STRAINER CONTROL PANEL

The Mitsubishi PLC and ancillary equipment are housed in an all metal enclosure to IP65, which is available with single and 3 phase supply input voltage; 110 and 24 volts are used for the control equipment.

The PLC controls the operation of the cleaning cycle which is normally set on time, with a pressure transducer as a back-up to be energized by a pre-set high differential pressure usually set at circa 0.34 to 0.41 bar (5 to 6 psi.).

The control sequence is factory set in the automatic mode to clean every 60 minutes with a 10 second flushing period.

The system can also operate purely on pressure as indicated by the pressure transducer.

CLEANING CYCLE

The System Monitors The Differential Pressure Across The Screens Within The Strainer.

When the pressure set point is reached, the control panel initiates the following cleaning sequence:

(a) Upon the closure of a relay, the flush valve is opened.

(b) When the flush valve is opened to its pre-set position, a signal is given back to the Control Panel, allowing the screens to be cleaned.

(c) The motor contactors are energised, starting the rotation of the screens.

(d) The cleaning operation is performed for a preset time, which is set via the keypad on the panel front.

(e) When the preset cleaning time is reached, the motor contactors are de-energised and the flush valve is closed.

If the screens do not get soiled enough to effect the differential pressure, a Watchdog timer is used within the Control Panel:

(a) The timer counts whilst the control panel is powered-up.

(b) When the preset time is reached, the cleaning cycle is initiated.

ALARM CONDITIONS

(a) If the pressure across the screens is still high after a cleaning cycle has commenced (factory set at 0.41 bar (6psi)), a high pressure alarm is given as a volt-free changeover contact arrangement.

(b) If a motor overloads, another alarm is given, via the volt-free contacts. All alarm conditions along with the system operating sequence are clearly illustrated on the HMI screen.

Strainer Control Panel

SYSTEM E200

The ***System 200*** is a programmable logic controlled system designed to present new standards in functionality and operational monitoring of strainer cleaning cycles.

The screen located on the front of the Control Panel enclosure is called the ***HMI*** and this module is provided as the ***operator interface***.

HMI

The unit is fitted with:

One ***display area*** for visual indication of the system status.

Five ***F Keys***, these keys permit the navigation or logging in or out of the system.

Five ***L.E.D indicators*** located above the F Keys showing the system running or idle.

An ***alpha numeric keyboard*** for data manipulation

DISPLAY AREA

The HMI display shows the following:

Boot page showing the manufacturer's contact details.

The ***Operation Sequence page*** showing the current system status.

The ***Strainer Operation Time page*** for setting the clean period data registers (adjustable).

The ***Pressure Transducer page*** for adjusting the set points and viewing the current pressure within the system.

F KEYS

The Five F Keys are located below the display where the ***F1 key*** is at the ***left side*** and F5 is located at the right of the HMI, and are used for the following functions:

F1. This is the ***Manual Call button*** and by pressing momentarily the strainer system will provide a single cleaning operation based on the clean duration set in the strainer operation time page.

F2. This is the ***Alarm Reset button*** and is used to reset the alarm logged control. This will not reset if an alarm is current.

F3. This is the ***Log In button*** and is used to gain secure access to the system required for adjustment of data values.

F4. This is the ***Log Out button*** and is used to inhibit unauthorised access to the system's adjustable values.

F5. This is the ***Page button*** and is used to step through the system pages.

Strainer Control Panel

LEDs

The Five L E D indicators are located below the display and ***above the F keys*** and are used for the following functions:

Permanently Green when the system is ok and awaiting a strainer cycle.

Flashing Green when running a strainer sequence with the system ok.

Flashing Red when an alarm event has occurred.

KEY PAD

The Key Pad is located at the lower portion of the HMI and has the following functions:

Numeric buttons used for entering a required value.

Arrow Key buttons used for moving the display cursor to the data register field to be adjusted.

Alarm List button used to view or exit the alarm history display page.

Main button used to view the manufacturer's contact details page.

Enter Key shown as an arrow return and used to register the change of values within the adjustable data registers.

BOOT PAGE

This page displays the contact details for the system and can be viewed by powering up the system or by pressing the Main button and displays the following:

R J Mellor & Co Ltd

Sheffield, UK.

Tele: +44 (0)114 236 8666

Fax: +44 (0)114 236 3020

OPERATION SEQUENCE PAGE

This page display has two lines of informational text which are directed as follows:

The ***top line text*** is the ***operational sequence*** of the system.

The ***bottom line text*** is the ***event*** the system is waiting for. If these events do not happen or reset at the required time then an alarm log is created and alarm icon is displayed.

STRAINER OPERATION TIME PAGE

This page displays the two data fields in which values can be adjusted as follows:

Dwell Time register is the adjustable but retentive value in minutes that the system will wait between automatic timed strainer cleaning cycles.

Strain Time register is the adjustable but retentive value in seconds that the flush valve is kept open.

Strainer Control Panel

PRESSURE TRANSDUCER PAGE

This page displays three data fields where two are adjustable and one is fixed.

DPS1. Set point register is the adjustable but retentive pressure value that the system's pressure transducer will detect and automatically conduct a strainer cleaning cycle.

DPS2. Set point register is the adjustable but retentive pressure value that the system's pressure transducer will detect and automatically activate an alarm event log and provide a volt free output signal for the customer to employ as an interface to their own equipment.

Actual Pressure is a system use fixed register where the transducer will display the current pressure.

ADJUSTMENTS

Adjustments of the values within the registers are conducted as follows:

- Use the ***F5*** page key to move to the required page.
- Press ***F3*** key to log on to the system security and type in the required ***password*** with the numeric key pad.
- Press the ***Enter key*** shown as an arrow return to acknowledge the password.
- The display will briefly ***show*** the ***password level*** then return to normal display.
- If no action is taken the display will automatically log off after one minute.
- Use the ***arrow keys*** to navigate to the register where the value is to be changed.
- With the numeric keys ***type in the value*** to be inserted.
- To complete the action press the ***enter key*** shown as an arrow return.
- Press the ***F4 key*** to log off the adjustment security.

DISPLAYED TEXTS

The top line text displayed on the operation page can show the messages of the ***operational sequences*** of the system:

- Awaiting flush cycle
- Manual flush call
- Auto flush call
- DPS flush call
- Strainer running
- Opening flush valve
- Valve open
- Cleaning
- Closing valve
- Valve closed

The top line text displayed on the operation page can show the messages of the ***event occurrences*** of the system:

- OK
- Motor overload
- High pressure
- Valve not open
- Valve not closed
- DPS1 at preset pressure
- DPS2 at preset pressure

Strainer Control Panel

PASSWORD

The system is pre-programmed with three passwords of different hierarchy:

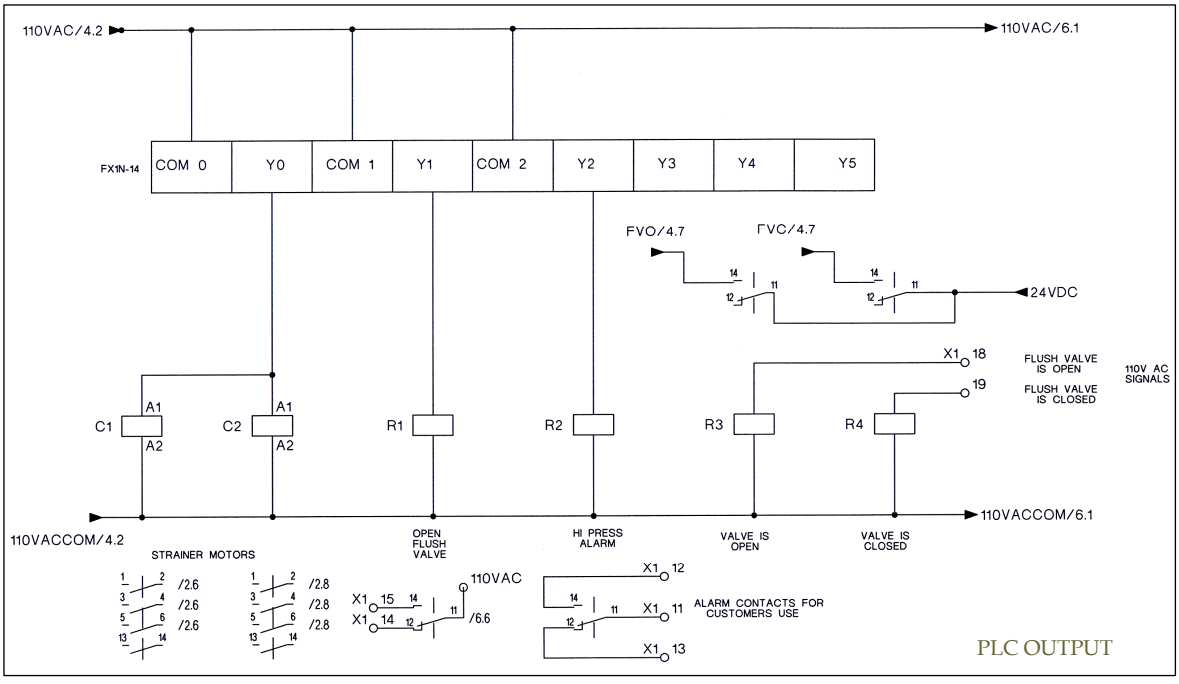
- ***1111111*** This is used to permit the adjustment of the Dwell time between the cleaning cycles and the length of the cleaning cycle.
- ***2726833*** This is used to permit the adjustment of the pressure transducer set points.
- The third password is used for engineer modifications of the HMI program and is not for third party use.

ALARMS

If an Alarm occurs then the **ALARM** icon will be shown at the top right side of the display. The alarm log can be read and cleared at any time by pressing the ***Alarm list button*** where the alarm history page will be displayed.
The ***latest alarm*** will be shown ***at the top*** of the display and the arrow keys can be used to scroll through the alarm history log.
There are three conditions for the alarms and these are identified at the left hand side of an alarm message and shown as follows:

- Indicating a current alarm.
- Indicating an acknowledged alarm.
- Indicating that the alarm condition has cleared.

To attempt to clear the alarm, use the ***arrow keys*** to move the cursor to the required alarm and press the **F2 ACK** key, if the **(—)** sign is shown then the alarm is ***still active*** and will require attention.
The time of the alarm activation can be viewed by pressing the **F3 TIME** key, pressing twice will return the display to the alarm history page.
To exit the alarm history page, either press **F4 EXIT** key or the **Alarm List key**.



R J Mellor & Co Ltd
1 Devonshire Grove, Sheffield, South Yorkshire, England, S17 3PG
Tele: +44 (0) 114 236 8666 Fax: +44(0) 114 236 3020
E-mail: sales@rjmellor.co.uk Web: www.rjmellor.co.uk

Specialist Lubrication Engineers

The information contained in this data sheet is for guidance only and does not form part of any contract. The accuracy cannot be guaranteed as R J Mellor & Co Ltd. has an ongoing process of development and reserve the right to change the specification of their products without notice