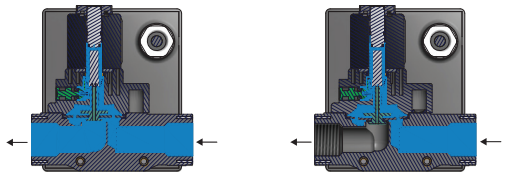
Series CRDV/S Wi-Fi

Application and Installation Guide

How It Works

OPEN POSITION **CLOSED POSITION**



Maintenance

1. **Always remove electrical power and shut the ball valve, bleeding any residual air pressure from the CRDV/S Wi-Fi by use of the override prior to doing any maintenance.** It is best to shut down the compressor also during this step.
2. In many installations there will be rust and scale particles in the air receiver if there was no drain valve/strainer present. Such debris can clog your new ball valve strainer and inhibit water from reaching the CRDV/S. It is best if you are able to bleed your system prior to attaching your CRDV/S. If a clog occurs, the CDV/S Wi-Fi will send you alerts as directed by you in Wi-Fi setup.
3. It is suggested to check the strainer soon after installation and then once a month or if an alert occurs.
4. Cleaning the Y-Strainer: Shut down the compressor, close the ball valve on the strainer and bleed any residual air from the system by over-riding the CRDV/S. Once pressure is purged from the system, open the strainer by unscrewing the strainer plug and check for debris in the strainer (Fig. 1). Water rinse clean and reinstall the strainer, open the ball valve slowly. The CRDV/S has a large ½" orifice but particles can still clog the unit if large enough. Failure to use a strainer could result in premature failure of your drain valve.

NOTE: This unit is equipped with both Mechanical and Electrical Overrides. The push button override can also be used to verify valve operation in the initial setup before any power has been supplied.

FCC Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Manu.	**Model**
Spartan Scientific	Model CRDVS

Device complies with CAN ICES-3 *(A)/NMB-3(A)*

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.

SPARTAN SCIENTIFIC
8510 Foxwood Ct. • Youngstown, Ohio 44514
PH: (855)629-4648 • Fax: (330)758-3314
www.spartanscientific.com

Series CRDV/S Wi-Fi

Application and Installation Guide

Installation

Model CRDVS-3174

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. Included in your package is a ball-valve strainer designed to facilitate installation of your CRDV/S Wi-Fi. Please note the orientation of both the ball valve strainer and your CRDV/S Wi-Fi following the illustrations below.
5. Connect Y-Strainer / Ball Valve to CRDV/S. The flow arrow indicates direction of flow and should face toward inlet port. (See Fig.1)
6. Connect the outlet port to an air-oil separator or equivalent device.
7. Once all fluid connections are made, go to iot.spartanscientific.com on your desktop computer or download the app from the store for your Android / iOS, follow the instructions for adding a profile.

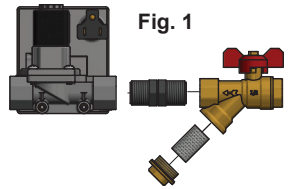
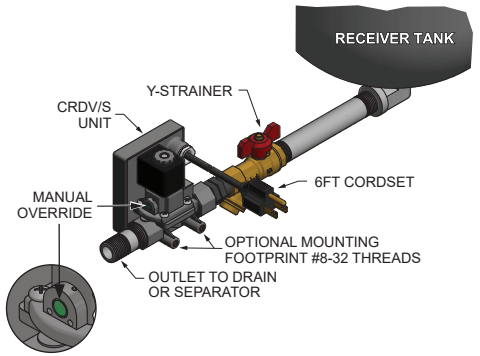


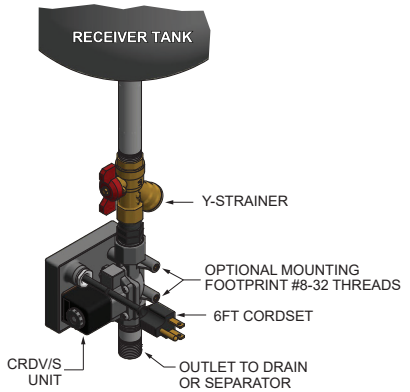
Fig. 1

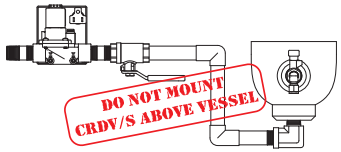
NOTE: Spartan Scientific strongly recommends the use of a strainer prior to the inlet of the CRDV/S to filter out any particulate. If no strainer is used particulate build up may occur causing a minor leak. To remedy this condition, it is necessary to apply a sustained purge of 5 to 10 seconds to clear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

HORIZONTAL MOUNTING



VERTICAL MOUNTING





WARNING: **DO NOT Mount the CRDV/S unit higher than the vessel** as water runs to the unit by gravity and cannot run uphill. An air lock could result in the unit and water might not be removed because it is never sensed. Rule of thumb is always mount the CRDV/S unit below the vessel being drained with a clear path for water to fall to the sensor in the inlet port.

SPARTAN SCIENTIFIC
8510 Foxwood Ct. • Youngstown, Ohio 44514
PH: (855)629-4648 • Fax: (330)758-3314
www.spartanscientific.com

Series CRDV/S Wi-Fi

Application and Installation Guide

Wi-Fi Setup

To connect your Spartan Scientific product to the internet, you need a wireless non-proxy access point, knowledge of the pass phrase and a web-enabled device you will use for set up. Choose from the ***Google Play Store***, ***Apple App Store***, or go to ***iot.spartanscientific.com*** after downloading the Spartan Scientific app be prepared to create a new account where you will need a valid e-mail address and password (8 characters). Upon confirmation you are now ready to use your new account for product setup. Follow instructions in the app for setup of your new device.

Indicator Light Chart

NO POWER when not lit

- **POWER (GRN) = Electricity is connected to CRDV/S**
- **VALVE (YEL) = Valve ON, Condensate is Purging**
- **INTERNET (GRN / RED) = Internet connection, flashing**

NO CONDENSATE DETECTED when not lit

- **DETECT (GRN) = Condensate Detected**
- **ALARM (YEL) = Alarm Mode**

SPARTAN SCIENTIFIC
8510 Foxwood Ct. • Youngstown, Ohio 44514
PH: (855)629-4648 • Fax: (330)758-3314
www.spartanscientific.com

Series CRDV/S Wi-Fi
Application and Installation Guide

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:

(Top) LED = Power (GRN) / Valve (YEL) / Internet, flashing (GRN/RED)
(Bottom) LED = Detect (GRN) / Alarm (YEL)

(Top) RED/GRN	(Bottom) RED/GRN @ 1 Hz (chatter warning) for 10 seconds
(Top) RED/GRN	(Bottom) off @10 Hz and valve chatters for 2 seconds
(Top) GRN	(Bottom) off Pause for 3 seconds
(Top) YEL	(Bottom) off Valve on (short vapor purge) for 1 second
(Top) GRN//RED	(Bottom) off @ 1 Hz (sensor warm up) for 35 seconds
(Top) GRN	(Bottom) off – unit ready for /use

If the bottom LED continues to flash RED, the unit is awaiting setup to an access point.

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.

SPARTAN SCIENTIFIC
8510 Foxwood Ct. • Youngstown, Ohio 44514
PH: (855)629-4648 • Fax: (330)758-3314
www.spartanscientific.com