SECTION F
FAULT CODES

Revision Date: 2-10-23

Fault Indication

The Fault indicator on the front of the SC5000 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	42499	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 - 1056.)
LFC	42500	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 and the Last Fault Code LFC may be reset by momentarily setting Modbus Coil 305 (Register 40020 Bit 0).		

Parameters FLC and LFC may be viewed and reset on various SC5000-CTS-HMI screens.

Parameters FLC and LFC may also be viewed in the SC5000-LED-HMI menu and 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
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
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.

FAULT CODE TABLE

Fault Code	Description of Condition
0	Normal
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 - Pump On/Off Level Control - 5th Pump Off Level and 5th Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1016	Setup Fault - Pump On/Off Level Control - 6th Pump Off Level and 6th Pump On Level are too close together (minimum of: 0.5 feet apart), or they are upside down.
1017	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.
1019	Setup Fault - More than one Analog Input is assigned to the same Function.
1031	All Pump Disable - Discrete Input assigned Function 17 is closed (Typically connected to Phase Monitor).
1041	Pump Cutoff Low-Low Level Active - Discrete Input assigned Function 59 is closed.
1042	Pump Cutoff High-High Level Active - Discrete Input assigned Function 60 is closed.
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.133 = 6).
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.
1055	Float Control Fault - Float Out of Sequence - 5th On Level Float input closed before 4th On Level Float input.
1056	Float Control Fault - Float Out of Sequence - 6th On Level Float input closed before 5th On Level Float input.
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.
1101	Analog Level Meter ALM1 - Below Normal Range (Below 3.5mA) - Level Control has Switched to Level Meter ALM2. Note: This Fault can only be generated when the Level Input Select (Parameter P.133) is set on 4.
1102	Analog Level Meter ALM1 - Above Normal Range (Above 21mA) - Level Control has Switched to Level Meter ALM2. Note: This Fault can only be generated when the Level Input Select (Parameter P.133) is set on 4.
1201	Parameter Security Alert - 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
	Ethernet Port - ENET1 - Communication Fault
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
2109	Incoming message with Function Code No. 05 - Coil Address Out of Bounds. Valid Range: 1 - 320
2110	Incoming message with Function Code No. 06 - Register Address Out of Bounds. Valid Range: 40001 - 41700 and 42001 - 42080
2111	Incoming message with Function Code No. 15 - Coil Address Out of Bounds. Valid Range: 1 - 320
2112	Incoming message with Function Code No. 16 - Register Address Out of Bounds. Valid Range: 40001 - 41700 and 42001 - 42080
	Ethernet Port - ENET2 - Communication Fault
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
3109	Incoming message with Function Code No. 05 - Coil Address Out of Bounds. Valid Range: 1 - 320
3110	Incoming message with Function Code No. 06 - Register Address Out of Bounds. Valid Range: 40001 - 41800 , 42001 - 42100 and 42601 - 42620
3111	Incoming message with Function Code No. 15 - Coil Address Out of Bounds. Valid Range: 1 - 320
3112	Incoming message with Function Code No. 16 - Register Address Out of Bounds. Valid Range: 40001 - 41800 , 42001 - 42100 and 42601 - 42620

FAULT CODE TABLE

Fault Code	Description of Condition
0	Normal
	RS232 Port - COM1 - Communication Fault
4101	The UART detected an Overrun Error reading incoming message.
4102	The UART detected a Parity Error reading the incoming message.
4103	The UART detected a Framing Error or Parity Error reading the incoming message.
4104	Incoming message failed Checksum Test.
4105	Incoming message Length Error. Maximum Allowed: 80 Bytes
4106	Incoming message with Function Code No. 15 - Byte Count Limit Exceeded. Maximum Allowed: 13 Bytes
4107	Incoming message with Function Code No. 15 - Coil Quantity Exceeds what is Allowed by Byte Count.
4108	Incoming message with Function Code No. 16 - Byte Count Limit Exceeded. Maximum Allowed: 70 Bytes
4109	Incoming message with Function Code No. 05 - Coil Address Out of Bounds. Valid Range: 1 - 320
4110	Incoming message with Function Code No. 06 - Register Address Out of Bounds. Valid Range: 40001 - 41800 , 42001 - 42100 and 42601 - 42620
4111	Incoming message with Function Code No. 15 - Coil Address Out of Bounds. Valid Range: 1 - 320
4112	Incoming message with Function Code No. 16 - Register Address Out of Bounds. Valid Range: 40001 - 41800 , 42001 - 42100 and 42601 - 42620
	USB Port - Communication Fault
5101	The UART detected an Overrun Error reading incoming message.
5102	The UART detected a Parity Error reading the incoming message.
5103	The UART detected a Framing Error or Parity Error reading the incoming message.
5104	Incoming message failed Checksum Test.
5105	Incoming message Length Error. Maximum Allowed: 80 Bytes
5106	Incoming message with Function Code No. 15 - Byte Count Limit Exceeded. Maximum Allowed: 13 Bytes
5107	Incoming message with Function Code No. 15 - Coil Quantity Exceeds what is Allowed by Byte Count.
5108	Incoming message with Function Code No. 16 - Byte Count Limit Exceeded. Maximum Allowed: 70 Bytes
5109	Incoming message with Function Code No. 05 - Coil Address Out of Bounds. Valid Range: 1 - 320
5110	Incoming message with Function Code No. 06 - Register Address Out of Bounds. Valid Range: 40031 - 41700 and 42601 - 42620
5111	Incoming message with Function Code No. 15 - Coil Address Out of Bounds. Valid Range: 1 - 320
5112	Incoming message with Function Code No. 16 - Register Address Out of Bounds. Valid Range: 40031 - 41700 and 42601 - 42620