Technical Data Sheet

Remote Display RD.10

for SONOTEC Flow Sensors

The Remote Display RD.10 enables real-time flow monitoring without a PC or PLC. The sensor accessory shows the current flow rate, the volume, the internal sensor temperature, the minimum or maximum flow as well as the measuring state. With plug-in connectors it can be easily connected to all SONOFLOW and SEMIFLOW CO.65 sensors.

The zero reset of sensors via display can be used to control dosing processes.

The display is suitable for applications in fields with strict hygienic standards e.g. the medical technology, biotechnology or pharmaceutical industry as well as chemical and semiconductor industry.
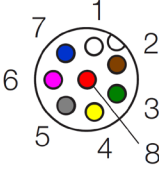
Overview general data

Designation	Dimensions (L × W × H)	Weight	Order No.
Remote Display RD.10	68 × 44 × 27 mm	85 g	200 08 0053

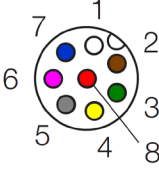| Cable (optional)	Length	Order No.
SONOFLOW sensors — Remote Display RD.10: **M12 8 pole (female) │ M12 8 pin (male), PVC**	1.5 m	400 01 0168
	3 m	400 01 0169
SEMIFLOW CO.65 sensors — Remote Display RD.10: **Binder 720 8 pole (female) │ M12 8 pin (male), PVC**	5 m	400 01 0192
Remote Display RD.10 — PLC: **M12 8 pin (female) │ open end, PVC**	2 m	400 01 0135

Technical data

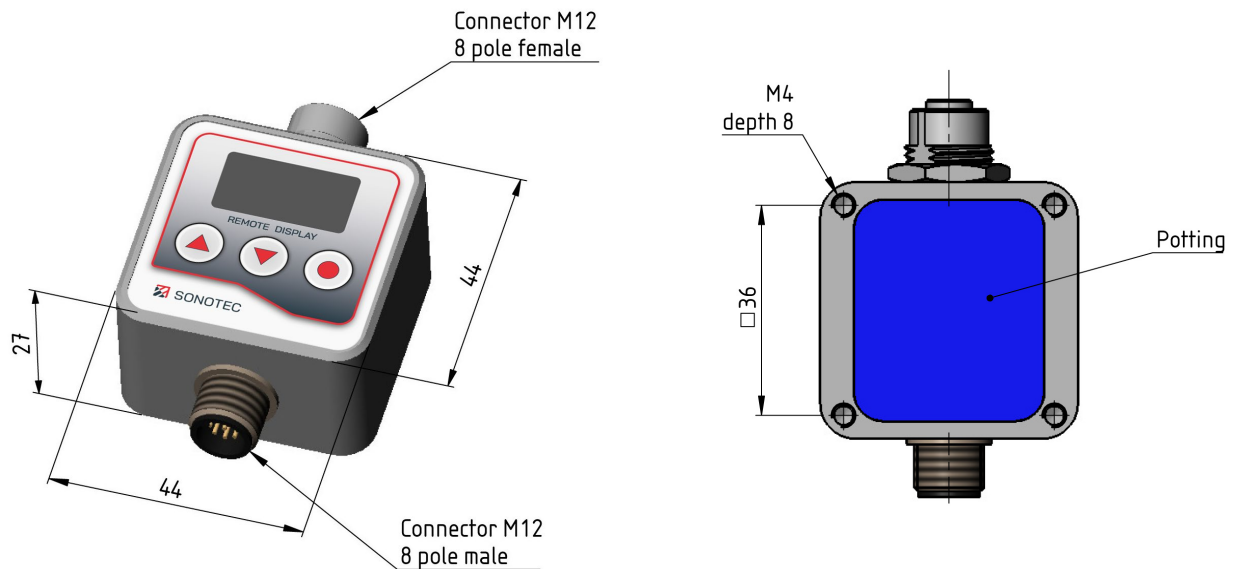| Parameter	Specifications
Display materials	Front foil: Polyester; Housing: PVC-C grey; Potting: PUR blue; Connector: Stainless steel; Pins: Brass
Display format	128 × 64 dots
Numeric display of values	Max. 5 numerals, dynamic decimal point (9 999.9 │ 10 000 │ ... │ 99 999) Value > +99 999 = "+ over" │ value < -99 999 = "- over"
Display color	White on black screen
Measuring screen	Flow │ Volume │ (Internal sensor) Temperature │ Min. Flow │ Max. Flow
Settings	Measurement units, sleep mode, display contrast, zero reset of sensors
Display area (W × H)	23.7 × 12.8 mm
Operating voltage	12 ... 30 V, maximum ripple 10 %, protection against reverse-polarity
Current consumption	Maximum 15 mA
Electrical connection	M12 8 pin / 8 pole connector to sensor, DIN EN 61076-2-101:2012 (see 'Electrical connections' and 'Technical drawings')
Shielding	Required (please refer to section 'Electrical connections')
Interfaces	- Current output for flow rate: 0/4 ... 20 mA - Frequency output for flow rate: 0 ... 20 kHz, 5 V digital - RS-485 interface: bus-capable - Switching output: configurable as PNP / NPN / Push-Pull, 0 ... 30 V - Digital input
Ambient / Media temp.	0 ... 50 °C
Storage temperature	-20 ... +70 °C
Degree of protection	IP65
Directives, standards	RoHS Directive 2011/65/EU, exception: III 7cI/ IV 15; RoHS 2015/863
Maintenance	Maintenance-free
Supported sensors	SONOFLOW CO.55 V2.0 and 3.0 │ SONOFLOW IL.52 V2.0 │ SEMIFLOW CO.65 V2.0
Scope of supply	- Remote Display RD.10 - Technical data sheet - Optional: Connecting cables (please refer to overview on page 1)

SONOTEC

Electrical connections

For Sensors of Version 2.0

Connection	Pin	Assignment	Color
Female connector (to the sensor, upper side RD.10) / Male connector (to machine, bottom side RD.10)	1	Ground	White
	2	Operating voltage	Brown
	3	Current output	Green
	4	RS-485 B	Yellow
	5	RS-485 A	Grey
	6	Frequency output	Pink
	7	Switching output	Blue
	8	Digital input	Red
	Shielding	Cable shield must be connected to housing	

For Sensors of Version 3.0

Connection	Pin	Assignment	Color
Female connector (to the sensor, upper side RD.10) / Male connector (to machine, bottom side RD.10)	1	Ground	White
	2	Operating voltage	Brown
	3	Current output	Green
	4	RS-485 B	Yellow
	5	RS-485 A	Grey
	6	(not assigned)	Pink
	7	Switching output / frequency output	Blue
	8	Digital input	Red
	Shielding	Cable shield must be connected to housing	

Technical drawings

Connector M12
8 pole female

M4
depth 8

Potting

□36

27

44

44

Connector M12
8 pole male

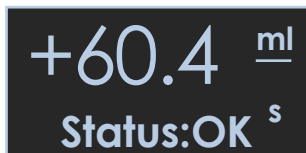# Display status, navigation, settings and reset values

Start screen:
- Displayed for 1 second.
- Shows information for identifying the display.

Measuring screen 1: Flow (default)
- Shows the current flow rate in the selected unit and the measuring state of the connected sensor.

Default setting for flow unit: ml/s (for further options see next page).

▼ Jump to volume display

Measuring screen 2: Volume:
- Shows the current volume in ml and the measuring state of the sensor.

To reset the volume (in the sensor):
→ Press ⬤.
→ Confirm the question "Reset volume – are you sure?" with ⬤ (or cancel the reset with ▲ or ▼).

The display of "Reset" indicates that the value has been reset.

▼ Jump to temperature display

+21 °C
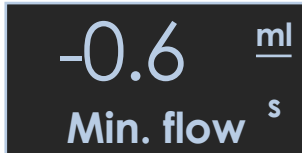**Status:OK**

(▼) Jump to
min. flow display

Measuring screen 3: Temperature

- Shows the internal sensor temperature with the selected unit and the measuring state of the sensor.

Default unit for internal sensor temperature: °C (for further options see next page).

-0.6 ml/s
Min. flow

(▼) Jump to
max. flow display

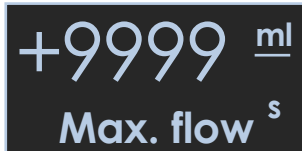### Measuring screen 4: Minimum Flow

- Shows the minimum measured flow in the selected unit and indicates the type of value in the status line.

To reset the value:

→ Press (●).
→ Confirm the question "Clear min – are you sure?" with (●) (or cancel the reset with (▲) or (▼)).

The display of "Clear" indicates that the value has been reset.

+9999 ml/s
Max. flow

(▼) Jump to
flow display

Measuring screen 5: Maximum Flow

- Shows the maximum measured flow in the selected unit and indicates the type of value in the status line.

To reset the value:

→ Press (●).
→ Confirm the question "Clear max – are you sure?" with (●) (or cancel the reset with (▲) or (▼)).

The display of "Clear" indicates that the value has been reset.
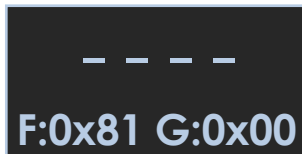

Link?

Missing connection to sensor:

The RD.10 checks the connection to the sensor every 5 seconds. "Link?" is indicated in case of a missing connection.

→ Ensure that the sensor is connected correctly.

The message "Link?" disappears after the connection has been found.

– – – –
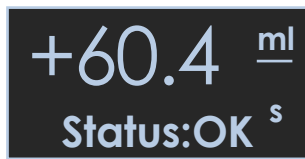**F:0x81 G:0x00**

Error screen:

- Shows error codes (for details and contact see last page).

In case of displayed errors, document the code and contact the manufacturer.

Change settings and perform zero reset

+60.4 <u>ml</u>
Status:OK ^s

Measuring screen 1 / 2 / 3 / 4 / 5
- Shows the current value with the selected unit and indicates the type of value or the measuring state of the sensor.

To change settings:
→ Press ⏺ longer than 5 seconds.

5 different settings and exit from settings are available.

X Setting:lock

▼ Jump to next setting
▲ Jump to previous

Adapt settings

The setting is locked and the default setting or the last selected value is shown.
→ Press ⏺ to unlock the setting → "Setting: free" is displayed.
→ Use the button ▲ and ▼ to select a value.
→ Confirm by pressing ⏺.

The setting is activated and locked.

1

Unit flow

Select values:
µl/s │ **ml/s** (default) │ ml/min │ lt/s │ lt/min │ lt/hr │ m³/min │ m³/hr

---

2

Unit (sensor) temperature

Select values:
°C (default) │ K │ °F

3

Sleep

Select time interval for starting display sleep mode:
off (default) │ 10 s │ 20 s │ ... │ 2 400 s (in steps of 10 s)
To wake up the display: → Press any button.

4

Contrast

Select values:
50 % (default) │ 0 ... 100 % (in steps of 10 %)

5

Zero reset

Perform zero reset of sensor:
ⓘ **NOTE:** A zero reset changes the sensor parameters.
Ensure that the flow is 0 ml/s or in the range you want to set the zero point for your measurement.
→ Press ⏺ to perform zero reset.
→ Confirm the question "Set zero flow – are you sure?" with ⏺ (or cancel the procedure with ▲ or ▼).

Display of "Zero" indicates that the value is written to sensor.

6

Exit

Exit the setup menu:
→ Press ⏺ to turn back to measuring screen.

SONOTEC

Error codes

Error code 'F'	Error	Possible causes and recommended measures
F 0×00	No measuring error	
F 0×01	Signal value not plausible	Check if:
F 0×10	Signal value not plausible	• the tubing is firmly secured in the sensor and cannot move?
F 0×81 or higher	Signal value not plausible, no measurement possible	• the tubing is filled with a liquid, without large gas bubbles? • the lid of the sensor is closed?

Error code 'G'	Error	Possible causes and recommended measures
G 0×00	No device error	
G 0×01	Checksum error in parameters	Recheck parameters.
G 0×02	At least one invalid parameter	(SONOTEC software can be used).
G 0×04	Temperature sensor failed	Power OFF / power ON the sensor.
G 0×08	DAC has failed	If the error persists, return the sensor for repair.
G 0×10	Display failed	

Drawings are not to scale. Dimensions in mm, unless otherwise specified. Information is subject to change without notice. SONOTEC is a registered trademark.

Manufacturer

SONOTEC GmbH
Nauendorfer Str. 2
06112 Halle (Saale)
Germany

Tel.: +49 345 13317-0
sonotec@sonotec.de
www.sonotec.eu

Contact USA

SONOTEC US Inc.
190 Blydenburgh Rd
Suite 8, 2nd Floor
Islandia, New York 11749, USA

Tel.: +1 631 4154758
sales@sonotecusa.com
www.sonotecusa.com

SONOTEC