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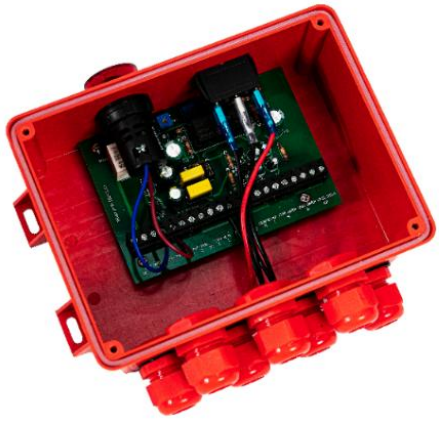
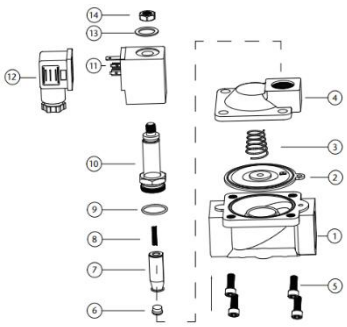
Priority Demand Valve ½” - 2”

Application Engineering’s BS 9251:2021 compliant priority demand valve assembly is for use upon activation of a flow or level switch, whereupon the valve will automatically close the domestic water supply allowing all water to divert to the sprinkler system.

The priority demand valve is available in various sizes and comes with either a solenoid valve (sizes ½” - 2”) or butterfly valve with an electric actuator (sizes 2 ½” - 8”) along with a 230v Relay box.





Solenoid Valve:

- 230VAC
- Thread standard: ISO 228/1
- Coil Rating - IP 65
- Coil Duty Cycle - 100%

Key Features:

- Flow & level switch Input to activate PDV
- Failsafe will close PDV in event of power cut
- Manual reset button to ensure system checked after activation
- If the system fault remains unresolved after manual reset then the PDV will activate again to prevent reset when not safe
- Time delay function to prevent false activation without the need for expensive time delay flow switch
- Internal sounder beacon to alert on activation
- Volt free contact can be used as a fire output with activation solely by signal from the flow switch.
- LED din plug shows solenoid valve is energised

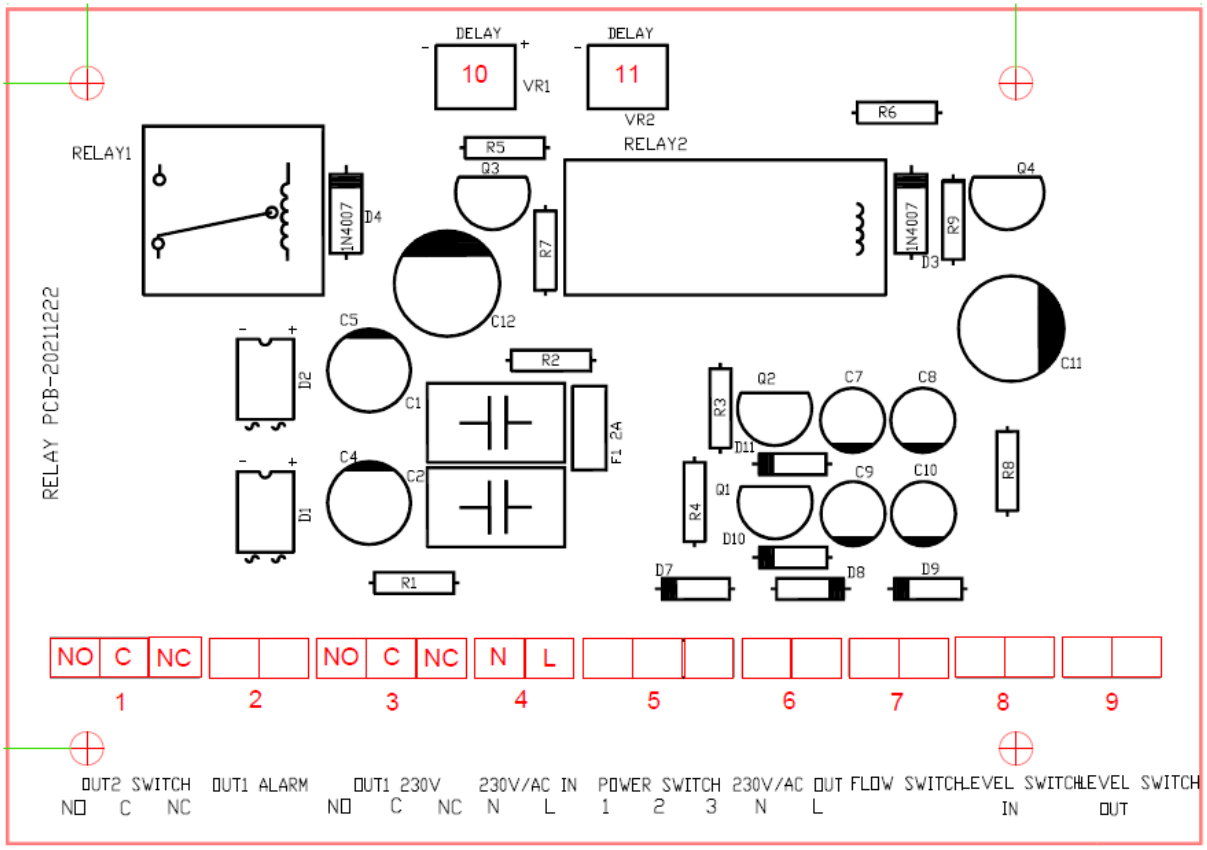
N.	Component	Material
1	Valve Body	Brass
2	Diaphragm	EPDM
3	Diaphragm Spring	Stainless Steel 304
4	Valve Cover	Brass
5	Bolt	Stainless Steel 302
6	Pilot Seal	EPDM
7	Pilot	Stainless Steel 1J117
8	Pilot Spring	Stainless Steel 304
9	O Ring	EPDM
10	Plunger Tube Unit	Stainless Steel 304 + 1J117
11	Coil	Enamelled Wire
12	Plug	Nylon
13	Washer	Stainless Steel 302
14	Lock Nut	Stainless Steel 302

Port Size (G)	Orifice	CV Value	Min. Pressure Difference (Bar)	Max. Working Pressure	Max Temp. (°C)	VA AC 230V	Main Dimension AxBxH
1/2”	13	4.5	0.5	16	120	22	66x48x122
3/4”	20	7.6	0.5	16	120	22	75x58x118
1”	25	12	0.5	16	120	22	96x70x131
1 1/4”	35	22	0.5	16	120	22	131x96x146
1 1/2”	40	30	0.5	16	120	22	131x96x146
2”	50	48	0.5	16	120	22	165x120x167

How to Order

Port Size (G)	Part Number
1/2”	AE-PDV21-50
3/4”	AE-PDV21-75
1”	AE-PDV21-100
1 1/4”	AE-PDV21-125
1 1/2”	AE-PDV21-150
2”	AE-PDV21-200

Wiring



1 - Volt free contact (for external alarm)
2 - Pre-wired Output to sounder beacon
3 - Output to Solenoid valve, use NC output for PDV as this is a failsafe in the event of a power loss
4 - 230v Mains Power in
5 - Pre-wired output to Reset Button
6 - For use with Butterfly valve only
7 - Flow Switch Input - Not Polarity Sensitive (NPS)
8 - Level Switch Input (for low level) - NPS
9 - Low Level alarm output
10 - Adjustable Time Delay 1
11 - Adjustable Time Delay 2

*Turn clockwise to increase time delay, each delay controls a separate relay so both need adjusting

BS9251:2021 states that the PDV should have a failsafe so the N/C solenoid is powered open however if this is not needed then a N/O solenoid valve can be used by using the N/O output to the solenoid.

Wiring Notes

- OUT1 230V is a powered output, so for use as a 2021 PDV all that is needed is to take two wires, one from the “C” and one from the “NC” into the solenoid valve which is not polarity sensitive
- The ‘LEVEL SWITCH OUT’ is a volt free normally open output switching on activation of the level switch to be used as a low-level alarm. If a low-level alarm not needed then it can just be left unwired
- The FLOW SWITCH & LEVEL SWITCH inputs are volt free normally open inputs, all they are looking for is a closed signal on activation of the switches

Installation Notes

- We advise that that a small bore bypass valve is fitted in parallel to the PDV so that if power should fail, a small amount of water can be provided to the building for drinking/ toilet flushing, this valve should be closed during normal operation
- Once wiring is complete the solenoid valve will be permanently powered open, the LED Din plug on the solenoid valve will give a visual indication of this with a constant red light when active, in the result of a power loss the valve will failsafe closed
- On activation of either the flow or level switch the sounder beacon will activate and the solenoid valve will close. A manual reset is required to turn off the sounder beacon and reopen the solenoid valve, this is carried out by turning the power switch off and on again. If the fault has not been fixed then the alarm will sound again and another manual reset will be required
- The OUT1 SWITCH is a volt free output that will only activate in the result of a signal from the flow switch and can therefore be used as a fire output. This output will stop alarming once the flow switch stops activating, however, a manual reset is still required to return the PDV to a working state