



Model CRDV/S

Application and Installation Guide

Technical Data

Function: 2-Way, 2-Position; Inlet Pilot Diaphragm; Normally Closed

Port Size: 1/2" NPT

Orifice Sizes / Flow Factor: 12.5mm / 2.45 Cv

Pressure Range: 0 - 180 psi

Temp. Range: Fluid max.: 60°C
Dry Range: Ambient +10° to +50°C
Note: This device is not recommended for use in below freezing temperatures

Response Time: 20-80 ms Complete Cycle

Media: Air, emulsion, gas, water (contact factory for compatibilities)

Environment Protection: IP65 (IEC 144), NEMA 4
Dust-tight and water resistant (with electrical connector)

Mounting: On pipe or #8 - 32 mounting holes on valve base

Wetted Materials: Operator: 400 Series Stainless Steel and Brass
Orifice Seals: FKM (others available on request)
Shading Ring: Copper
Springs: 300 Series Stainless Steel
Valve Body: Glass-Filled Nylon

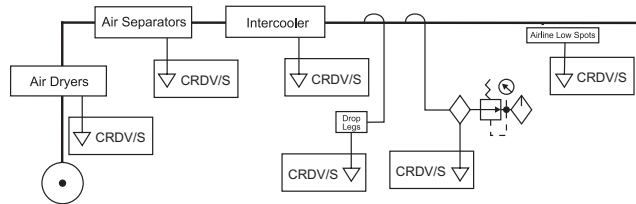
Coil Data: Duty Cycle: Continuous (within specifications)
Encapsulation: Glass-Filled Nylon
Insulation: Class F
Power Rating: 8.5 VA
Voltage: 120 VAC 50/60 Hz
Voltage tolerance: +/- 10% Nominal
Winding: Class H

Transient Suppression: MOV

Cable: 6 ft. Cord with grounded wall plug

Packaged Weight: 1.1 lbs.

Applications



Caution

Excessive use of pipe sealant can cause clogging and leakage. Please follow ASME standards for applying pipe sealant and tape. Do not use media, voltage or pressures other than that recommended by Spartan Scientific Inc. as valve malfunction could result. Misuse or misapplication of Spartan solenoid valves could cause serious bodily injury or property damage.

Warranty Information

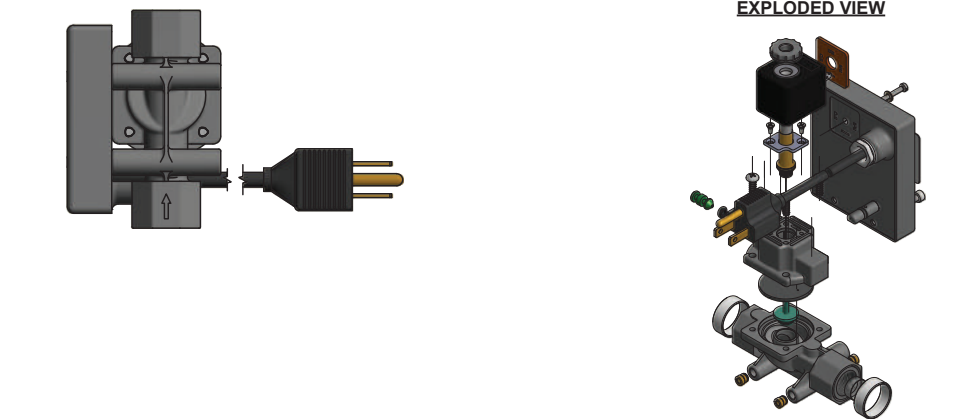
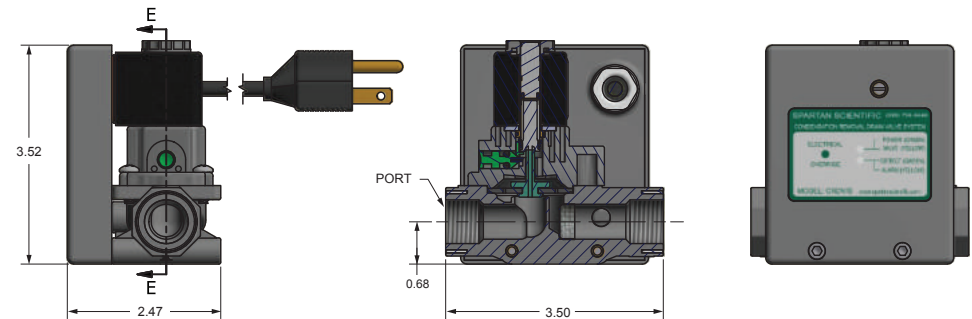
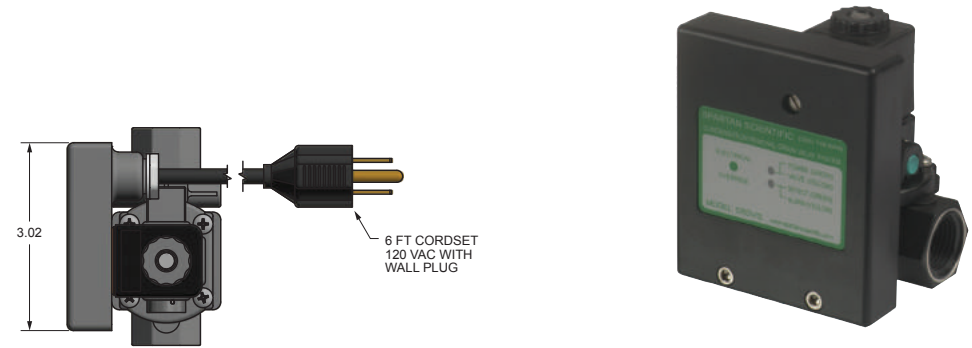
Solenoid valves and all other products manufactured by Spartan are warranted by Spartan to be free from defects in material and workmanship for a period of 1 year from the date of purchase. Spartan's obligation under this warranty is limited to repair or replacement of the defective product or refund of the purchase price paid solely at the discretion of Spartan and provided such defective product is returned to Spartan freight prepaid and upon examination by Spartan such product is found defective. This warranty shall be void in the event that the product has been subject to misuse, misapplication, improper maintenance, modification or tampering. This warranty is expressed in lieu of all other warranties, expressed or implied from Spartan Scientific, Inc., representatives or employees.



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Dimensional Data





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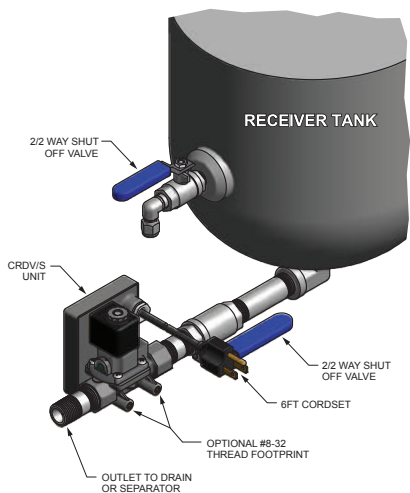
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Installation

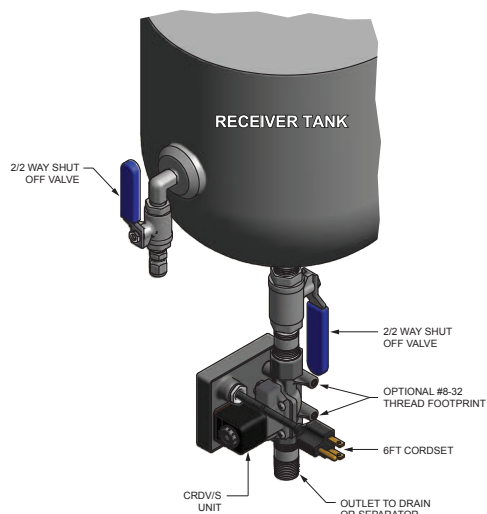
1. The CRDV/S is an automatic device and will cycle with the presence of water at the inlet and one time initially to indicate that it is working. It is important to make all pressure connections prior to making electrical connections as the CRDV/S automatically cycles without warning.
2. Drain the tanks, dryers, coolers or any device that is the producer of the condensate of any water and air pressure prior to CRDV/S installation.
3. It is necessary to mount the CRDV/S below the vessel it is draining, as the condensate is gravity fed to the inlet port of the CRDV/S.
4. Connect the unit's inlet port to the condensate line; follow the flow arrow on the CRDV/S, (it is advisable to install a ball valve or ball valve strainer to facilitate future service of your CRDV/S).
5. Connect the exhaust port to an air-oil separator or equivalent device.
6. Connect the wall plug to a convenient wall connection and you are ready to go.

NOTE: Spartan Scientific strongly recommends the use of a strainer prior to the inlet of the CRDV/S to filter out any particulate. If no strainer is used particulate build up may occur causing a minor leak. To remedy this condition, it is necessary to apply a sustained purge of 5 to 10 seconds to clear the debris.

HORIZONTAL MOUNTING



VERTICAL MOUNTING



Indicator Light Chart

| | | |
|-------------------------------------|---|--|
| NO POWER when not lit | ○ | POWER (GREEN) = Electricity is connected to CRDV/S |
| | ○ | VALVE (YELLOW) = Valve ON, Condensate is Purging |
| NO CONDENSATE DETECTED when not lit | ○ | DETECT (GREEN) = Condensate Detected |
| | ○ | ALARM (YELLOW) = Alarm Mode |



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How It Works

Normal Mode:

When the CRDV/S is first connected to electricity, the unit goes into a one minute initialization mode during which the override button is non-functional and the following sequence occurs:

| | | | |
|-----------------------------------|------------|------------------------------|-----------------|
| L1 LED = Power(gm) / Valve (yel) | | | |
| L2 LED = Detect(gm) / Alarm (yel) | | | |
| L1 red/grn | L2 red/grn | @ 1 Hz (chatter warning) | for 10 seconds. |
| L1 red/grm | L2 off | @10 Hz and valve chatters | for 2 seconds |
| L1 grn | L2 off | Pause | for 3 seconds |
| L1 yel | L2 off | Valve on (short vapor purge) | for 1 second |
| L1 grm/red | L2 off | @ 1 Hz (sensor warm up) | for 35 seconds |
| L1 grn | L2 off | - unit ready for /use. | |

After the initialization mode, the unit will immediately enter normal mode.

As condensate is generated, the water and effluent falls by gravity through the piping to the inlet of the CRDV/S. A short vapor purge occurs continually to insure there is no trapped air in the lines to prevent water from reaching the CRDV/S. The time interval between vapor purges is automatically adjusted based on the need and can vary between 2 minutes and 2 hours. Nothing else happens until the CRDV/S solid-state sensor senses the presence of condensate. At that time the electronics sends the signal to energize the solenoid valve, which opens and exhausts the condensate from the pneumatic system. After a 1 second purge interval the valve de-energizes and the sensor no longer senses water at the inlet port. The CRDV/S then goes dormant for a minimum of 35 seconds after which the unit will stand ready to purge condensate again, only when it is sensed. As condensate once again builds up, the sensor senses the presence of condensate and the purge cycle continues.

High Flow Mode:

If, during normal mode, there is a high production of condensate, the CRDV/S function will change to accommodate the increased need to remove water from the system. As in normal mode, the CRDV/S remains dormant, sensing for condensate. If there is a high amount of condensate at the inlet port, so much so that the 1 second purge will not remove it all from the port, the CRDV/S "learns" and opens for a 2 second purge interval. The unit then goes into a 35 second wait cycle after which the CRDV/S, if it continues to sense condensate, continues to re-cycle adding 1 second to the purge interval each time. The sensor goes into alarm mode when the purge interval gets to 6 seconds. During alarm mode the CRDV/S repeats the purge cycle adding 1 second to the purge interval each time until the sensor stops sensing condensate. When the sensor runs free of condensate the CRDV/S returns to normal mode. If during alarm mode the purge interval gets to 16 seconds, the unit will enter an emergency shut down mode to conserve air and will flash both LEDs at a 1 Hz rate until power is removed and reapplied.

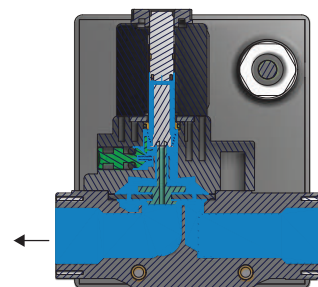
Electrical and Manual Override:

The CRDV/S is equipped with both a manual override and an electrical override. The manual override is the green push button found on the side of the valve at the back of the unit. Pressing this button allows for drainage of the condensate line without the need for electricity. The electrical override is a button found at the front of the unit which energizes the solenoid and drains the condensate line. Both overrides are momentary contact, spring return.

One 1 second purge cycle every 24 hours

There is one 1 second purge/chatter cycle every 24 hours just to ensure that the condensate lines are clear and effluent is flowing to the CRDV/S.

OPEN POSITION



CLOSED POSITION

