

INSTALLATION INSTRUCTIONS MCD PUMP APPLICATION MODULE

Order Code: 175G9008

■ Overview

The Pump Application Module expands the soft starter's input and output functionality and is ideal for applications where greater control and feedback are required. The module provides three digital inputs and one PT100 sensing input, which can monitor system conditions and shut the motor down safely if an unwanted condition occurs.

The Pump Application Module is easy to install and configure, and no special tools or additional software are required. The module is powered through the soft starter's serial port.

The Pump Application Module has been designed for pumping applications but can be easily adapted to any situation requiring input/output expansion.

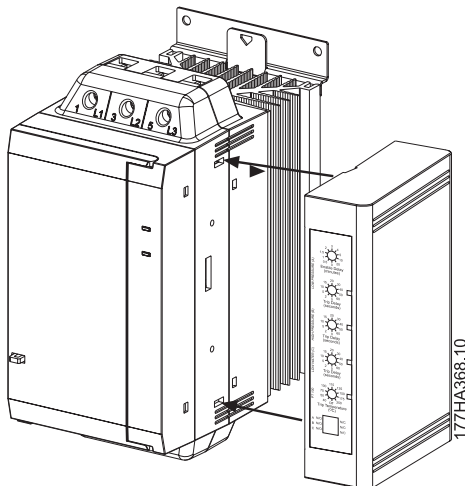
■ Installation

Install the Pump Application Module using the following procedure:

1. Remove control power and mains supply from the soft starter.
2. Attach the module to the soft starter as shown.
3. Connect the module to field wiring.
4. Adjust the modules settings as required.
5. Apply control power to the soft starter.

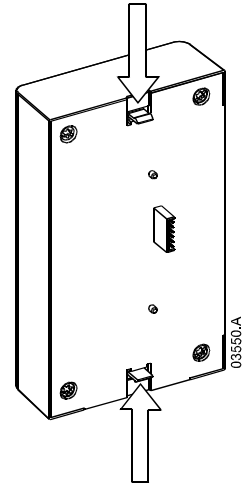
MCD 200 Series:

Plug the module onto the side of the soft starter.



Remove the Pump Application Module using the following procedure:

1. Remove control power and mains supply from the soft starter.
2. Disconnect all field wiring from the module.
3. Push a small flat-bladed screwdriver into the slots at the top and bottom of the module and depress the retaining clips.
4. Pull the module away from the soft starter.



CAUTION

Remove mains and control voltage from the soft starter before attaching or removing accessories. Failure to do so may damage the equipment.

■ Inputs

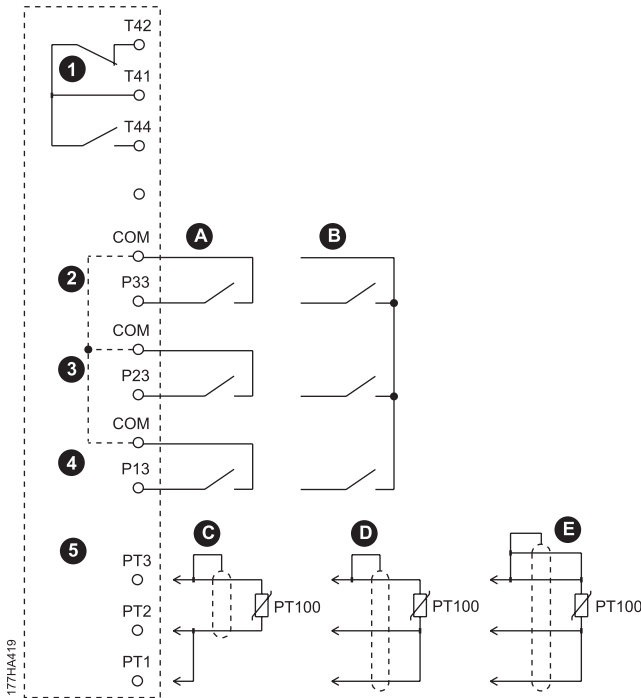
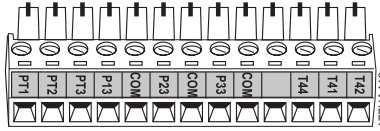
The Pump Application Module has three digital inputs which can be directly connected to external inputs such as pressure switches, flow switches, limit switches or PLC outputs, and one PT100 input which can be directly connected to a temperature sensor. When an input activates, the module will trip the soft starter. To resume normal operation, the soft starter must be reset.

Each input is designed for a specific function.

- Input A: Low pressure
- Input B: High pressure
- Input C: Low water
- PT100: Temperature sensing

External Connections

The input terminals are located on a removable terminal block at the base of the module:



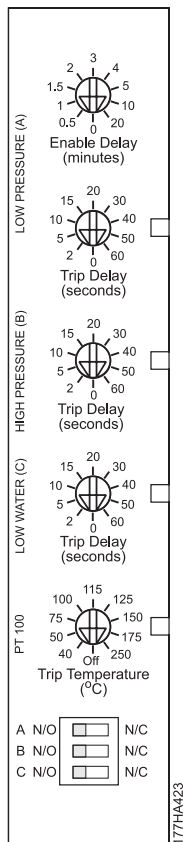
1	Trip output
2	Low water level input
3	High pressure input
4	Low pressure input
	A: Two-wire connection
	B: Shared common connection
5	PT100 input
	C: Two-wire connection
	D: Three-wire connection
	E: Four-wire connection



N.B.!:

Remote input connections are still required to control the soft starter.

■ Configuration



Changes to the settings take effect immediately.

Setting	Active	Details
Low pressure enable delay	Run *	Delay between the soft starter entering run state and the module starting to monitor the low pressure input (minutes).
Low pressure trip delay	Run *	
High pressure trip delay	Run *	Delay between the input activating and the selected input trip action (seconds).
Low water trip delay	Always	
PT100 trip temperature	Always	The module will trip the soft starter within 2 seconds of the PT100 temperature reaching the selected level.
A: Low pressure input logic		N/O: open = healthy, closed = tripped
B: High pressure input logic		N/C: closed = healthy, open = tripped
C: Low water input logic		

* Input is active when the motor reaches full voltage.

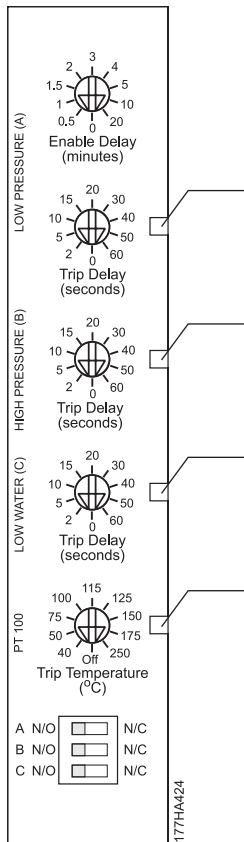
.1 PT100 Trip Temperature

The PT100 input will trip the module when resistance exceeds the following values:

Temperature	40 °C	50 °C	75 °C	100 °C	115 °C	125 °C	150 °C	175 °C	250 °C
Resistance (± 1Ω)	116 Ω	119 Ω	125 Ω	138 Ω	145 Ω	149 Ω	159 Ω	169 Ω	198 Ω
Typical application	Submersible pump			Class A motor	Class E motor	Class B motor	Machine or Class F motor	Machine or Class H motor	Machine

Trip temperatures of 100 °C to 175 °C are 5 °C below the corresponding motor insulation class.

■ LED Feedback



The four LEDs on the front of the module indicate the state of each input.

LED	Function
Low pressure	On = Input closed Off = Input open Flashing = Tripped
High pressure	
Low water	
PT100	On = PT100 connection healthy Off = PT100 input disabled Flashing = Tripped

■ Trip Output

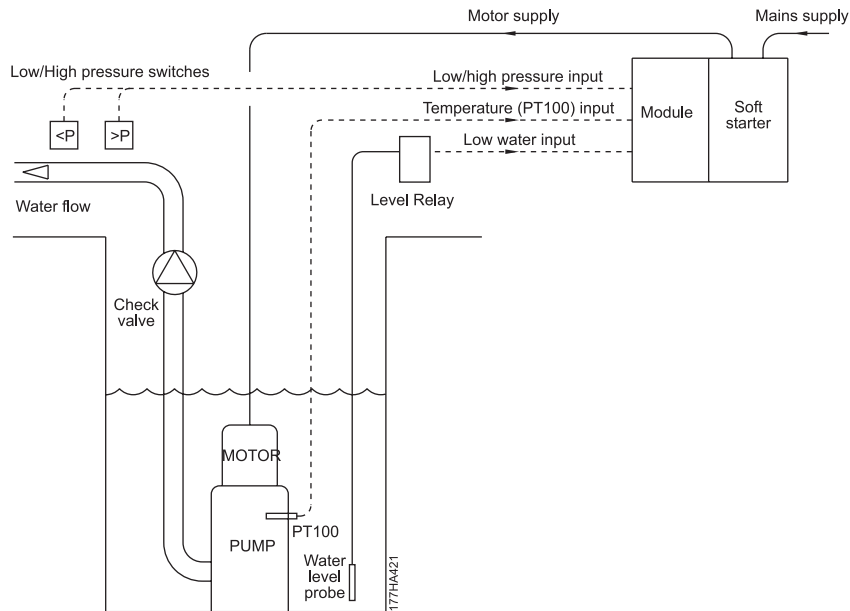
When an input activates, the associated LED flashes and the trip output changes state. The soft starter will trip on network communications failure. To resume normal operation, the soft starter must be reset.

The module's trip output will also change state to indicate any other trip on the soft starter.

■ Application Examples

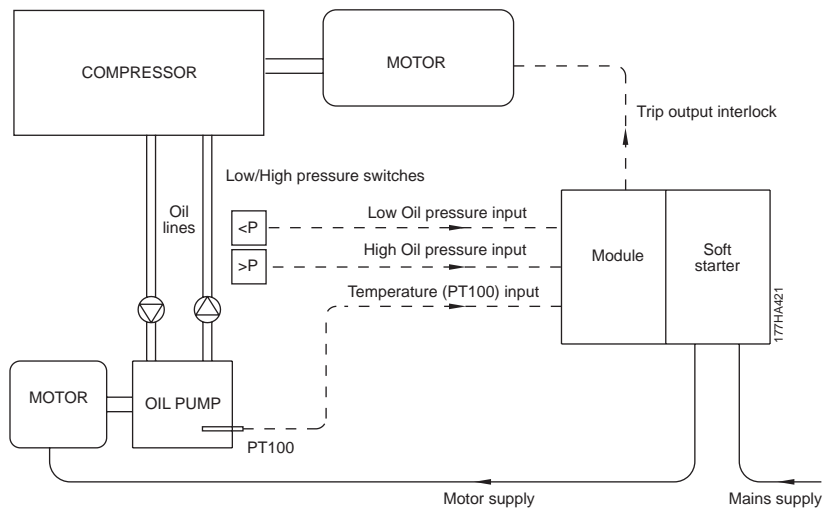
.2 Submersible Pump

The module can be connected to high and low pressure switches, a PT100 to monitor pump temperature, and a level relay to protect against low water. This provides a simple, integrated pump monitoring system without any extra components such as timers, relays and temperature monitoring devices.



.3 Compressor Oil Pump

The module can be used on a compressor oil pump system to monitor conditions such as oil line pressure and oil temperature. Interlocking the trip output with the compressor motor means that the compressor is safely shut down when a fault occurs, preventing damage to the system.



.4 Safety Interlocking System

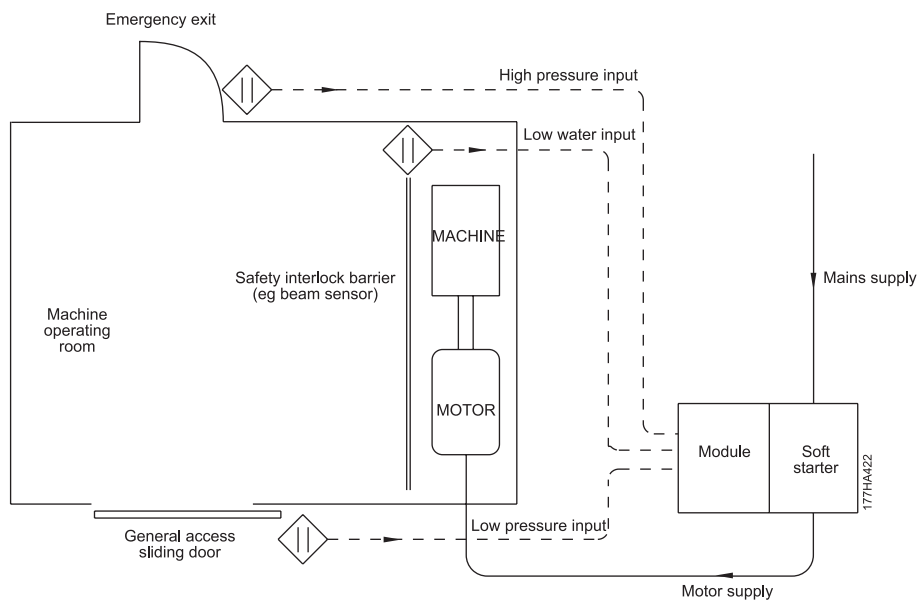
The Pump Application Module is not restricted to pumping applications only.

In this example, the Pump Application Module is used on a safety interlock control system.

The low pressure input is directly connected to a limit switch on a general access sliding door. The input activates if the sliding door is left open, which causes a trip and stops the motor and machine. An initial delay allows the door to open and close for short periods to allow entry and exit.

The high pressure input is directly connected to a limit switch on an emergency exit door. The input activates immediately if this door is opened, which causes a trip and stops the motor and machine.

The low water input is directly connected to a safety interlock barrier device. When the device operates, the input activates which causes a trip and stops the motor and machine.



■ Specifications
Enclosure

Dimensions	35 mm (W) x 157 mm (H) x 90 mm (D)
Weight	250 g
Protection	IP20

Mounting

Spring-action plastic mounting clips (x 2)
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Connections

Soft starter	6-way pin assembly
Inputs/Output	Screw and plug type terminals
Maximum cable size	1.5 mm ²

Settings

Trip settings	10-position rotary switches
Input logic	3-way dip switch

Power Supply

Internally powered from soft starter (External power source not required)

Inputs

Digital inputs	
steady state	voltage free, 8 mA maximum at 24 VDC
cable length	30 m maximum (unshielded)
PT100 input	
sensing current	1 mA maximum
accuracy	± 2°C
minimum instantaneous trip point	92.2 Ω at -20 °C
open circuit protection	included
connection	2, 3 or 4 wire
cable length	150 m maximum (twisted pair/shielded)

Outputs

Relay type	single pole, changeover
Capacity	6 A @ 30 VDC resistive, 2 A @ 400 VAC, AC11

Environmental

Pollution degree 3	
Operating temperature	-5 °C ~ +60 °C
Relative humidity	maximum 95% non-condensing

Certification

C✓	IEC 60947-4-2
CE	IEC 60947-4-2