

Technical Description



InPower's SAT-MD-C Auxiliary Load Programmable Controller provided charging and high idle engine RPM control for the Ford 2020+ Transit vehicles directly. Since the 2020+ Ford Transit incorporates an advanced intelligent charging system for increased fuel economy (See Ford Transit Documentation), the SAT-MD-C can request increases in power output as needed from the alternator for charging batteries, or running auxiliary loads. The example integration of the SAT-MD-C is shown below in the System Diagram. The functions of this unit are programmable at the Factory for custom applications. This document shows an example which can be customized.

The SAT-MD-C also provides high idle control, both for operating equipment with a fixed idle (RPM1), but also a state of charge based RPM2 that is variable based on Battery Voltage for a charge based variable RPM.

In this example, the Battery Voltage Based RPM2 works as follows: a lower Battery Voltage results in an increase of the engine RPM; Likewise an increase in Battery Voltage will result in a decrease in Engine RPM as the Battery charges the has a blunt cut wires for direct connect to available wiring.

The Optional Fixed RPM Input is available for more conventional high Idle applications where a fixed RPM is required. This Fixed High Idle RPM setting is enabled by SW1 (tying it to +12V). The set-point for the Fixed RPM can be adjusted by SW3: connecting to +12V to raise RPM; connecting to GND to lower RPM; disconnecting from either voltage stores the last RPM as the new value.

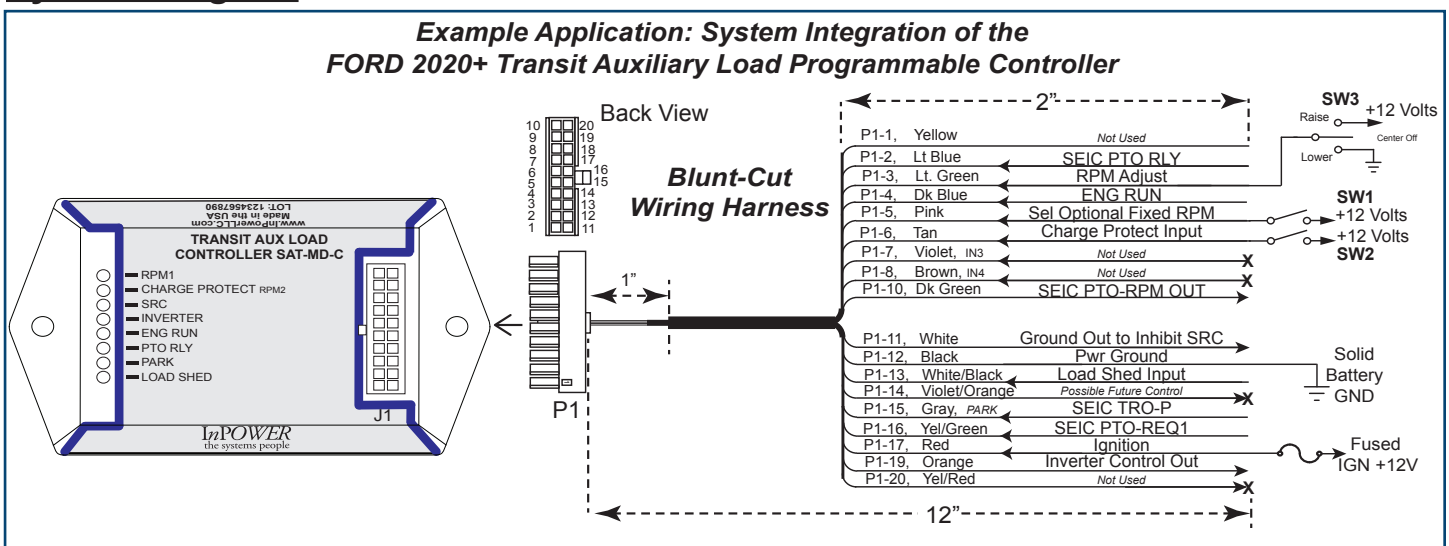
To support our customers in selecting a throttle that is compatible with their specific chassis, we provide a Throttle Selector Guide on our web site (www.inpowerelectronics.com). Simply select the chassis and model year, and it will display the minimum software revision.

See: http://www.inpowerelectronics.com/throttle_selector

Key Features

- Customized functions available.
- Provides a seamless interface between the Transit Load and the advanced charge control functions of the Ford Transit
- Also provides automatic charge functions to help with auxiliary loads
- Low cost with fast and easy installation.
- Voltage Based RPM2 Speed for Charging (variable) or Fixed (adjustable) RPM1.
- LED status and diagnostic indicators.
- Blunt Cut Wiring Harness for ease of installation
- Goal to save fuel and run at the most efficient Lowest RPM required to maintain the Load

System Diagram



Specifications

Interface and Control (*Functions and Operations Configurable)

Fused Ignition: (PWR) Sourced from fused Ignition source
 Ground: (GND) Sourced a Good Solid Battery Ground
 RPM1 Fixed Sel: (Input) +12 volts selects the Optional Fixed High Idle RPM
 Charge RPM Sel: (Input) +12 volts selects the Charge Protect RPM (Battery Voltage Based Charging) (Charge Protect Maximum is Adjustable).
 Adjust Fixed RPM: (Input) Adjusts preset RPM to desired value between 900 and SEIC Max, Connect to +12V to increment, GND to decrement (50RPM/Sec).
 Load Ctrl Out: (Output +12) When at +12Vdc enables Load (Inverter)
 Eng Run: (Input) GND when Engine is Running
 Load Shed In: (Input) GND when LOAD can be Enabled
 SRC Inhibit Out: (Output Gnd) GND Out to put alternator in High Power Mode
 Park In (SEIC): (Input) GND denotes vehicle is in PARK
 PTO Req1 (SEIC): (Output +12) for Request of PTO
 PTO RPM (SEIC): (Output Varies) for Setting the PTO RPM
 PTOI In (SEIC): (Input) PTO RLY response saying to engage PTO Mode

Input Output Specifications

Output Drive: 3 amps at 12Vdc (Voltage Out Interfaces)
 Output Sink: 1 amp (Ground Out Interfaces)

Mechanical Specifications

Dimensions: 4.365 L x 2.63 W x 0.79 H inches
 Operating Temp: -40°F to 185°F

Chassis Ready Conditions for High Idle:

1. Engine running at idle speed below 1,000 RPM.
2. No vehicle speed.
3. Automatic transmission in Park.
4. Service brake not depressed.
5. Accelerator pedal not depressed.
6. Parking brake set.
7. No Diagnostic Trouble Code (DTC).
Check Engine light must be off.

LED Status Indicators:

POWER Power is supplied to SAT-MD
 RPM1 Indicates elevated fixed speed mode RPM1
 CHARGE/RPM2 Indicates Auto Charge or RPM2 mode
 INTERLOCKS Transmission in Park and Load Shed Set

Ordering Guide

Model	Activation Polarity	RPM1 Factory Setting	RPM2 Factory Setting
SAT-MD-C	Programmable	Programmable	Programmable
SAT-MD-C SPC522	+12V	1500 Diesel 1200 Gas	N/A

Mechanical Drawing

