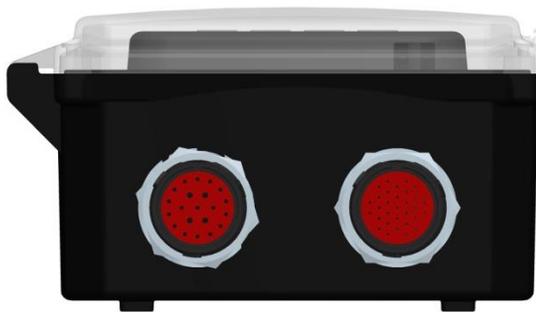


Application

# Detailed Overview of Full-Feature Panel

## Part # C4-G8300-AS

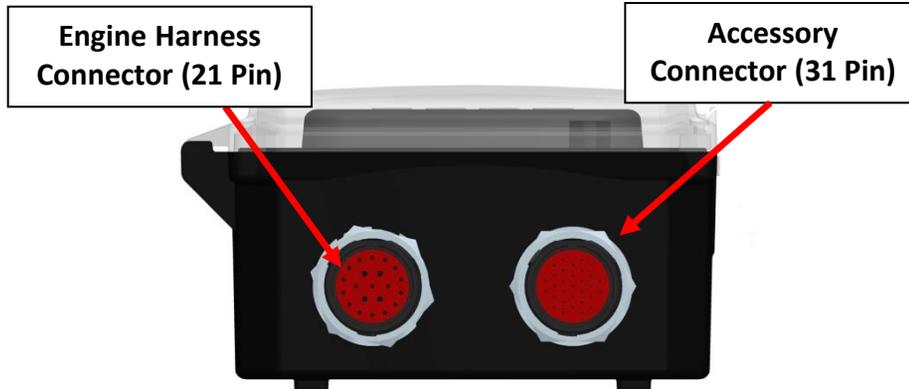


### MANUAL OPERATION SETTINGS

#	Start/Stop Mode	Throttle Mode	Throttle Description
1	Manual Key Start	TSC Vernier	UP and DOWN via panel buttons (set min and max speeds)
2	Manual Key Start	Multistate	UP and DOWN via panel buttons (up to four separate operating speeds)

### AUTOMATIC OPERATION SETTINGS (key in auto position)

#	Start/Stop Mode	Throttle Mode	Throttle Description
3	Floats (single or dual)	Profile Throttle	Select warm up, prime, operating and cool down speeds
4	Floats (single or dual)	Linear	Engine speed adjusts between selected min and max speeds in relation to selected min and max level or pressures
5	Floats (single or dual)	Target	Engine speed adjusts to maintain selected level or pressure
6	Pressure Transducer	Profile Throttle	Select warm up, prime, operating and cool down speeds
7	Pressure Transducer	Linear	Engine speed adjusts between selected min and max speeds in relation to selected min and max level or pressures
8	Pressure Transducer	Target	Engine speed adjusts to maintain selected level or pressure
9	Level Transducer	Profile Throttle	Select warm up, prime, operating and cool down speeds
10	Level Transducer	Linear	Engine speed adjusts between selected min and max speeds in relation to selected min and max level or pressures
11	Level Transducer	Target	Engine speed adjusts to maintain selected level or pressure



21 Pin Engine Harness Connector	
Pin	Function
B	Battery Positive
E	Battery Negative
G	Key On Power
D	Crank Signal
V	J1939 High
U	J1939 Low
J	Alternator Excite
L	Analog Throttle Emulator
M	Analog Throttle Emulator
C	Analog Throttle Emulator
R	Digital Throttle Emulator
S	Digital Throttle Emulator

Maximum current draw for relay output circuits is 5 amps

31 Pin Accessory Connector	
Pin	Function
30	Battery Positive
31	Battery Negative
3	Analog Input 1 (4-20mA or 0-5VDC) Pre Set to Transducer Signal Input
4	Optional Analog Input 2 (4-20mA or 0-5VDC Input)
11	Optional Analog Input 3 (4-20mA or 0-5VDC Input)
25	Fuel Level Input
24	Digital Input 1 Pre Set for Single Float/High Float/Fail Safe Float
17	Digital Input 2 Pre Set for Low Float
18	Digital Input 3
19	Digital Input 4
20	Digital Input 5
21	Digital Input 6
22	Digital Input 7
14	Digital Input 8 (Optional Modbus A)
13	Digital Input 9 (Optional Modbus B)
26	(Optional Can High)
27	(Optional CAN High)
1	Relay 5 N/O
16	Relay 6 N/O
9	Relay 5 & 6 Common
8	Relay 7 N/O
23	Relay 8 N/O
15	Relay 7 & 8 Common

**ANALOG INPUT CONFIGURATION OPTIONS**

Below are available analog input assignments in standard panels. **(OEM specific assignments can be implemented)**

Fuel Level S-W – Fuel amount, in percentage, can be measured and displayed on the C3 module using a standard Stewart Warner scale sender of 240 ohms – 33 ohms. 240 = Empty and 33 = Full. Sender ground must be common with battery negative.

Fuel Level VDO – Fuel amount, in percentage, can be measured and displayed on the C3 module using a VDO scale sender of 10 ohms – 180 ohms. 10 = Empty and 180 = Full. Sender ground must be common with battery negative.

Oil Pressure PSI – Oil pressure, in PSI, can be measured and displayed on the C3 module using a standard Stewart Warner scale sender of 240 ohms – 33 ohms. 240 = 0 PSI and 33 = 100 PSI. Sender ground must be common with battery negative.

Oil Pressure bar – Oil pressure, in bar, can be measured and displayed on the C3 module using a standard Stewart Warner scale sender of 240 ohms – 33 ohms. 240 = 0 bar and 33 = 7 bar. Sender ground must be common with battery negative.

Oil Pressure VDO PSI – Oil pressure, in PSI, can be measured and displayed on the C3 module using a standard Stewart Warner scale sender of 10 ohms – 180 ohms. 10 = 0 PSI and 180 = 150 PSI. Sender ground must be common with battery negative.

Oil Pressure bar – Oil pressure, in bar, can be measured and displayed on the C3 module using a standard Stewart Warner scale sender of 10 ohms – 180 ohms. 240 = 0 bar and 33 = 10 bar. Sender ground must be common with battery negative.

Rheostat – Speed control can be accomplished by connecting a 5 K potentiometer in series with the flex analog input. Engine speed will vary with the change in resistance value.

0 - 5 VDC – Reserved for OEM applications.

Ratiometric - Reserved for OEM applications.

4-20mA - Reserved for OEM applications.

Switch – This setting allows for a switch to be connected rather than an analog sender. Set Analog 1 Message to assign a label to the switch device.

None – Set to None when no functionality is required.

**OEM Specific – OEM specific analog inputs configurations can be implemented.**

### **DIGITAL INPUT CONFIGURATION OPTIONS**

Below are available digital input assignments in standard panels. **(OEM specific assignments can be implemented)**

Alarm – Engine shutdown when active with display message as assigned. A red lamp will also be illuminated.

Pre Alarm – Warning message will be displayed along with a yellow lamp when active.

Low Float – For auto start applications where a dual float system is desired. Note, Digital 1 Action must be configured for Auto Start.

Aux Throttle Up – Mimics the front panel key press for speed control.

Aux Throttle Down - Mimics the front panel key press for speed control.

**OEM Specific – OEM specific digital input configurations can be implemented.**

**RELAY OUTPUT CONFIGURATION OPTIONS**

Below are available relay assignments in standard panels. **(OEM specific assignments can be implemented)**

None - Assign to "none" when not used.

Start Warning - Relay will be active during auto start delay period. Typically used to drive the low side of an alarm horn or light.

Crank - Relay will be active during auto crank period. Used to drive a starter relay.

Preheat - Relay will be active during programmed preheat period. Used to drive a preheat relay.

Fuel / Run - Relay will be active during an engine start request and while the engine is running. Used to drive the engine's ECU circuit. Also active when requesting active and stored J1939 codes.

Switch Trip - Relay will be active if digital input is active.

Engine Run - Relay will be active when engine RPM is greater than 600. Typically used to drive an auxiliary circuit such as louvers or send a signal to a monitoring station.

Alarm - Relay will be active when there is an alarm condition. Typically used to drive an alarm horn or lamp. Also can be used to send a signal to a monitoring station.

Pre Alarm - Relay will be active when there is a pre alarm condition. Typically used to drive an alarm horn or lamp. Also can be used to send a signal to a monitoring station.

Pre Alarm & Alarm - Energizes an external audible alarm when a pre alarm or alarm condition is present. Pressing the ENTER button will silence.

Alarm Horn - Energizes an external audible alarm when an alarm condition is present. Pressing the ENTER button will silence.

Low Oil Press Alarm - Relay closes if a low oil pressure shutdown is detected.

High Coolant Temp Alarm - Relay closes if a high engine temperature shutdown is detected.

Over Speed Alarm - Relay closes if an over speed shutdown is detected.

Over Crank Alarm - Relay closes if an over crank alarm is detected.

Low Fuel Level Alarm - Relay closes if a low fuel level shutdown is detected.

Clutch 1 - Closes when Clutch 1 conditions are met.

Clutch 2 - Closes when Clutch 2 conditions are met.

Throttle B1 - Reserved for OEM applications.

Throttle B0 - Reserved for OEM applications.

Custom 1 - Reserved for OEM applications.

**RELAY POLARITY**

Positive - Relay acts as a normally open contact.

Invert - Relay acts as a normally closed contact.

**RELAY INITIAL STATE**

On - Relay is activated upon power up.

Off - Relay is not activated upon power up.

## AVAILABLE FEATURES

### **Advanced Start/Stop**

- Floats (single or dual)
- Level or Pressure (selected start/stop levels or pressures)
- Failsafe Float (backup float for level or pressure start/stop)
- SCADA system start/stop
- Remote monitoring start stop

### **Advanced Throttle Control**

- Profile Throttle (select warm up speed, prime speed, operating speed, cool down speed)
- Level or Pressure Maintain Throttle (engine rpm adjusts to maintain selected level or pressure)
- Level or Pressure (engine rpm adjusts based on selected min and max levels or pressures)
- Digital inputs configured for remote throttle inputs (increase rpm, decrease rpm, go to selected rpm)

### **Communications to External Systems/Devices**

- CAN bus output (Convert panel monitored information and alarms to J1939 CAN bus output)  
*Note: for mechanical engines, the panel converts engine information to J1939 CAN bus output*
- MOD bus output (Convert panel monitored information and alarms to RS485 MOD bus output)
- Discrete Relay outputs (Discrete signals for events such as alarms and engine run)

### **Emissions Monitoring (iT4)**

- View Soot and Ash Load %
- Integrated Regeneration Control (No additional buttons or switches required)
- Regeneration Process Messages on Display (in addition to lamps)
- View time since last regeneration
- Perform service regeneration (with code provided by Deere Engine Distributor)

### **Engine Information**

- View engine part number, engine serial number, percent load, percent torque, boost pressure and other information broadcast by the engine ECU.

### **Active and Stored Engine Codes**

- View both active and stored engine ECU codes
- View panel monitored codes (in addition to ECU codes)

### **Clutch Control**

To relay outputs can be configured for "clutch control" where the relay is energized when the selected condition is met (such as engine rises above 1000 rpm) and the relay is de-energized when the selected condition is met (such as engine rpm drops below 950 rpm). This can be used to engage a clutch or some other device in relation to how the engine is operating.

**AVAILABLE FEATURES (Cont.)****Alternating Displays**

Alternating displays can be implemented for advanced operation to display other parameters such as levels or pressure being monitored by the panel.

**Service/Maintenance Feature**

A service/maintenance feature can be included to provide service and maintenance alerts and warnings according to selected settings.

**Timer Feature**

A timer features can be included for integrated auto start/stop based on times and days of the week. This feature is simple and intuitive yet comprehensive and flexible.

**Battery Recharge Monitoring**

A battery recharge monitoring feature can be included where the panel monitors battery voltage for auto start applications. When battery voltage falls below the selected value, the engine is started and run for the selected period of time.

**OEM Specifications**

For OEM specification, the customer has the flexibility to define input and output functions. We also provide the ability for the OEM to incorporate customer or application specific logic to the panels.

**Combined J1939/Mechanical Panels**

A single panel for both J1939 and mechanical engines is available. A simple menu selection is used to determine whether the installation is for a J1939 engine or standard mechanical engine. If a panel is moved from one type of engine to another, the selection can be changed. This provides the OEM with the ability to implement a single panel that can be used on all engines from all engine manufacturers. The is the Controls, Inc. U Series. (U = universal)