BLUE WIRE - CONTACT WIRE HEATING CONTROLLER

BLUE WIRE is a heating cable and control solution, powered by the overhead wire system voltage. This solution will reduce the cost of running trains in inclement weather, eliminate ice-removal equipment, and remove the need to use deicing chemicals. The system will operate with overhead line systems from 600 to 900 V (special augmentation is needed for voltages above this such as 1500V, 12,5KV, 15KV and 25KV)

BLUE WIRE - INSTALLATION

SAN/Omni Control Technology offers a complete solution for heating the contact wire to prevent ice from building up. The system consists of:

- Heating cable and mounting clips
- Circuit breakers
- Blue Wire Controllers
- Weather station
- Internal Controller SCADA Software
- External Monitoring & Configuration SCADA software for monitoring the installation. By wire or wireless.

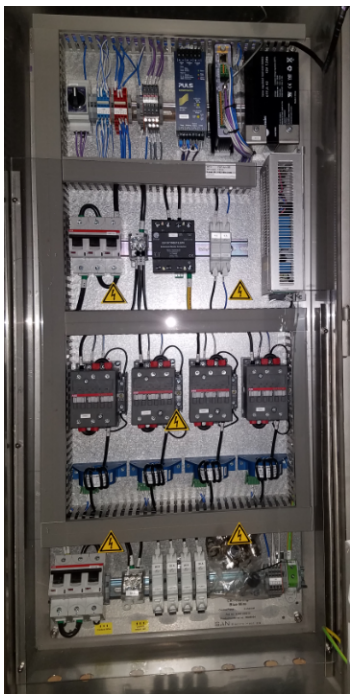
BLUE WIRE - CONTROL BASICS

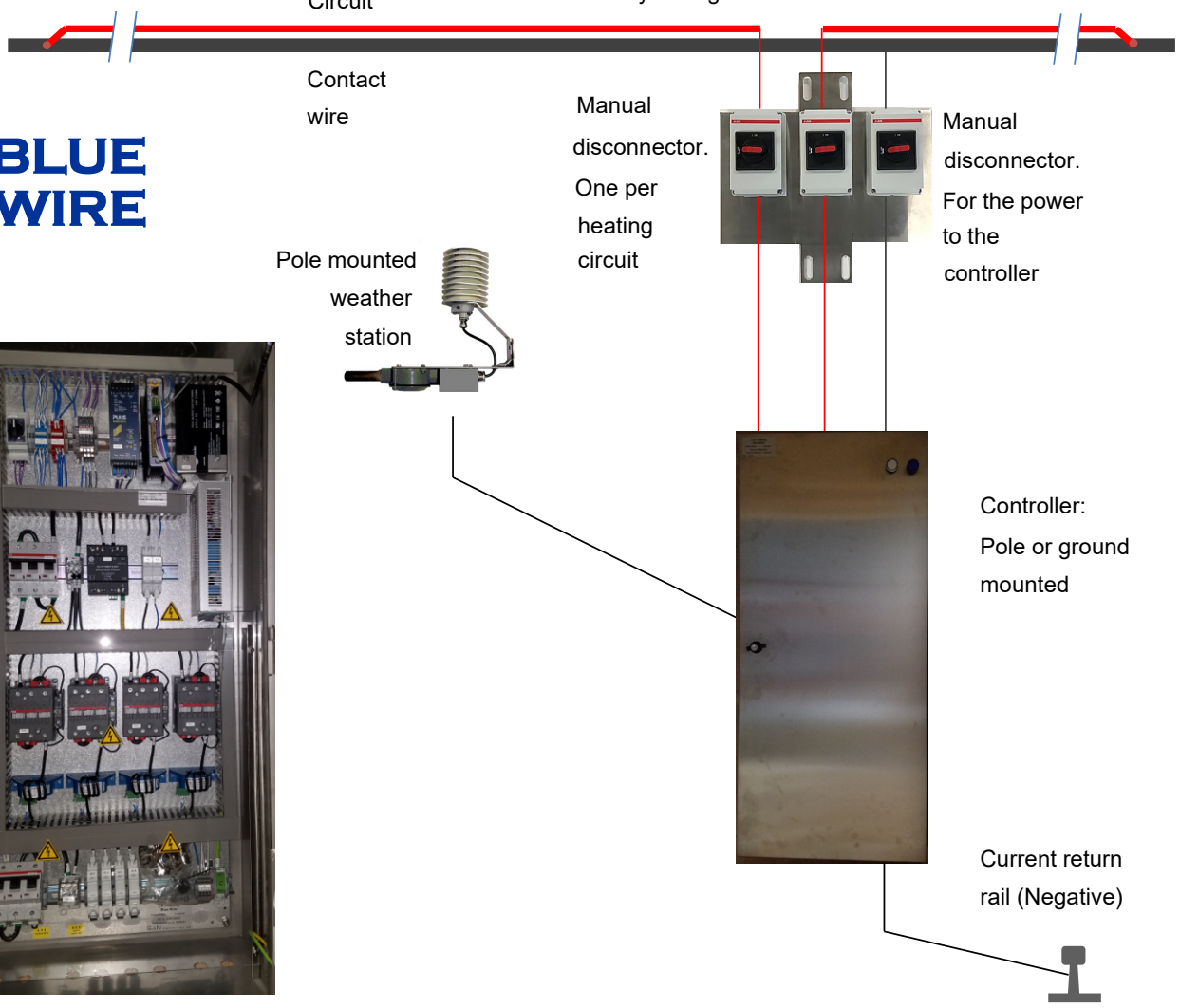
The heating cable is powered from the contact wire. To control the power and operate the system, a number of controllers may be needed.

Each controller is capable of controlling 1 to 4 heating circuits. Standard heating circuit is in the range 246' (75 meter) to 984' (300 meter) long (at 750VDC)

The controller installation also includes a manual disconnect circuit to disconnect the heating circuits. This disconnect circuit is normally mounted above the controller on the OHL pole.

The controller switches the heating power ON when the automated system warrants, manually at the controller, or remotely through the online SCADA software..





SAN Electro Heat

NIBE ELEMENT
RAILWAY SOLUTIONS

www.niberailsolutions.com...info@niberailsolutions.com

OMNI Control Technology, Inc.

CONTROLLER FAMILY

BLUE WIRE controllers run autonomously and require no human interaction. The system can be viewed, overridden, or configured through the remote interface or locally at the controller.

Autonomous control of the heat is made available through the use of a weather station, weather forecast and sample contact wire. The operation of the system can be viewed, overidden or configured through the cloud based SCADA monitoring software.

Although the system has monitoring/configuration capability through the remote cloud interface the unit operates autonomously and should it loose all communication it will run as a stand alone unit based on the local sensors

CONTROLLER BASICS

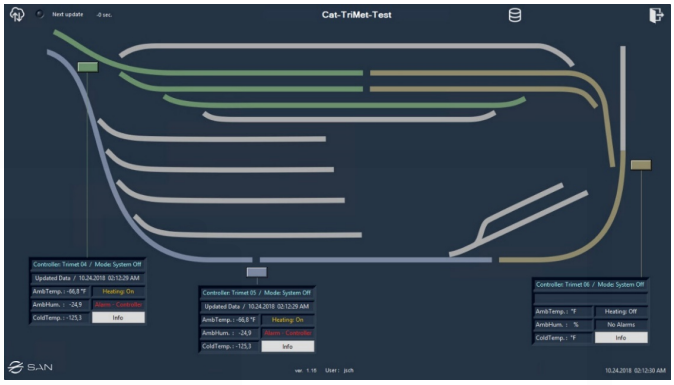
Configurable:

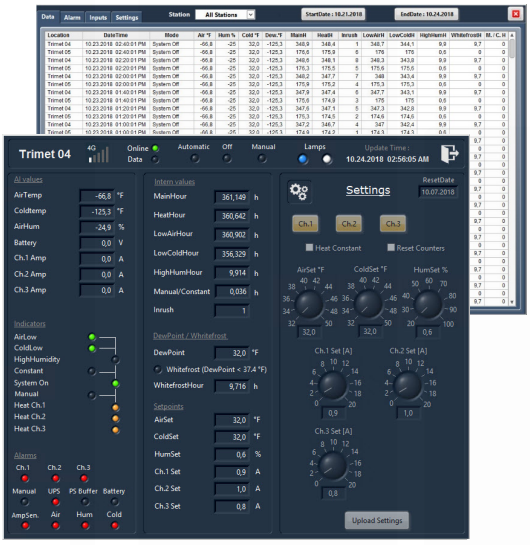
Power (controller):	OHL power up to 900V DC or 230 VAC
Heating circuits:	1, 2 or 4 circuits One contactor + fuse per circuit
Operator switch:	OFF - AUTOMATIC – ON
Heating Control by:	Weather forecast Weather station Air Thermostat Manual or remote
Heating circuit alarm:	Yes, contactless current sensing. one per circuit
Communication:	RS-485 Modbus Ethernet Modbus Wireless GSM 4G/3G WiFi
LED indicator on door:	White: ON/OFF Blue: Sum alarm
	from outside Input: Demand Heat Output: OK, Heating, Fault Air-Thermostat

BLUE WIRE – SCADA SOFTWARE

BLUE WIRE Remote SCADA is the scalable software package that extends the reliability and efficiency of the contact wire heating.
On-line management and control software to bond all controllers on a traffic line or in a territory together.
Valuable information at the fingertip for:

- **Traffic Control Department.**
- **Maintenance Department.**
- **Technical Department.**





Operational status:

- Manual or Auto operation
- Control mode
- Locale weather conditions
- Heating circuits ON or OFF
- Energy counters
- Total heating hours
- Heating circuit power
- Current measurement for each heating circuit

Remote settings:

- Turn individual circuits ON/OFF
- Temperature & Humidity levels for every control mode
- Diagnostic tool

Errors and operational status is reported immediately to the right person, both at the user interface, in an SMS and/or in an e-mail. Call for repair could be done with no delays.

The SCADA software can be customized in multiple ways e.g. language, graphical presentation and error handling.

Instant message on errors:

- Communication error
- Main supply failure
- Low/Zero current heating circuit
- Over-current heating circuit
- Temperature sensor failure
- Humidity sensor failure

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