Remote Engine Throttle
ETA201 Cummins IS Series
ETA202 Detroit Diesel
ETA204 Navistar
CONTENTS

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Overview

The Infinity-S series of remote engine throttles use optical technology. There is no potentiometer, electromechanical switch, or mechanical stop. The throttle engine RPM control signal is set at idle when power is applied regardless of the control knob position.

The throttle uses an Infrared Encoder (IRE) to detect the direction and speed of the control knob when it is rotated. The electrical signal from the encoder is interpreted by the microprocessor and the engine RPM control signal is adjusted. The Infinity-S responds to how fast the control knob is rotated and will increase or decrease the engine RPM proportionally.

Pressing the idle button immediately sets the engine RPM to idle.

The Infinity-S is simple, inexpensive, and 100% compatible with conventional vernier type throttle mounting and wiring configurations. It is available in various models. Each model is programmed to interface with a specific type of engine.

<table>
<thead>
<tr>
<th>Model</th>
<th>Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETA201</td>
<td>Cummins IS Series</td>
</tr>
<tr>
<td>ETA202</td>
<td>Detroit Diesel (Series 50 and 60)</td>
</tr>
<tr>
<td>ETA204</td>
<td>Navistar</td>
</tr>
</tbody>
</table>

Features

Always Starts From Idle RPM

No Mechanical Stops

Senses How Fast the Control Knob is Rotated

Idle Button
INSTALLATION

There are three screws in the knob. One slotted head screw is the detent adjustment for the knob and is set at the factory. This screw should not be adjusted in the field. The two socket head set screws are used to secure the control knob on the outer shaft. Refer to Figure 1 for component nomenclature and dimensions.

Tools Required

Drill Motor (with 3/4” bit)
3/32 Inch Hex Wrench
1-1/8 Inch Open End Wrench

Pre-Installation

1. Mark location for mounting hole. (The decal supplied with the Infinity-S is 3.25-in. high by 3-in. wide. Allow for clearance around the mounting hole location.)
2. Drill a \(0.75''\) diameter hole in mounting surface.

Note: Do not turn the slotted head screw.
3. Remove control knob by loosening two socket head set screws.
4. Remove outer nut from nipple.

Install Remote Throttle

1. Set inner nut and star washer to allow 0.85-inch (approximately one thread) to be exposed after outer nut is tightened.
2. Install Infinity-S plate, install and tighten outer nut.
3. Slide control knob over idle button and onto outer shaft. Ensure that there is clearance between the back of the knob, nut, and mounting surface. (The knob should spin freely.) If there is any rubbing, reset the position of both nuts per step 1.
4. Tighten two socket head set screws.
3. Connect cables. (Refer to Wiring section.)
Figure 1. Infinity-S Nomenclature and Dimensions

A

Drill a 0.75" hole in the mounting surface.

B

Position the inner nut so that this dimension is 0.85". This will leave approximately one thread exposed after the outer nut is tightened.

Note: There are two socket head set screws 120° apart that hold the control knob on the outer shaft. **Do not adjust the slotted head screw.**

Note: The panel decal for the Infinity-S is 3.25" high by 3" wide.
The Infinity-S throttle always starts from idle when power is applied regardless of the control knob position. It senses how fast the control knob is rotated and increase or decrease the engine RPM proportionally.

If the control knob is rotated quickly; the RPM changes quickly.
If the control knob is rotated slowly; the RPM changes slowly.
• Rotate the control knob clockwise to increase engine RPM.
• Rotate the control knob counterclockwise to decrease engine RPM.
• Press the red IDLE button to immediately return the engine to idle.
The following figures include the schematics, wiring diagrams, block diagrams, and cable for the Infinity-S remote throttle.

**Connector and Cable**

![Diagram of Infinity-S Cable]

**Engine Control Cable Connector**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Black</td>
<td>Signal Return</td>
</tr>
<tr>
<td>B</td>
<td>White</td>
<td>Signal to ECM</td>
</tr>
<tr>
<td>C</td>
<td>Red</td>
<td>+5 VDC</td>
</tr>
</tbody>
</table>

**Adapter (P/N XE-ET5VREG)**

*For Cummins ISM Engines Only*
(Install between the infinity and the ECM connections.)

Connect the red wire to +12 VDC.

To Infinity-S Engine Control Connector

To ECM
(Refer to Figure 3 for engine specific connections.)

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Figure 2. Infinity-S Cable
Cummins Harness Connections

Interface Information

The ECM Remote Accelerator (Throttle) Option has to be set to ON. The diagnostic tool cannot be used to do this, an Insight service tool must be used. Refer to an authorized dealer to program this option.

**Note:** When connecting existing harness wires to the Infinity-S make sure there are no diodes (or other components) connected to the wires.

**ISB, ISC, and ISL Engine Interface**

![Diagram of ECM 50-Pin B Connector]

- **Engine Control (Refer to Figure 2)**
  - Black Wire: REMOTE THROTTLE RETURN (SRTN B)
  - Red Wire: REMOTE THROTTLE +5VDC (VSENSOR B)
  - White Wire: REMOTE THROTTLE PEDAL POSITION INPUT

  **Note:** Supply a ground when the pump interlock circuit is engaged.

  **Note:** Supply a ground from the pump interlock circuit. This assumes that the ECM is set with Automotive governor as the default mode.

**ISB02/ISC03/ISL03-CM850 Model Engines**

![Diagram of ECM 50-Pin J2 Connector]

- **Engine Control (Refer to Figure 2)**
  - Black Wire: ECM Return (Sensor)
  - Red Wire: Sensor Supply
  - White Wire: Remote Accelerator Position

  **Note:** Supply a ground when the pump interlock circuit is engaged.

  **Note:** Supply a ground from the pump interlock circuit. This assumes that the ECM is set with Automotive governor as the default mode.

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**Figure 3. Cummins Infinity-S ETA201 Wiring (Sheet 1 of 2)**
ISM Engine Interface

ISM engines need the XE-ET5VREG adapter cable installed.

<table>
<thead>
<tr>
<th>Adapter (Refer to Figure 2)</th>
<th>Black Wire</th>
<th>ACCELERATOR SUPPLY RETURN</th>
<th>49</th>
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<tbody>
<tr>
<td></td>
<td>White Wire</td>
<td>REMOTE ACCELERATOR POSITION</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REMOTE ACCELERATOR SWITCH</td>
<td>43</td>
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<tr>
<td></td>
<td></td>
<td>ACCELERATOR GOVERNOR SWITCH</td>
<td>25</td>
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</table>

**Note:** Supply a ground when the pump interlock circuit is engaged.

**Note:** Supply a ground from the pump interlock circuit. This assumes that the ECM is set with Automotive governor as the default mode.

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**ISM02-CM870 Model Engines**

<table>
<thead>
<tr>
<th>Adapter (Refer to Figure 2)</th>
<th>Black Wire</th>
<th>ECM Return (Sensor)</th>
<th>32</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>White Wire</td>
<td>Remote Accelerator Position</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remote Accelerator On/Off Switch</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max Operating Speed/Governor Type Switch</td>
<td>14</td>
</tr>
</tbody>
</table>

**Note:** Supply a ground when the pump interlock circuit is engaged.

**Note:** Supply a ground from the pump interlock circuit. This assumes that the ECM is set with Automotive governor as the default mode.

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**Figure 3. Cummins Infinity-S ETA201 Wiring**

*(Sheet 2 of 2)*
Interface Information

Connect the Engine Control extension cable to the Variable Speed Governor input on the engine ECM. There may be a 3-pin Packard connector (Variable Speed Governor Harness Connector installed by the chassis manufacturer) located behind the pump panel to plug into for the ECM connections.

NOTE: For Detroit Diesel series 40 refer the Navistar wiring (Figure 5).
Navistar Harness Connections

Interface Information

The ECM must be programmed for a remote throttle input. Set **PTO REMOTE PEDAL** to 1. (This will enable the remote throttle input.)

The **VARIABLE PTO ENABLE** input has to be at 12 VDC to activate the remote throttle. Connect 12 VDC to remote throttle harness circuit 97CC. (12 VDC can be picked up from the interlock circuit.)

**NOTE:** There is a green ground wire for Navistar engines on the engine control connector. Connect it to battery negative, ECM or chassis ground.

Figure 5. Navistar Infinity-S ETA204 Wiring

**Note:** Circuit 97CC has to be at 12 VDC to activate the remote throttle.