HAMILTON

QUICK GUIDE

VisiFerm SU RS485-ECS Sensor

VP8 PIN Designation

VP Pin	Function
A	ECS Cathode
B	ECS Anode (Voltage range may not exceed -2V … +2V)
C	Power supply: + 24 VDC (10 to 27 VDC) Start-up power: 1.5 W Continuous power consumption: 250 mW
D	Power supply: Ground
E	Temperature sensor NTC 22 kOhm for ECS
F	Temperature sensor NTC 22 kOhm for ECS
G	RS485 (A)
H	RS485 (B)
Shaft	Sensor shaft connected to earth

Example of circuit arrangement

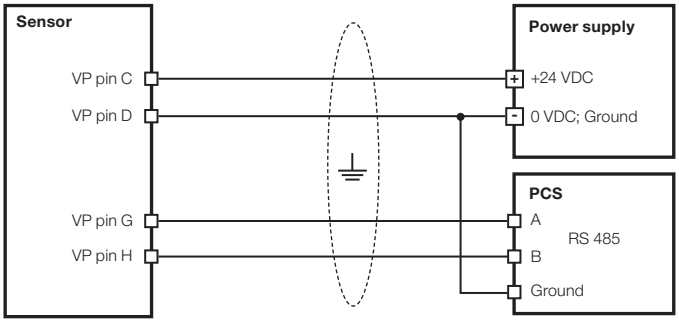

Figure 1: Wiring diagram for the RS485 interface.

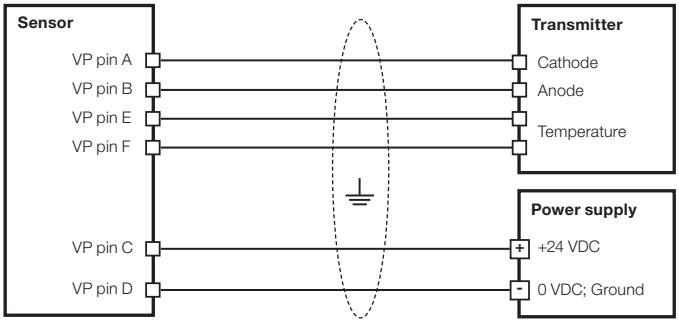

Figure 2: Wiring diagram for the ECS interface.

For 4-20 mA connectivity, refer to the VisiFerm SU RS485-ECS Operating Instructions (REF 10163540).

NOTICE:

- Always use Hamilton VP8 cables for the easiest and safest connection for the VisiFerm SU RS485-ECS.
- The VP8 cables are available in various lengths and can be ordered from Hamilton.

⚠ CAUTION! Make sure that the housing of the VisiFerm SU RS485-ECS is connected to protective earth.

⚠ **CAUTION! Remove the protective cap from the sensor shaft before you install the ODO Cap on the sensor. Handle the VisiFerm carefully so that the glass of the sensor tip does not break.**

Operation

⚠ **CAUTION! All sensors are delivered with factory-default settings for ECS mode and Modbus RS-485 connection mode respectively. Do not apply a voltage out of specified range.**

NOTICE:

- If required, configure the sensor to 4-20 mA before first use. For details on how to configure the sensor, refer to VisiFerm SU RS485-ECS Sensors Operating Instructions (REF 10163540) on the Hamilton website (www.hamiltoncompany.com).
- The 4-20 mA analog interface is only provided by an Arc Wi 2G adapter BT (REF 243470).

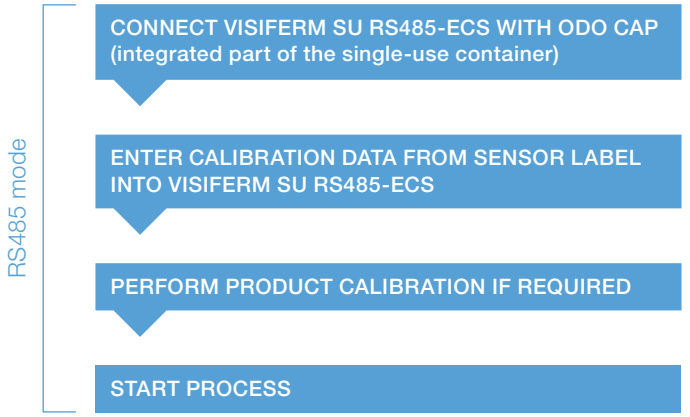

Figure 3: RS485 mode sensor setup using a single-use container with integrated ODO Cap.

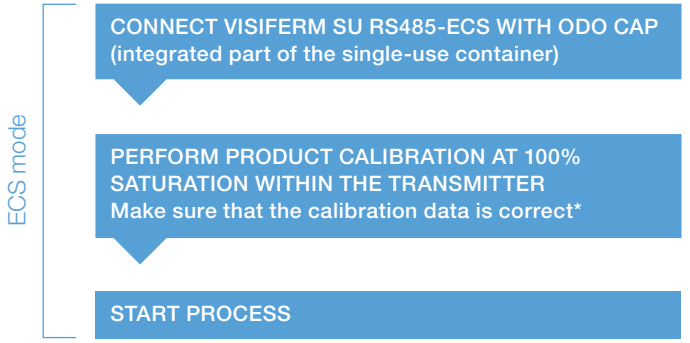

Figure 4: ECS mode sensor setup using a single-use container with integrated ODO Cap.

** Phase 0 (°) = 71.00 / SV Coefficient = 0.0197. For more information, refer to VisiFerm SU RS485-ECS Sensors Operating Instructions (REF 10163540) on the Hamilton website (www.hamiltoncompany.com).*

Calibration

VisiFerm SU calibration procedure via RS485 interface

The ODO Cap has been pre-calibrated at 100% and 0% oxygen saturation at 25 °C in gas. Therefore calibration prior to the process is not necessary. The calibration data for Phase 0 and Stern Volmer Coefficient (SV-Coefficient) can be found on the label attached to the ODO Cap.

1. Read the Phase 0 (°) and Stern Volmer Coefficient (-) written on the sensing element label (see Figure 5).
2. Enter the Phase 0 and SV-Coefficient values into the VisiFerm SU (see «Configuration»).
3. If required, perform a product calibration step to increase accuracy.

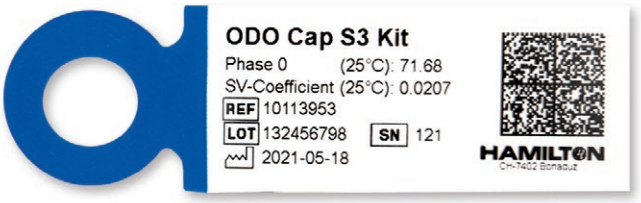

Figure 5: Example sensing element label with calibration data.

NOTICE: For more information, refer to VisiFerm SU RS485-ECS Sensors Operating Instructions (REF 10163540) on the Hamilton website (www.hamiltoncompany.com).

VisiFerm SU calibration procedure via ECS mode

The VisiFerm SU RS485-ECS is intended to be calibrated with the transmitter. To achieve the accuracy values stated in the specifications refer to the product specifications on the Hamilton website (www.hamiltoncompany.com). the 100%-sat value should be calibrated within the transmitter.

⚠ CAUTION! We recommend that you calibrate the sensor under process condition. You must fill the bioreactor with process media and allow the process media to heat up to the process temperature (e.g., 37 °C), under same pressure and sparging conditions. The saturation of the media must be stable.

The 0%-Sat does not need to be calibrated even after gamma irradiation and storage because Hamilton's ODO caps have high manufacturing repeatability.

⚠ CAUTION! Do not change the calibration data within the VisiFerm RS485-ECS via the ECS mode.

Configuration

Three options are available for the configuration and monitoring of a sensor.

For required equipment and software, see “Parts and Accessoires” section:

- Personal computer or notebook
- ArcAir application on mobile devices
- Access via PCS (if integrated by the system supplier)

Parts and Accessories

Ref	Description
10140046-11	VisiFerm SU RS485-ECS 120
10140046-12	VisiFerm SU RS485-ECS 225
243461	ODO Cap S0 Kit
10077858	ODO Cap S2 Kit
10113953	ODO Cap S3 Kit
243460	Arc Wi 1G Adapter BT
243470	Arc Wi 2G Adapter BT
243490-01	Arc USB Power Cable VP8
243490-02	Arc USB Power Cable M12
243499	Arc Wireless Converter BT
242333	Arc Wireless Converter BT Advanced
10071111	Arc View Mobile Basic
10071113	Arc View Mobile Advanced

For additional accessories and cables, see www.hamiltoncompany.com

ArcAir Application

PC version: Download from www.hamiltoncompany.com

Mobile version: Download from App Store or Play Store

Download on the App Store

GET IT ON Google Play

Disposal

The design of Hamilton sensors optimally considers environmental compatibility. In accordance with the EC guideline 2012/19/EU Hamilton sensors that are worn out or no longer required must be sent to a dedicated collection point for electrical and electronic devices, alternatively, must be sent to Hamilton for disposal. Sensors must not be sent to an unsorted waste disposal point.

有害物質表，請參閱www.hamiltoncompany.com,
章節過程分析，符合性聲明

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