W-DI4

Dry Running Protection

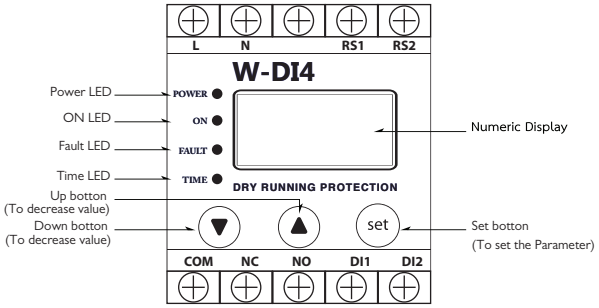
Code : 6063

4 KV SURGE PROTECTION

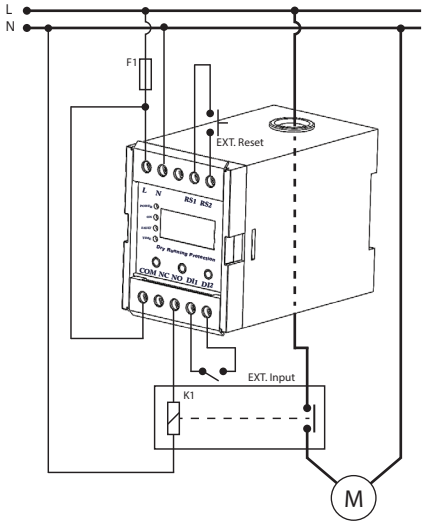
Qualification

- W-DI4 is dry running protection use to protect water pump motor when there is no liquid available to pump
- 7-Segment display 3 Digit (0.39")
- Show the value in Amp current
- 1 Protection relay can be use in both single phase motor (220V) and 3 Phase motor (380V)
- 1 Protection relay can be selected the function to use with under current or over current
- The start delay timer can adjust to start or off the delay timer from 0-999 Sec.
- Support external input signal by the terminal, can be take the order from external level switch.

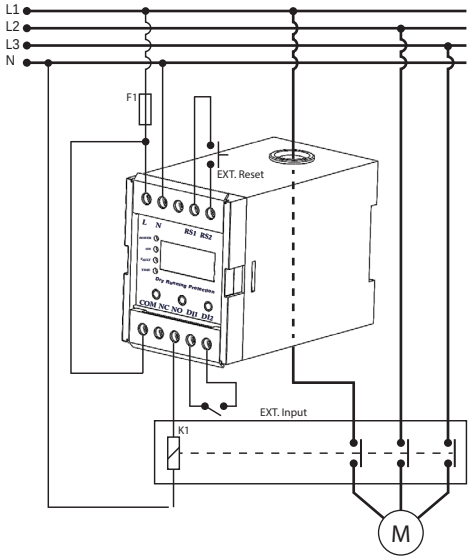
Operation Front Panel



Wiring Diagram **Motor 1Ø**



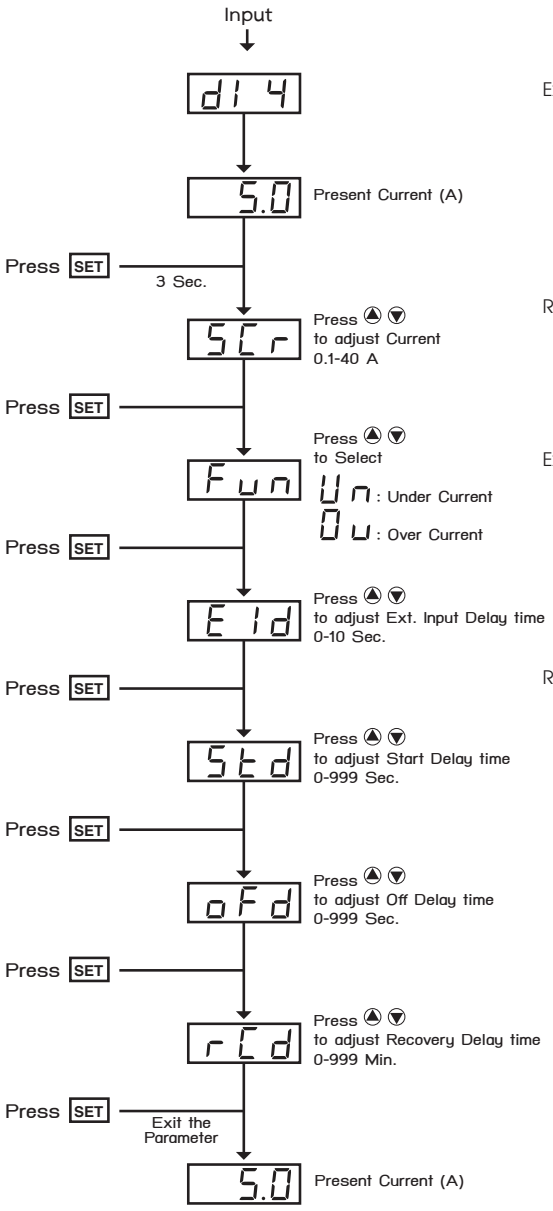
Wiring Diagram **Motor 3Ø**



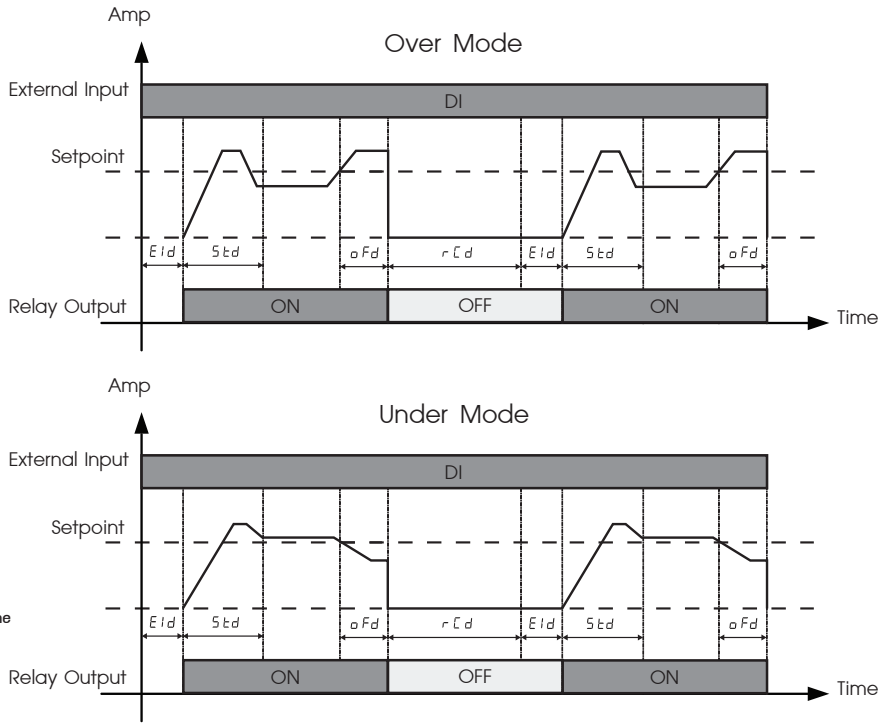
Specification : W-DI4

Feature		
Power Consumption	:	2 VA
Supply Voltage	:	220V
System Frequency	:	50/60 Hz.
Surge Protection	:	4 kV.
Display	:	7 segment Red LED Letter 0.39" (9.90mm)
Indicator	:	LED 3 mm.
Measurement		
Input Current	:	0.1-40 Amp (Direct)
Load	:	Motor 1 Phase and Motor 3 Phase
Delay Timer		
External Input Delay Time	:	0-10 sec.
Start Delay Time	:	0-999 sec.
OFF Delay Time	:	0-999 sec.
Recovery Delay Time	:	0-999 min.
Relay Output		
Output Type	:	1NO, 1NC (SPDT)
Contact Rating	:	250VAC/5A
Operations	:	Mechanical : 2×10^7 times
		Electrical : 1×10^5 times
Input Signal		
External Input	:	Dry Contact
Level Switch		
Reset Input	:	Dry Contact
Push Switch		
Environmental		
Operating temperature	:	-10 °C to +55 °C
Storage temperature	:	-10 °C to +70 °C
Ambient humidity	:	Max 85%RH
Enclosure		
Mounting	:	DIN rail 35mm
Housing	:	ABS UL94V-0
Protection class	:	IP20
Wire fixing	:	Screw terminal block ($3.5mm^2$ self lifting)
Indicator	:	LED 3mm
Dimension in mm	:	60 x 79.50 x 103.90
Weight	:	293 g

Parameter Setting



Timing Diagram



System Parameter Table

No.	Symbol สัญลักษณ์	Description รายละเอียด	Setting ตั้งค่า
1	SCr	SET Current	0.1-40A Adjustable
2	Fun	Function	Un : Under Ou : Over
3	E I d	External Input Delay Time	0-10 Sec. Adjustable
4	Std	Start Delay Time	0-999 Sec. Adjustable
5	oFd	OFF Delay Time	0-999 Sec. Adjustable
6	rCd	Recovery Delay Time	0-999 Min. Adjustable
7	E I o	External Input Open	-

Operation

When wiring and turn on the power to W-DI4. It will Start Delay Timer " Std " which had set, and when the timer over, relay output will start, W-DI4 will directly dicate the motor to verify the irregular current of the motor

W-DI4 have 2 functions to select the relay operations

1. Under Current Protection " Un " is when current value is less than setpoint. The relay output will de-energized motor when set Off Delay Time " oFd " is over

Suitable to use with water pump that needed to prevent from running when there is no water or liquid available to pump, which will damage the motor coil.

2. Over current Protection " Ou " is when current value is more than setpoint. The relay output will de-energized the motor when set Off Delay Time " oFd " is over

Suitable to use with high ratio gear motor, when gear have too high load which will damage the gear.

Ext. Input is use to connect with the level swich or other switch to dictate W-DI4 operation

- When terminal (DI1-DI2) Ext. input in front of contact close circuit W-DI4 will delay the time according to the set time from " Eld " After the set time passed, relay output will energize the motor pump and start to verify the current load. LED indicator will show " ON "

Operation (Continue)

- When terminal (DI1-DI2) Ext. input in front contact open circuit the relay output, pump and motor will de-energize. W-DI4 will not verify the current load of pump and motor. Because the pump was de-energized, the display will show " Elo " and LED indicator will show " Fault "

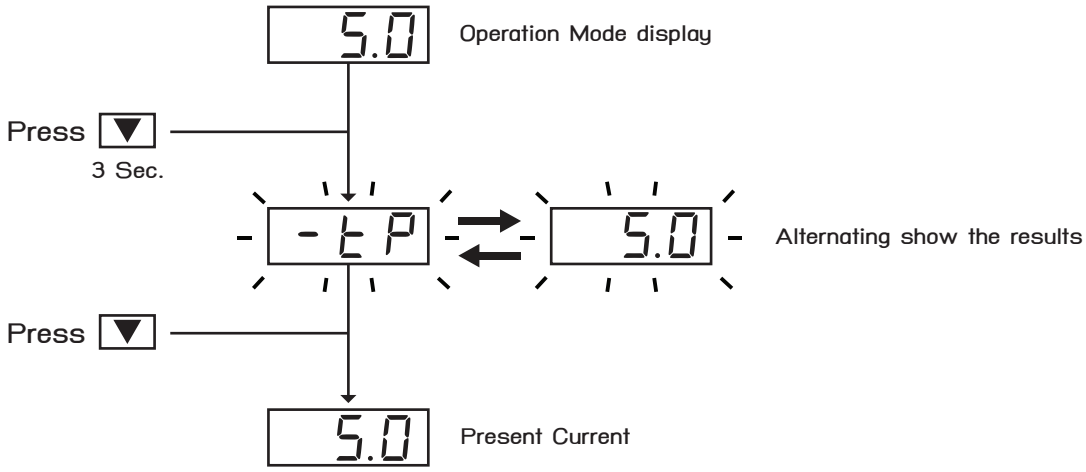
Recovery Delay Time " rCd " (range 0-999 Min) use to set time relay for W-DI4 to re-energize the pump after dry run occurred. For examples for " rCd " at 30 minute, the pump will re-energize after 30 minutes passed. Because the water has been increased during the pump was de-energized. This function is more better, because it don't need to use manual start. But if this function had set at 0 minute it will not work. User might reset by pressing " ▲ " button for 3 seconds, or by external reset input.

Ext. Reset Input is use to connect with the external switch to reset W-DI4 to restart the operation. Use when don't need to run auto mode function " rCd "

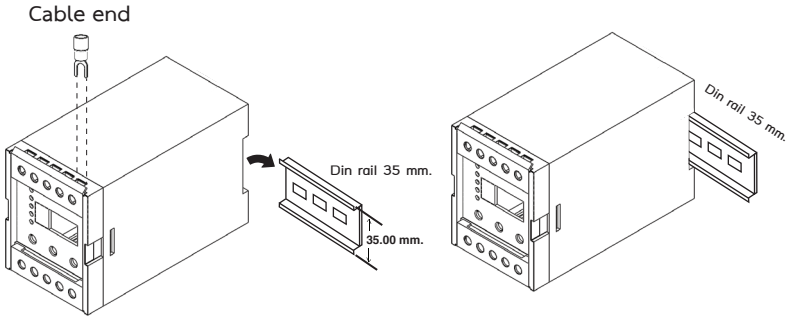
Ext. Input Delay Time " Eld " is for time delay before relay output re-energize after received the signal from Ext input, to protect the output swing or unstable.

W-DI4 have a shortkeys to test pump operation. Press " ▼ " button for 3 seconds to test the pump operation, display will alternating show " -tP " and working motor current amp. When the pump is working the relay output also working. And when press " ▼ " button again, W-DI4 will reset the pump and " -tP " will disappear

Test Pump mode Selection

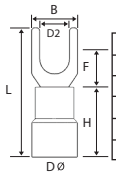


Installation



Product wiring details

Applicable cable end	Wire range	Tightening torque	Tool
Size 1.25-3	0.25...1.65 mm² 22...16 AWG	1.2 N.m	(+) PH1 (4.5 mm.) Screwdriver



D2 (mm.)	3.2
B (mm.)	5.7
L (mm.)	21.2
F (mm.)	6.5
H (mm.)	10.0
DØ(mm.)	4.3

Dimension