4.1 Specifications

The Decision-Maker® 550 controller's Modbus® communication capability:

- Supports industry-standard Modbus® RTU protocol.
- Can use Modbus® TCP protocol with the addition of a Modbus/Ethernet converter.
- Connects to a Modbus® master singly over an RS-232 line.
- Uses RS-485 connections to connect to a Modbus® master singly or over an RS-485 network.
- Connects to an Ethernet network using a Modbus/ Ethernet converter.
- Can operate as an RS-232 to RS-485 converter.
- Uses standard baud rates of 9600 or 19200.

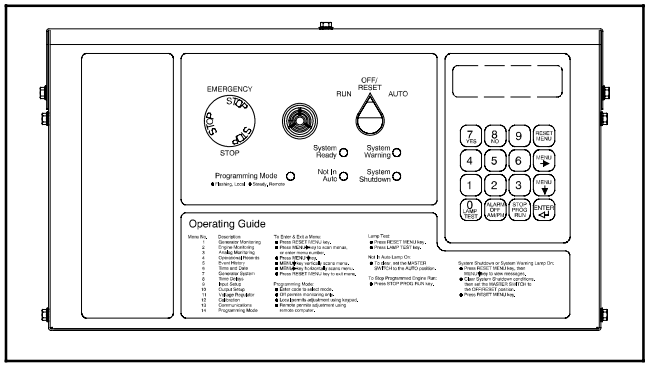


Figure 4-1 Decision-Maker® 550 Controller

4.2 Hardware Connections

⚠ WARNING

Accidental starting.
Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Plan the connections and refer to Figure 1-1 through Figure 1-4 to identify the cables needed. Use either an RS-232 cable or the supplied RS-485 connector with Belden #9841 or equivalent cable for a single connection. Use the RS-485 connector and Belden #9841 or equivalent cable to connect devices in a network. Attach the RS-485 connectors as shown in Figure 4-2. Use the termination resistor on the last device in the network.

Circuit isolation is recommended for installations that may be exposed to electrical noise. See Appendix B, Noise and Wiring Practices.

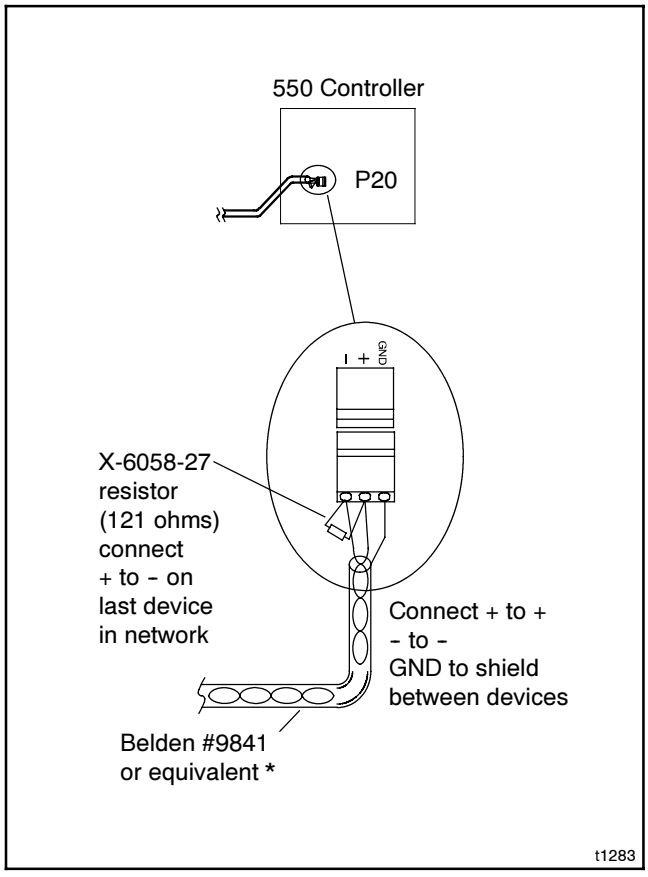
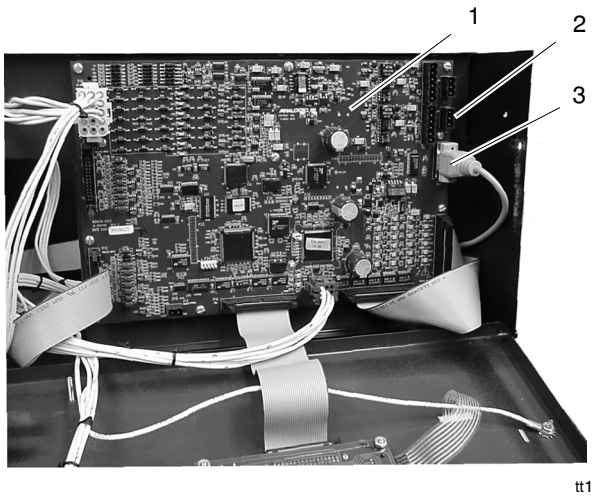


Figure 4-2 RS-485 Connector Details

Use the following procedure to connect the hardware. Observe the safety precautions.

Controller Connection Procedure

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (–) lead first.
4. Turn off and disconnect the power to all devices in the system.
5. Open the enclosure and locate the connection ports as shown in Figure 4-3 and Figure 4-4.
6. Make connections to the desired controller port(s). For RS-232 connections, use connector P18. For RS-485 connections, use the Modbus® RS-485 connector, P20 (connectors P19 and P21 are used for other applications).
7. Close the controller enclosure.
8. Check that the generator set master switch is in the OFF position.
9. Reconnect the generator set engine starting battery, negative (–) lead last.
10. Reconnect power to the battery charger, if equipped.



1. Main logic board
2. Modbus® RS-485 port (P20)
3. RS-232-C port (P18), connects with standard DB-9 RS-232 cable

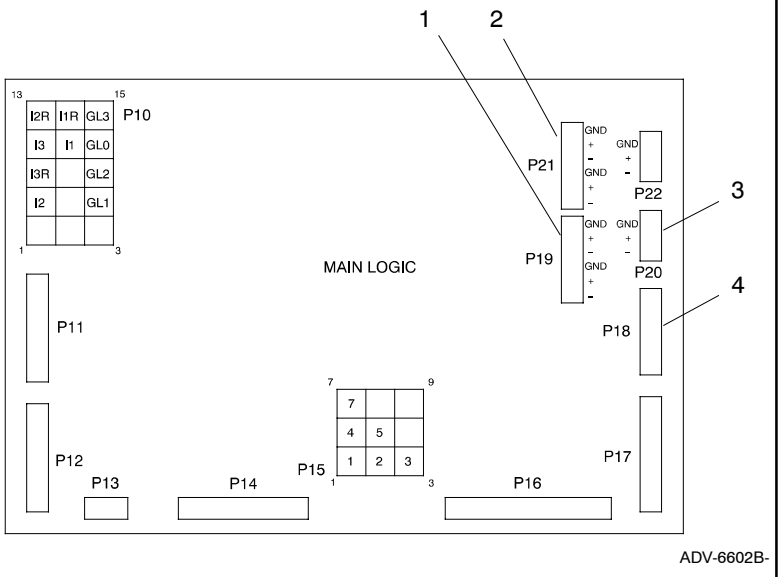
Figure 4-3 Communication Port Locations for Decision-Maker™ 550 Generator Set Controller

MAIN LOGIC BOARD

P18 RS232 CONNECTIONS
P18–1 CD
P18–2 RX
P18–3 TX
P18–4 DTR
P18–5 GROUND
P18–6 DSR
P18–7 RTS
P18–8 CTS
P18–9 RI

P20 RS485 NON–ISOLATED CONNECTIONS
P20–1 GND
P20–2 +
P20–3 –

P21 RS485A ISOLATED CONNECTIONS
P21–1 GND
P21–2 +
P21–3 –
P21–4 GND
P21–5 +
P21–6 –



1. P19 spare connector for factory use
2. P21 RS-485 KBUS isolated connections
3. P20 RS-485 Modbus® non-isolated connections
4. P18 RS-232 non-isolated connections

Figure 4-4 Communication Connections Pin Identification

4.3 Controller Setup

After connecting the hardware, set up the controller. Enter the communication settings shown in the procedure below. Refer to the controller operation manual for detailed instructions on how to enter settings through the controller keypad.

Note: Changing the programming mode requires entering the generator set controller access code. Refer to the controller operation manual for more information.

Controller Setup Procedure

1. Go to Menu 14—Programming Mode using the controller keypad. Enter the local programming mode to allow changes to the controller communication settings.
2. Enter the controller access code when prompted by the controller.
3. Go to Menu 13—Communications.
4. Use the MENU arrow buttons to move to the Protocol Modbus® heading.
5. Enter Yes at the Modbus® Online Y/N display.
6. Choose the connection type. Choose Converter and proceed to step 8 if the controller is converting RS-232 to RS-485. Otherwise, choose Single and proceed to step 7.

   Note: The controller automatically selects RS-232 for the primary port if Converter is chosen for the connection type.

7. Choose RS-232 or RS-485 for the primary port, which is the port connected to the Modbus® master.
8. Enter the network address of the controller. Enter 1 (one) for a single connection.

   Note: Use a unique network address for each unit. Use numbers between 1 and 246. Do not use 0 (zero).

9. Select the baud rate. Choose the same baud rate for the Modbus® master, modems, and connected devices .
10. Go to Menu 14—Programming Mode again. Choose either remote programming mode, local programming mode, or programming mode off as described below:

    a. To allow the Modbus® master to read and write to the controller, choose Remote; *or*

    b. To allow only monitoring through the Modbus® connections but local programming through the controller keypad, choose Local; *or*

    c. To turn the programming mode off, allowing no controller programming from either the Modbus® master or the local keypad, choose Off.

11. Enter the controller access code when prompted by the controller.

4.4 Controller Application Code Versions

There are two versions of the Modbus® registers for different versions of the controller's application code. Figure 4-5 shows where to find the Modbus register map for your unit based on the application code version number.

550 Controller Application Code Version	Location of Modbus Register Map
Below 2.10	Appendix C
2.10 or higher	Section 4.5

Figure 4-5 Register Map Locations for Different Application Code Versions

Use the following procedure to access Menu 20 to check the version number of the application code loaded on your controller.

Procedure to Identify the Controller Application Code Version

1. Use the controller keypad to access Menu 20. At the controller display Enter Menu No: 1–15, press 20 and the Enter key.
2. Use the down arrow key on the controller keypad to step through the factory setup items until Code Version is displayed.
3. Record the code version number shown for future reference.
4. Press the Reset Menu key on the controller keypad to exit the menu.

4.5 Modbus Maps for Controllers with Application Code Versions 2.10 or Higher

This section contains Modbus® registers for Decision-Maker® 550 controller with application code versions 2.10 or higher (for example, code version 2.20). See Section 4.4 for instructions to determine the application code version number for your controller.

Refer to Section 1.3 for definitions of terms and symbols used in the register tables.

Time delays, setpoints, inputs and outputs, and other user-defined parameters are entered through the controller keypad or Monitor III software. Refer to the operation manuals for the 550 controller and Monitor III software for instructions. See the List of Related Materials for document part numbers.

The system event stack registers 41500–41515 contain the status (active or inactive) of fault warnings and shutdowns, inputs, outputs, and MDEC/ADEC alarms. See Section 4.5.6.

The event history registers 40871–41270 contain the time and date information for the last 100 events. See Section 4.5.6 for event message codes.

4.5.1 Guide to the Register Map

Description	Registers
Monitoring	40001–40083
Electrical Output	40001–40032
Engine Status	40033–40060
Analog Input Status	40061–40076
Digital Input Status	40077–40078
Controller Status	40079–40083
Maintenance	40084–40112
Time/Date	40113–40115
Time Delay Settings	40116–40124
Settings and Setpoints	40125–40146
Factory Setup	40147–40226
Digital Input Setup	40227–40499
Analog Input Setup	40500–40739
Remapped Registers *	40740–40837
Relay Driver Output Status (see Section 4.5.4)	40838–40839
Relay Driver Output Setup	40840–40870
Event History	40871–41270
Customer-Defined Character Strings	41271–41295
Reserved and Write-Only Registers	41296–41305
Remote Functions	41306–41413
Reserved for Factory Use	41314–41499
System Event Stack (status of fault warnings and shutdowns, inputs, outputs, and MDEC alarms; see Section 4.5.6.)	41500–41515
Reserved for Wireless Monitor	41516–41536
Reserved	41537–41549
Defined Common Faults (Define/Inspect)	41550–41805
Reserved	41806–49998
Device ID	49999

* Registers 40740–40837 have been mapped to 41550–41647 (Defined Common Faults) for compatibility with earlier versions. See Section 4.5.3.

4.5.2 Modbus Registers

Register	Data Description	Access	Data Type	Range/Units/Notes
40001	L1 - L2 Voltage	RO	WORD	Volts AC
40002	L2 - L3 Voltage	RO	WORD	Volts AC
40003	L3 - L1 Voltage	RO	WORD	Volts AC
40004	L1 - L0 Voltage	RO	WORD	Volts AC
40005	L2 - L0 Voltage	RO	WORD	Volts AC
40006	L3 - L0 Voltage	RO	WORD	Volts AC
40007	L1 Current	RO	WORD	Amps AC
40008	L2 Current	RO	WORD	Amps AC
40009	L3 Current	RO	WORD	Amps AC
40010	Frequency	RO	WORD	Hz X 100
40011	Total kW	RO	WORD	kW
40012	Percent of Rated kW	RO	WORD	% Rated kW
40013	Total Power Factor	RO	SWORD	PF X 100 (SIGNED)
40014	L1 kW	RO	WORD	kW
40015	L1 Power Factor	RO	SWORD	PF X 100 (SIGNED)
40016	L2 kW	RO	WORD	kW
40017	L2 Power Factor	RO	SWORD	PF X 100 (SIGNED)
40018	L3 kW	RO	WORD	kW
40019	L3 Power Factor	RO	SWORD	PF X 100 (SIGNED)
40020	Total kVAR	RO	SWORD	kVAR (SIGNED)
40021	L1 kVAR	RO	SWORD	kVAR (SIGNED)
40022	L2 kVAR	RO	SWORD	kVAR (SIGNED)
40023	L3 kVAR	RO	SWORD	kVAR (SIGNED)
40024	Total kVA	RO	WORD	kVA
40025	L1 kVA	RO	WORD	kVA
40026	L2 kVA	RO	WORD	kVA
40027	L3 kVA	RO	WORD	kVA
40028	Current Lead/Lag	RO	WORD	Bits 0-1 Total Current - Leading = 10 Lagging = 01 Bits 2-3 L1 Current - Leading = 10 Lagging = 01 Bits 4-5 L2 Current - Leading = 10 Lagging = 01 Bits 6-7 L3 Current - Leading = 10 Lagging = 01
40029	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40030	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40031	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40032	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40033	Oil Pressure*	RO	WORD	kPa/psi
40034	Coolant Temperature*	RO	SWORD	Degrees C/Degrees F
40035	Engine Speed*	RO	WORD	RPM
40036	Local Battery Voltage*	RO	WORD	Volts DC X 10
40037	Fuel Pressure*	RO	WORD	kPa/psi DDEC/MDEC/ADEC only
40038	Fuel Temperature*	RO	SWORD	Degrees C/Degrees F DDEC/MDEC/ADEC only
40039	Fuel Rate*	RO	WORD	Liters/Hour X 100 or Gallons/Hour X 100 DDEC only
40040	Used Last Run*	RO	WORD	Liters/Gallons DDEC only
40041	Coolant Pressure*	RO	WORD	kPa/psi DDEC only
40042	Coolant Level*	RO	WORD	% X 10 DDEC only
40043	Lube Oil Temperature*	RO	SWORD	Degrees C/Degrees F DDEC/MDEC/ADEC/Waukesha only
40044	Oil Level*	RO	WORD	% X 10 DDEC only
40045	Crankcase Pressure*	RO	WORD	kPa/psi DDEC only
40046	Ambient Temperature *	RO	SWORD	Degrees C/Degrees F DDEC only
40047	ECM Battery Voltage*	RO	WORD	Volts DC X 10 DDEC/MDEC/ADEC only
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
40048	ECM Status	RO	WORD	0 = DDEC-Equipped, 1 = Non-ECM, 2 = MDEC/ADEC-Equipped
40049	Intake Air Temperature	RO	SWORD	Degrees C/Degrees F MDEC/ADEC/Waukesha only
40050	Intake Air Pressure	RO	WORD	Degrees C/Degrees F MDEC/ADEC only
40051	MDEC/ADEC Fault Codes	RO	WORD	Numeric Fault Code MDEC/ADEC only
40052	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40053	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40054	Reserved For Future Use	RO	WORD	Mapped to register 41500 for compatibility with earlier controller application code versions. **Note:** Code versions 2.10 and higher use more registers for the Event Stack than previous versions.
40055	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40056	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40057	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40058	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40059	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40060	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40061	Analog Input 00 (Battery Voltage)*	RO	WORD	Volts DC
40062	Analog Input 01*	RO	WORD	User-defined and calibrated through the 550 controller. See the controller operation manual.
40063	Analog Input 02*	RO	WORD	
40064	Analog Input 03*	RO	WORD	
40065	Analog Input 04*	RO	WORD	
40066	Analog Input 05*	RO	WORD	
40067	Analog Input 06*	RO	WORD	
40068	Analog Input 07*	RO	WORD	
40069	Reserved For Additional Input	RO	WORD	
40070	Reserved For Additional Input	RO	WORD	
40071	Reserved For Additional Input	RO	WORD	
40072	Reserved For Additional Input	RO	WORD	
40073	Reserved For Additional Input	RO	WORD	
40074	Reserved For Additional Input	RO	WORD	
40075	Reserved For Additional Input	RO	WORD	
40076	Reserved For Additional Input	RO	WORD	
40077- 40078	Digital Input Status/Option Flags	RO	2 WORDS	Word #1 Digital Inputs 0-15: Bit 0 Remote start contacts Bit 1 Emergency stop Bit 2 Low coolant level Bit 3 Digital Input #1 Bit 4 Digital Input #2 Bit 5 Digital Input #3 Bit 6 Digital Input #4 Bit 7 Digital Input #5 Bit 8 Digital Input #6 Bit 9 Digital Input #7 Bit 10 Digital Input #8 Bit 11 Digital Input #9 Bit 12 Digital Input #10 Bit 13 Digital Input #11 Bit 14 Digital Input #12 Bit 15 Digital Input #13
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
40077–40078, cont.	Digital Input Status/Option Flags	RO	2 WORDS	Word #2: Bit 0 Digital Input #14 Bit 1 Digital Input #15 Bit 2 Digital Input #16 Bit 3 Digital Input #17 Bit 4 Digital Input #18 Bit 5 Digital Input #19 Bit 6 Digital Input #20 Bit 7 Digital Input #21 Bit 8 DDEC Flag Bit 9 MDEC/ADEC Flag Bit 10 Tier1 Flag Bit 11 Waukesha Flag Bits 12–15 Unused Input Is high/option enabled if bit is set. Digital inputs are user-defined through the controller or Monitor III software. See the related operation manual.
40079	Master Switch Position	RO	WORD	0 = Error, 1 = Auto, 2 = Off, 3 = Run
40080	Programming Mode Status	RO	WORD	1 = Off, 2 = Local, 3 = Remote
40081	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40082	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40083	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40084	Total Number of Starts	RO	WORD	Starts
40085	Total Run Time Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40087	Total Run Time Loaded Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40089	Total Run Time Unloaded Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40091	Total Run Time kW Hrs	RO	LONG	kW Hrs (LSW First)
40093	RTSM Total Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40095	RTSM Loaded Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40097	RTSM Unloaded Hrs	RO	LONG	HRS X 100 (LSW FIRST)
40099	RTSM kW Hrs	RO	LONG	kW Hrs (LSW FIRST)
40101	Last Maintenance Date	RO	2 WORDS	Day | Month – Year
40103	Operating Days Since Maint.	RO	WORD	Days
40104	Number of Starts Since Maint.	RO	WORD	Starts
40105	Last Start Date	RO	2 WORDS	Day | Month – Year
40107	Last Start Time	RO	WORD	Hr|Min
40108	Last Run Length	RO	WORD	Hrs X 100
40109	Last Run Loaded	RO	WORD	0 = Unloaded, 1 = Loaded
40110	Timed Run Time (Hr:Min)	RW	WORD	Hr|Min
40111	Timed Run Remaining (Hr:Min)	RO	WORD	Hr|Min
40112	Is Timed Run Active	RO	WORD	1 = True, 0 = False
40113	Current Date	RW	2 WORDS	Day | Month – 2 Digit Year | Day of Week (0=Sunday)
40115	Current Time (24 Hr Clock)	RW	WORD (Hr|Min)	Hr|Min
40116	Time Delay Engine Start	RW	WORD	Min | Sec
40117	Time Delay Starting Aid	RW	WORD	Min | Sec
40118	Time Delay Crank On	RW	WORD	Min | Sec
40119	Time Delay Crank Pause	RW	WORD	Min | Sec
40120	Time Delay Engine Cooldown	RW	WORD	Min | Sec
40121	Time Delay Crank Cycles	RW	WORD	Cycles
40122	Time Delay Overvoltage	RW	WORD	Min | Sec
40123	Time Delay Undervoltage	RW	WORD	Min | Sec
40124	Time Delay Load Shed kW	RW	WORD	Min | Sec
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
40125	Operating Mode	RW	WORD	Bits 0–1: Operating Mode 1=Standby, 2=Prime Power Bit 2: Unused Bit 3: MDEC/ADEC DSC Mode 1 = Enabled, 0 = Disabled Bit 4: MDEC/ADEC VSG Mode 1 =Enabled, 0 = Disabled Bits 5–7: Temp Sensor Type
40126	System Voltage	RW	WORD	Volts AC
40127	System Frequency	RW	WORD	Hz
40128	System Phase	RW	WORD	1 = 3 Phase Delta, 2 = 3 Phase Wye, 3 = Single Phase
40129	kW Rating	RW	WORD	kW
40130	Load Shed Output	RW	WORD	% of kW RATING
40131	Overvoltage	RW	WORD	% of System Voltage
40132	Undervoltage	RW	WORD	% of System Voltage
40133	Overfrequency	RW	WORD	% of System Frequency
40134	Underfrequency	RW	WORD	% of System Frequency
40135	Overspeed	RW	WORD	Hz
40136	Battery Voltage	RW	WORD	Volts DC X 10
40137	Lo Battery Voltage	RW	WORD	Volts DC X 10
40138	Hi Battery Voltage	RW	WORD	Volts DC X 10
40139	Metric Units	RW	WORD	1 = True, 0 = False
40140	NFPA 110 Defaults Enabled	RW	WORD	1 = True, 0 = False
40141	Rated Current	RO	WORD	Amps AC
40142	Cooldown Temperature Override	RW	WORD	1 = True, 0 = False
40143	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40144	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40145	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40146	Reserved For Future Use	RO	WORD	Returns 0 (zero)
40147	Final Assembly Date	RO	2 WORDS	Day | Month – Year
40149	Final Assembly Clock No.	RO	LONG	99999 Max (LSW FIRST)
40151	Total Operating Days	RO	WORD	Days
40152	Model No.	RO	13 WORDS	26 Character String
40165	Spec. No.	RO	8 WORDS	16 Character String
40173	Genset Serial No.	RO	10 WORDS	20 Character String
40183	Alternator Part No.	RO	10 WORDS	20 Character String
40193	Engine Part No.	RO	10 WORDS	20 Character String
40203	Control No.	RO	LONG	(LSW FIRST)
40205	Code Version	RO	3 WORDS	6 Character String
40208	Setup Lock	RO	WORD	1 = Locked, 0 = Unlocked
40209	Engine Model No.	RO	4 WORDS	8 Character String ECM only
40213	Engine Serial No.	RO	5 WORDS	10 Character String ECM only
40218	Unit No.	RO	5 WORDS	10 Character String ECM only
40223	ECM Serial No.	RO	4 WORDS	8 Character String ECM only
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
Digital Inputs 1-21 Setup (for status see 40077-40079):				
40227	Digital Input 01	RW	13 WORDS PER INPUT	Word 1: Enabled | Function ID Word 2: Inhibit Time (Min|Sec) Word 3: Delay Time (Min|Sec) Word 4-13: 10 Words for 20 Character Description String Refer to Section 4.5.7, Digital Auxiliary Input Functions, for descriptions and codes. See the controller operation manual, TP-6200, for factory-reserved and user-selectable inputs for various applications.
40240	Digital Input 02			
40253	Digital Input 03			
40266	Digital Input 04			
40279	Digital Input 05			
40292	Digital Input 06			
40305	Digital Input 07			
40318	Digital Input 08			
40331	Digital Input 09			
40344	Digital Input 10			
40357	Digital Input 11			
40370	Digital Input 12			
40383	Digital Input 13			
40396	Digital Input 14			
40409	Digital Input 15			
40422	Digital Input 16			
40435	Digital Input 17			
40448	Digital Input 18			
40461	Digital Input 19			
40474	Digital Input 20			
40487	Digital Input 21			
Note: Cannot read past end of block				
Analog Input Setup (for status see registers 40061-40068)				
40500	Analog Input 01	RW	16 WORDS PER INPUT	Refer to the controller operation manual, TP-6200, for identification of user inputs and factory-reserved inputs for specific applications. Word 1: Warning/Shutdown Enable [Bits 8,9] | Inhibit Time (Sec) Word 2: Warning Time (Sec) | Shutdown Time (Sec) Word 3: Lower Warning Limit Word 4: Upper Warning Limit Word 5: Lower Shutdown Limit Word 6: Upper Shutdown Limit Word 7-16:Analog voltage adjust for switchgear applications only; 10 words for 20 character description string
40516	Analog Input 02			
40532	Analog Input 03			
40548	Analog Input 04			
40564	Analog Input 05			
40580	Analog Input 06			
40596	Analog Input 07			
Note: Cannot read past end of block				
Analog Inputs 8-15 Setup				
40612	Reserved For Non-ECM	RO	16 WORDS PER INPUT	
40628				
40644				
40660				
40676				
40692				
40708				
40724				
Note: Cannot read past end of block				
40740-40837	Mapped to 41550-41647			
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
Define/Inspect RDO Status (2 WORDS). See Section 4.5.4.				
40838	RDO Status: RDO1 – RDO16	RO*	WORD	Output Is High If Individual Bit Is Set. Bit 0 = RDO 1
40839	RDO Status: RDO17 – RDO31	RO*	WORD	Output Is High If Individual Bit Is Set. Bit 0 = RDO 17
Note: Cannot read past end of block				
* Software-controlled RDOs are RW.				
Define/Inspect RDOs (RW, 1 WORD per RDO). See Section 4.5.6				
40840	Relay Driver Output 01	RW	WORD	Selection | Setpoint Function uses the event codes in Section 4.5.6. Setpoints are for analog inputs only; otherwise setpoint=0.
40841	Relay Driver Output 02	RW	WORD	
40842	Relay Driver Output 03	RW	WORD	
40843	Relay Driver Output 04	RW	WORD	
40844	Relay Driver Output 05	RW	WORD	
40845	Relay Driver Output 06	RW	WORD	
40846	Relay Driver Output 07	RW	WORD	
40847	Relay Driver Output 08	RW	WORD	
40848	Relay Driver Output 09	RW	WORD	
40849	Relay Driver Output 10	RW	WORD	
40850	Relay Driver Output 11	RW	WORD	
40851	Relay Driver Output 12	RW	WORD	
40852	Relay Driver Output 13	RW	WORD	
40853	Relay Driver Output 14	RW	WORD	
40854	Relay Driver Output 15	RW	WORD	
40855	Relay Driver Output 16	RW	WORD	
40856	Relay Driver Output 17	RW	WORD	
40857	Relay Driver Output 18	RW	WORD	
40858	Relay Driver Output 19	RW	WORD	
40859	Relay Driver Output 20	RW	WORD	
40860	Relay Driver Output 21	RW	WORD	
40861	Relay Driver Output 22	RW	WORD	
40862	Relay Driver Output 23	RW	WORD	
40863	Relay Driver Output 24	RW	WORD	
40864	Relay Driver Output 25	RW	WORD	Function | Setpoint Function uses the event codes in Section 4.5.6. Setpoints are for analog inputs only; otherwise setpoint=0.
40865	Relay Driver Output 26	RW	WORD	
40866	Relay Driver Output 27	RW	WORD	
40867	Relay Driver Output 28	RW	WORD	
40868	Relay Driver Output 29	RW	WORD	
40869	Relay Driver Output 30	RW	WORD	
40870	Relay Driver Output 31	RW	WORD	
Note: Cannot read past end of block				
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
Event History. See Section 4.5.6 for event codes.				
40871-40910	Event History - Page 1 (1-10)	RO	40 WORDS	10 events, 4 words each: Event Code|Setpoint Hr|Min Day|Month Year See Section 4.5.6 for event codes. Setpoints are for analog inputs only; otherwise setpoint=0 **Note:** Message code = 0xFFat end of history
40911-40950	Event History - Page 2 (11-20)	RO	40 WORDS	
40951-40990	Event History - Page 3 (21-30)	RO	40 WORDS	
40991-41030	Event History - Page 4 (31-40)	RO	40 WORDS	
41031-41070	Event History - Page 5 (41-50)	RO	40 WORDS	
41071-41110	Event History - Page 6 (51-60)	RO	40 WORDS	
41111-41150	Event History - Page 7 (61-70)	RO	40 WORDS	
41151-41190	Event History - Page 8 (71-80)	RO	40 WORDS	
41191-41230	Event History - Page 9 (81-90)	RO	40 WORDS	
41231-41270	Event History - Page 10 (91-100)	RO	40 WORDS	
Note: Cannot read past end of block.				
Customer-Defined Character Strings (defined through Monitor software)				
41271	Designation	RW	5 WORDS	9 Character String
41276	Load	RW	10 WORDS	20 Character String
41286	Location	RW	10 WORDS	20 Character String
Note: Cannot read past end of block.				
41296	Reserved for future use	RO	WORD	Returns 0 (zero)
41297	Reserved for future use	RO	WORD	Returns 0 (zero)
41298	Reserved for future use	RO	WORD	Returns 0 (zero)
41299	Reserved for future use	RO	WORD	Returns 0 (zero)
41300	Reserved for future use	RO	WORD	Returns 0 (zero)
41301	Reserved for future use	RO	WORD	Returns 0 (zero)
41302	Reserved for future use	RO	WORD	Returns 0 (zero)
41303	Reserved for future use	RO	WORD	Returns 0 (zero)
41304	Reserved for future use	RO	WORD	Returns 0 (zero)
41305	Reserved for future use	RO	WORD	Returns 0 (zero)
Note: Cannot Read Past End of Block				
Remote Functions				
41306	Start Timed Run	WO	WORD	1 = Start, 0 = No Start
41307	Stop Timed Run	WO	WORD	1 = Stop, 0 = No Stop
41308	Reset Maintenance Records	WO	WORD	1 = Reset, 0 = No Reset
41309	Remote Fault Reset	WO	WORD	1 = Reset, 0 = No Reset
41310	Reserved for future use	RO	WORD	Returns 0 (zero)
41311	Reserved for future use	RO	WORD	Returns 0 (zero)
41312	Reserved for future use	RO	WORD	Returns 0 (zero)
41313	Reserved for future use	RO	WORD	Returns 0 (zero)
41314-41499	Reserved for factory use			
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
System Event Stack (must be read as 16 register block)**. See Sections 4.5.5 and 4.5.6.**				
41500	System Events 0-15 Word #1	RO	16 WORDS	System event status. 0=not active 1=active Each bit corresponds to a different event code. See Sections 4.5.5 and 4.5.6.
41501	System Events 16-31 Word #2			
41502	System Events 32-47 Word #3			
41503	System Events 48-63 Word #4			
41504	System Events 64-79 Word #5			
41505	System Events 80-95 Word #6			
41506	System Events 96-111 Word #7			
41507	System Events 112-127 Word #8			
41508	System Events 128-143 Word #9			
41509	System Events 144-159 Word #10			
41510	System Events 160-175 Word #11			
41511	System Events 176-191 Word #12			
41512	System Events 192-207 Word #13			
41513	System Events 208-223 Word #14			
41514	System Events 224-239 Word #15			
41515	System Events 240-255 Word #16			
Note: Cannot Read Past End of Block.				
41516-41536	Reserved	RO	WORD	Reserved for the Wireless Monitor
41537-41549	Not used	RO	WORD	Returns illegal address
Define/Inspect Defined Common Faults:				
41550	Emergency Stop	RW	WORD	Selected | Setpoint The selected byte indicates whether a given fault has been assigned to the defined common fault: 0=not assigned to the defined common fault; 1=assigned to the defined common fault. The setpoint byte indicates the setpoint value for that item.
41551	Overspeed			
41552	Overcrank			
41553	High Coolant Temperature Shutdown			
41554	Oil Pressure Shutdown			
41555	Low Coolant Temperature Warning (ECM only)			
41556	Low Fuel			
41557	High Coolant Temperature Warning			
41558	Oil Pressure Warning			
41559	Master Not In Auto			
41560	NFPA 110 Fault			
41561	Low Battery Voltage			
41562	High Battery Voltage			
41563	Battery Charger Fault			
41564	System Ready			
41565	Loss of ECM Comm (ECM only)			
41566	No Oil Pressure Signal			
41567	High Oil Temperature Shutdown			
41568	No Coolant Temperature Signal			
41569	Low Coolant Level			
41570	Speed Sensor Fault			
41571	Locked Rotor			
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
Define/Inspect Defined Common Faults, continued:				
41572	Master Switch Error	RW	WORD	Selected | Setpoint The selected byte indicates whether a given fault has been assigned to the defined common fault: 0=not assigned to the defined common fault; 1=assigned to the defined common fault. The setpoint byte indicates the setpoint value for that item.
41573	Master Switch Open			
41574	Master Switch Off			
41575	AC Sensing Loss			
41576	Over Voltage			
41577	Under Voltage			
41578	Weak Battery			
41579	Over Frequency			
41580	Under Frequency			
41581	Load Shed kW Overload	RW	WORD	Selected | Setpoint
41582	Load Shed kW Under Frequency			
41583	Over Current Warning			
41584	EPS Supplying Load			
41585	Internal Fault			
41586	Engine Cooldown Delay			
41587	Engine Start Delay			
41588	Starting Aid			
41589	Generator Running			
41590	Air Damper Control			
41591	Ground Fault			
41592	EEPROM Write Failure	RW	WORD	Selected | Setpoint
41593	Critical Overvoltage			
41594	Alternator Protect Shutdown			
41595	Air Damper Indicator			
41596	Digital Input 01	RW	WORD	**Note:** Analog and digital inputs are user-defined through the controller or Monitor III software. See the related operation manual.
41597	Digital Input 02			
41598	Digital Input 03			
41599	Digital Input 04			
41600	Digital Input 05			
41601	Digital Input 06			
41602	Digital Input 07			
41603	Digital Input 08			
41604	Digital Input 09			
41605	Digital Input 10			
41606	Digital Input 11			
41607	Digital Input 12			
41608	Digital Input 13			
41609	Digital Input 14			
41610	Digital Input 15			
41611	Digital Input 16			
41612	Digital Input 17			
41613	Digital Input 18			
41614	Digital Input 19			
41615	Digital Input 20			
41616	Digital Input 21			
41617	Analog Input 01	RW	WORD	**Note:** Analog and digital inputs are user-defined through the controller or Monitor III software. See the related operation manual.
41618	Analog Input 02			
41619	Analog Input 03			
41620	Analog Input 04			
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
41621	Analog Input 05	RW	WORD	**Note:** Analog and digital inputs are user-defined through the controller or Monitor III software. See the related operation manual.
41622	Analog Input 06			
41623	Analog Input 07			
41624	Reserved for additional input	RW	WORD	
41625	Reserved for additional input			
41626	Reserved for additional input			
41627	Reserved for additional input			
41628	Reserved for additional input			
41629	Reserved for additional input			
41630	Reserved for additional input			
41631	Reserved for additional input			
41632	Defined Common Fault			
41633	Software Controlled RDO#1	RW	WORD	Selected | Setpoint
41634	Software Controlled RDO#2			
41635	Software Controlled RDO#3			
41636	Software Controlled RDO#4			
41637–41648	*Reserved for factory use*			*Reserved for factory use*
41649	Genset Parameter Warning	RW	WORD	Selected | Setpoint
41650	Genset S/N Mismatch Warning			
41651	Genset S/N Mismatch Shutdown			
41652	*Reserved for factory use*			
41653	Protective Relay Overvoltage	RW	WORD	Switchgear applications only. Cannot be defined as common fault or assigned as RDO, but can referenced in event stack/log.
41654	Protective Relay Under Voltage			
41655	Protective Relay Overfrequency			
41656	Protective Relay Underfrequency			
41657	Protective Relay Reverse Power			
41658	Protective Relay Over Power			
41659	Protective Relay Loss of Field			
41660	Protective Relay Overcurrent Vr			
41661	Reverse Power Shutdown	RW	WORD	Switchgear applications only
41662	Over Power Shutdown			
41663	Loss of Field Shutdown			
41664	Over Current Shutdown			
41665	Common Protective Relay Output	RW	WORD	Switchgear applications only. Cannot be defined as common fault, but can be assigned as RDO and referenced in event stack/log.
41666	In Synch	RW	WORD	Switchgear applications only.
41667	Breaker Trip			
41668	Fuel Valve Relay	RW	WORD	Waukesha only.
41669	Pre Lube Relay			
41670	Air -Fuel Module Start			
41671	Oil Temperature Loss of Signal			
41672	High Oil Temperature Warning			
41673	Intake Air Temperature Loss of Signal			
41674	High Intake Air Temperature Warning	RW	WORD	Waukesha/MDEC/ADEC only.
41675	High Intake Air Temperature Shutdown			
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

Register	Data Description	Access	Data Type	Range/Units/Notes
41676	MDEC/ADEC Yellow Alarm	RW	WORD	MDEC/ADEC only.
41677	MDEC/ADEC Red Alarm			
41678	MDEC/ADEC Block Heater Control			
41679	Low Coolant Temperature Shutdown			
41680	MDEC/ADEC Load Shed Over Temperature			
41681	Maintenance Reminder	RW	WORD	
41682	Engine Derate Active (ECM only)	RW	WORD	
41683-41724	Reserved For Future Use	RW	WORD	
41725	Loss of Oil Pressure Signal #1	RO	WORD	Active only with Marine third-party approval option (Lloyd's option)
41726	Loss of Oil Pressure Signal #2	RO	WORD	
41727	Loss of Coolant Temp Signal #1	RO	WORD	
41728	Loss of Coolant Temp Signal #2	RO	WORD	
41729	High Coolant Temp Shutdown #1	RO	WORD	
41730	High Coolant Temp Shutdown #2	RO	WORD	
41731	Low Oil Pressure Shutdown #1	RO	WORD	
41732	Low Oil Pressure Shutdown #2	RO	WORD	
41733	High Coolant Temp Warning #1	RO	WORD	
41734	High Coolant Temp Warning #2	RO	WORD	
41735	Low Coolant Temp Warning #1	RO	WORD	
41736	Low Coolant Temp Warning #2	RO	WORD	
41737	Low Oil Pressure Warning #1	RO	WORD	
41738	Low Oil Pressure Warning #2	RO	WORD	
41739	Low Coolant Pressure Warning	RO	WORD	
41740	Loss of Signal Coolant Pressure	RO	WORD	
41741	Air -Fuel Module Start	RW	WORD	Waukesha only.
41742	No Dial Tone	RW	WORD	With optional dial-out feature only.
41743	Dialout Message Sent	RW	WORD	
41744	No Modem at Powerup	RW	WORD	
41745	Modem Connection Failed	RW	WORD	
41746-41791	Reserved For Future Use	RW	WORD	
41792	Dual Start Application	RW	WORD	
41793	Starter A Failure	RW	WORD	
41794	Starter B Failure	RW	WORD	
41795	Dual Starter B	RW	WORD	
41796	Controller Setup Warning	RW	WORD	
41797	Phase Selection Error	RW	WORD	
41798	Voltage Selection Error	RW	WORD	
41799	Frequency Selection Error	RW	WORD	
41800	kW Selection Error	RW	WORD	
41801	EEPROM Block Initialized	RW	WORD	
41802	Date Changed	RW	WORD	
41803	Controller Initialized	RW	WORD	
41804-49998	Reserved For Future Use	RW	WORD	
Device ID				
49999	Device ID	RO	WORD	Dec 550 Device ID = 20
*0x7FD6 = data unavailable. 0x7FFF = data is out of range.				

4.5.3 Remapped Registers

Registers 40740–40837 have been mapped to 41550–41647 (defined common faults) for compatibility with earlier code versions.

Register	Mapped to:	Description
40740	41550	Emergency Stop
40741	41551	Overspeed
40742	41552	Overcrank
40743	41553	High Coolant Temperature Shutdown
40744	41554	Oil Pressure Shutdown
40745	41555	Low Coolant Temperature Warn.
40746	41556	Low Fuel
40747	41557	High Coolant Temperature Warning
40748	41558	Oil Pressure Warning
40749	41559	Master Not In Auto
40750	41560	NFPA 110 Fault
40751	41561	Low Battery Voltage
40752	41562	High Battery Voltage
40753	41563	Battery Charger Fault
40754	41564	System Ready
40755	41565	Loss of ECM Comm
40756	41566	No Oil Pressure Signal
40757	41567	High Oil Temperature Shutdown
40758	41568	No Coolant Temperature Signal
40759	41569	Low Coolant Level
40760	41570	Speed Sensor Fault
40761	41571	Locked Rotor
40762	41572	Master Switch Error
40763	41573	Master Switch Open
40764	41574	Master Switch Off
40765	41575	AC Sensing Loss
40766	41576	Over Voltage
40767	41577	Under Voltage
40768	41578	Weak Battery
40769	41579	Over Frequency
40770	41580	Under Frequency
40771	41581	Load Shed kW Overload
40772	41582	Load Shed kW Under Frequency
40773	41583	Over Current Warning
40774	41584	EPS Supplying Load
40775	41585	Internal Fault
40776	41586	Engine Cooldown Delay
40777	41587	Engine Start Delay
40778	41588	Starting Aid
40779	41589	Generator Running
40780	41590	Air Damper Control
40781	41591	Ground Fault
40782	41592	EEPROM Write Failure
40783	41593	Critical Overvoltage
40784	41594	Alternator Protect Shutdown
40785	41595	Air Damper Indicator
40786	41596	Digital Input 01
40787	41597	Digital Input 02
40788	41598	Digital Input 03
40789	41599	Digital Input 04
40790	41600	Digital Input 05
40791	41601	Digital Input 06
40792	41602	Digital Input 07
40793	41603	Digital Input 08
40794	41604	Digital Input 09
40795	41605	Digital Input 10
40796	41606	Digital Input 11
40797	41607	Digital Input 12
40798	41608	Digital Input 13
40799	41609	Digital Input 14
40800	41610	Digital Input 15
40801	41611	Digital Input 16
40802	41612	Digital Input 17
40803	41613	Digital Input 18
40804	41614	Digital Input 19
40805	41615	Digital Input 20
40806	41616	Digital Input 21
40807	41617	Analog Input 01
40808	41618	Analog Input 02
40809	41619	Analog Input 03
40810	41620	Analog Input 04
40811	41621	Analog Input 05
40812	41622	Analog Input 06
40813	41623	Analog Input 07
40814	41624	*Reserved for additional input*
40815	41625	
40816	41626	
40817	41627	
40818	41628	
40819	41629	
40820	41630	
40821	41631	
40822	41632	Defined Common Fault
40823	41633	Software Controlled RDO#1
40824	41634	Software Controlled RDO#2
40825	41635	Software Controlled RDO#3
40826	41636	Software Controlled RDO#4
40827	41637	*Reserved for factory use*
40828	41638	
40829	41639	
40830	41640	
40831	41641	
40832	41642	
40833	41643	
40834	41644	
40835	41645	
40836	41646	
40837	41647	

4.5.4 Relay Driver Outputs

Status. Registers 40838–40839 contain the status (active or not active) of the relay driver outputs (RDOs). Each register is a 16-bit word and each individual bit corresponds to one RDO. Figure 4-8 illustrates how the RDO status codes are stored.

The RDO is active if the corresponding bit is set (equal to 1). The example in Figure 4-7 shows that RDOs 7, 8, 12, 18, 23, and 30 are active.

To identify the functions assigned to the RDOs, check registers 40840–40870.

Setup. Registers 40840–40870 contain the RDO function and setpoint information. The function assigned to the RDO is indicated by the event codes shown in the first byte of the register. Event codes are listed in the table in Section 4.5.6. Setpoints are for analog inputs only; otherwise setpoint=0.

Register	RDO Number Corresponding to Each Bit															
40848	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40849	—	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Figure 4-6 RDO Status Registers

Register	RDO Status: 0 = Not Set (not active), 1 = Set (active)															
40848	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0
40849	—	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0

Figure 4-7 RDO Status Example

4.5.5 System Event Codes

Event codes are contained in registers 41500 through 41515. Each register is a 16-bit word, and each bit corresponds to a system event code. Figure 4-8 illustrates how the event codes are stored in the system event stack registers. The numbers 0–255 in Figure 4-8 correspond to the event codes shown in the System Event Codes table, Section 4.5.6. For example, number 6 corresponds to low fuel.

The condition indicated by the message code is active if the corresponding bit is set. Figure 4-9 shows register 41500 indicating low battery voltage, a high coolant temperature warning, and a low fuel condition.

Register	Event Code Indicated by Each Bit (See Section 4.5.6 for event code identification.)															
41500	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
41501	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
41502	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
41503	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
41504	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
41505	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
41506	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
41507	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112
41508	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128
41509	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144
41510	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160
41511	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177	176
41512	207	206	205	204	203	202	201	200	199	198	197	196	195	194	193	192
41513	223	222	221	220	219	218	217	216	215	214	213	212	211	210	209	208
41514	239	238	237	236	235	234	233	232	231	230	229	228	227	226	225	224
41515	255	254	253	252	251	250	249	248	247	246	245	244	243	242	241	240

Figure 4-8 Event Codes Stored in System Event Stack Registers 41500 through 41515

Register	Event Code Status: 0 = Not Set, 1 = Set															
41500	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0

Figure 4-9 Event Code Status Example, Register 41500

4.5.6 System Event Code Table

The system event codes in the following table are used for relay driver output functions as well as for events in the event history and the event stack.

Code	Description
0	Emergency Stop
1	Overspeed
2	Overcrank
3	High Coolant Temperature Shutdown
4	Oil Pressure Shutdown
5	Low Coolant Temperature
6	Low Fuel Warning
7	High Coolant Temperature Warning
8	Oil Pressure Warning
9	Master Not In Auto
10	NFPA 110 Fault
11	Low Battery Voltage
12	High Battery Voltage
13	Battery Charger Fault
14	System Ready
15	Loss of ECM Comm
16	No Oil Pressure Signal
17	High Oil Temperature Shutdown
18	No Coolant Temperature Signal
19	Low Coolant Level
20	Speed Sensor Fault
21	Locked Rotor
22	Master Switch Error
23	Master Switch Open
24	Master Switch Off
25	AC Sensing Loss
26	Over Voltage
27	Under Voltage
28	Weak Battery
29	Over Frequency
30	Under Frequency
31	Load Shed kW Overload
32	Load Shed kW Under Frequency
33	Over Current
34	EPS Supplying Load
35	Internal Fault
36	Engine Cooldown Delay
37	Engine Start Delay
38	Starting Aid
39	Generator Running
40	Air Damper Control
41	Ground Fault
42	EEPROM Write Failure
43	Critical Overvoltage
44	Alternator Protect Shutdown
45	Air Damper Indicator
46	Digital Input 01
47	Digital Input 02
48	Digital Input 03
49	Digital Input 04
50	Digital Input 05
51	Digital Input 06
52	Digital Input 07
53	Digital Input 08
54	Digital Input 09
55	Digital Input 10
56	Digital Input 11
57	Digital Input 12
58	Digital Input 13
59	Digital Input 14
60	Digital Input 15
61	Digital Input 16
62	Digital Input 17
63	Digital Input 18
64	Digital Input 19
65	Digital Input 20
66	Digital Input 21
67	Analog Input 01
68	Analog Input 02
69	Analog Input 03
70	Analog Input 04
71	Analog Input 05
72	Analog Input 06
73	Analog Input 07
74	*Reserved for additional input*
75	*Reserved for additional input*
76	*Reserved for additional input*
77	*Reserved for additional input*
78	*Reserved for additional input*
79	*Reserved for additional input*
80	*Reserved for additional input*
81	*Reserved for additional input*
82	Defined Common Fault
83	Software Controlled RDO#1
84	Software Controlled RDO#2
85	Software Controlled RDO#3
86	Software Controlled RDO#4
99	Genset Parameter Warning
100	Genset S/N Mismatch Warning
101	Genset S/N Mismatch Shutdown
103	Protective Relay Overvoltage
104	Protective Relay Under Voltage
105	Protective Relay Overfrequency
106	Protective Relay Underfrequency
107	Protective Relay Reverse Power
108	Protective Relay Over Power
109	Protective Relay Loss of Field
110	Protective Relay Overcurrent Vr
111	Reverse Power Shutdown

Code	Description
112	Over Power Shutdown
113	Loss of Field Shutdown
114	Over Current Shutdown
115	Common Protective Relay Output
116	In Synch
117	Breaker Trip
118	Fuel Valve Relay
119	Pre Lube Relay
120	Air -Fuel Module Start
121	Oil Temperature Loss of Signal
122	High Oil Temperature Warning
123	Intake Air Temperature Loss of Signal
124	High Intake Air Temperature Warning
125	High Intake Air Temperature Shutdown
126	MDEC/ADEC Yellow Alarm
127	MDEC/ADEC Red Alarm
128	MDEC/ADEC Block Heater Control
129	Low Coolant Temperature Shutdown
130	MDEC/ADEC Load Shed Over Temperature
131	*Reserved For Future Use*
132	Engine Derate Active
191	Air -Fuel Module Start
192	No Dial Tone
193	Dialout Message Sent
194	No Modem at Powerup
195	Modem Connection Failed
196-241	Reserved for Future Use
242	Dual Starter App
243	Starter A Failure
244	Starter B Failure
245	Dual Starter B
246	Controller Setup Error
247	Phase Selection Error
248	Voltage Selection Error
249	Frequency Selection Error
250	kW Selection Error
251	EEPROM Block Initialized
252	Date Changed
253	Controller Initialized

4.5.7 Digital Auxiliary Input Functions

The following function ID codes are used in registers 40227–40499 to identify the function that is assigned to each digital input. The assignment is done through the controller keypad or Monitor III software. See the operation manual for the 550 controller or Monitor III software.

Function ID	Name	Notes
1	Warning	
2	Shutdown Type A	
3	Shutdown Type B	
4	Voltage Raise	
5	Voltage Lower	
6	VAR PF Mode	
7	Remote Shutdown	
8	Remote Reset	
9	Air Damper	
10	Low Fuel Warning	
11	Field Over Volts	
12	Idle Mode	ECM only
13	Battle Switch	
14	Ground Fault	
15	Bat Chgr Fault	
16	High Oil Temperature	
17	Low Coolant Lvl	
18	Low Coolant Temperature	ECM only (not user-assignable)
19	Breaker Closed	(not user-assignable)
20	Enable Synch	(not user-assignable)
21	AFM Shutdown	Waukesha only (not user-assignable)
22	Knock Shutdown	Waukesha only (not user-assignable)
23	Deton Warning	Waukesha only (not user-assignable)
24	Deton Shutdown	Waukesha only (not user-assignable)
25	Low Fuel Shutdown	(not user-assignable)
26	VSG Disable	

Notes