

QLT210-J

QLT215-J

QLT220-J

## Description

Nelson's Self-Regulating Heater Cable Type QLT is a parallel circuit electric heater strip. A conductive fluoropolymer core material is extruded over the multi-stranded, nickel-plated, 16 gauge copper bus wires. A fluoropolymer jacket provides excellent dielectric strength, moisture resistance, protection from impact and abrasion damage, and a wide range of chemical resistance. A stranded tinned copper metal braid and fluoropolymer overjacket is supplied on all heaters.

## Operating Principle

The parallel bus wires apply voltage along the entire length of the heater cable. The conductive core provides a continuous parallel heating element permitting the cable to be cut to any length in the field with no dead or cold zones developing. The heater cable derives its self regulating characteristic from the inherent properties of the conductive core material. As the core material temperature increases, the number of conductive paths in the core material decreases, automatically decreasing the heat output. As the temperature decreases, the number of conductive paths increases, causing the heat output to increase. This occurs at every point along the length of the cable, adjusting the power output to the varying conditions along the pipe. The self regulating effect allows the cable to be overlapped without creating hot spots or burnout. As the cable self regulates its heat output, it limits the maximum sheath temperature, while also providing useful power for process temperature maintenance.

## Applications

Nelson's Type QLT self-regulating heater cable is ideal for maintaining fluid flow over a wide range of operating temperatures. The product is used for freeze protection and process temperature maintenance of metallic pipes and vessels. Typical applications include hydrocarbon and chemical product piping systems. The standard cable is supplied with a tinned copper metal braid and a fluoropolymer overjacket suitable for exposure to excessive moisture, organic chemicals, solvents, etc. in Zone 1 and Zone 2 hazardous areas and in ordinary areas.

### Specifications

Maintain Temperature	120°C
Maximum Continuous Exposure Temperature	120°C (continuous power on)
Maximum Intermittent Exposure Temperature	120°C (1000 hours cumulative exposure)
Temperature Classification (T Code)	T3 (200°C) as per IEC 60079 standards
Bus Wire Size	1.22 mm <sup>2</sup> Copper Conductors
Tinned Copper Braid Resistance	Maximum 0.015 Ω/m
Product Dimensions (Nominal)	5.1mm x 10.5mm
Product Weight	112.0 g/m
Minimum Installation Temperature	-40°C
Minimum Bend Radius	25 mm at -40°C

### Performance and Rating Data

Catalog Number	Service Voltage	Maximum Segment Length	Maximum Maintenance Temperature	Maximum Intermittent Exposure	T-Rating*
QLT210	230	115	120°C	120°C	T3
QLT215	230	95	120°C	120°C	T3
QLT220	230	75	120°C	120°C	T3

\*Electrical equipment T rating codes define the maximum surface temperature that equipment will reach. It is intended for applications in potentially explosive atmospheres – Directive 94/9/EC.

### Circuit Breaker Selection

Total Heater Length in Meters <sup>2</sup> Vs. Circuit Breaker Size						
230 Volt						
Watts/M	Start-up Temp.	16A	20A	25A	32A	40A
32	+10°C	99	124	155	199	249
	-5°C	93	116	145	185	231
	-20°C	87	108	135	173	217
	-30°C	83	104	130	166	208
46	+10°C	70	87	109	139	174
	-5°C	65	81	102	130	163
	-20°C	61	77	96	123	153
	-30°C	59	74	92	118	147
63	+10°C	53	66	83	106	133
	-5°C	51	63	79	101	126
	-20°C	48	60	75	96	120
	-30°C	47	58	73	93	117

#### Notes:

1. The circuit length values shown above are for estimation only.
2. Total Heater Length is the total length of heater cable that can be installed on a breaker without tripping either under start-up or operating conditions. Values may indicate that multiple heater segments must be installed on the breaker with none of the segments exceeding the Maximum Segment Lengths as shown in the Performance and Rating table.
3. For detailed information on maximum circuit lengths or additional voltages, refer to Nelson Heat Tracing Systems Selection software or contact your local Nelson representative for assistance.

**NELSON**  
**HEAT TRACE**

(800) 331-7325

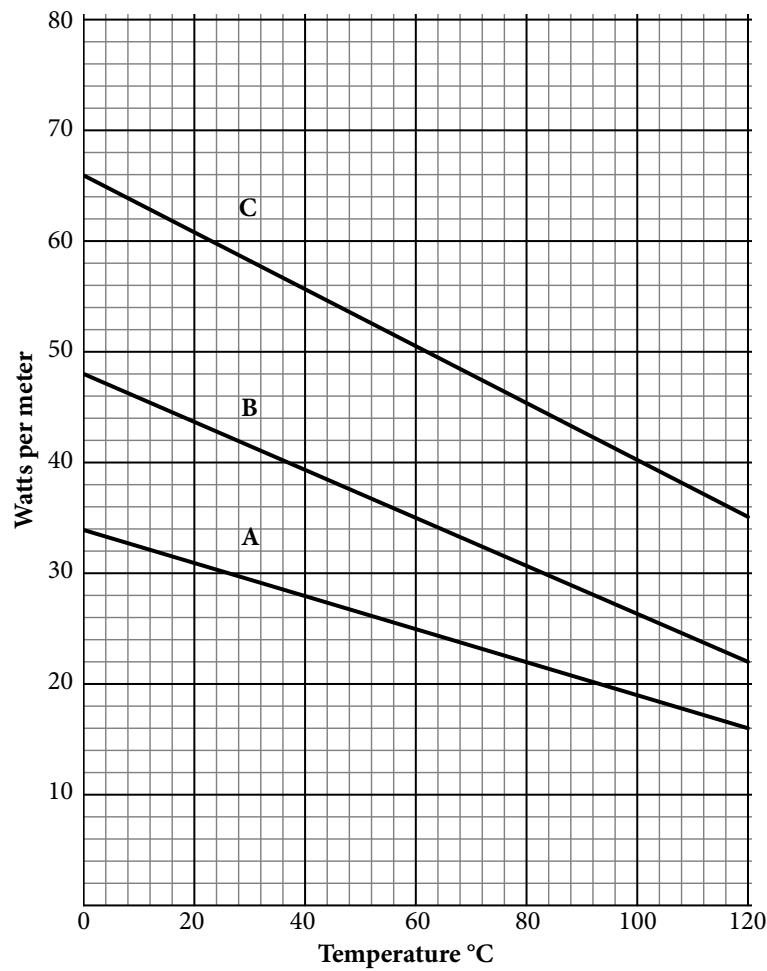
©2013 Nelson Heat Tracing Systems

www.nelsonheaters.com

  
**EMERSON**  
Industrial Automation

314-SA-012 Page 2

Power Output Rating - Power output on insulated metallic pipe at 230Vac



A	B	C
QLT210-J	QLT215-J	QLT220-J
Power Output (watts per meter at 10°C)		
32	46	63

## Approvals

---

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

ATEX: EN 60079-0:2009, EN 60079-30-1:2007

IECEX: IEC 60079-0:2004, IEC 60079-30-1:2005



KEMA 07ATEX0124



**KEM 07.0041**

Ex e II T3 for QLT Series

Ex tD A21 IP66 T195°C for QLT Series

$-40^{\circ}\text{C} \leq T_{\text{amb}} \leq 55^{\circ}\text{C}$

## Accessories

---

- Connection Kits for Power Connection, Splices and End Seals (Nelson Z1-PLT Series, Z1-ALT Series, and Component Series)
- Thermostatic Controls (Nelson TA and TH Series)
- Enclosures, Tapes and Warning Signs

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at [www.nelsonheaters.com](http://www.nelsonheaters.com).