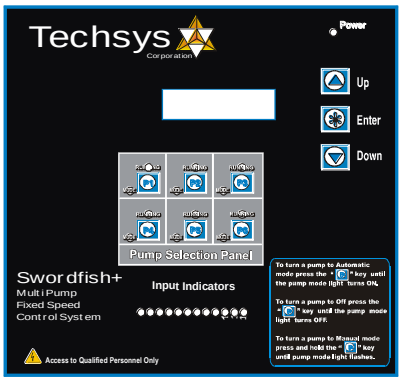
SWORDFISH +

Techsys Corporation

Main Features. (Version 1811.00 Onwards)



- An industry proven dedicated pump control system designed to operate fixed speed pumps.
- Complete control package.
  - Connect power, wire in the pumps and attach the pressure tube.
- Supplied equipment.
  - Swordfish+ controller
  - IP54 Enclosure
  - Mains Isolator
  - Circuit breakers
  - MEN power connections
  - 25Bar pressure transducer 4-20mA
- Multiple control voltages.
- Capable of operating up to 6 pumps.
- Real English Menus with a 2 Line 16 characters LCD Display.
- Pump enabled and run indicators.
- Easy navigation menu system with password access control.
- For clarity Menus disappear when an option or function is not selected or required.
- Simple push button actions to enable/disable or manually operate each pump.
- Inbuilt settable time clock.
- Remote Control capability via digital input or telemetry.
- SCADA Compatible Modbus/RS485 for remote data acquisition, download or control.
- Two control modes.
  - One Cut In and Cut Out pressure for all pumps with time delayed starting of pumps.
  - Individual Cut In and Cut Out pressures for each pump.
- Data protection or user entry via access code.
- Twelve programmable inputs for user selectable functions with adjustable delay.
- Four programmable voltage free outputs for BMS interfacing or user selectable output functions.
- Selectable Duty /Standby and Backup pump operating mode options.
- Programmable spin-up mode for any pump that has not recently run. Adjustable Interval & time.
- Temporary mute of the buzzer on key press actions for silent operation. (Not essential)
- Continuous display of the pressure
- Optional Rotary Auto/Off/Manual switches.
  - Manual can be configured to one of two modes.
    - Indirect- The Swordfish+ will operate the pump and provide protection.
    - Direct- The pump switchgear is operated directly from the AOM switch. Provides further redundancy but bypasses protection.
- Simple scaling and zeroing for all types of sensors or transducers.

Techsys Engineering Pty Ltd
Ph: 07 5534 1879
email: sales@techsys.net.au

Version 1208.00 22 Oct 2010
Website: www.techsys.com.au

- Data logs for local or remote viewing.
  - Total system flow.
  - Resettable Hours runs and pump starts for each pump
  - Status of all inputs or outputs.
  - Highest pressure
  - Communications status
- Fault logging.
- User adjustable Low Pressure Setting with adjustable delay which performs a Low Pressure Shutdown.
- User adjustable Cut In (Restart) Pressure setting.
  - Also has an adjustable next pump In (ON) delay timer
- User adjustable Cut Out (Turn off pumps) Pressure setting.
  - Cut Out is set a pressure.
  - Also has an adjustable next pump Out (OFF) delay timer
- User adjustable High Pressure setting with adjustable delay which performs a High Pressure Shutdown.
- A High pressure shutdown displays the pressure that exceeded the limit until the system is reset.
- Individual pump fault protection option with adjustable delay.
- Individual pump protection option with auto-resetting and adjustable delay.
- Anti cycle options.
  - Pump minimum run time.
  - Maximum starts per hour.
- System Restart Delay Timer.
- System No Flow Input with adjustable timer.
- Pump Rotation Options:
  - Normal Full Autorotation will occur during any system restart.
  - Fixed Pump Start. The same pumps starts on every restart.
  - Pump with the lowest hours to start next.
- Optional independent Jockey pump.
- Pause Input.
  - Two options available.
    - Pause all pumps including the Jockey pump.
    - Pause the main pumps and allow the Jockey pump to run.
-
- Low Level Input option.
  - Used with floats or similar on pressure applications. Displays "Paused - Low-Level".
- User Access Code Features
- Multiple Sensor interface
  - Sensor signals.
    - 0-20mA
    - 4-20mA
    - 0-10VDC
    - 0-5VDC

- Telemetry
  - The Swordfish+ is capable of communicating with an external telemetry system based on digital Inputs and/or Outputs from other devices.
  - A serial communications port is provided for direct connection to SCADA or BMS system for access to the Swordfish+ operating parameters. This is via RS485 MODBUS RTU protocol. A full list of registers addresses can be provided.
  - Option interfaces can be provided such as.
    - Ethernet.
    - Multi Mode Fibre
    - Single Mode Fibre
- Digital Outputs
  - The Swordfish+ has 4 programmable outputs that can be selected for a variety of functions. They are rated to 5 amps 240VAC with change over contacts.
- Digital Inputs
  - The Swordfish+ has 12 programmable voltage free inputs that can be selected for a variety of functions.
- Four programmable Start and Stop times for system operation.

Outline of available menus.

- System set pressure.
- Current system flow rate.
  - Fault History menu.
    - Readouts for the last five (5) faults.
  - Pump Data Log.
    - Hour Run counters for each pump.
    - Pump Start counters for each pump.
    - Total starts in the last hour.
    - Status of all inputs and outputs.
    - Controller temperature.
    - Communications status monitor.
  - Settings.
    - Low pressure shutdown.
    - Cut In pressure.
    - Cut Out pressure..
    - High Pressure Limit/Alarm/Shutdown.
    - 3 Optional pressure cut in and cut out settings.
    - Pressure trips for activating digital outputs.
  - Timing.
    - Low pressure shutdown delay.
    - Cut In delay.
    - Cut Outdelay.
    - High Pressure Shutdown delay.
    - Individual and System NO Flow input delay.
    - Delays for general inputs.
    - Pressure trip and flow trip delay for activating digital outputs.
  - Configuration.
    - Operating mode. - (Pressure or Level or Multi Level)
    - Number of pumps on the system.
    - Pressure transducer zero and scaling.
    - User Access Code.
    - Serial communications settings.
  - Independent Jockey Pump.
    - Cut In pressure.
    - Cut Out pressure.
    - Run On time
    - Cut In delay time
  - Outputs (4) All individually programmable to one of the options below.
    - Shutdown Fault.
    - Low Pressure Fault.
    - High Pressure Fault.
    - Any Alarm.
    - Pump 1-6 Run.
    - Pump 1-6 Fault.
    - System Paused.
    - Any Pump Shutdown.
    - Any Pump Running.
    - No Flow Shutdown.
    - Pressure Trip
    - Alternate Trip.
    - Aux Output 1-3.

- Inputs (12) All individually programmable to one of the options below.
  - Alternate No 2 Cut In – Cut Out settings.
  - Alternate No 3 Cut In – Cut Out settings.
  - Pump 1-6 Protect(Pause).
  - Pump 1-6 Stop.
  - Pump 1-6 Manual Run.
  - Cycle pumps.
  - Reset.
  - No Flow.
  - Aux Input 1-3.
- Analogue Inputs. 0-5V, 0-10V or 4-20mA

Controller Specifications.

- Size.
  - 22CM Wide x 19CM High x 4.5CM Deep
- Weight.
  - 550 Grams
- Standard supply voltage.
  - 240VAC +/- 10%
- Optional supply voltage.
  - 18VAC or 24VDC
- Power consumption.
  - 6W Typical
  - 12.1W (6 Pump system- All inputs and outputs ON)

All options are available with every controller. Some options will require extra hardware or connection/s to perform the desired task.