.2	114 / 170
4 × 16 AWG	1.31	4	0.125 / 3.2	0.512 / 13.0	134 / 199
5 × 16 AWG	1.31	5	0.125 / 3.2	0.550 / 14.0	158 / 235
6 × 16 AWG	1.31	6	0.125 / 3.2	0.590 / 15.0	183 / 272
7 × 16 AWG	1.31	7	0.125 / 3.2	0.590 / 15.0	191 / 284
8 × 16 AWG	1.31	8	0.125 / 3.2	0.670 / 17.0	225 / 335
9 × 16 AWG	1.31	9	0.125 / 3.2	0.690 / 17.5	247 / 368

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Table 2: 14 AWG (2.08 mm²) & 12 AWG (3.31 mm²) — 110 V Underground Lighting Cable (2 to 9 Conductors)

Construction	Core Area (mm²)	Conductors	Insulated Core OD (in / mm)	Nominal Cable OD (in / mm)	Approx. Weight (lb/kft / kg/km)
2 × 14 AWG	2.08	2	0.140 / 3.6	0.490 / 12.4	119 / 177
3 × 14 AWG	2.08	3	0.140 / 3.6	0.510 / 13.0	138 / 205
4 × 14 AWG	2.08	4	0.140 / 3.6	0.550 / 14.0	166 / 247
5 × 14 AWG	2.08	5	0.140 / 3.6	0.588 / 14.9	195 / 290
6 × 14 AWG	2.08	6	0.140 / 3.6	0.630 / 16.0	225 / 335
7 × 14 AWG	2.08	7	0.140 / 3.6	0.630 / 16.0	238 / 354
8 × 14 AWG	2.08	8	0.140 / 3.6	0.720 / 18.3	278 / 414
9 × 14 AWG	2.08	9	0.140 / 3.6	0.755 / 19.2	302 / 449
2 × 12 AWG	3.31	2	0.160 / 4.1	0.526 / 13.4	148 / 220
3 × 12 AWG	3.31	3	0.160 / 4.1	0.555 / 14.1	177 / 263
4 × 12 AWG	3.31	4	0.160 / 4.1	0.596 / 15.1	213 / 317
5 × 12 AWG	3.31	5	0.160 / 4.1	0.642 / 16.3	254 / 378
6 × 12 AWG	3.31	6	0.160 / 4.1	0.690 / 17.5	297 / 442
7 × 12 AWG	3.31	7	0.160 / 4.1	0.690 / 17.5	316 / 470
8 × 12 AWG	3.31	8	0.160 / 4.1	0.770 / 19.6	388 / 577
9 × 12 AWG	3.31	9	0.160 / 4.1	0.815 / 20.7	426 / 634

Table 3: 10 AWG (5.26 mm²) Long-Run Trunk Lighting Series — 110 V Underground Lighting Cable (2 to 9 Conductors)

Construction	Core Area (mm²)	Conductors	Insulated Core OD (in / mm)	Nominal Cable OD (in / mm)	Approx. Weight (lb/kft / kg/km)
2 × 10 AWG	5.26	2	0.180 / 4.6	0.570 / 14.5	186 / 277
3 × 10 AWG	5.26	3	0.180 / 4.6	0.598 / 15.2	226 / 336
4 × 10 AWG	5.26	4	0.180 / 4.6	0.645 / 16.4	276 / 411
5 × 10 AWG	5.26	5	0.180 / 4.6	0.698 / 17.7	331 / 493
6 × 10 AWG	5.26	6	0.180 / 4.6	0.750 / 19.0	401 / 597
7 × 10 AWG	5.26	7	0.180 / 4.6	0.750 / 19.0	462 / 688
8 × 10 AWG	5.26	8	0.180 / 4.6	0.835 / 21.2	519 / 772
9 × 10 AWG	5.26	9	0.180 / 4.6	0.875 / 22.2	626 / 932

Voltage-Drop & Gland Sizing Tip: Use 18–14 AWG for machine-mounted luminaire whips and short longwall chock jumpers; step up to 12 AWG or 10 AWG on extended underground belt-entry and drift lighting runs to keep 110 V line drop under 3%. All diameters hold ±5% tolerance.

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