SECTION F
FAULT CODES

Revision Date: 7-22-24

Fault Indication

The Fault indicator on the front of the SC2000 shows when there is something wrong with the system, and that there is a non-zero Fault Code present in Parameter FLC. Please see the Fault Code Table below.

Fault Code

The current Fault Code may be viewed from Parameter FLC.

Last Fault Code

The Last Fault Code may be viewed from Parameter LFC. It is a copy of the last non-zero Fault Code that was present in Parameter FLC.

Parameter	SCADA Register Address	Data Description
FLC	40047	Fault Code — See Fault Code Table below. Note: Parameter FLC automatically returns to zero when the fault clears. (Except for the latching fault codes: 1001 - 1009, 1051 - 1054 & 1201 - 1202.)
LFC	40048	Last Fault Code — See Fault Code Table below. Note: Parameter LFC is a copy of the last fault code that was shown on Parameter FLC.

The latching fault codes (1001 - 1009 & 1051 - 1054) and the Last Fault Code LFC may be reset remotely by momentarily setting Modbus Coil 31 (Register 40002 Bit 14), but only when the Parameter Security is Unlocked.

The latching fault codes (1001 - 1009 & 1051 - 1054) and the Last Fault Code LFC may be reset remotely by momentarily setting Modbus Coil 719 (Register 40045 Bit 14), regardless of whether the Parameter Security is Locked or Unlocked.

The Parameter Security Alert fault codes (1201 & 1202) can not be reset remotely through SCADA and may only be reset by cycling the power to the Controller.

The Fault Code (FLC) and the Last Fault Code (LFC) may be viewed from Parameters FLC and LFC in the SC2000 menu.

Latching Fault Codes (1001 - 1009 & 1051 - 1054) and the Last Fault Code FLC may be reset by pressing the down push-button while viewing either FLC or LFC.

FAULT CODE TABLE

Fault Code	Description of Condition
0	Normal
	Level Probe Fault
1001	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 1 Covered before Electrode 2
1002	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 2 Covered before Electrode 3
1003	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 3 Covered before Electrode 4
1004	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 4 Covered before Electrode 5
1005	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 5 Covered before Electrode 6
1006	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 6 Covered before Electrode 7
1007	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 7 Covered before Electrode 8
1008	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 8 Covered before Electrode 9
1009	Level Probe Fault - Electrodes Covered Out of Sequence - Electrode 9 Covered before Electrode 10

FAULT CODE TABLE

Fault Code	Description of Condition
0	Normal
Setup Fault	
1011	Setup Fault - Pump On/Off Level Control - 1st Pump Off Level and 1st Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1012	Setup Fault - Pump On/Off Level Control - 2nd Pump Off Level and 2nd Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1013	Setup Fault - Pump On/Off Level Control - 3rd Pump Off Level and 3rd Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1014	Setup Fault - Pump On/Off Level Control - 4th Pump Off Level and 4th Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1015	Setup Fault - VFD Speed Reference - Level at Minimum Speed and Level at 100% Speed are too close together (minimum of: 0.5 feet apart), or they are upside down.
1018	Setup Fault - More than one Discrete Input is assigned to the same Function.
Miscellaneous Fault	
1031	All Pump Disable - Discrete Input assigned Function 8 is closed (Typically connected to Phase Monitor).
1037	Communication Lost - While Setup for Remote Control Level Input from SCADA (Parameter P.22 = 4). Note: To clear this Fault SCADA must write a Level Input value to the Remote Control Level Input (Modbus Register 40025).
1041	Pump Cutoff Low-Low Level Active - Discrete Input assigned Function 19 is closed.
1042	Pump Cutoff High-High Level Active - Discrete Input assigned Function 20 is closed.
1049	Level Probe Backup Control Active Calling Pump(s) to Run.
1050	Float Backup Control Active Calling Pump(s) to Run. Note: This Fault is disabled if the Level Input Source is set for Float Switch Inputs (Parameter P.22 = 3).
Float Control Fault	
1051	Float Control Fault - Float Out of Sequence - 1st On Level Float input closed before Off Level Float input.
1052	Float Control Fault - Float Out of Sequence - 2nd On Level Float input closed before 1st On Level Float input.
1053	Float Control Fault - Float Out of Sequence - 3rd On Level Float input closed before 2nd On Level Float input.
1054	Float Control Fault - Float Out of Sequence - 4th On Level Float input closed before 3rd On Level Float input.
Hardware Fault	
1081	Hardware Fault - Reading a Setup Parameter from the EEPROM was not successful.
1082	Hardware Fault - Storing a Setup Parameter to EEPROM was not successful.
Parameter Security Alert Fault	
1201	Parameter Security Alert Fault - Suspicious Activity on SCADA RS232 Serial Port COM1 Detected an Unusually High Number of Entries into the Security Code Entry Parameters: SCE3 : SCE2 : SCE1
1202	Parameter Security Alert Fault - Suspicious Activity on SCADA Ethernet Port ENET1 Detected an Unusually High Number of Entries into the Security Code Entry Parameters: SCE3 : SCE2 : SCE1

FAULT CODE TABLE

Fault Code	Description of Condition
0	Normal
Communication Fault - RS232 Serial Port COM1	
2101	The UART detected an Overrun Error reading incoming message.
2102	The UART detected a Parity Error reading the incoming message.
2103	The UART detected a Framing Error or Parity Error reading the incoming message.
2104	Incoming message failed Checksum Test.
2105	Incoming message Length Error. Maximum Allowed: 80 Bytes
2106	Incoming message with Function Code No. 15 - Byte Count Limit Exceeded. Maximum Allowed: 13 Bytes
2107	Incoming message with Function Code No. 15 - Coil Quantity Exceeds what is Allowed by Byte Count.
2108	Incoming message with Function Code No. 16 - Byte Count Limit Exceeded. Maximum Allowed: 70 Bytes
Communication Fault - Ethernet Port ENET1	
3101	The UART detected an Overrun Error reading incoming message.
3102	The UART detected a Parity Error reading the incoming message.
3103	The UART detected a Framing Error or Parity Error reading the incoming message.
3104	Incoming message failed Checksum Test.
3105	Incoming message Length Error. Maximum Allowed: 80 Bytes
3106	Incoming message with Function Code No. 15 - Byte Count Limit Exceeded. Maximum Allowed: 13 Bytes
3107	Incoming message with Function Code No. 15 - Coil Quantity Exceeds what is Allowed by Byte Count.
3108	Incoming message with Function Code No. 16 - Byte Count Limit Exceeded. Maximum Allowed: 70 Bytes

SCADA MODBUS REGISTERS

SCADA Register Address	Description of Register Contents
40047	Fault Code (Parameter FLC)
40048	Last Fault Code (Parameter LFC)
40045	

720	719	718	717	716	715	714	713	712	711	710	709	708	707	706	705	Coil
Fault Code Register (FLC) Has Non-zero Fault Code	FLC & LFC - Reset	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Bit