

SECTION Z

Revision Date: 1-6-25

TOUCH SCREEN INTERFACE DEVICE - TSID

The Touch Screen Interface Device (TSID) is a optional piece of equipment that is used to perform troubleshooting and customization of the SC1000 for specific applications.

It provides full access to all setup and status parameters.

It also has screens designed to demo the SCADA capabilities of the SC1000.

TSID FUNCTIONS

- View or Change Setup Parameters
- View Status or Change Setup of all I / O
- Test Communication Ports COM1 and ENET1
- Demo all SCADA features



TSID COMMUNICATION WITH SC1000

The following SC1000 parameter settings are required for COM1 and ENET1 to communicate with the TSID:

RS232 Port COM1 Setup					
E.11	1	Slave Address			Range: 1 - 247
E.12	3	Baud Rate	1 = 2400 bps 2 = 4800 bps 3 = 9600 bps 4 = 19200 bps		
E.13	0	Parity Mode	0 = No Parity 1 = Odd Parity 2 = Even Parity		
E.14	2	Stop Bits	1 = 1 Stop Bit 2 = 2 Stop Bits		

Ethernet Port ENET1 Setup			
E.114 - E.111	192 . 168 . 80 . 12 (E.114 . E.113 . E.112 . E.111)	IP Address	Range: 0 - 255
E.144 - E.141	255 . 255 . 255 . 0 (E.144 . E.143 . E.142 . E.141)	Subnet Mask	Range: 0 - 255
E.154 - E.151	192 . 168 . 80 . 1 (E.154 . E.153 . E.152 . E.151)	Default Gateway	Range: 0 - 255
E.161	502	Port Number	Range: 1 - 65,535

Note:

The Controller's logic reads the setup values upon power up; any changes to the above settings require that the power to be cycled before the new values are used.

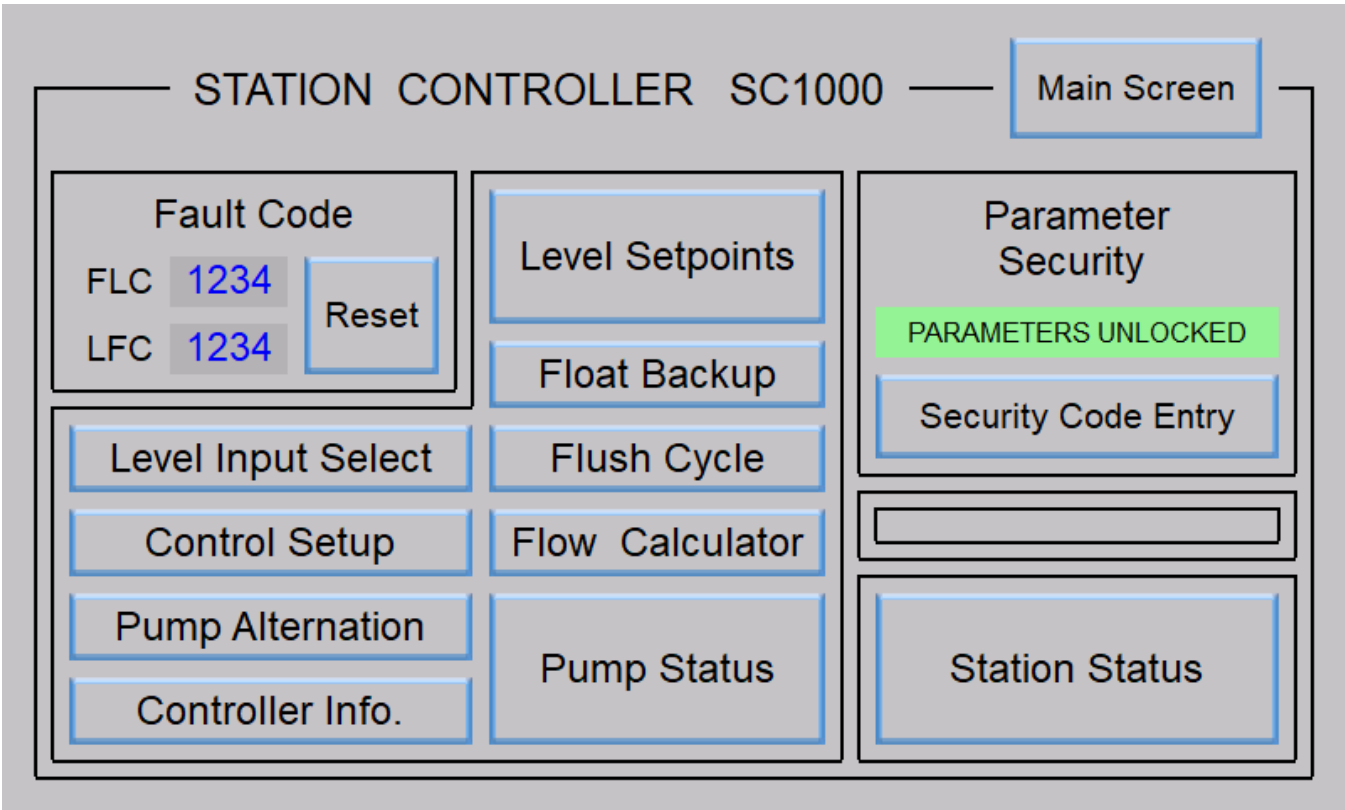
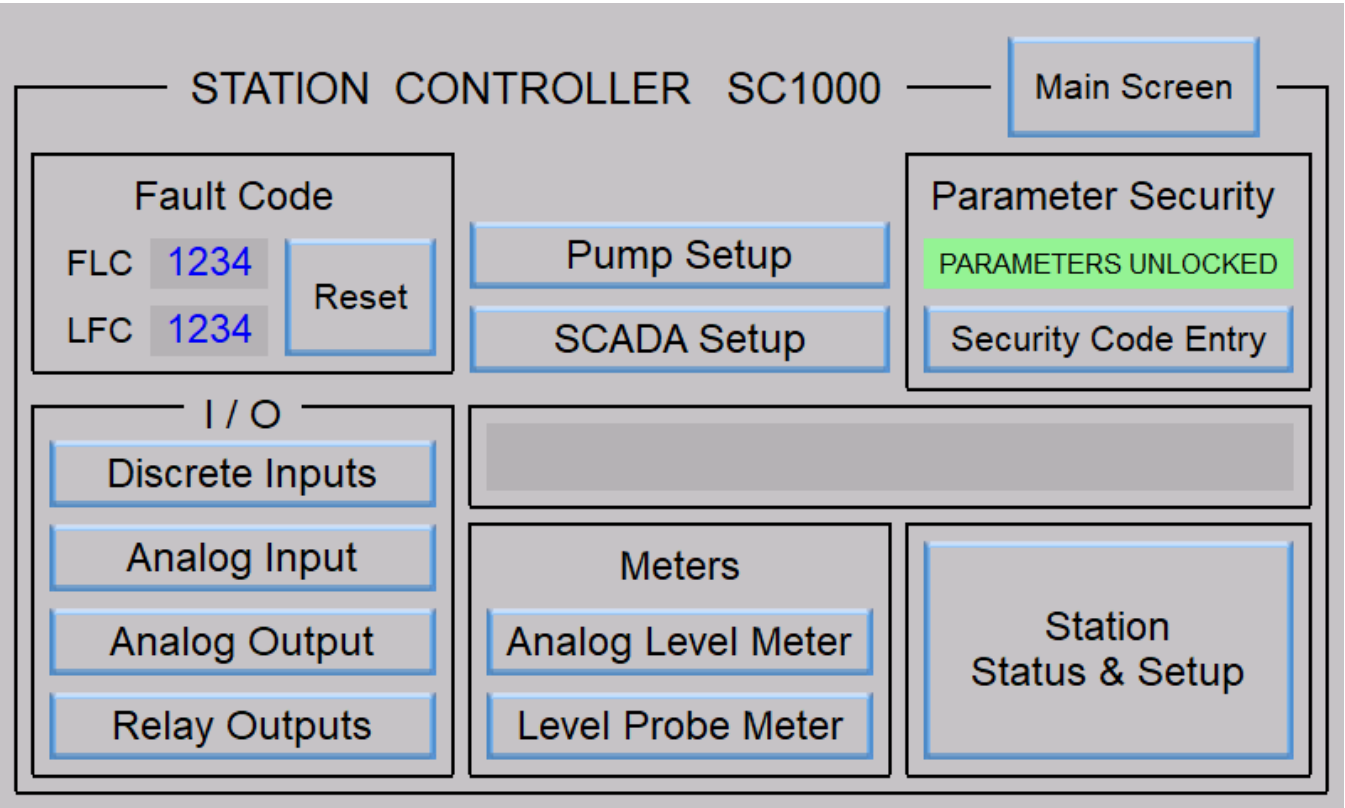
The Touch Screen Interface Device (TSID) consists of a 7 inch Touch Screen panel made by Automation Direct, housed in a durable carrying case with a power cord and interface cables for connection to the Serial Port COM1 and the Ethernet Port ENET1.

It is programmed as a Modbus Master that continually polls the Controller.

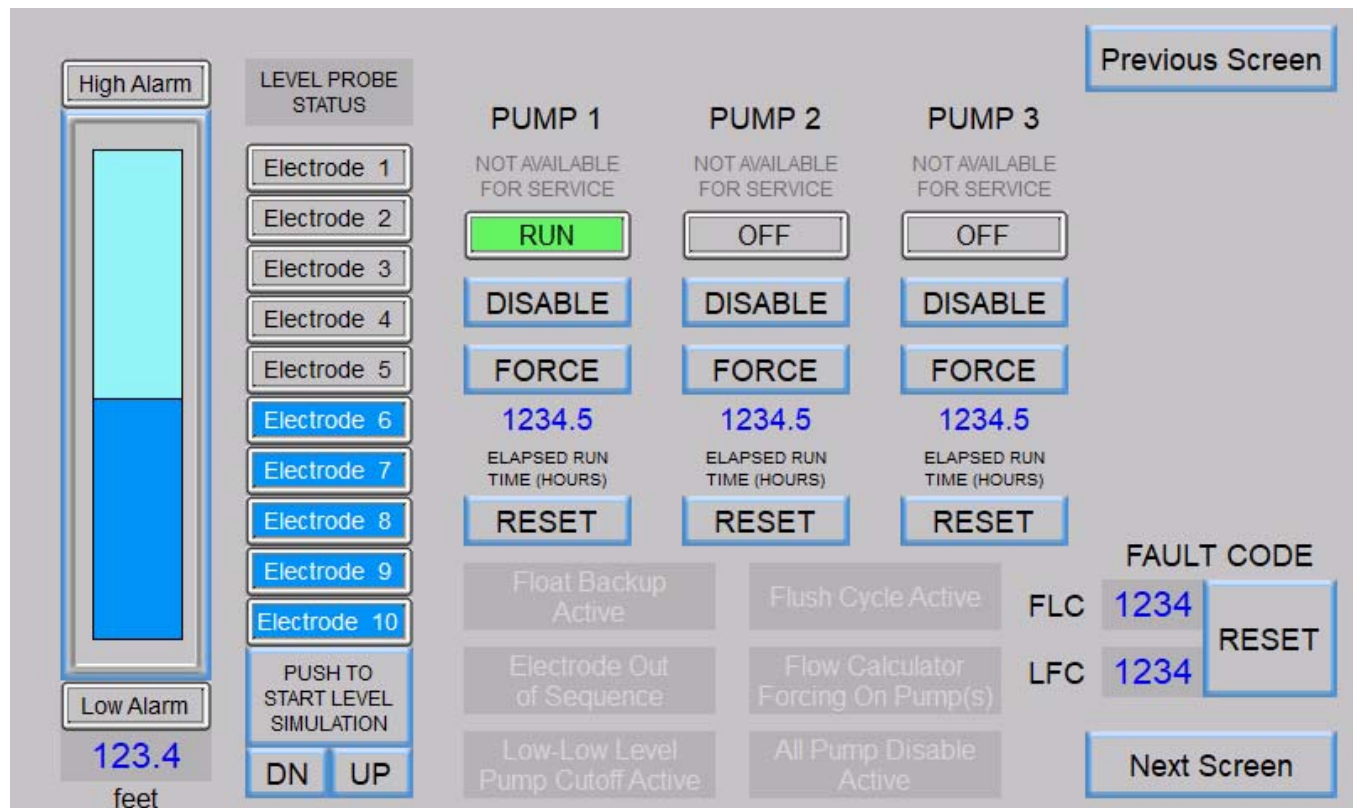
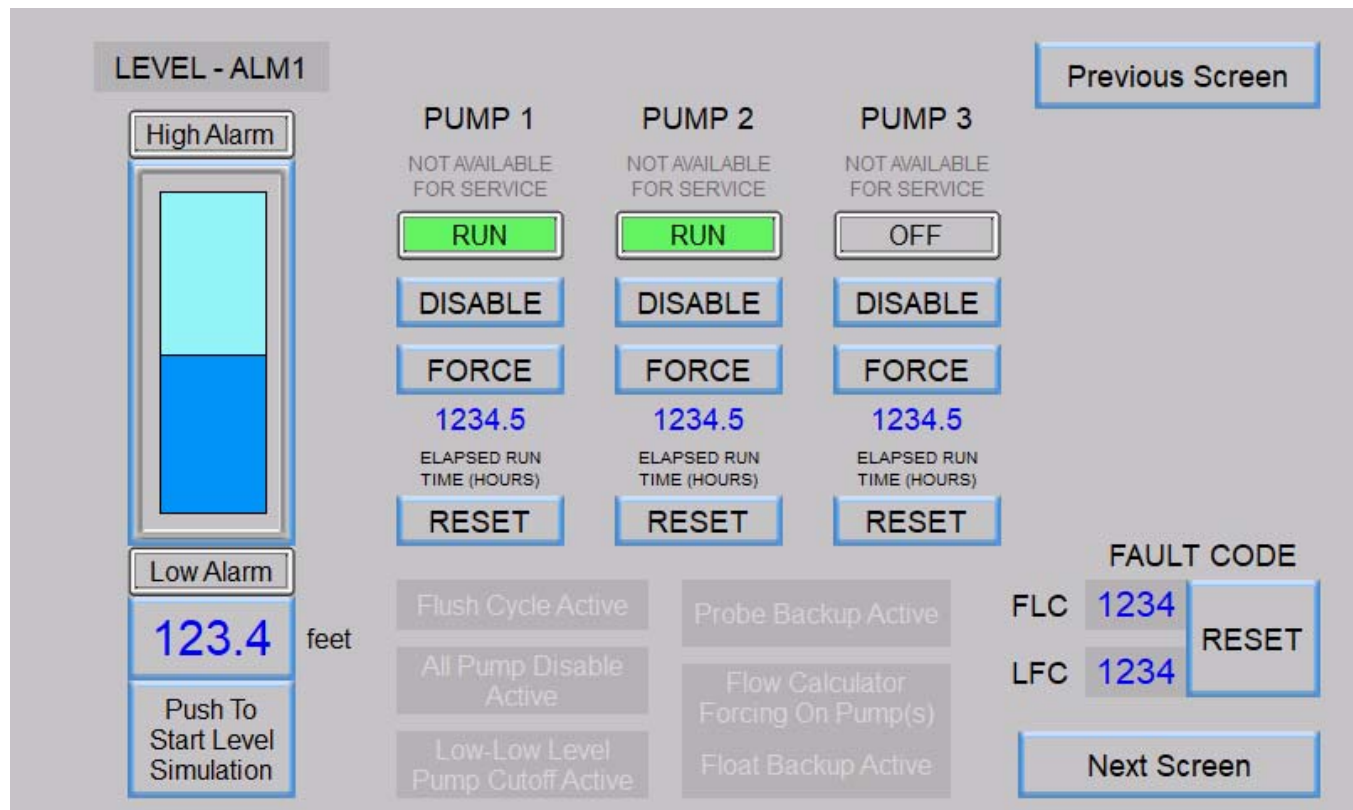
ORDERING INFORMATION

Part Number: TSID

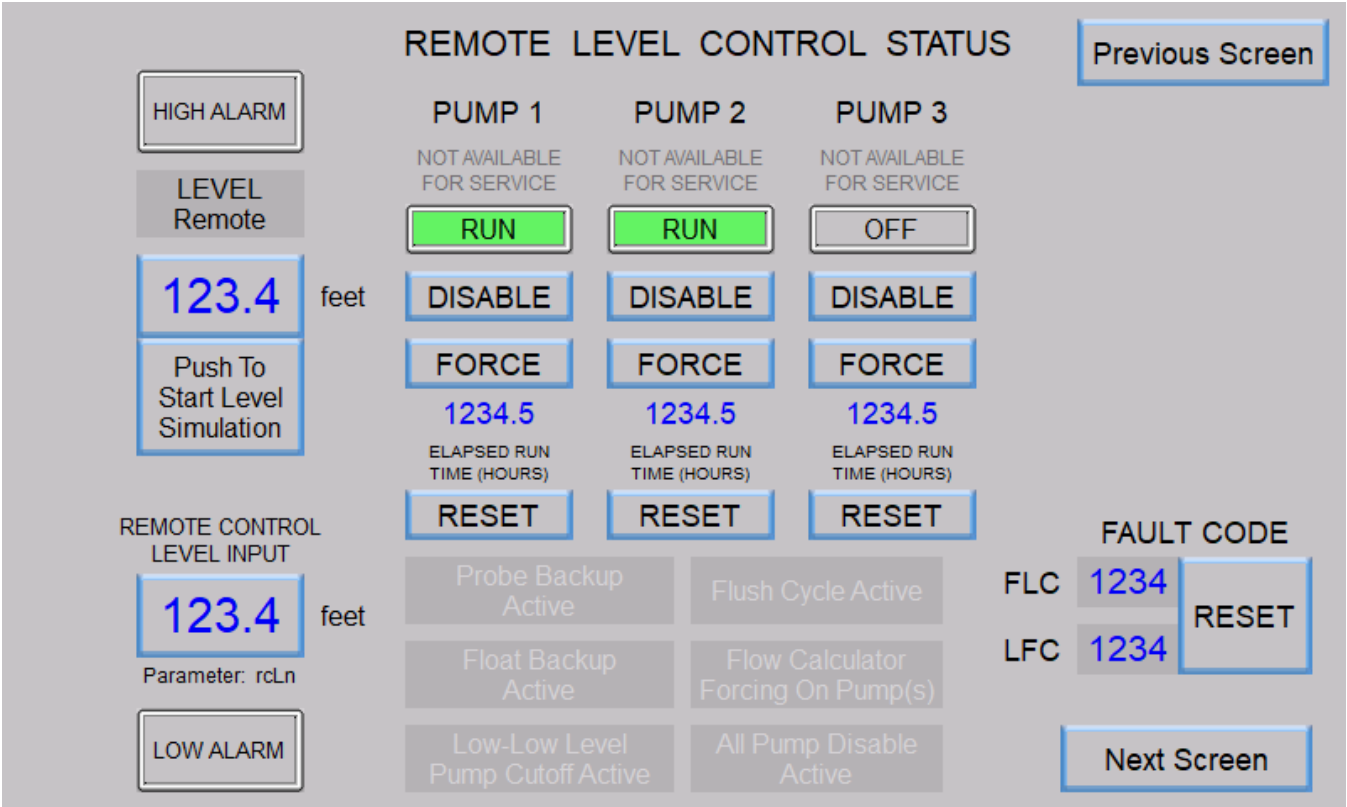
SC1000 MENU - Touchscreen HMI SCREEN



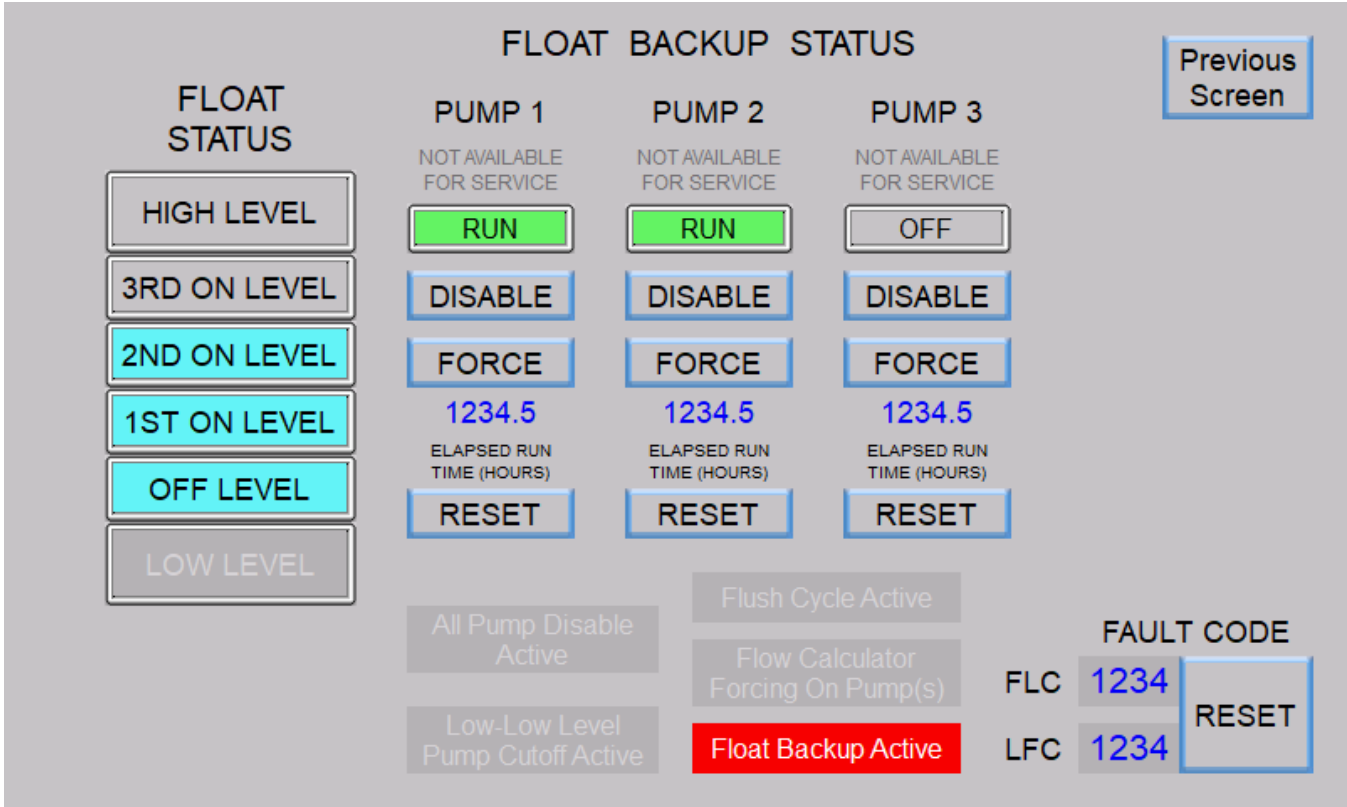
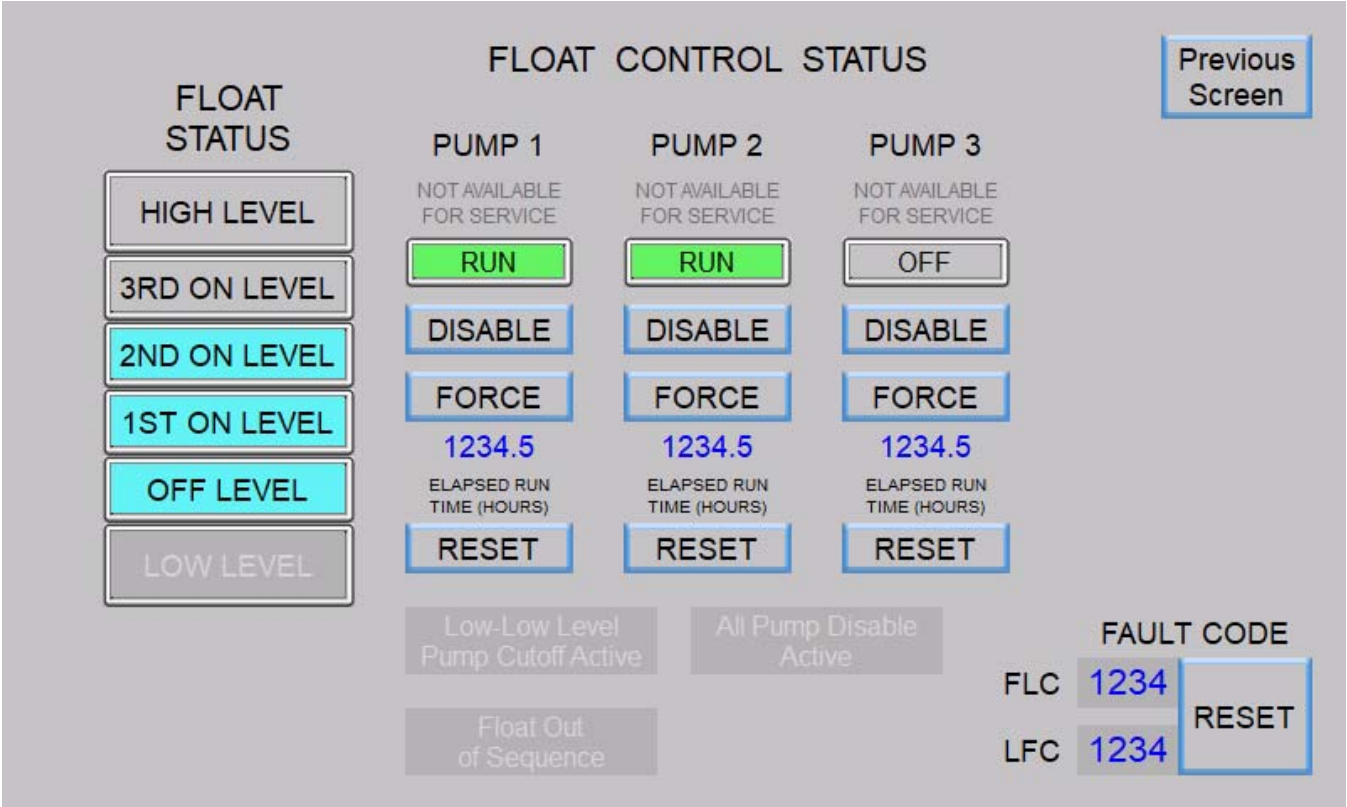
SC1000 MENU - Touchscreen HMI SCREEN



SC1000 MENU - Touchscreen HMI SCREEN



SC1000 MENU - Touchscreen HMI SCREEN



PUMP CONTROL and ALARM SETUP

Previous Screen

PUMP ON / OFF LEVEL CONTROL (feet)

3rd OFF

123.4

123.4

3rd ON

2nd OFF

123.4

123.4

2nd ON

1st OFF

123.4

123.4

1st ON

LEVEL ALARMS (feet)

HIGH

123.4

LOW

123.4

FAULT CODE

FLC

1234

LFC

1234

RESET

PUMP SETUP

Previous Screen

Number of Pumps Present

1

Parameter: P.13

Maximum Number of Pumps Allowed To Run At The Same Time

1

Parameter: P.14

Maximum Number of Pumps Allowed To Run While On Generator

1

(See Discrete Input Function 6) Parameter: P.15

Z-6

[Previous Screen](#)

LEVEL INPUT SELECT

Level Input Select

1

Parameter: P.22

1 = Analog Level Meter ALM1 - Transducer Input
See: [Analog Level Meter ALM1](#)

2 = Level Probe Meter LPM1 - Level Probe Inputs
See: [Level Probe Meter LPM1](#)

3 = Float Switch Inputs
See: [Discrete Input Setup](#)

4 = Remote Control Level Input

Notes:
 Selection 1 - Level Input from a 4-20mA Pressure Transducer - Connected to Analog Input AIX1.
 Selection 2 - Level Probe with 10 Electrodes - Connected to Level Probe Inputs: E1 - E10.
 Selection 3 - Float Switches as the Primary Level Input - Connected to Discrete Inputs.
 Selection 4 - Remote Control Level Input written through SCADA to Parameter rcLn.

[Level Probe Backup](#)

[Previous Screen](#)

STATION CONTROL SETUP

Pump Mode
 1 = Pump Down
 2 = Pump Up

1

Parameter: P.31

Pump Re-Enable Delay After Low Level Pump Cutoff Float Opens (Pump Down Mode Only)
 (Seconds)

123

Parameter: P.35

Start Up Delay (seconds)

123

Parameter: P.32

Pump Re-Enable Delay After High Level Pump Cutoff Float Opens (Pump Up Mode Only)
 (Seconds)

123

Parameter: P.36

Lag Pump Delay (seconds)

123

Parameter: P.33

Low Level Alarm Mode
 0 = Disable Low Level Alarm
 1 = Enable Low Level Alarm

1

Parameter: P.34

DISCRETE INPUT SETUP & STATUS

Previous Screen

Discrete Input Functions:
0 = No Function
1 = Pump 1 Disable
2 = Pump 2 Disable
3 = Pump 3 Disable
4 = External Alternation - Group 1
5 = External Alternation - Group 2
6 = On Generator
7 = All Pump Disable
8 = Sequence Input 1
9 = Sequence Input 2
10 = Sequence Input 3
11 = Low Level Alarm Only
12 = High Level Alarm Only

Next Screen

DISCRETE INPUT	FUNCTION	STATUS
D1	12 F.01	OPEN n.01
D2	12 F.02	OPEN n.02
D3	12 F.03	OPEN n.03
D4	12 F.04	OPEN n.04
D5	12 F.05	OPEN n.05
D6	12 F.06	OPEN n.06
D7	12 F.07	OPEN n.07
D8	12 F.08	OPEN n.08
D9	12 F.09	OPEN n.09
D10	12 F.10	OPEN n.10
D11	12 F.11	OPEN n.11
D12	12 F.12	OPEN n.12

Parameters:

Parameters:

DISCRETE INPUT SETUP

Previous Screen

Discrete Input Pump Disable Mode

1

0 = Disable Pump with Closed Discrete Input
1 = Disable Pump with Open Discrete Input

Parameter: F.19

This Parameter only applies to Pump Disable Discrete Inputs that have their Discrete Input Setup parameters set for Functions 1 - 3.

RELAY OUTPUT SETUP & STATUS

Previous Screen

RELAY OUTPUT	FUNCTION	STATUS	REMOTE CONTROL
ROX1 -	<div>1</div> <div>F.31</div>	<div>OFF</div> <div>ro.1</div>	<div>FORCE ON</div>
ROX2 -	<div>1</div> <div>F.32</div>	<div>OFF</div> <div>ro.2</div>	<div>FORCE ON</div>
ROX3 -	<div>1</div> <div>F.33</div>	<div>OFF</div> <div>ro.3</div>	<div>FORCE ON</div>
ROX4 -	<div>1</div> <div>F.34</div>	<div>OFF</div> <div>ro.4</div>	<div>FORCE ON</div>
ROX5 -	<div>1</div> <div>F.35</div> <div>Parameter</div>	<div>OFF</div> <div>ro.5</div> <div>Parameter</div>	<div>FORCE ON</div>

For Remote Control of Relay set Function to "0".

Relay Output Functions:

0 = Remote Control

1 = High Level Alarm

2 = Low Level Alarm

3 = Pump 1 Control

4 = Pump 2 Control

5 = Pump 3 Control

Z-9

ANALOG INPUT STATUS

Previous Screen

ANALOG INPUT

AIX1

STATUS

1234

A.100

Parameter:

Analogue Input Function:

Analogue Level Meter ALM1

Note:
The Function of Analogue Input AIX1 is fixed as the Analogue Input to the Analogue Level Meter ALM1 and can not be changed in the field.

Analogue Input Calibrated for: 819 @ 4.00mA 4095 @ 20mA

ANALOG OUTPUT STATUS

Previous Screen

ANALOG OUTPUT

AOX1

STATUS

1234

A.200

Parameter:

Analogue Output Function:

Copy of Wet Well Level

Note:
The Function of Analogue Output AOX1 is fixed to provide an analogue representation of the Wet Well Level and can not be changed in the field.

Analogue Output Calibrated for: 819 @ 4.00mA 4095 @ 20mA

RS232 SERIAL PORT COM1 SETUP

Power must be cycled for changes to the Serial Port Setup to take effect.

Previous
Screen

Slave Address 123 Range: 1 - 247
Parameter: E.11

Baud Rate 123
1 = 2400 bps
2 = 4800 bps
3 = 9600 bps
4 = 19200 bps
Parameter: E.12

Parity Mode 123
0 = No Parity
1 = Odd Parity
2 = Even Parity
Parameter: E.13

Stop Bits 1
1 = 1 Stop Bit
2 = 2 Stop Bits
Parameter: E.14

RS232 Serial Port - COM1

12345 Polling Request
Byte Counter
Parameter: d.109

12345 Polling Response
Byte Counter
Parameter: d.110

Next
Screen

ETHERNET PORT ENET1 SETUP

Power must be cycled for changes to the Ethernet Port Setup to take effect.

Previous
Screen

Protocol 123
Parameter: E.101

Port Number 12345
Parameter: E.161

MAC Address
123 : 123 : 123 : 123 : 123 : 123
Parameter: E.176

IP Address 123 . 123 . 123 . 123
Parameter: E.114 E.113 E.112 E.111

Subnet Mask 123 . 123 . 123 . 123
Parameter: E.144 E.143 E.142 E.141

Default Gateway 123 . 123 . 123 . 123
Parameter: E.154 E.153 E.152 E.151

Ethernet Port - ENET1 12345
Parameter: d.111

Operating Program
Revision Number

Polling Request
Byte Counter

Polling Response
Byte Counter

12345
Parameter: d.112

12345
Parameter: d.113

12345

Next
Screen

COMMUNICATION SETUP

[Previous Screen](#)

Remote Control Command Canceling Delays (seconds)

COM1 <small>Parameter: E.01</small>	12345	Delay Range: 1 - 65535 seconds
ENET1 <small>Parameter: E.02</small>	12345	To Disable Remote Control Command Canceling for one or more Ports set the Respective Delay Parameter to 0.

Default Remote Level <small>Parameter: E.03</small>	123.4	Range: 0.0 - 231.0 feet
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[Next Screen](#)

ETHERNET PORT ENET1 TEST SCREEN

[Previous Screen](#)

High Alarm

Low Alarm

123.4

feet

Push To Start Level Simulation

PUMP 1 <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">OFF</div> <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">DISABLE</div> <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">FORCE</div>	PUMP 2 <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">OFF</div> <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">DISABLE</div> <div style="border: 1px solid black; padding: 5px; margin: 5px; text-align: center;">FORCE</div>
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Operating Program
Revision Number

12345

Parameter: d.111

Polling Request
Byte Counter

12345

Parameter: d.112

Polling Response
Byte Counter

12345

Parameter: d.113

LEVELALARMS (feet)

HIGH

123.4

LOW

123.4

PUMP ON / OFF LEVEL CONTROL (feet)

2nd OFF	<div style="border: 1px solid black; padding: 5px; font-size: 24px;">123.4</div>	<div style="border: 1px solid black; padding: 5px; font-size: 24px;">123.4</div>	2nd ON
1st OFF	<div style="border: 1px solid black; padding: 5px; font-size: 24px;">123.4</div>	<div style="border: 1px solid black; padding: 5px; font-size: 24px;">123.4</div>	1st ON

[Next Screen](#)

Previous Screen

COMMUNICATION SETUP

RX & TX LED MODE

1

Parameter: E.07

1 = Shows COM1 and ENET1 Communication

2 = Shows COM1 Communication Only

3 = Shows ENET1 Communication Only

4 = Shows Communication Between the Input Board and the Control Board Only

Previous Screen

PUMP ALTERNATION SETUP

1

Parameter: P.16

Alternation Sequence Mode

1 = Standard Alternation: Group 1: Pumps 1-3

2 = Pump 1 Always Lead: Group 1: Pump 1
Group 2: Pumps 2 - 3

3 = Pump 3 Always Last: Group 1: Pumps 1 - 2
Group 2: Pump 3

1

Parameter: P.17

Alternation Sequence Modifier A

0 = Pump 1 is Allowed to Run with Pumps from Group 2

1 = Pump 1 is Not Allowed to Run with Pumps from Group 2

Alternation Sequence Modifier A only applies where Parameter P.16 = 2.

Next Screen

PUMP ALTERNATION SETUP

Previous Screen

GROUP 1

Forced Lead Pump Position

1

Force Alternation

1

Current Lead Pump

0 = Alternate

Parameter: P.18

Parameter: Ad.01

X = Number of Lead Pump

GROUP 1

Time Based Alternation (Internal Time Clock) (minutes)

12345

0 = Disabled
60 = 1 hour
480 = 8 hour
1440 = 24 hour

Parameter: P.20

Next Screen

PUMP ALTERNATION SETUP

Previous Screen

GROUP 2

Forced Lead Pump Position

1

Force Alternation

1

Current Lead Pump

0 = Alternate

Parameter: P.19

Parameter: Ad.02

X = Number of Lead Pump

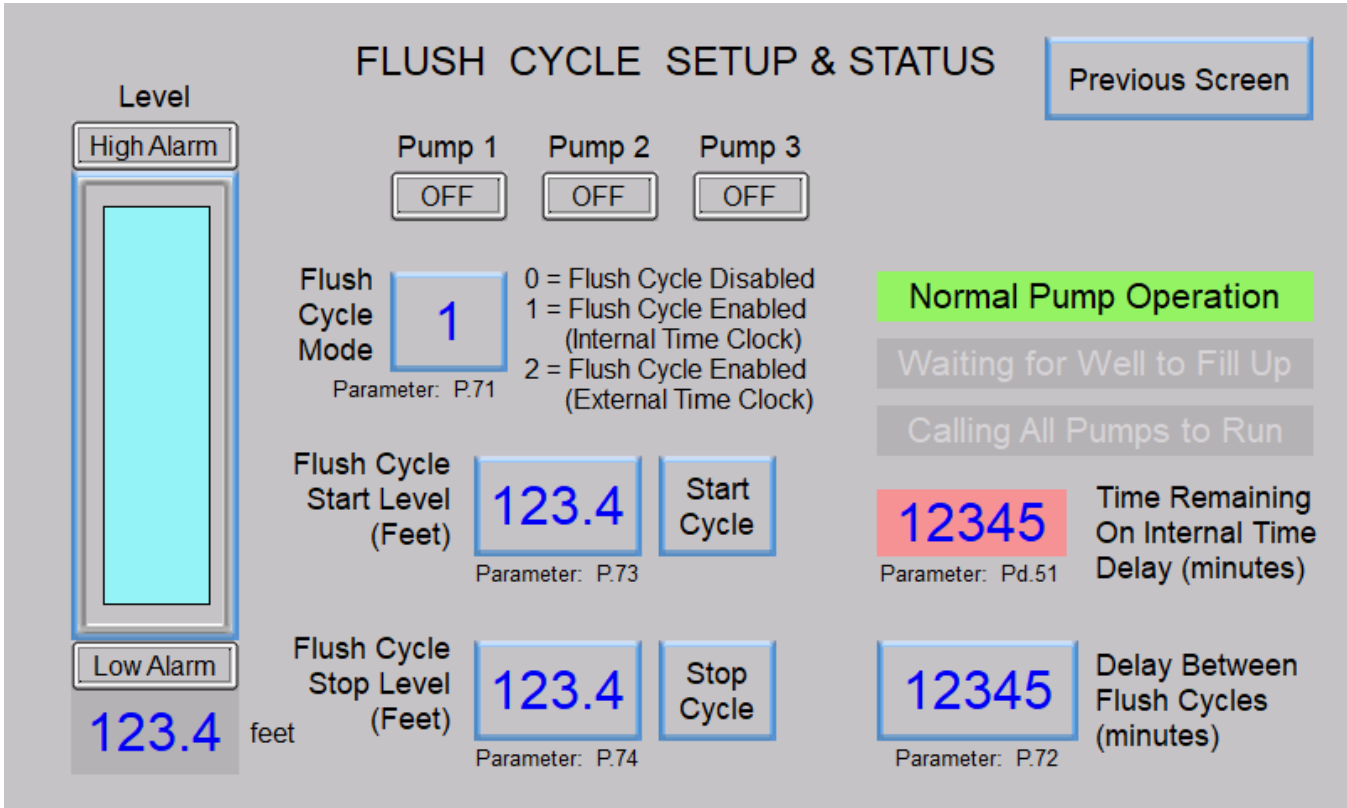
GROUP 2

Time Based Alternation (Internal Time Clock) (minutes)

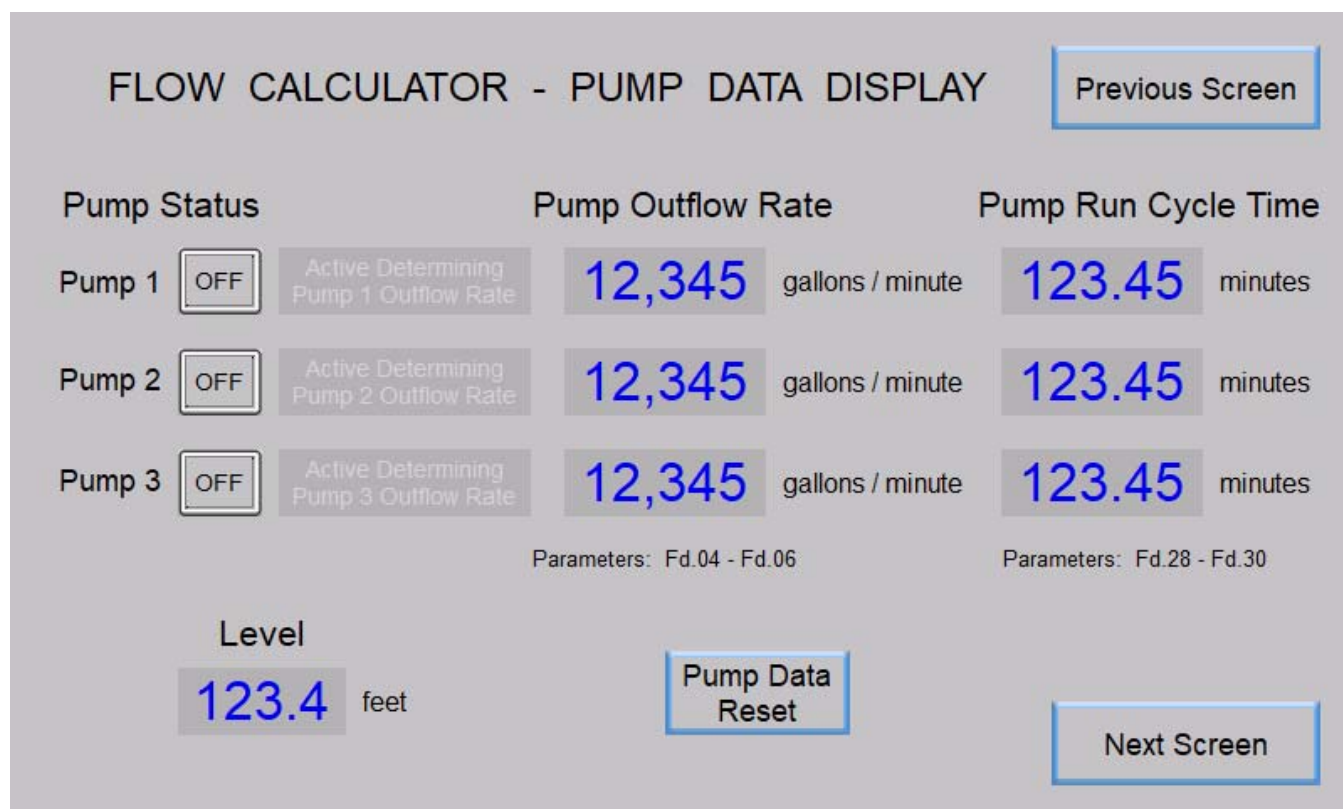
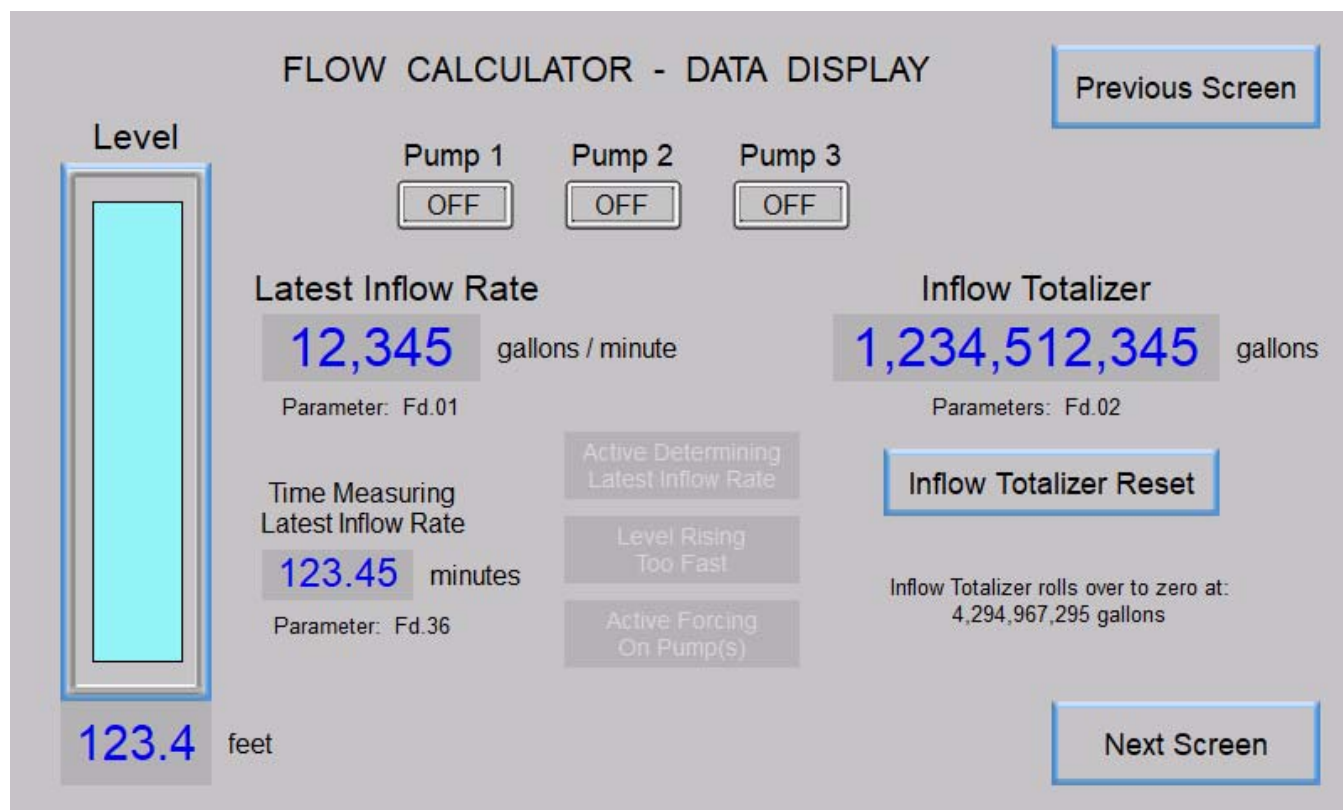
12345

0 = Disabled
60 = 1 hour
480 = 8 hour
1440 = 24 hour

Parameter: P.21



SC1000 MENU - Touchscreen HMI SCREEN



SC1000 MENU - Touchscreen HMI SCREEN

FLOW CALCULATOR - DATA DISPLAY

Previous Screen

Inflow Total Since the Start of a New Day

1,234,512,345

gallons

Parameters: Fd.12

Average Daily Inflow Total

1,234,512,345

gallons

Parameters: Fd.10

Complete Day's Data

Daily Inflow Total

Newest Data

Day 1

1,234,512,345

gallons

Day 2

1,234,512,345

gallons

Day 3

1,234,512,345

gallons

Day 4

1,234,512,345

gallons

Day 5

1,234,512,345

gallons

Day 6

1,234,512,345

gallons

Oldest Data

Day 7

1,234,512,345

gallons

Parameters: Fd.14 - Fd.26

Internal Time Clock

Time Elapsed Since the Start of a New Day

12,345

hours

12

minutes

Parameters: Fd.35 & Fd.34

Start New Day

Next Screen

FLOW CALCULATOR SETUP

Previous Screen

1

Flow Calculator Mode

0 = Flow Calculator Disabled - All Flow Data is Reset to Zero

1 = Flow Calculator Enabled - Internal Time Clock

2 = Flow Calculator Enabled - External Time Clock

Parameter: P.75

Surface Area of Wet Well

1,234.5

square feet

Parameter: P.77

Delay Before Forcing On Another Pump(s)

12

minutes

Parameter: P.78

Latest Inflow Rate Reset Delay

123

minutes

Parameter: P.79

Display Scaling for Legacy SCADA Registers

1234

Parameter: P.76

1 = gallons

10 = gallons / 10

100 = gallons / 100

1000 = gallons / 1000

LEVEL PROBE METER LPM1 - Scaling into Feet

[Previous Screen](#)

Probe Status

Electrode 1

Electrode 2

Electrode 3

Electrode 4

Electrode 5

Electrode 6

Electrode 7

Electrode 8

Electrode 9

Electrode 10

Level Probe Meter Level

123.4

feet

Parameter: LPd.1

Level Probe Meter Electrode Spacing

12

inches

Parameter: P.27

Level Probe Sensitivity

123

Parameter: P.28

FAULT CODE

FLC

1234

LFC

1234

RESET

For LPM1 to be used for Pump Control and Level Alarms the Level Input Select (Parameter P.22) must be set on "2".

ANALOG LEVEL METER ALM1 - Scaling into Feet

[Previous Screen](#)

Analog Level Meter ALM1

123.4

feet

Parameter: ALd.1

Level Input Zero

Slow
+/- 1

▲ ▼

1234

Fast
+/- 10

▲ ▼

Parameter: P.25

Level Input Span

123.45

feet

Parameter: P.24

Analog Input AIX1

1234

Parameter: A.100

Analog Input Range:
819 @ 4.0mA
4095 @ 20mA

Signal Conditioning Control

123

100 = Slow

240 = Normal

250 = Fast

Parameter: P.26

For ALM1 to be used for Pump Control and Level Alarms the Level Input Select (Parameter P.22) must be set on "1".

SC1000 MENU - Touchscreen HMI SCREEN

PROBE INPUT	TEST SIGNAL STATUS	PROBE STATUS	LEVEL PROBE STATUS
E1	123	L.01 Electrode 1 n.21	<div>Level Probe Sensitivity</div> <div>123</div> <div>Parameter: P.28</div> <div>123</div> <div>Clock Signal for Inputs: Parameter: L.11</div>
E2	123	L.02 Electrode 2 n.22	
E3	123	L.03 Electrode 3 n.23	
E4	123	L.04 Electrode 4 n.24	
E5	123	L.05 Electrode 5 n.25	
E6	123	L.06 Electrode 6 n.26	
E7	123	L.07 Electrode 7 n.27	
E8	123	L.08 Electrode 8 n.28	
E9	123	L.09 Electrode 9 n.29	
E10	123	L.10 Electrode 10 n.30	

Parameters: Parameters:

[Previous Screen](#)

LEVEL PROBE ELECTRODE	ELECTRODE FUNCTION	LEVEL PROBE BACKUP SETUP	
E1	1 b.01	<div>Electrode Input Functions:</div> <div>0 = No Function</div> <div>1 = Backup Pump Control - High Level</div> <div>2 = Backup Pump Control - 3rd On Level</div> <div>3 = Backup Pump Control - 2nd On Level</div> <div>4 = Backup Pump Control - 1st On Level</div> <div>5 = Backup Pump Control - Off Level</div> <div>Notes:</div> <div>1. The Backup Pump Control feature will be disabled when the Level Probe is selected as the primary Level Input (Parameter P.22 = 2).</div> <div>2. The Backup Pump Control feature will operate in the Pump Down Mode only (Parameter P.31 = 1), and will not operate in the Pump Up Mode.</div> <div>3. Function 1 will activate the High Level Alarm and will call all available pumps to run until the Off Level Electrode is uncovered.</div>	<div>Level Probe Sensitivity</div> <div>123</div> <div>Parameter: P.28</div>
E2	1 b.02		
E3	1 b.03		
E4	1 b.04		
E5	1 b.05		
E6	1 b.06		
E7	1 b.07		
E8	1 b.08		
E9	1 b.09		
E10	1 b.10		

Parameters:

[Previous Screen](#)

SC1000 MENU - Touchscreen HMI SCREEN

PUMP 1	PUMP 2	PUMP 3	
OFF	OFF	OFF	Previous Screen
ELAPSED RUN TIME (Hours) 1234.5 RESET	ELAPSED RUN TIME (Hours) 1234.5 RESET	ELAPSED RUN TIME (Hours) 1234.5 RESET	
LAST RUN CYCLE TIME (Minutes) 1234.5 RESET	LAST RUN CYCLE TIME (Minutes) 1234.5 RESET	LAST RUN CYCLE TIME (Minutes) 1234.5 RESET	
PUMP START COUNTER 12345 RESET	PUMP START COUNTER 12345 RESET	PUMP START COUNTER 12345 RESET	

Previous Screen	PARAMETERS LOCKED - ENET1		
	TO UNLOCK PARAMETERS ENTER SECURITY CODE BELOW		
	SECURITY CODE ENTRY		
Parameter Security Alert - COM1	12345	:	12345
Parameter Security Alert - ENET1	Parameter: SCE3	Parameter: SCE2	Parameter: SCE1
	TO MANUALLY RE-LOCK ENTER "1" into: SCE3 or SCE2 or SCE1		
Notes: Parameters may always be viewed even when PARAMETERS are LOCKED. Parameters must be UNLOCKED to have WRITE ACCESS, which is required to change their value. Parameter Security Alert - Suspicious Activity on SCADA Port ENET1 or COM1. (Detected Unusually High Number of Entries into Security Code Entry Parameters.)			

CONTROLLER INFORMATION

Previous Screen

Control Board

12345

Operating Program
Revision Number

Parameter: d.101

Input Board

12345

Operating Program
Revision Number

Parameter: d.103

Control Board Startup Status

123

%

Parameter: d.102

Polling Request Counter

12345

Parameter: d.104

Polling Response Counter

12345

Parameter: d.105

24VDC #1 Supply Power Voltage

123.4

Volts

Parameter: d.114

24VDC #3 Supply Power Voltage

123.4

Volts

Parameter: d.115

Next Screen

CONTROLLER INFORMATION

Previous Screen

RS232 Serial Port - COM1

12345

Polling Request
Byte Counter

Parameter: d.109

12345

Polling Response
Byte Counter

Parameter: d.110

Ethernet Board - ENET1

12345

Operating Program
Revision Number

Parameter: d.111

12345

Polling Request
Byte Counter

Parameter: d.112

12345

Polling Response
Byte Counter

Parameter: d.113

Notes:

1. The Polling Request Byte Counters count the number of all incoming bytes.

2. The Polling Response Byte Counters count the number of all outgoing bytes.

3. All Counters rollover to zero when they get to 65,535.