Type LLT Long Line Self–Regulating Heater

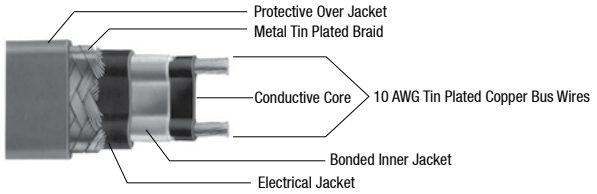
For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

UL:
Ordinary (Unclassified) Locations

CSA:
-J option: Class I, Division 2, Groups A, B, C, D
Class I, Zone 1
Group IIC

Description

- Nelson Type LLT heater cable is parallel, self regulating with a radiation cross-linked conductive heating core extruded continuously over two parallel 10-gauge bus wires.
- A primary dielectric jacket is thermally bonded to the heating core to prevent moisture penetration and a secondary dielectric jacket is extruded over the first.
- Heater construction includes a tinned copper braid and an over jacket.



Operating Principle

- The heating core varies power output inversely with temperature at every point along the heater length, reducing any heat build up at portions of the piping system.
- This feature also permits the heater to be overlapped without creating hot spots.
- Reduced power output at higher pipe temperatures reduces energy consumption.
- Parallel construction permits the heater to be cut to length at any point without changing rated power output.

Application

- Nelson Type LLT self-regulating heater cable is ideal for use in maintaining fluid flow under low ambient conditions.
- Freeze protection and low watt density process temperature systems that require extended continuous circuit lengths.

Standard Materials

- Tinned Copper Braid and Fluoropolymer Over Jacket, Suffix **-J**

Accessories

- Nelson AX-LLT, EX-LLT and HEC-LLT Series Connection Kits for Power, Splice and End Termination
- Nelson TA, TH, TE and HC Series Thermostatic Controls
- Junction Boxes, Tapes and Warning Signs
- Custom Control, Monitoring and Power Panels

Certifications and Compliances

- UL Listed: E53501
- CSA Standard: C22.2 No. 130-16
- CSA Certified: LR42103, LR42104
- Other Standards: IEEE 515-2011, IEEE 515.1-2012

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Performance Rating

Service Voltage	Maximum Maintenance Temperature °C (°F)	Maximum Intermittent Exposure °C (°F)	T–Rating ①	Watts/m (Watts/ft)
240	65 (150)	85 (185)	T5	23 (7)
240	65 (150)	85 (185)	T5	33 (10)

Circuit Breaker Selection

Watts/m (Watts/ft)	Start–Up Temp. °C (°F)	Maximum Length in Meters (Feet) Vs. Circuit Breaker Size 240 Vac 15A	20A	30A	40A	50A	60A	70A
23 (7)	10 (50)	105 (340)	140 (455)	205 (680)	275 (905)	320 (1045)	320 (1045)	320 (1045)
	-18 (0)	75 (245)	100 (330)	150 (495)	200 (660)	250 (825)	300 (990)	320 (1045)
	-29 (-20)	70 (225)	90 (295)	135 (445)	180 (595)	225 (740)	270 (890)	320 (1045)
	-40 (-40)	65 (205)	80 (270)	125 (405)	165 (540)	205 (675)	245 (810)	290 (945)
33 (10)	10 (50)	75 (250)	100 (335)	150 (500)	205 (670)	250 (815)	250 (815)	250 (815)
	-18 (0)	55 (185)	75 (245)	110 (365)	150 (490)	185 (610)	225 (735)	250 (815)
	-29 (-20)	50 (165)	65 (220)	100 (330)	135 (440)	170 (550)	200 (660)	235 (770)
	-40 (-40)	45 (150)	60 (200)	90 (300)	120 (400)	150 (500)	185 (605)	215 (700)

① Electrical equipment T rating codes define the maximum surface temperature that equipment will reach. It is used in hazardous (classified) area applications.

Notes

1. *Circuit breakers are sized per national electrical codes and are based on start-up temperatures between -40°F (-40°C) and 50°F (10°C).*
2. *When using 240 volt product at 208, 220 or 277 volts, use the circuit adjustment factors shown in the Voltage Adjustment Table.*
3. *When using 2 or more heater cables of different wattage ratings in parallel on a single circuit breaker, use the 15A column amperage of 15 amps, divide it by the maximum footage to arrive at an amps/foot figure for each cable. You can then calculate circuit breaker sizes for these combination loads. These amps/foot factors include the 125% sizing factor.*
4. *National electrical codes require ground-fault equipment protection for each branch circuit supplying electric heating equipment. Exceptions to this requirement can be found in the NFPA 70, National Electrical Code.*

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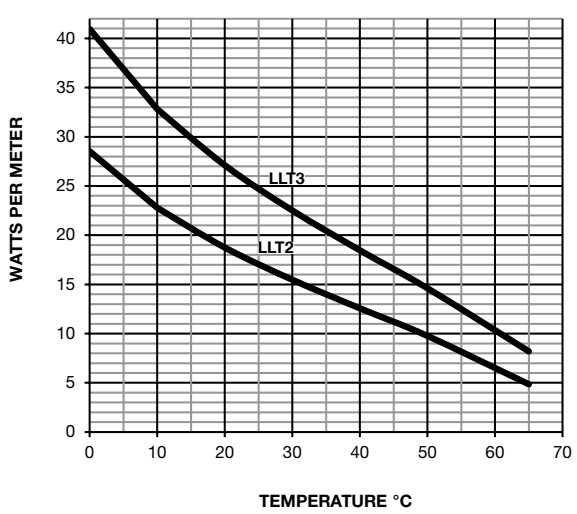
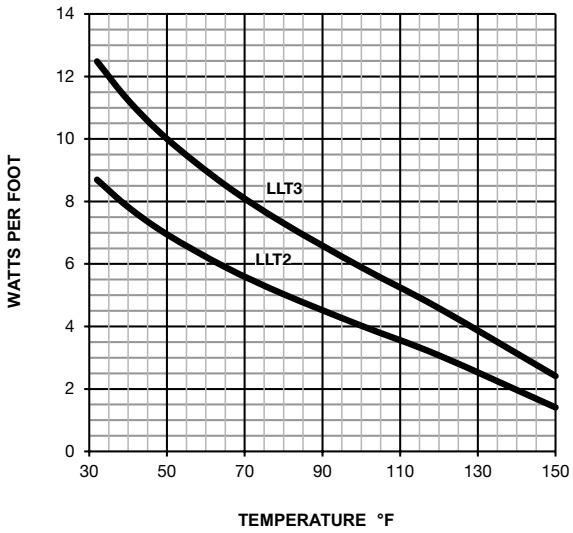
Power Output Rating





Selection Table

Service Voltage	Maximum Segment Length Meters (Ft)	Description	Catalog Number
240	320 (1045)	Tinned Copper Braid and Fluoropolymer	**LLT2-J**
240	250 (815)		**LLT3-J**

Voltage Adjustment ①

Absolute Max Length Meters (Feet)	Adjustment Multiplier 208 Vac Power	220 Vac Power	277 Vac Power	Product
320 (1045)	0.87	0.92	1.13	LLT2
250 (815)	0.89	0.93	1.08	LLT3

① *Use of self-regulating heater products at other than rated voltages require minor adjustments in power and maximum circuit lengths.*