FOCUS-1

frequently asked questions

The Power of 4-in-1

Important questions answered from the disruptive philosophy of 4-in-1 integration to the benefits of our approach in simplification of process plants

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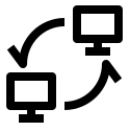


I. FOCUS-1 Device Info

1. How different is FOCUS-1 from a normal control valve & flow meter?

FOCUS-1 is a unique device combining control and measurement of flow. This allows for novel control features, and used:

a) As a smart globe control valve: When configured as a smart control valve, the device responds exactly as a normal globe control valve to a given input signal, which is in most cases % setpoint as 4-20mA.

b) As a smart control device: When configured as a smart fcontrol device, the device behaves as a single loop controller. A given set-point as flow,level or pressure where 4-20mA signal covers the permissible flow/level/pressure range, will be used to determine the correct valve position.

2. Can FOCUS-1 be used for both liquid & gas applications?

The current version of FOCUS-1 can be used only for liquid applications as it measures the flow using an ultrasonic flow measurement technology which is suitable only for liquid media. However, the permissible gas content in the liquid medium is max. 2 % by volume and & permissible solid content up to 5 % vol.

3. Can FOCUS-1 work in multi-phase flow?

FOCUS-1 cannot display a constant and reliable flow volume with the multi-phase flow. The tolerated proportion of gas in the liquid medium is about 2%.

4. What is the safety level of FOCUS-1? Can it be used in safety-related control loops?

FOCUS-1 is still not 'SIL Approved' as the current configuration does not have an external solenoid valve to trip the device to safety mode hence, cannot be offered as a solution in SIS Loops.

II. Valve

1. How high are the permissible differential pressures and the seat leakage?

The permissible differential pressure is approximately **15 bar / 217 Psig**. Higher differential pressures may cause premature wear or cause the plug to oscillate.

2. Is the plug with a soft seal (Class VI) available?

No, we do not provide this as of today.

3. How to switch between Fail Open and Fail Close?

It can be done by changing the spring configuration on-site; however, sizing validation is mandatory before changing the configuration . Based on validation the configuration of the device on dashbard shall also be changed to have the proper behviour of device depicted on the dashboard.

4. Is the 6 bar / 87 Psig air-supply pressure mentioned in the datasheet "without air set"?

That is correct, the maximum air supply pressure that can be handled without Air set is 6 bar / 87 Psig.

III. Sensors

1. What is the technology of pressure and temperature sensors?

FOCUS-1 device embraces the thin film technology on its pressure & temperature sensor. This makes these sensors more robust & less complex providing better accuracy & reliability even in harsh operating conditions. In thin film sensor technology, a piezoresistive strain gauge bridge is deposited directly on the cell's stainless-steel diaphragm which is in direct contact with the media being measured, with this technology, there is no transfer medium in between the media and sensing bridge measuring the parameter.

2. Are the pressure sensors interchangeable?

FOCUS-1 doesn't have just pressure sensors; it has combined pressure-temperature sensors which can't be interchanged with any other pressure or temperature sensors.

3. What are the expected accuracy and T90 times for the temp sensor?

The temperature measurement accuracy is <=1°C.

4. Can the P and T sensors be calibrated and serviced separately without opening the process line?

No, the maintenance & calibration cannot be done on-site & needs to be carried out in a lab, but the PT sensors can be changed with a new one anywhere, as the electronic circuit board, which needs to be changed at the same time contains all the calibration information.

5. FOCUS-1 is equipped with combined PT-sensors at the inlet and outlet of the valve body. Does this mean in case the P or T sensor fails, the combined PT sensor needs to be replaced?

Yes, if any one of the sensors fails, both need to be replaced.

6. Is it possible to make the calibrations on-site? If yes, does this require a special setup, and how can this be achieved? Are there any maintenance instructions available?

Calibration on-site is not possible as of today, but we expect to provide a solution in the coming months.

7. What if the instruments or sensors fail?

The Digital Twin Model constantly validates measured data vs. a physical model. In case of sensor malfunctions, the calculated modelled data replaces the failed sensor measurement data as a backup and the process can continue. An alarm is also sent for sensor failure and planned maintenance can be done to replace the sensor.

IV. Communication with Device

8. What is the function of the FOCUS-1 button?

The function of the button is to power up the device upon 1st installation and to activate the Wifi router so that the device can be connected to a handheld device. In normal operation, the Wifi is switched off for security reasons and to keep the radio emissions on-site as low as possible.

9. If the device is in a difficult-to-reach situation, can the Wifi be switched on permanently?

Yes, the Wifi function can be switched ON permanently once a handheld is connected to the device. After this, the Wifi signal is active 24/7 and one can connect with your smart device without pressing the button.

10. Is FOCUS-1 ready for all standard phones & computers (i.e. android, iPhone, windows, macOS devices)?

Yes, FOCUS-1 is capable of communicating with all standard Android, iPhone, Windows, or macOS phones and computers.

11. Currently, only Wifi & Ethernet is available for configuration purpose. Is the bus also available?

What is possible right now is the 4-20mA input (HART®) & the 4-20mA output. In case customers want to monitor and access the device more regularly, they can remotely connect via Wifi or Ethernet to FOCUS-1 to download data and process information. FOCUS-1 will still perform its control, measurement, alarming and diagnostics functions normally when it is not connected via Wifi or Ethernet. Connecting FOCUS-1 via Wifi or Ethernet gives more ease of use for monitoring the process & downloading device & process data for further evaluation.

12. Can Wifi be used in combination with the regular Ethernet connection?

Yes, this is possible. Connection to the regular Ethernet cable is freely configurable on IP address, subnet mask, and gateway for optimal integration in the IT structure. The regular Ethernet connection also makes it possible that multiple people can access and login into the device. This is one of the features that need to be evaluated in the field if this is required.

13. Can multiple people connect to the device via Wifi?

Only one person at a time can connect to the device via Wifi.

14. Is access to the webserver via a browser?

Yes, that is correct! The web server on-board the FOCUS-1 can be accessed via a browser.

15. Which browsers are supported for interacting with FOCUS-1?

Currently, all the latest versions of the following browsers are supported as Google Chrome, Edge, Firefox.

16. If one did not log out and disconnect the Wifi connection, does one need to log in again after re-establishing the Wifi connection?

If the wireless connection is lost, one needs to log in again. Otherwise, it would become unclear who has access to FOCUS-1.

V. Electronics and Software

1. What is the voltage range for the 4-20 mA passive output?

The voltage range for the 4-20mA passive output is 9V-32V.

2. How to update the software on-site?

This can be done by connecting the device via Wifi or Ethernet. It is also possible to do it remotely with VPN access.

3. Is it possible to monitor who has been in contact with FOCUS-1?

Yes. Any user login is logged with a timestamp and can be downloaded from the device by the administrator.

4. Is there a special software required for FOCUS-ON and if so, how does it look?

For interacting with FOCUS-1 there are no specific applications or software tools needed.

VI. Alarms, Diagnostics, and Digital Twin

1. How to know if the device is working properly?

The easiest way is to look at the color of the LED. When the color of the LEDs is green, the device is working correctly and there are no device or process issues to report. When the user wants more insight on the device and process conditions, the user can connect with any smart device (phone, laptop, or tablet) to FOCUS-1 via the Wifi connection or through an Ethernet cable. When the connection is established, a web browser opens with the display of the FOCUS-1 device with all the information.

2. If there is cavitation present, can FOCUS-1 be equipped with a stellite plug-seat of other hardened material?

Yes, the stellite plug & will seat is already available as an option when configuring and ordering a FOCUS-1.

3. What does it mean by Digital Twin?

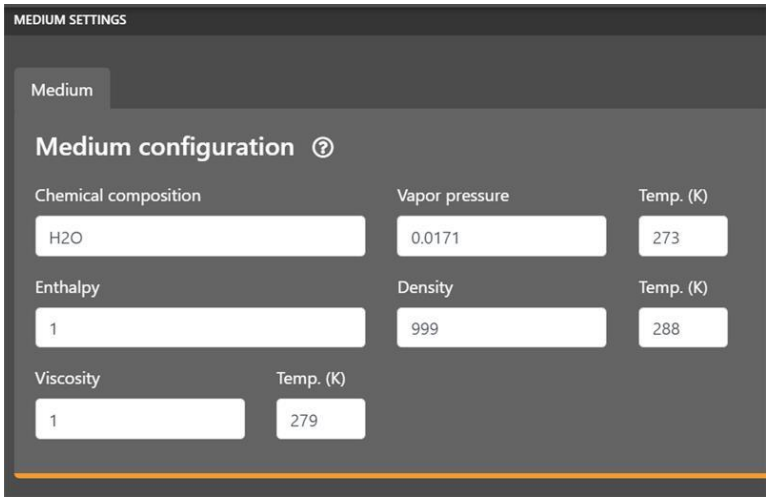
This means that the FOCUS Device includes a "digital twin", an integrated digital model in it. The integrated sensors in the device continually measure process and device data. This data is processed by the digital Twin Model, which generates modelled data and keeps comparing it with actual data. In case of wrong or failing data, the digital twin generates the data for the FOCUS-1 device and continues to function with the modelled data and sets an alarm for sensor failure. This means that there is no need to shut the operation when sensor failure occurs, and scheduled maintenance can be done to replace the malfunctioned sensor.

4. How long it takes to have digital twin fully operational?

The Digital Twin module is functional as soon as the device is configured & the fluid starts flowing through it.

5. If the fluid changes in the process, is it possible to reset the digital twin data?

Yes, whenever there is a change in the fluid type, the parameters have to be updated on the dashboard (please refer to the image below from the dashboard) to have a valid digital twin module in place.



VII. Services and Pricing

1. What all is included in the spare parts kit?

The spare parts kit contains all the necessary parts that might need to be changed in case of any problem. There is a separate kit for the trim exchange and the actuator and for the electronic sub-assemblies.

2. Is it possible to repair or adjust the valve/instrument (FOCUS-1) on-site? If yes, how to do this?

The FOCUS-1 device can be repaired on-site by any certified person. Each of the regions has certified service champions, who can do any of the repairs onsite, such as trim change, actuator diaphragm change & soft goods kit replacement. They can also change the sensors or the cables and even the LED lights.

3. Does the device have a service mode to prevent operation when service work is being done?

Yes, the device has a status of maintenance mode; this can be applied for any kind of service work.

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