The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

Nector M IDC, Nector M connectors – Long-term Test

1. TEST SCOPE

This test is a requirement to certify as maintenance free as per BS5733 Paragraph 14.5.2

Products tested according to 108-133121 product specification.

2. TESTS PERFORMED

Long term connection (Temperature rise): Rated current applied for 1512±5 hours. Samples are connected in the most onerous conditions as possible in normal use. Temperature rise measured every 5 minutes and voltage drop measured before start of the test and after the test.

3. PRODUCTS TESTED

2328054-x: Nector M, IDC Busbar connector
2328055-x: Nector M, IDC Splice connector
293469-x: Nector M, Pin housing, free hanging
293470-x: Nector M, Contact positioner
293476-x: Nector M, Pin contact
293607-x: Nector M, Cable backnut

Current ratings:

Part Number	Description	Cable size	Voltage	Current	Temperature
x-2328054-1	Busbar	1.5 mm²	250 V AC	13 A	-40 °C to +85 °C
x-2328054-2		2.5 mm²		16 A	
x-2328055-1	Splice	1.5 mm²		13 A	
x-2328055-2		2.5 mm²		16 A	

4. TEST EQUPIMENTS USED:

- Megger multimeter: voltage drop test.
- Enclosure with constant power supply: Temperature rise test.
- Datalogger:
- Thermocouple K type: Temperature sensing

5. RESULTS:

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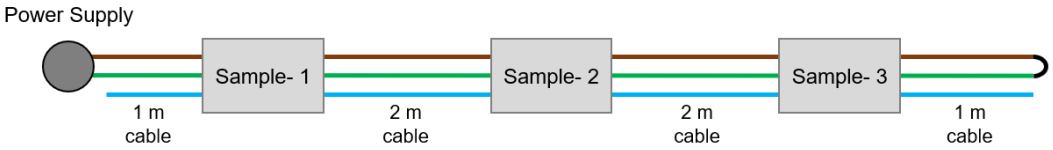
- **Nector M, IDC Splice: 2.5 mm2**

Test setup:

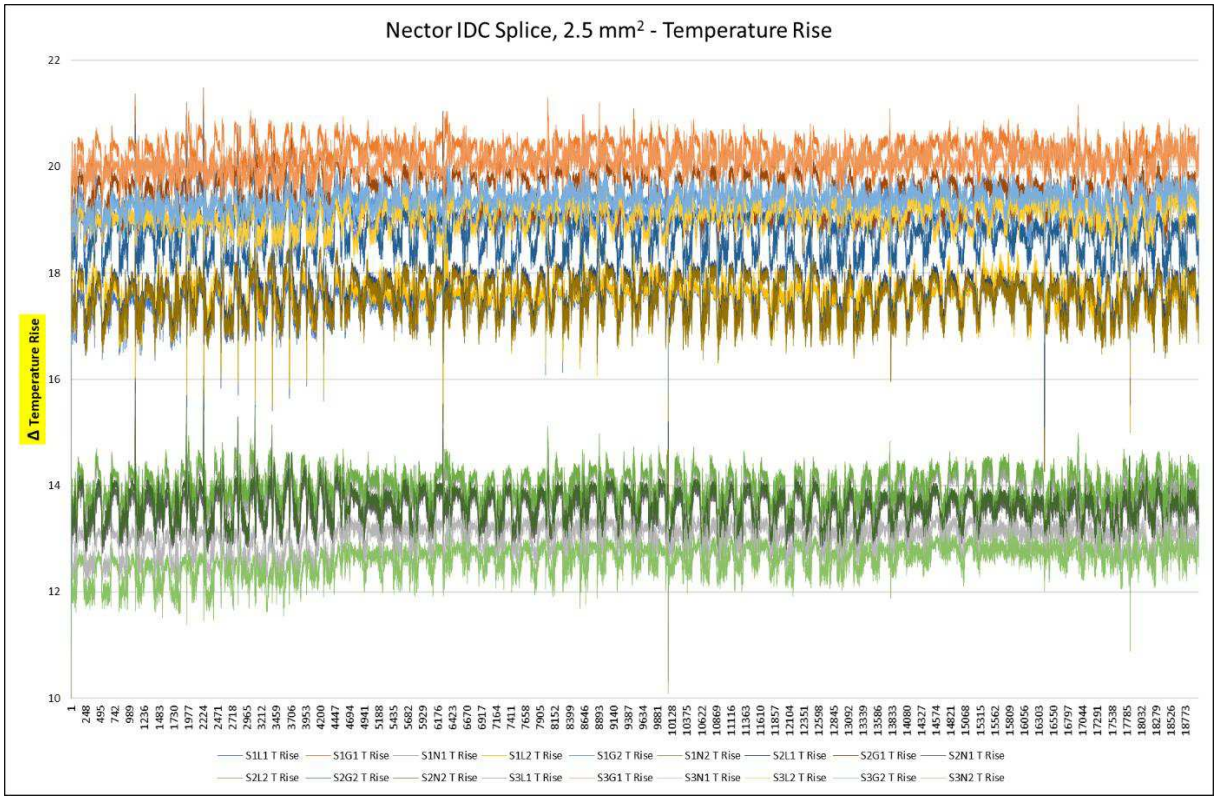
Three splice samples connected in series. Thermocouples (total 18) were glued to the contacts and connected to the datalogger. Power supply is connected to Line and Ground circuits. 20 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current.

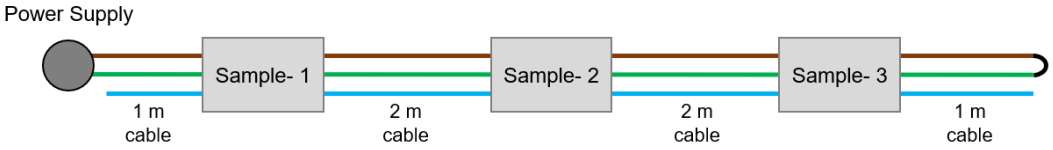
2.5 mm² Splice	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	9.616	11.59	9.617	Before T-rise, across 3 samples
Sample-1	1.5	2.15	1.51	After T-rise, measured the independent samples.
Sample-2	1.56	2.62	1.55	
Sample-3	1.89	3	1.89	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.

- **Nector M, IDC Splice: 1.5 mm2**

Test setup:

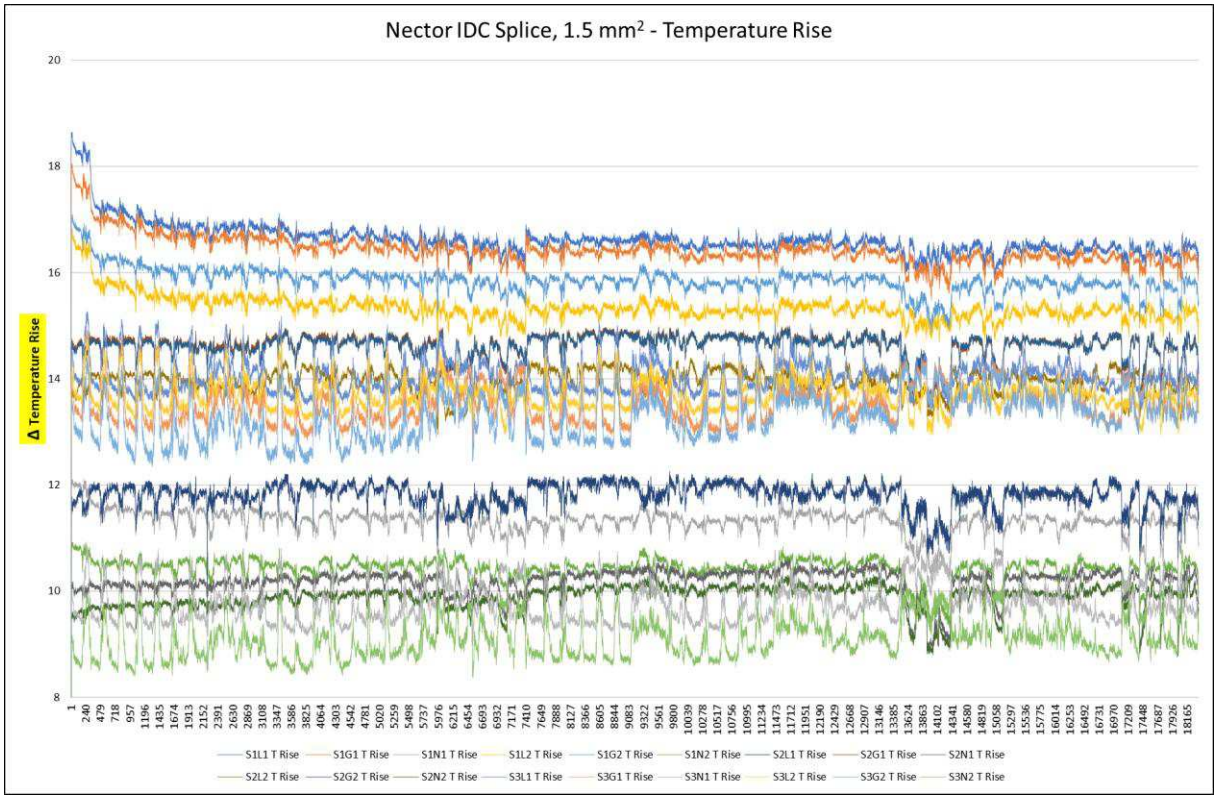
Three splice samples connected in series. Thermocouples (total 18) were glued to the contacts and connected to the datalogger. Power supply is connected to Line and Ground circuits. 13 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current across each sample.

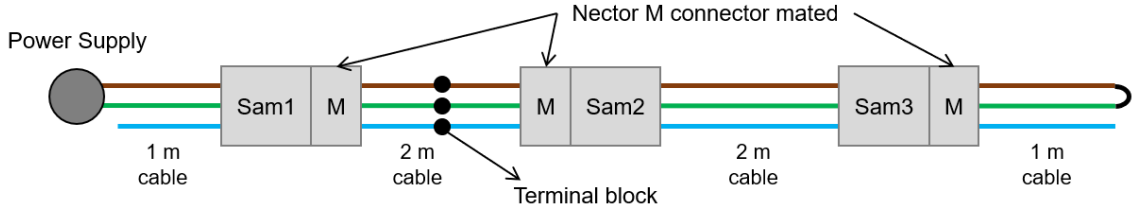
1.5 mm² Splice	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	8.03	14.91	7.73	Before T-rise, across 3 samples
Sample-1	2.22	4.47	2.16	After T-rise, measured the independent samples.
Sample-2	2.02	4.34	2.08	
Sample-3	2.03	3.96	2.05	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.

- **Nector M, IDC Busbar: 1.5 mm2**

Test setup:

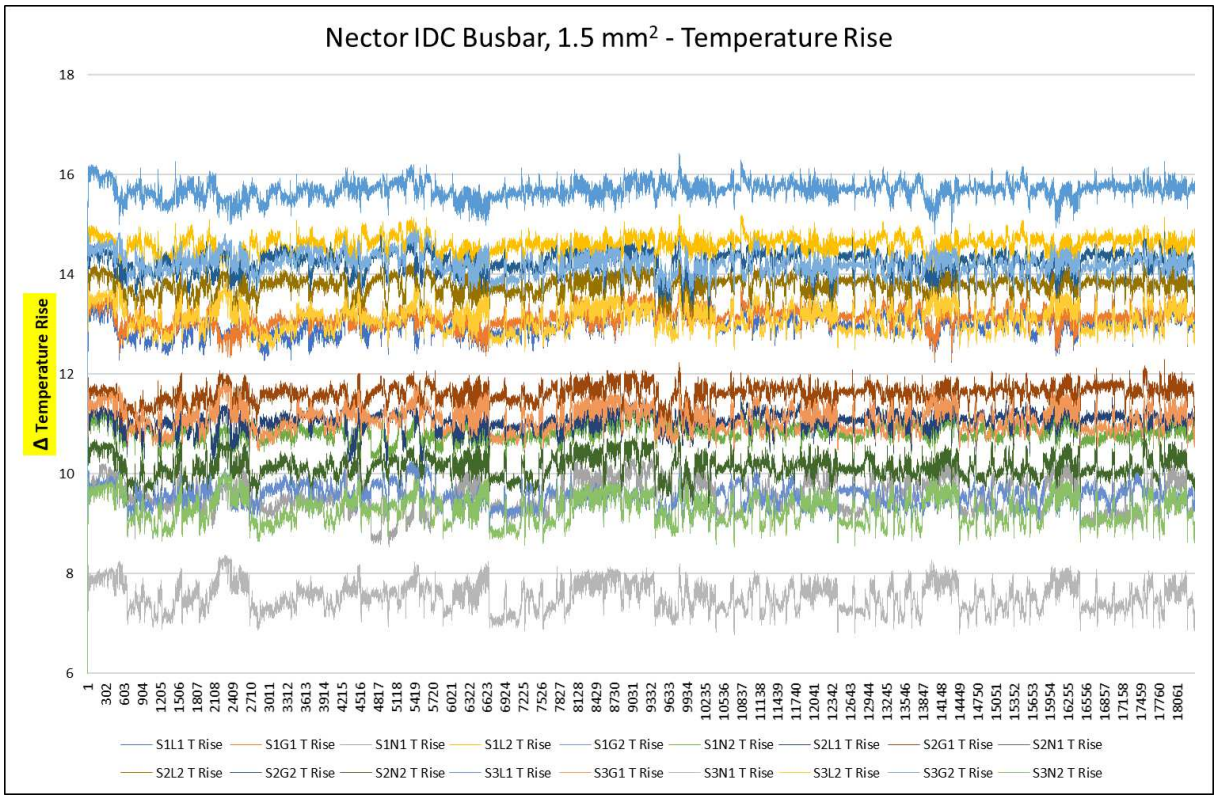
Three Busbar samples connected in series. 9x thermocouples were glued to the Busbar contacts and 9x thermocouples soldered to Nector M contacts, all were connected to the datalogger. Power supply is connected to Line and Ground circuits. 13 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current across each sample.

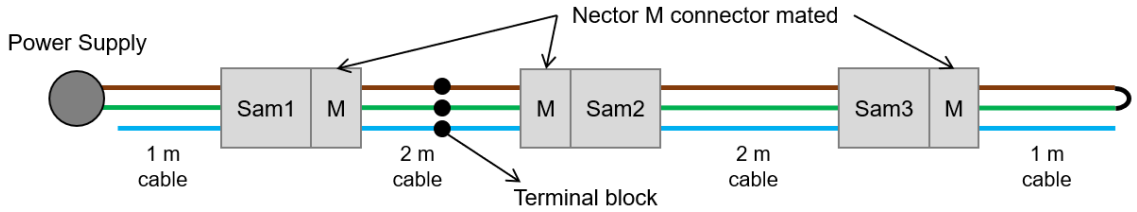
1.5 mm² Bus	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	6.52	8.28	6.31	Before T-rise, across 3 samples
Sample-1	2.51	3.67	2.23	After T-rise, measured the independent samples.
Sample-2	2.62	3.02	2.28	
Sample-3	2.61	3.28	2.20	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.

- **Nector M, IDC Busbar: 2.5 mm2**

Test setup:

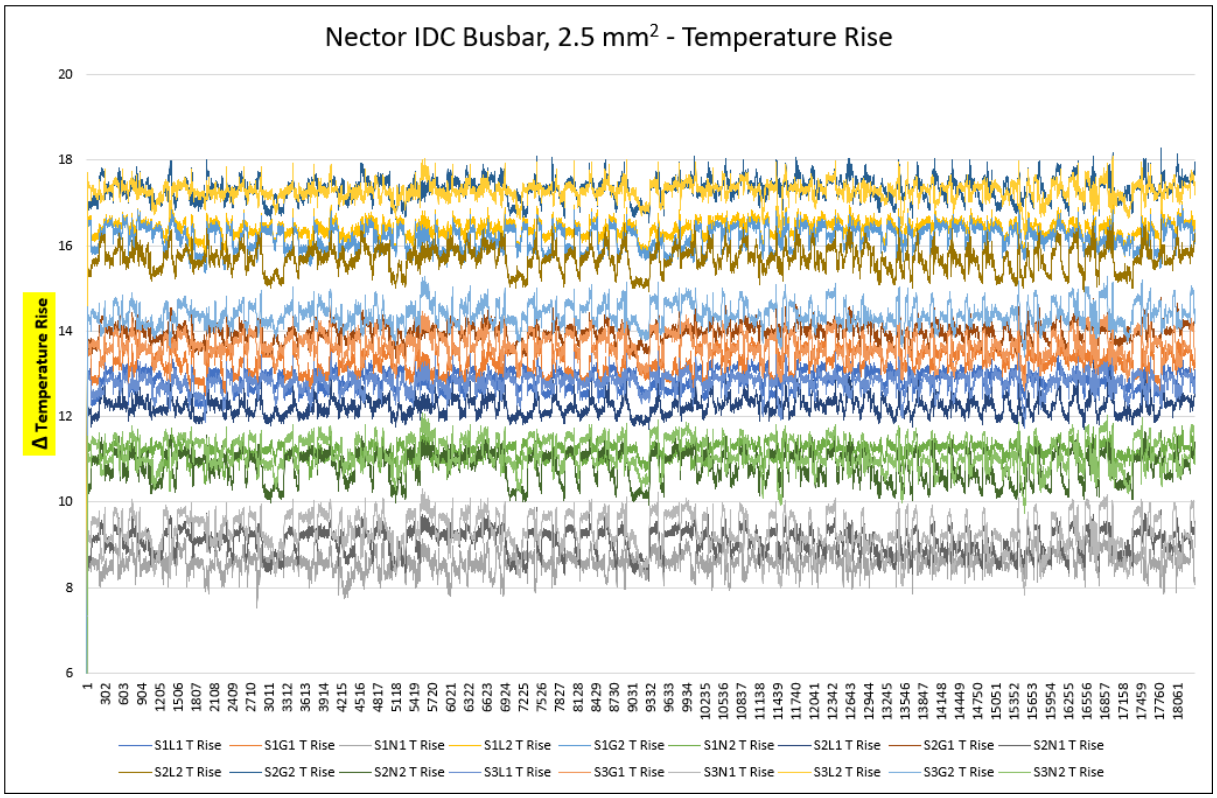
Three Busbar samples connected in series. 9x thermocouples were glued to the Busbar contacts and 9x thermocouples soldered to Nector M contacts, all were connected to the datalogger. Power supply is connected to Line and Ground circuits. 16 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current across each sample.

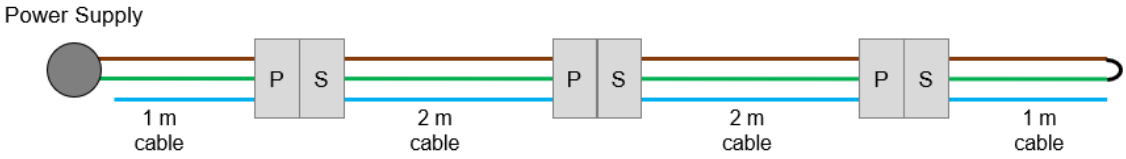
2.5 mm² Bus	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	5.02	6.24	5.08	Before T-rise, across 3 samples
Sample-1	1.72	2.14	1.78	After T-rise, measured the independent samples.
Sample-2	1.77	2.19	1.76	
Sample-3	1.77	2.05	1.70	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.

- **Nector M-Line: 1.5 mm²**

Test setup:

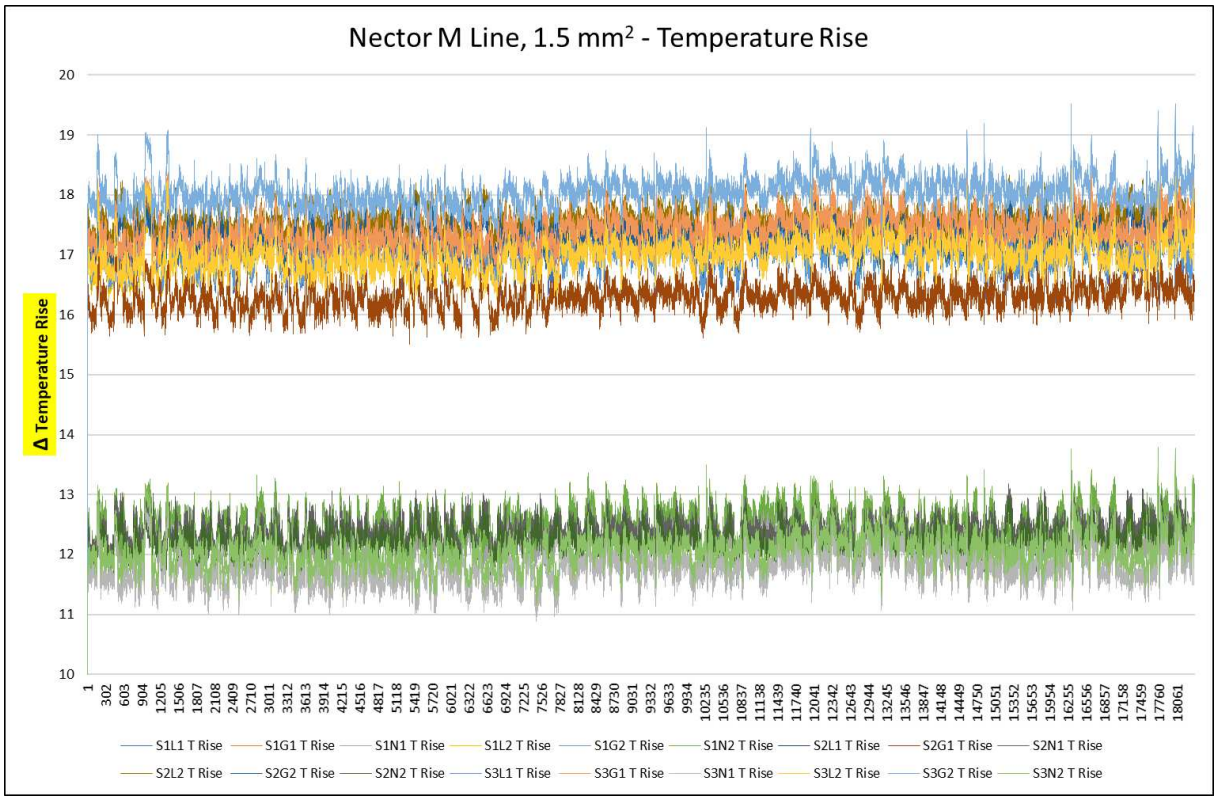
Three sets of M-Line samples connected in series. Thermocouples soldered to contacts. All were connected to the datalogger. Power supply is connected to Line and Ground circuits. 13 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current across each sample.

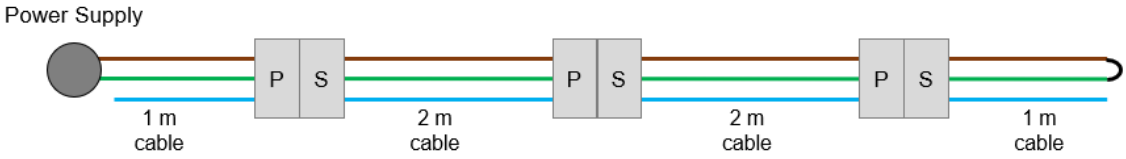
1.5 mm² M-line	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	8.48	8.46	8.6	Before T-rise, across 3 samples
Sample-1	2.87	2.94	3.01	After T-rise, measured the independent samples.
Sample-2	2.92	2.96	2.54	
Sample-3	2.75	2.87	2.93	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.

- **Nector M-Line: 2.5 mm²**

Test setup:

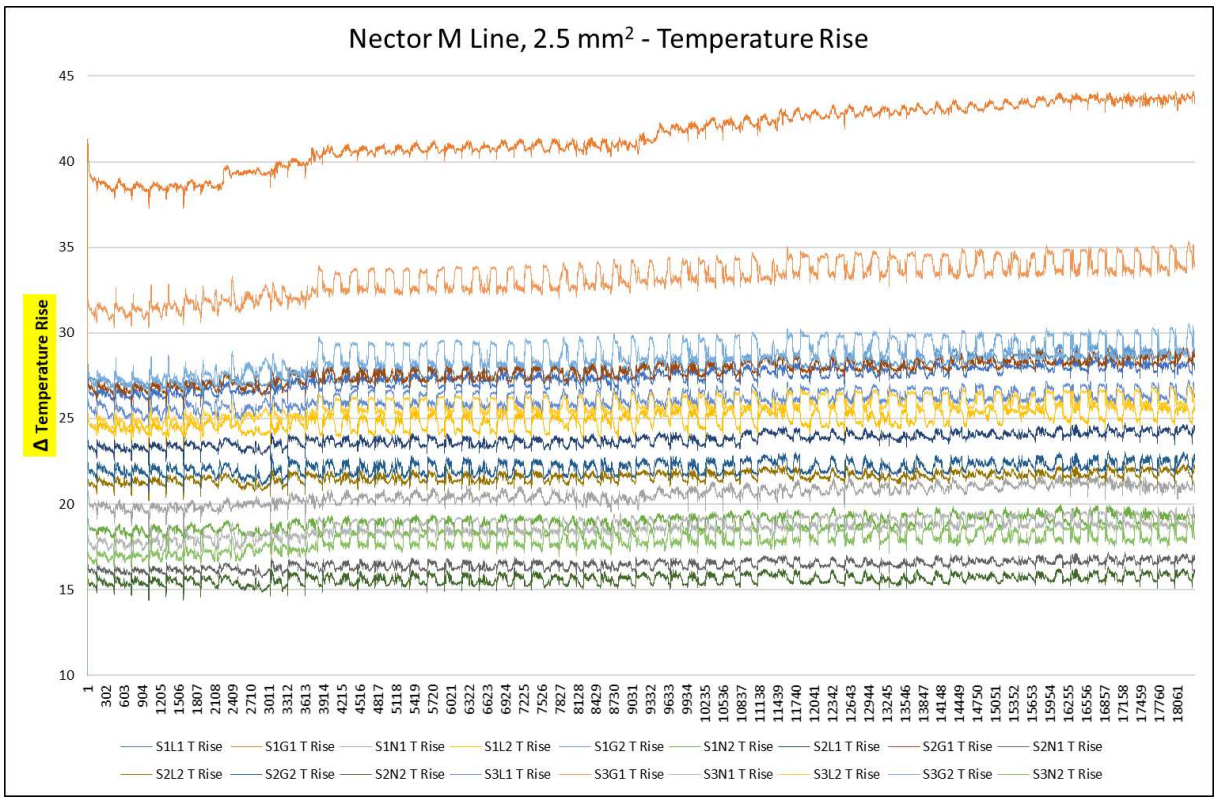
Three sets of M-Line samples connected in series. Thermocouples soldered to contacts. All were connected to the datalogger. Power supply is connected to Line and Ground circuits. 16 A constant current supplied for 1512 hours.



Datalogging:

All 18 thermocouples + 1 for ambient connected to datalogger. Temperature sensing is set for every 5 minutes, a total of 18,144 datapoints recorded to cover 1512 hours.

Recorded data: Data shown in the graph is delta values from ambient temperature.



Voltage-drop results: Measurements made by applying 100 mA current across each sample.

1.5 mm² M-line	Line (mV)	Ground (mV)	Neutral (mV)	Notes
Bulk	5.39	5.76	5.51	Before T-rise, across 3 samples
Sample-1	1.95	2.19	1.81	After T-rise, measured the independent samples.
Sample-2	2.11	3.15	2.30	
Sample-3	1.99	3.47	2.36	

Conclusion: PASS. Temperature rise of all three samples is within the allowed limit ≤ 52 °C and the voltage drop for all three is less than the allowed limit ≤ 22.5 mV.