



SPECIFICATION SHEET

Therma-Start (Off-Highway 24V) TS-24xxx....

Type: Engine Start/Stop Idle Management Controller

Enclosure Type: The Enclosure body shall be Formed 12 GA Mild Steel.

Enclosure Lid Type: The Enclosure Lid shall be Formed 12 GA Mild Steel with Weather Tight Seal and Latch

Dimensions: The physical dimensions of the Controller shall be 8" W x 4" D x 10" H

Power: The input voltage shall be 24VDC, the output voltage shall be 24/12VDC.

Wiring Harness: The Wiring Harness shall connect to the enclosure by means of a multi-pin screw-on connector

Terminations: The Wiring Harness shall connect to sensors and components using Deutsch connectors

Thermal Sensors: The Temperature Sensors shall be Thermocouple ring terminals encased in stainless steel flex.

Strobe Monitor: The Strobe monitor shall be weatherproof high intensity LED type

Warning Siren: Siren shall be in weatherproof enclosure and shall not exceed 100 dB

Operating Temperature: The Ambient Operating Temperature shall be from -40C to 50C (122F).

Installation: The installation of the Controller and associated Components shall be performed in accordance with Owners Manual provided.

Equipment Owner Controls: User Interface shall display scrollable operating and standby parameters. Factory Settings shall be password protected and shall be field editable by a factory certified technician.

Data Logging: System shall continuously log parameters once every minute plus log every state change.

Log files shall be saved to an SD card retrievable for downloading by the Equipment Owner

Warranty: The warranty on the ThermaStart Controller shall be for 1 full year from Date of Purchase.

Features and Performance

Downloadable data logging records on/off runtime cycles, ambient temperatures, block temperatures, battery voltage, etc.

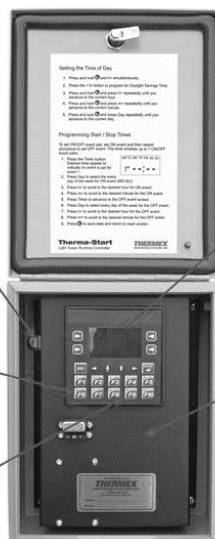
Automatic summer/winter changeover regulated by ambient temperature selection.

User selectable start activation by choice of ambient temperature, programmable timer or both.

Illuminated screen with user selectable options including scheduled start/stops if desired

Optional telematics module transmits data via choice of Satellite, Cell, WiFi or Mine Radio Network

Pressure-wash duty enclosure facilitates wide range of installation locations



CANADA

2234 Carpenter Street
Abbotsford BC V2T 6B4

USA

726 Cherry Street
Sumas WA 98295



FEATURES

- Safety Lockout Protection** Daisy chain safety loop on key access doors and panels immediately disables ThermaStart if any access is attempted by maintenance personnel
- Ambient Temperature Control** Engine block temperature response is not enabled until ambient temperature drops below freezing, provides automatic summer/winter switchover
- Engine Block Temperature Control** Engine is started when block temperature drops to 15C and then shut off again when block reaches 70C
- Battery Charge Monitoring** Engine is started when voltage drops below 23.5 Volts and shuts off again when voltage reaches 27.0 Volts (adjustable)
- Pre-Lube Pump Timer** For machines with a pre-lube oil pump the system will facilitate up to 1.5 minutes (adjustable) for oil pressure to reach OEM start activation
- Air Start Pressure Monitor** On air start trucks engine will start when reservoir pressure drops to 100 PSI and shuts off again when pressure reaches 120 PSI (adjustable)
- Fast Idle Activation** Starts at low idle then ramps up to fast idle after 30 seconds
- Pre-Start Warning Siren** Activates 40 seconds prior to initiating startup (adjustable)
- Strobe Monitor** White strobe indicates engine is running under ThermaStart control
- Data Logging** System continuously logs key parameters once every minute to an SD card retrievable for PC downloading to clearly identify operational cost savings

PERFORMANCE DATA

The following test results were compiled during winter 2014 from multiple Thermex equipped CAT 789 Haul Trucks operating at a Syncrude Minesite. Throughout 12 hour shifts during average -34C temperatures the cumulative idle-time averaged 2.4 hours....pretty impressive!

- ✓ **Reduced idle time by 80% - from 12 hours down to 2.4 hours per shift**
- ✓ **Reduced fuel consumption by 80% - from 564 litres down to 114 litres per shift**
- ✓ **Reduced carbon emissions by 80% - from 1,300 kg's of Co2 down to 260 kg's of Co2 per shift**

CANADA
2234 Carpenter Street
Abbotsford BC V2T 6B4

USA
726 Cherry Street
Sumas WA 98295