

SmartDiver[®]

MUD DIVER[®]

POCKET GUIDE

OPERATING & CONFIGURING

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SMARTDIVER® COMPONENTS

Control Panel
(Touchscreen)

PLC & HMI

Power Supply

Support Legs

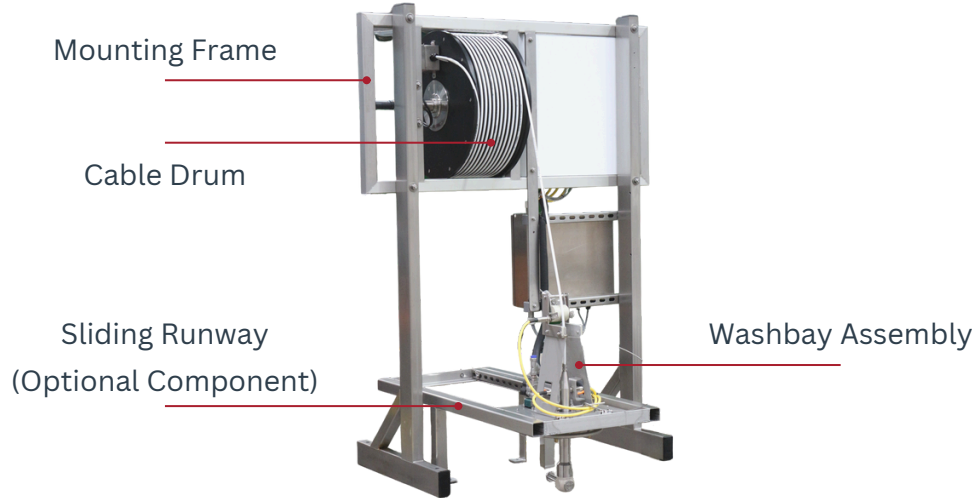
Sensor Junction Box

Slip-Ring

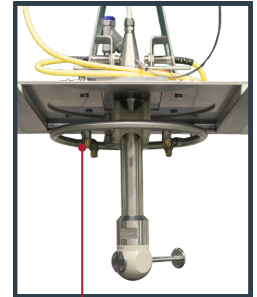
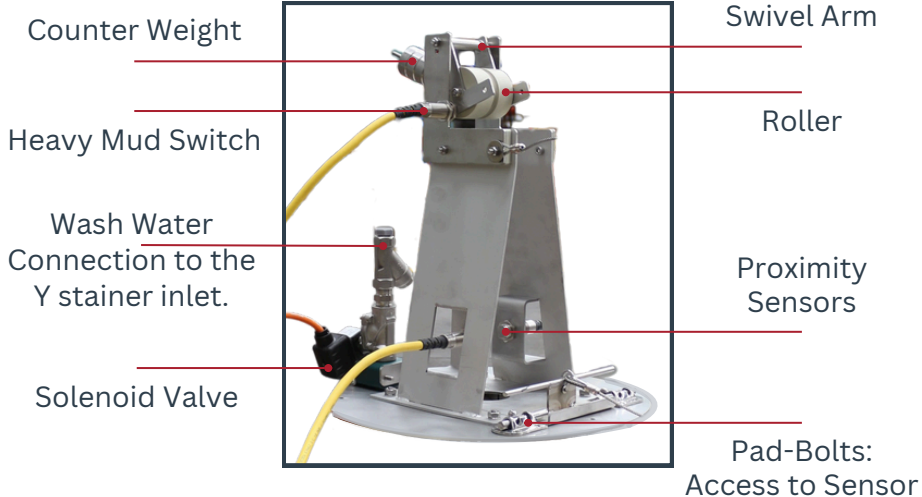
Sensor



SMARTDIVER[®] COMPONENTS



WASHBAY COMPONENTS



CONTROL PANEL

TOUCHSCREEN

Adjust Settings

View Trends

View Alarms

EMERGENCY STOP

Safety quick stop

Removes power to the
motor



ALARM RESET

Toggle the
2-position switch
RUN-STOP-RUN*
to reset Alarm

ALARM LIGHT

Indicates an Alarm

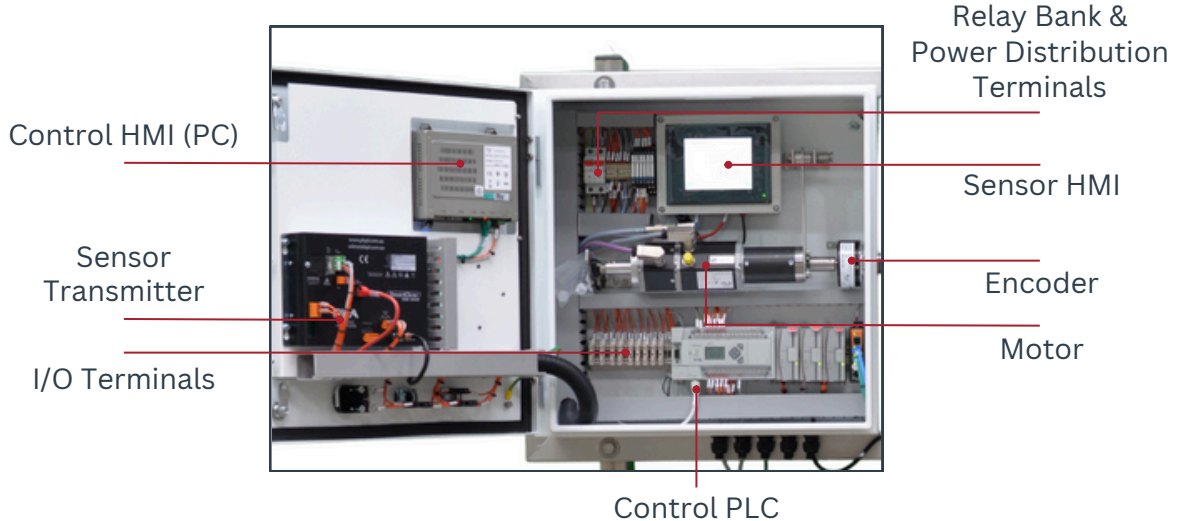
TWO POSITION SWITCH: RUN/STOP

Automatic dive operations

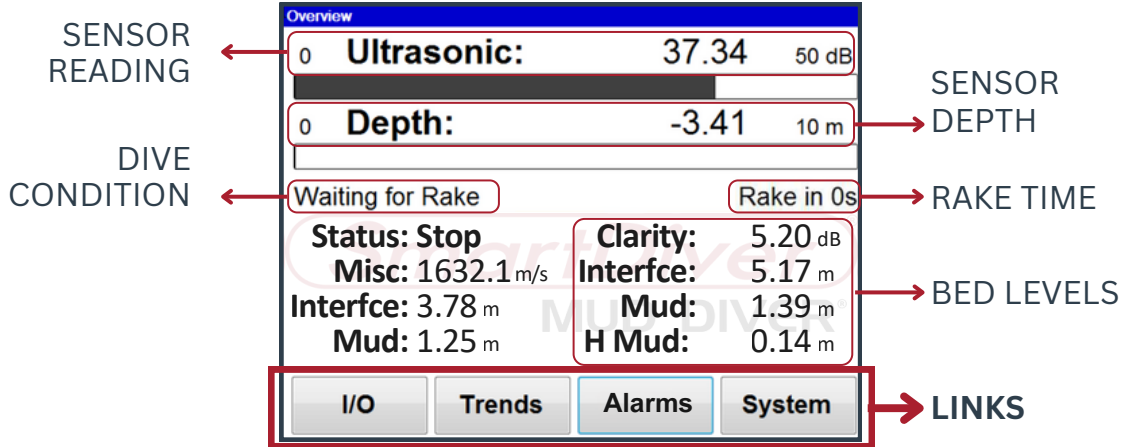
Raise sensor to wash bay and put into STOP MODE

**May appear as START-STOP-START in some models*

ENCLOSURE COMPONENTS



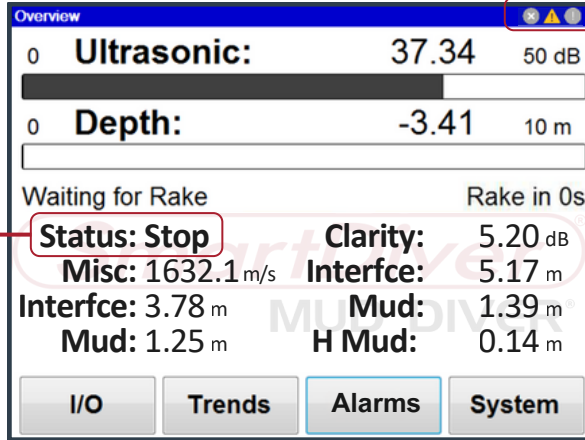
HMI - SCREEN OVERVIEW



HMI - SCREEN OVERVIEW

OPERATING STATUS:

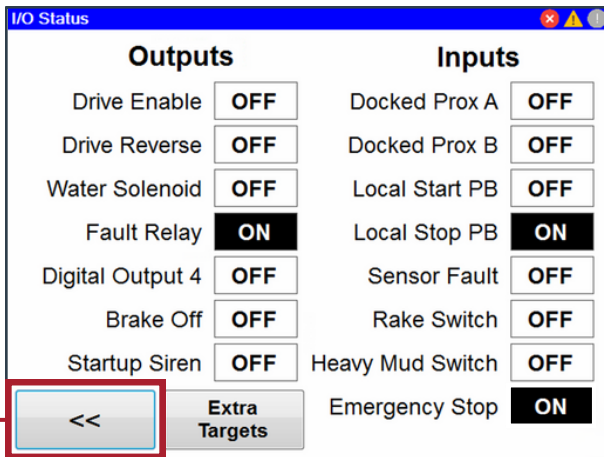
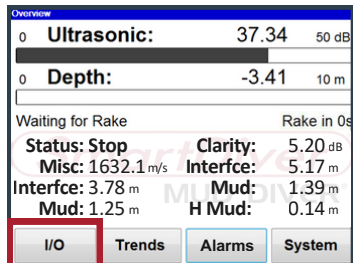
- MANUAL
- STOP
- RUN
- WARNING (ALARM)
- FAULT (ALARM)
- PROCESS (ALARM)
- SYSTEM (ALARM)



ALARM NOTIFICATIONS:

- ✖ FAULT
- ⚠ WARNING
- ! PROCESS
- ! SYSTEM

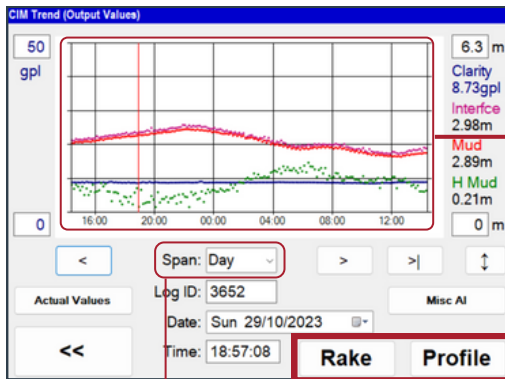
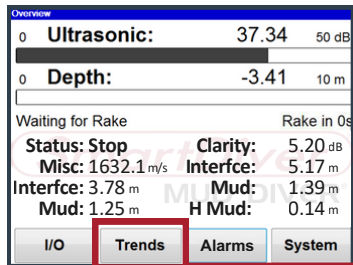
I/O - SCREEN OVERVIEW



BACK LINK:

To go back to the previous menu.
Appears on all windows.

HMI - TREND SCREEN



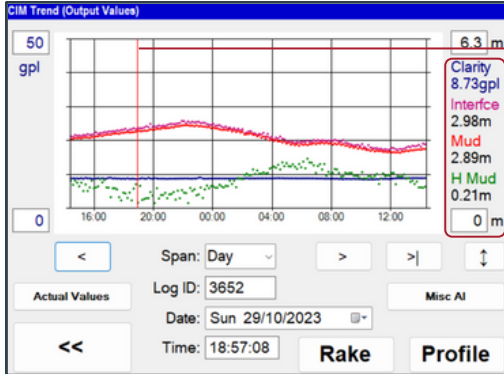
Each dot denotes an individual dive with a time stamp and log ID

LINKS

SPAN SELECTION:

WEEK, DAY, 5 HOURS, OR 1 HOUR

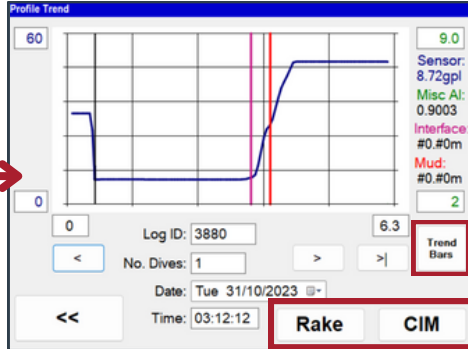
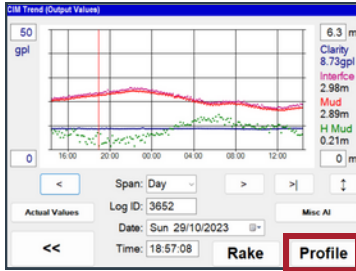
HMI - TREND SCREEN



To view specific values for any particular Dive:

- Tap any location on the Timeline
- A **RED** vertical line will appear at your selected point
- The corresponding values will be displayed in the panel on the right

HMI - PROFILE SCREEN



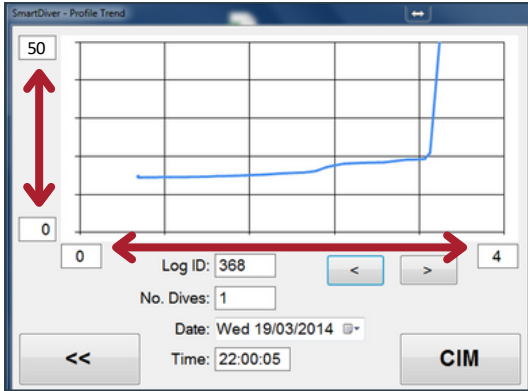
BLUE LINE:
SENSOR READING -
SOLIDS vs DEPTH

VERTICAL REFERENCE LINES
PINK: INTERFACE LEVEL
RED: MUD LEVEL

Toggles the visibility of
vertical reference lines on
the trend graph.
This helps identify the
Interface and Mud levels.

LINKS

DIVE PROFILE EXPLANATION - AXIS



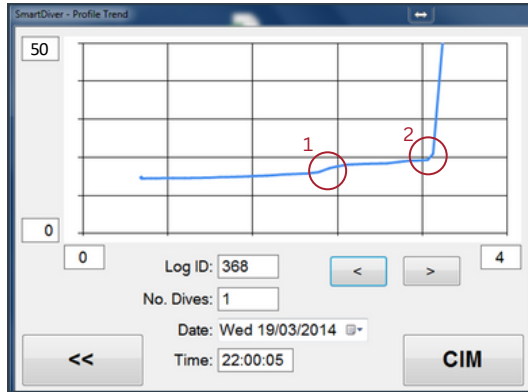
Y-AXIS (VERTICAL):

- Shows solids concentration measured by sound attenuation
- Range: 0 to 50 dB

X-AXIS (HORIZONTAL):

- Represents tank depth
- Starts at liquid level (0) on the left
- Increases in depth as you move right

DIVE PROFILE EXPLANATION



1. SMALL INCREASE
= **INTERFACE**

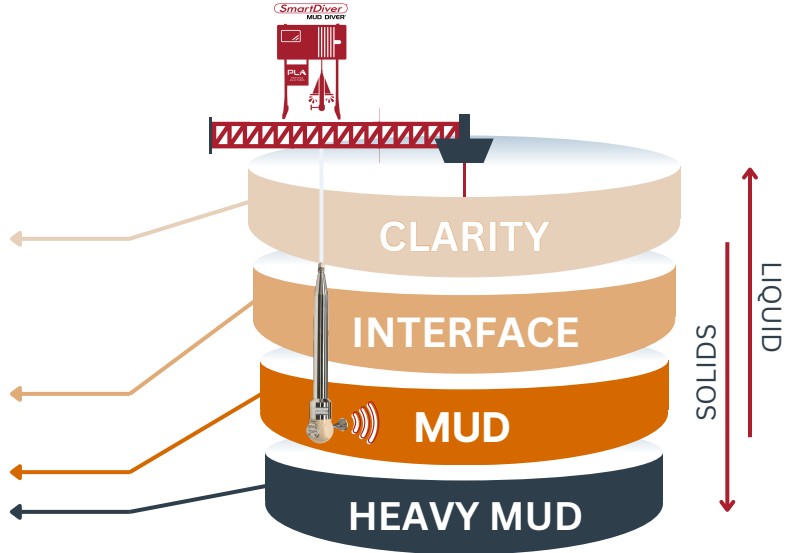
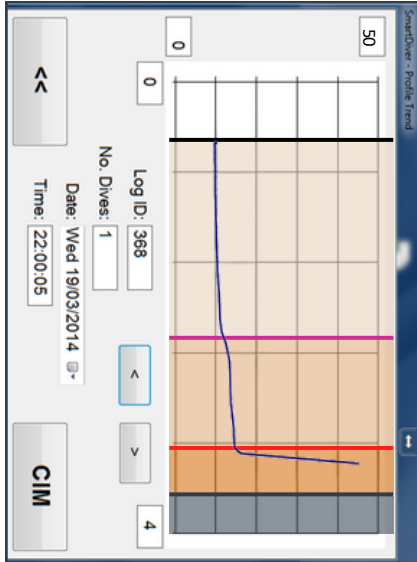
2. LARGE INCREASE
= **MUD**

ONE DIVE PROFILE
(Suspended solids vs Depth)



INCREASE IN SENSOR READING EQUATES TO AN INCREASE IN SUSPENDED SOLIDS CONCENTRATION

PROFILE ORIENTATION TO THE THICKENER



HMI – LOG IN ACCESS & SYSTEM PAGE

Overview

0 Ultrasonic: 37.34 50 dB

0 Depth: -3.41 10 m

Waiting for Rake Rake in 0s

Status: Stop Clarity: 5.20
Misc: 1632.1 m/s Interface: 5.17
Interface: 3.78 m Mud: 1.39
Mud: 1.25 m H Mud: 0.14

I/O Trends Alarms **System**

System

Login

Log In

Config

Minimise

Close

Save File Options

1. Data Log

2. Settings

Language

English

Rhosonics

Rake

SN:
PLC: V4.79
TP: 1.224
C: 20.2GB Free
CMOS: 3.09V

<< Setup Manual Sys Log

Login

0 to 9999 ###U

7 8 9

4 5 **6**

1 2 3

0 . -

Ok Cancel Bksp

SYSTEM PAGE

System

Login

Log Out

Config

Minimise

Close

Save File Options

1. Data Log

2. Settings

Language

English

Rhosonics

Rake

SN:
PLC: V4.79
TP: 1.224
C: 20.2GB Free
CMOS: 3.10V

<< Setup Manual Sys Log

❗ Log in code is **9786**

HMI – CONFIGURATION PAGE & SYSTEM LOGS

PLA SmartDiver

Configuration

PC Time: 26-Nov-2024 18:52:52 **Auto Set**

PLC Time: 26-Nov-2024 18:52:50 **Man Set**

PLC IP: 192.168.100.2

Serial #:

Name:

Database: C:\Data\SmartDiver.mdb

<<

CONFIGURE DEVICE SETTINGS

- a. PLC HMI Time adjustment
- b. PLC IP address
- c. Serial number ID
- d. Name of Site / Thickener
- e. Data file location

System

Login Save File Options Language

Log Out 1. Data Log English

Config 2. Settings Rhosonics

Minimise Rake

Close

SN: V4.79
TP: 1.224
C: 20.2GB Free
CMOS: 3.10V

<< Setup Manual **Sys Log**

HMI & PLC
program versions
CMOS battery
voltage level.

PLA SmartDiver

Alarms Log

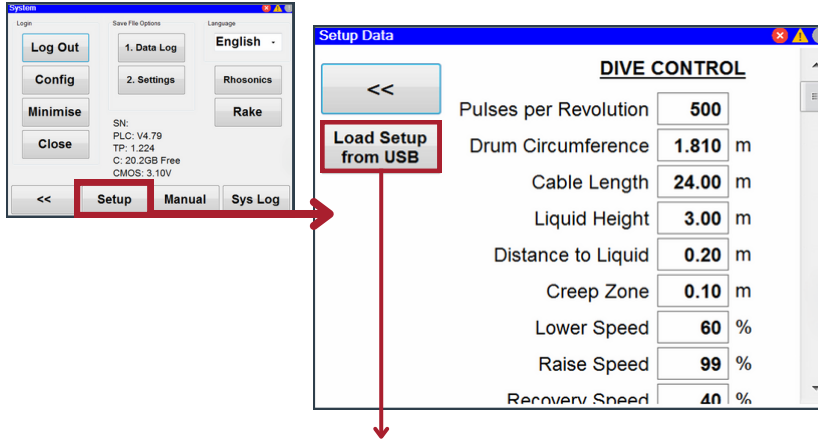
Date	Time	State	Fault
14/12/2023	13:19:12	ON	Clarity Threshold Warning
14/12/2023	13:17:49	OFF	Clarity Sensor Fault
14/12/2023	13:15:40	OFF	Possible Sensor Fail: HM Triggered Before Mud
14/12/2023	13:14:12	ON	Possible Sensor Fail: HM Triggered Before Mud
14/12/2023	13:11:53	ON	Both Prox Off In Wash Bay
13/12/2023	19:25:56	ON	Clarity Threshold Warning
13/12/2023	19:22:33	OFF	Clarity Threshold Warning
13/12/2023	19:20:42	OFF	Clarity Threshold Warning
13/12/2023	19:18:30	ON	Clarity Threshold Warning
13/12/2023	19:16:12	ON	Clarity Threshold Warning

Start Date: Mon 18/12/2023 Number of Days: Week

<< Desc Alarms

LIST OF SYSTEM DIAGNOSTIC LOG ENTRIES

HMI – SETUP PAGE

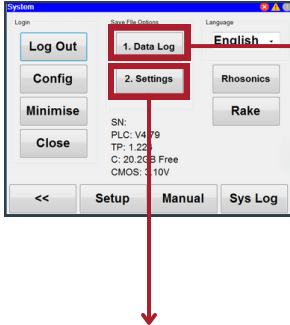


Load from .CSV File

! The setup page has 5 segments.

1. Dive Control
2. Rake
3. Sensor
4. Alarms
5. Outputs

HMI – SAVING DATA LOG



DATA LOG:

All the historical dive records from this SmartDiver® will be saved to your USB memory stick.

This will save:

- Clarity, Interface and Mud (CIM) Trends
- Dive Profiles
- Fault Log Records

SETTINGS:

All the Settings from this SmartDiver® will be saved to your USB memory stick or your Computer's hard drive.

This will save:

- Settings Data from Setup Page

MANUAL OPERATION DISCLAIMER



USE MANUAL MODE ONLY IF YOU WANT TO:

- CHANGE THE SENSOR FOR A NEW SENSOR
- INSPECT / CLEAN THE SENSOR BY REMOVING IT FROM THE WASH BAY
- WORK ON THE WASH BAY

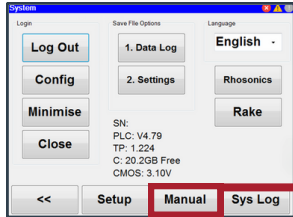


WARNING: IN MANUAL MODE, SENSOR IS NOT SYNCHRONISED WITH THE RAKE AND RISKS COLLISION WITH RAKE DURING LOWERING.

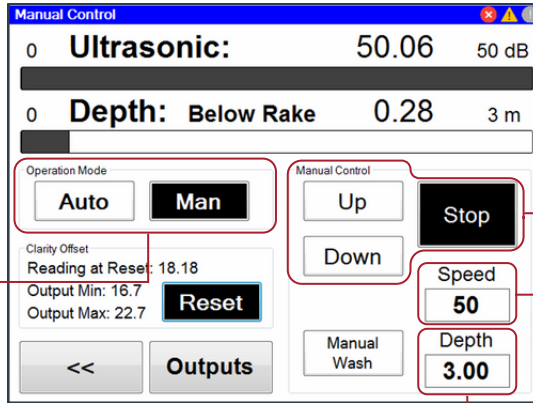


WHEN SWITCHING FROM MANUAL TO AUTO MODE WITH THE 2-POSITION SWITCH IN RUN, THE DIVER MAY BEGIN A DIVE SEQUENCE IMMEDIATELY.

HMI - MANUAL OPERATION



Toggles between
AUTO & MANUAL Mode



STOP/MOVE
SENSOR
MANUALLY

MOTOR SPEED:
FOR SENSOR ASCENT
& DESCENT



SAFETY FEATURE - DEPTH LIMIT

IN MANUAL MODE, THE SENSOR STOPS AT THIS DEPTH & CANNOT GO LOWER.
ELIMINATES ACCIDENTAL SENSOR LOSS TO RAKE.

HMI - SENSOR CLEANING

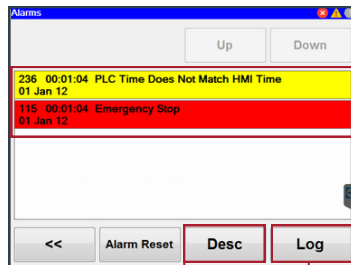
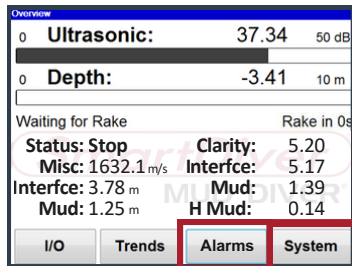
The screenshot displays the HMI interface for sensor cleaning. It features a blue title bar labeled 'Manual Control'. The main display area shows two primary sensor readings: 'Ultrasonic' at 50.06 (50 dB) and 'Depth' at 0.28 (3 m). Below these, there are two main control sections. The 'Operation Mode' section includes 'Auto' and 'Man' buttons. The 'Manual Control' section includes 'Up', 'Down', and 'Stop' buttons. A 'Clarity Offset' section is highlighted with a red box, showing 'Reading at Reset: 18.18', 'Output Min: 16.7', 'Output Max: 22.7', and a 'Reset' button. At the bottom, there are 'Outputs' buttons for '<<' and 'Manual Wash'.

❗ The Sensor's readings can drift due to scale buildup.

Clarity offset corrects this while still reflecting short-term changes and flares in all bed-levels.

❗ **CLARITY OFFSET NEEDS TO BE RESET AFTER CLEANING OR DESCALING THE SENSOR.**

HMI - ALARM SCREEN



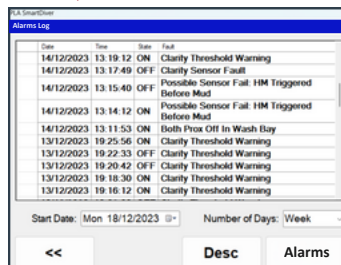
Active Alarms
appear here

ALARM DESCRIPTION PAGE:

Lists all possible ALARMS
with their remedies

ALARMS LOG PAGE:

Lists all Closed/
Acknowledged ALARMS





[CLICK HERE TO SEND A SERVICE REQUEST](#)



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