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Si-TEC *Xtend* Temperature Scanner

DATA SHEET

Models

The temperature scanner is available in 3 variations:

- 32 channel RTD
- 32 channel Thermocouple Unit
- Combination (24 channel Thermocouple, 8 channel RTD)

Overview

The temperature scanner can measure up to 32 temperatures via J, K or N type thermocouples or via RTD – Pt 100 – sensors or a combination of 24 thermocouples and 8 RTD's. Enabling, warning level and alarm shutdown level can be configured independently for each channel. Temperatures can be read from SCADA systems, PLC or PC via the RS-232 serial port or RS-485 port. In addition, temperatures can be read from an *Xtend* unit connected via a CAN bus to the temperature scanner.

The monitoring is activated by an external "monitoring enable" input. There can be up to 7 groups, each group can contain 2 to 32 channels of RTD sensors or 2 to 32 channels of thermocouples.

The groups can be set to start monitoring after a certain temperature has been reached, then all of the channels in the group can be monitored for the greatest differential of temperatures within that group. In addition to this, the deviation between the channel temperature and the group average can be monitored.

The pcSCAN software gives a graphical representation of the current temperatures, and is used to configure the unit.

Applications

- Steam turbines
- Diesel/gas engines
- Generators
- Mining
- Oil and gas
- Standby power systems
- Hospitals

Key features

- Monitors up to 32 thermocouples or RTD sensors (Resistance Temperature Detectors)
- Supports J, K and N type thermocouples
- High, deviation and differential alarm set points
- 2 levels of alarm, warning and shutdown
- Monitored temperatures can be organised into one of 7 groups
- Fahrenheit and Celsius modes
- User friendly pcSCAN Software
- May be used as a stand alone product

Temperature ranges

RTD

RTD sensor	Pt 100
Minimum temperature (Celsius)	-200 °C
Maximum temperature (Celsius)	850 °C
Minimum temperature (Fahrenheit)	-328 °F
Maximum temperature (Fahrenheit)	1562 °F

Thermocouple

RTD sensor	J Type	K Type	N Type
Minimum temperature (Celsius)	-60 °C	-70 °C	-110 °C
Maximum temperature (Celsius)	+780 °C	+1080 °C	+1220 °C
Minimum temperature (Fahrenheit)	-328 °F	+126 °F	+198 °F
Maximum temperature (Fahrenheit)	1562 °F	+1944 °F	+2196 °F

* All temperature ranges are with respect to the ambient temperature. For example, if the ambient temperature is 20 °C, the measured temperature range for J type thermocouples will be from -40 to +800 °C. The ambient temperature is the air temperature at the temperature scanner module.

If these ranges are exceeded, the temperature indication is clamped at the limit.

The temperature scanner module has an ambient temperature range of 0 to 60 °C (32 to 140 °F).

Physical dimensions

- Length: 282.9 mm
- Width: 120 mm
- Height: 94.9 mm (63.9 mm case height + 19 mm DIN clamp height + 12 mm fuse height)
- Mounting: Mounts on a DIN rail

Specifications

Power supply input

- Supply voltage: 12 up to 36 VDC
- Power rating: 10 W
- 2 A automotive style fuse

Serial interface

RS-232

- RS-232 interface is used to configure the unit (pcSCAN)
- The port is set up to: 9600 baud, 8 data bits, 1 stop bit, no parity and no flow control
- The unit communicates using Modbus ASCII protocol (for pcSCAN software and for setup and configuration).
  Only Modbus functions are supported:
  3 - read multiple registers
  16 - write multiple registers

RS-485

- The RS-485 port can be configured to operate in Modbus ASCII or Modbus RTU mode. This is done using the pcTEMPSCAN software via the RS-232 port. In addition, the data format can be adjusted to any of the following:
- 7 data bits, even parity, 1 stop bit
- 7 data bits, odd parity, 1 stop bit
- 7 data bits, no parity, 2 stop bits
- 8 data bits, no parity, 1 stop bit
- 8 data bits, even parity, 1 stop bit
- 8 data bits, odd parity, 1 stop bit
- 8 data bits, no parity, 2 stop bits
- The 485 port supports the following baud rates: 4800, 9600 and 19200

CAN interface

The CAN interface is provided to allow communications to the SiTEC *Xtend*

All RS-232 communications (via pcSCAN Software) can be made via the SiTEC *Xtend*.

The temperatures and settings of the temperature scanner can be read and modified using pcScan.

Temperature interface

- The temperature scanner comes with either 32 RTD channels or 32 Thermocouple channels or a combination of both 8 RTD and 24 Thermocouple channels.

Logic inputs

- 1x “ARM ALARMS” input
- The ARM ALARMS input must be active for any alarms to be activated
- If the module is to run “stand alone” with no active run input, then this logic input can be tied directly to 24 VDC
- 1x “RESET” input
- The RESET input (24 VDC) allows an external switch to be connected to force a module reset
- In this situation all of the alarms, and alarm delay timers shall be reset to their default values if the condition has cleared
- If the ARM ALARMS input is off, the RESET input will deactivate all alarms regardless of whether the condition has cleared or not

ARM ALARMS	On	Off
RESET	On	On
Action	All alarms reset, if the condition has cleared	All alarms reset

Relay outputs

Rated load 0.5A @ 30 VAC; 1A @ 30 VDC (Resistive load)

Shutdown relay

The shutdown relay is configured as failsafe (i.e. it is normally on, and turns off in an alarm condition).

The shutdown relay deactivates under the following conditions:

- High temperature alarm on any channel (configurable)
- When an installed thermocouple channel has gone open circuit (configurable)
- When an group settling time exceeded (configurable)
- Group differential exceeded (configurable)
- Maximum deviation from group average exceeded (for both positive and negative deviation - configurable)
- Loss of power to the temperature scanner
- Reset of the temperature scanner CPU due to electrical interference. Care must be taken during installation to separate thermocouple leads, communication cables, power leads etc. as far as practical from noise sources such as ignition cables, coils, etc.

Warning relay

The warning relay is normally off, and activates in an alarm condition.

The warning relay activates under the following conditions:

- Temperature exceeds the warning limit
- Group differential warning level exceeded
- Maximum deviation from group average exceeded (for both positive and negative deviation - configurable)

Available information

Information is available to be read via the RS-485 using the Modbus protocol.

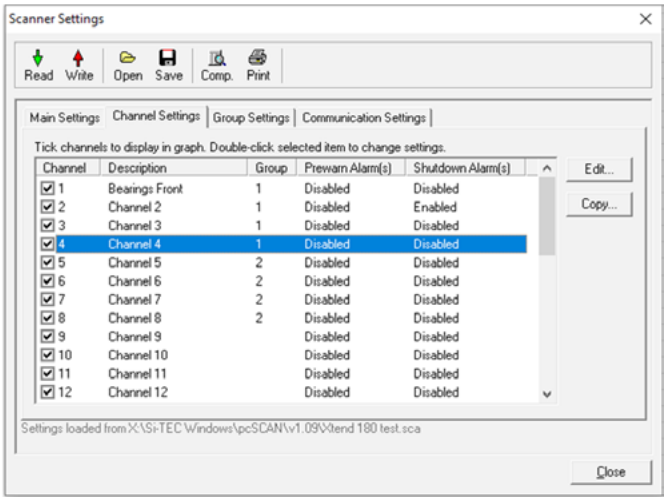
This information is also available to be read at the same Modbus addresses via the SiTEC *Xtend*.

Each of the 32 channel temperatures are available to be read over the CAN or through the serial interface.

See Appendix B for the information and the associated addresses.

pcSCAN Software

Comprehensive and user friendly software for configuration of Temperature Scanner, as well as optional monitoring / logging features.



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