

1 Temperature Pt1000

The Pt1000 is used as a measuring resistor for high-precision temperature measurements or monitoring in all areas of application where measurement errors must be largely eliminated. The strictly linear dependence of the resistance on the temperature simplifies the use of electronic evaluations.

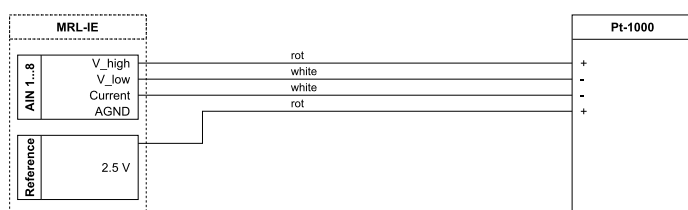
Sensor database ID	001
Name	Pt1000
Measured Quantities	Temperature
Manufacturer	-

Measurement range

	Unit	Min	Max
Temperature	°C	-200	600

Analog setup

Wiring



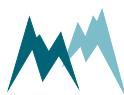
ANALOG settings

Signal class	Resistance
Analog inputs	
AIN signal type	PT1000
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	1	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



2 Temperature NTC

A NTC resistor is a temperature-dependent resistor used as a temperature sensor.

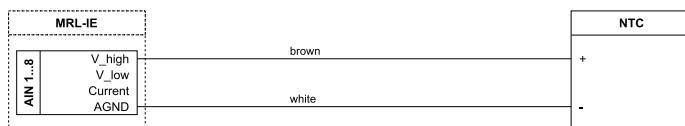
Sensor database ID	002
Name	NTC
Measured Quantities	Temperature
Manufacturer	-

Measurement range

	Unit	Min	Max
Temperature	°C	-55	200

Analog setup

Wiring



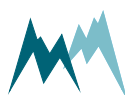
ANALOG settings

Signal class	Voltage
Analog inputs	
AIN signal type	NTC (2k2)
Warm-up time	0.5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	1	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



3 Temperature AD592

The AD592 is a bi-terminal, monolithic, integrated circuit temperature transducer that provides an output current proportional to absolute temperature. For a wide range of supply voltages the transducer acts as a high impedance, temperature dependent current source of $1 \mu\text{A}/\text{K}$.

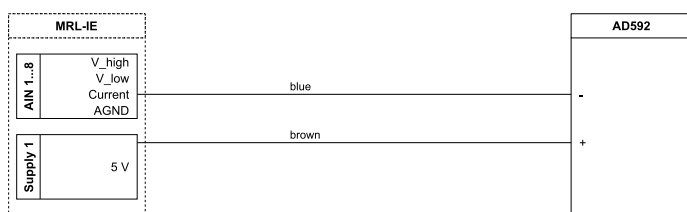
Sensor database ID	003
Name	AD592
Measured Quantities	Temperature
Manufacturer	-

Measurement range

	Unit	Min	Max
Temperature	°C	-25	105

Analog setup

Wiring



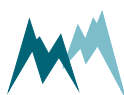
ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	AD592
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Always on
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	1000	-273.15	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



4 Level LMK-10

The separable submersible probe was developed for level and measurement in water and wastewater.

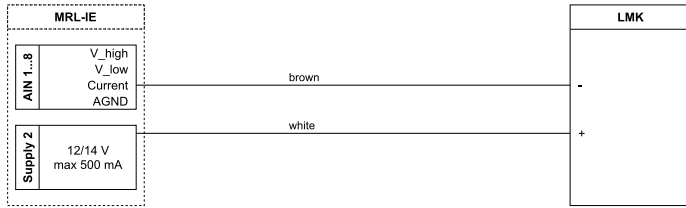
Sensor database ID	004
Name	LMK 307/308
Measured Quantities	Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Level	m	0.000	10.000

Analog setup

Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	m	3	0.625	-2.5	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a LMP with a measurement range of 0 ... 10m water column



5 Level LMP-10

The separable submersible probe was developed for level and measurement in water and wastewater.

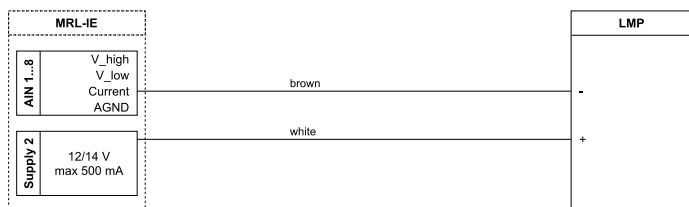
Sensor database ID	005
Name	LMP 307/308
Measured Quantities	Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Level	m	0.000	10.000

Analog setup

Wiring



ANALOG settings

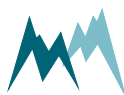
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	m	3	0.625	-2.5	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a LMP with a measurement range of 0 ... 10m water column



6 Level PTM

Submersible pressure probe for level measurement in water and wastewater.

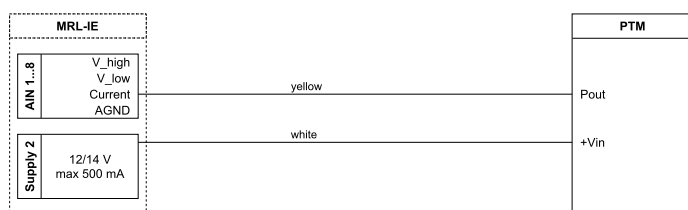
Sensor database ID	006
Name	PTM
Measured Quantities	Level
Manufacturer	Sensor Technik Sirnach AG

Measurement range

	Unit	Min	Max
Level	mm	0	10000

Analog setup

Wiring



ANALOG settings

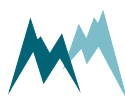
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

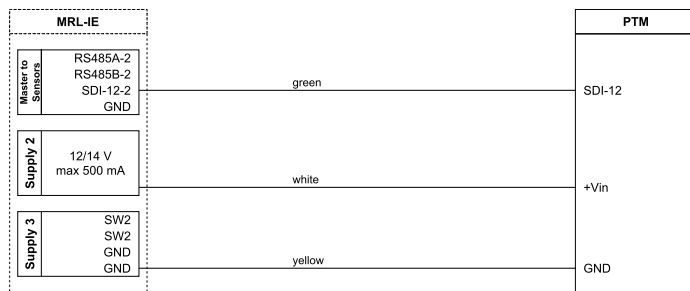
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	None	6250	-2500	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a PTM with a measurement range of 0 ... 10000 mm water column



SDI-12 setup

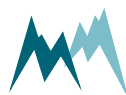


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	mm	None	1	0	SDI12	0	1	
Actual	T	°C	1	1	0	SDI12	0	2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



7 Temperature and relative humidity HygroClip

The HygroClip XD measures the relative humidity and temperature and is able to calculate the dew point or frost point. The HygroClip XD is flexible and precise with wide supply and output ranges.

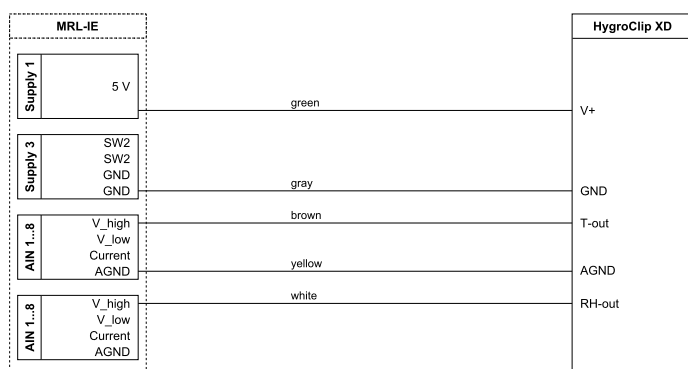
Sensor database ID	010
Name	HygroClip XD
Measured Quantities	Temperature, relative humidity
Manufacturer	-

Measurement range

	Unit	Min	Max
Relative humidity	%	0	100
Temperature	°C	-40	60

Analog setup

Wiring



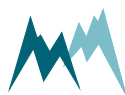
ANALOG settings

Signal class	Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	6 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Switched (only AIN)
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	100	-40	AIN		AN 1	
Actual	rH	%	None	100	0	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



8 Temperature and relative humidity EE06

Humidity/Temperature transmitter. Large temperature and supply voltage ranges, the excellent long-term stability and the optional sensor coating make the EE06 series a versatile sensor.

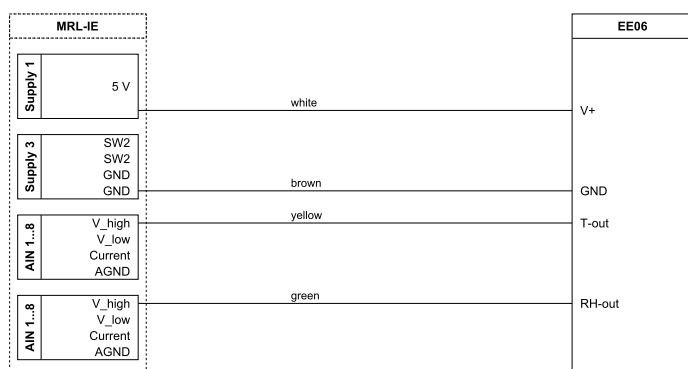
Sensor database ID	012
Name	EE06
Measured Quantities	Temperature, relative humidity
Manufacturer	E+E

Measurement range

	Unit	Min	Max
Relative humidity	%	0	100
Temperature	°C	-40	60

Analog setup

Wiring



ANALOG settings

Signal class	Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	3 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Switched (only AIN)
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	100	-40	AIN		AN 1	
Actual	rH	%	None	100	0	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



9 Temperature and relative humidity MP103A-T7-W4W

The MP103A is a combined humidity and temperature probe designed primarily for meteorological and general outdoor applications. Operation from DC voltage and low power consumption make the MP103A particularly suitable for operation at remote locations.

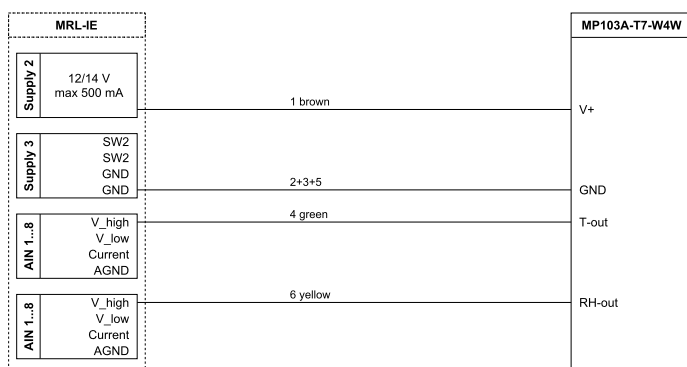
Sensor database ID	014
Name	MP103A-T7-W4W
Measured Quantities	Temperature, relative humidity
Manufacturer	Rotronic

Measurement range

	Unit	Min	Max
Relative humidity	%	0	100
Temperature	°C	-40	60

Analog setup

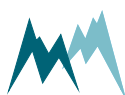
Wiring



ANALOG settings

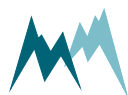
Signal class	Voltage
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	0.5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	100	-40	AIN		AN 1	
Actual	rH	%	None	100	0	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



10 Temperature and relative humidity MP408A-T4-W4W

The MP408A-T4-W4W sensor is a combined humidity and temperature sensor for use in meteorology.

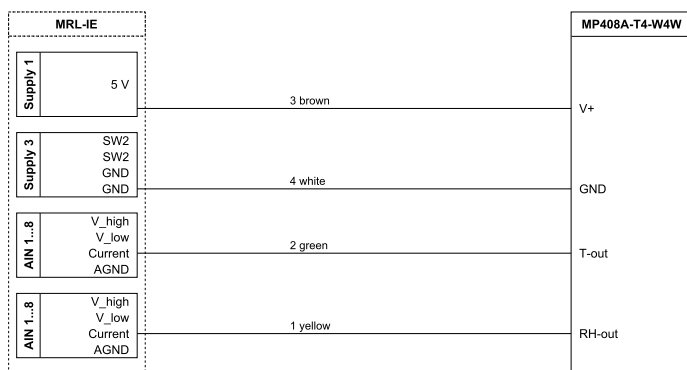
Sensor database ID	016
Name	MP408A-T4-W4W
Measured Quantities	Temperature, relative humidity
Manufacturer	Rotronic

Measurement range

	Unit	Min	Max
Relative humidity	%	0	100
Temperature	°C	-40	60

Analog setup

Wiring



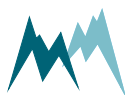
ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	6.25	-65	AIN		AN 1	
Actual	rH	%	None	6.25	-25	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



11 Infrared temperature SIR CT-SF15-C8

The SIR CT-SF15-C8 is a non-contact measuring infrared temperature sensor. The sensor measures the infrared radiation emitted by objects and calculates the surface temperature on this basis.

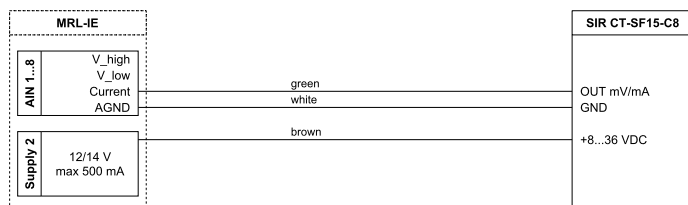
Sensor database ID	018
Name	SIR CT-SF15-C8
Measured Quantities	Temperature
Manufacturer	-

Measurement range

	Unit	Min	Max
Temperature	°C	-50	600

Analog setup

Wiring



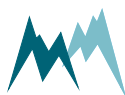
ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	2.5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	40.625	-212.5	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



12 Global radiation DK-RM 1

The DK-RM 1 is used to record the global radiation. The global radiation is the direct solar radiation incident on the earth from the upper half space and the indirect diffuse radiation of the sky. It covers a spectral range from approx. 200 to over 3000 nm, i.e. from the UV to the visible to the far infrared range.

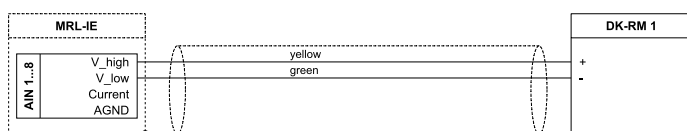
Sensor database ID	020
Name	DK-RM 1
Measured Quantities	Global radiation
Manufacturer	Deka Sensor + Technologie

Measurement range

	Unit	Min	Max
Global radiation	W/m ²	0	1250

Analog setup

Wiring



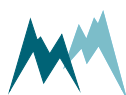
ANALOG settings

Signal class	Voltage
Analog inputs	
AIN signal type	Diff volt. 0.311 V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Global radiation	W/m ²	None	12500	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



13 Barometric pressure Young 61302V

The Young Barometric Pressure Sensor 61302V combines high accuracy and low power over a wide range of pressures and temperatures.

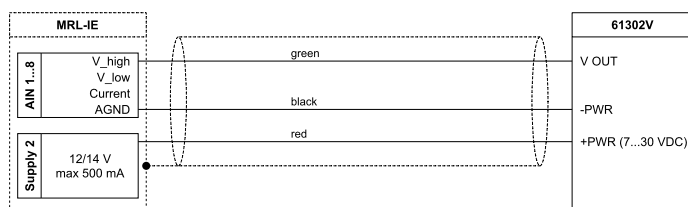
Sensor database ID	021
Name	Barometer 61302V
Measured Quantities	Barometric pressure
Manufacturer	Young

Measurement range

	Unit	Min	Max
Air pressure	hPa	500	1100

Analog setup

Wiring



ANALOG settings

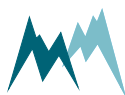
Signal class	Voltage
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Barometric pressure	hPa	None	240**	500**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable to a measurement range of 0...2.5 V, corresponding to 500...1100 hPa



14 Extension SX80-4000-1R-KA

The dynamics of the draw wire transducer allows a high motion speed and acceleration of the measuring target. The rugged design and high quality makes applications in harsh industrial environments possible.

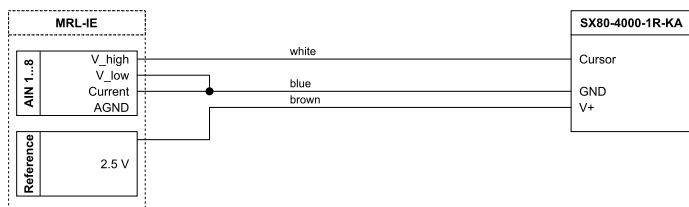
Sensor database ID	023
Name	SX80-4000-1R-KA
Measured Quantities	Extension
Manufacturer	-

Measurement range

	Unit	Min	Max
Extension	mm	0	4000

Analog setup

Wiring



ANALOG settings

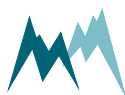
Signal class	Resistance
Analog inputs	
AIN signal type	R meas < 3k
Warm-up time	1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Extension	mm	1	8000**	0**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Measurement range 0 ... 4000 mm



15 Conductivity IFL WTW

The conductivity probe IFL WTW is used as a diving device and measures the conductivity of liquids in bores, containers, rivers, lakes, landfills, etc.

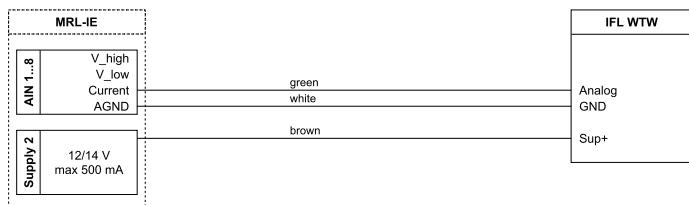
Sensor database ID	025
Name	IFL WTW
Measured Quantities	Conductivity
Manufacturer	WTW

Measurement range

	Unit	Min	Max
Conductivity	µS/cm	0	2000

Analog setup

Wiring



ANALOG settings

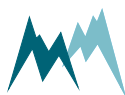
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	4 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Conduct.	µS/cm	1	125**	-500**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Measurement range 0 ... 2000 µS/cm



16 Precipitation tipping bucket MR2

The MR2 is a compact precipitation gauge for recording the rain quantity and intensity with a detection surface of 200cm².

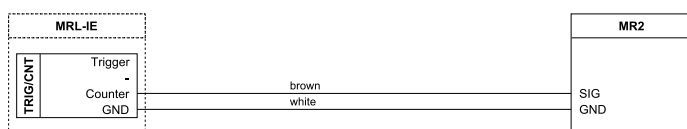
Sensor database ID	030
Name	MR2
Measured Quantities	Precipitation
Manufacturer	-

Measurement range

	Unit	Min	Max
Precipitation	mm	0	-

Analog setup

Wiring



ANALOG settings

Signal class	Counter
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Precip. Intensity	mm/h	1	12**	0	COUNT			
Sum	Precip. Sum	mm	1	0.2	0	COUNT			

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For a measurement interval of 1 minute; 1 tipping corresponds to 0.2 mm



17 Precipitation tipping bucket MR3

The MR3 is a compact precipitation gauge for recording the rain quantity and intensity with a detection surface of 500 cm².

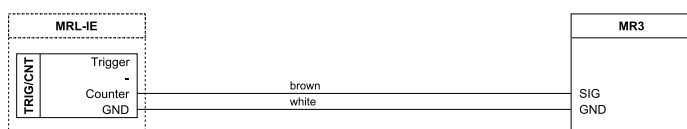
Sensor database ID	031
Name	MR3
Measured Quantities	Precipitation
Manufacturer	-

Measurement range

	Unit	Min	Max
Precipitation	mm	0	-

Analog setup

Wiring



ANALOG settings

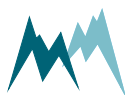
Signal class	Counter
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Precip. Intensity	mm/h	1	6**	0	COUNT			
Sum	Precip. Sum	mm	1	0.1	0	COUNT			

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For a measurement interval of 1 minute; 1 tipping corresponds to 0.1 mm



18 Incremental encoder 24R-140

The Incremental encoder 24R-140 is used for water level measurement via a float.

Sensor database ID	032
Name	24R-140
Measured Quantities	Distance
Manufacturer	-

Measurement range

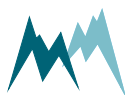
	Unit	Min	Max
Distance	mm	0	-

Analog setup

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Distance	mm	1	0.49519	0	COUNT			

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



19 Incremental encoder RU3100

The incremental encoder RU3100 enables defined pulse sequences for the detection of speeds for position determination and position measurement.

Sensor database ID	033
Name	RU3100
Measured Quantities	Distance
Manufacturer	-

Measurement range

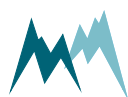
	Unit	Min	Max
Distance	mm	0	-

Analog setup

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Distance	mm	1	0.49519	0	COUNT			

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



20 Wind speed and wind direction Young 05103

The Young Wind 05103 is a high performance wind sensor with AC pulse/potentiometer output. The rugged, corrosion-resistant construction makes it ideal for a wide range of wind measuring applications.

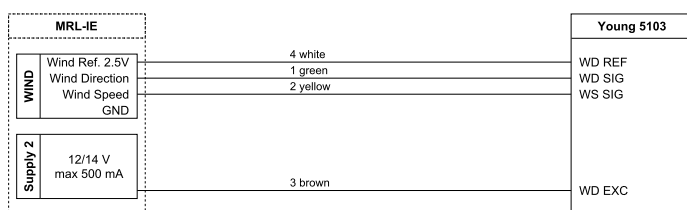
Sensor database ID	034
Name	05103
Measured Quantities	Wind speed, wind direction
Manufacturer	Young

Measurement range

	Unit	Min	Max
Wind speed	m/s	0	100
Wind direction	°	0	360

Analog setup

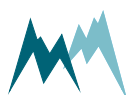
Wiring



ANALOG settings

Signal class	Wind
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	0.5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

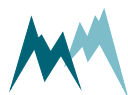
Measurement table



	Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
01	Meanval	Wind speed mean	m/s	2	0.098	0	WIND		Speed	
02	Maximum	Wind speed max	m/s	2	0.098	0	WIND		Speed	
03	Meanval	Wind dir. mean	°	None	1	0	WIND		Direct.	
04	Maximum	Wind dir. max**	°	None	1	0	RECYCM	2	3	DM

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**wind direction where the wind gust came from



21 Snow gliding SGE-20

The SGE-20 is a sensor that detects snow gliding on a slope. A moveable snowshoe placed on a slope is wired to a rotatable drum that is equipped with a potentiometer to detect the extension of the wire.

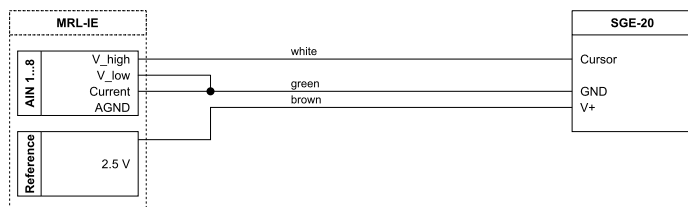
Sensor database ID	035
Name	SGE-20
Measured Quantities	Extension
Manufacturer	-

Measurement range

	Unit	Min	Max
Extension	mm	0	21500

Analog setup

Wiring



ANALOG settings

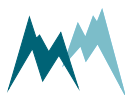
Signal class	Resistance
Analog inputs	
AIN signal type	R meas < 100k
Warm-up time	1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Extension	mm	1	8600**	0**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Measurement range 0 ... 21'500 mm



22 Level SOMLEVEL-8

The SOMLEVEL instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

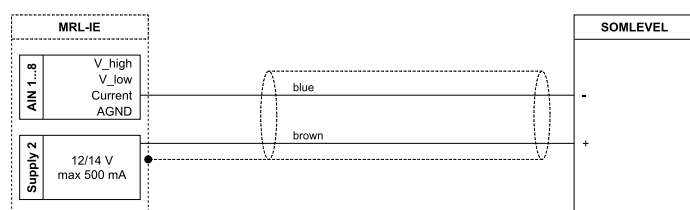
Sensor database ID	036
Name	SOMLEVEL-8
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	mm	0	8000

Analog setup

Wiring



ANALOG settings

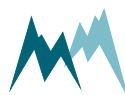
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	20 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

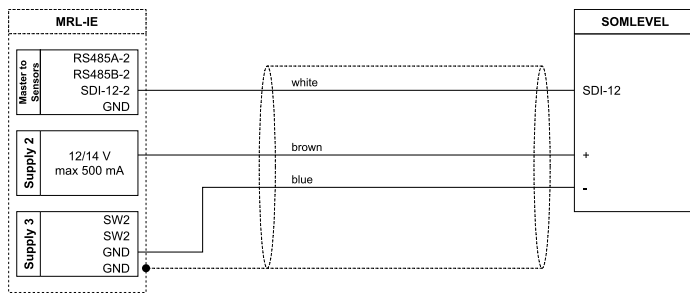
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	3	-500	-2	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.



SDI-12 setup

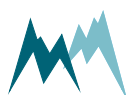


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



23 Level SOMPULS-75

The SOMPULS instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

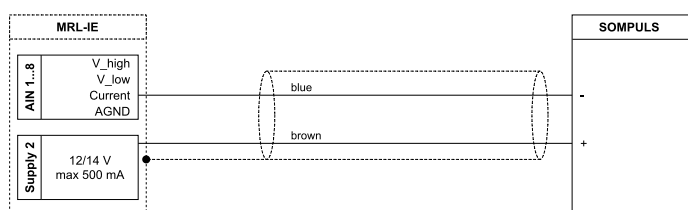
Sensor database ID	037
Name	SOMPULS-75
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	m	0.000	75.000

Analog setup

Wiring



ANALOG settings

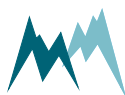
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	60 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

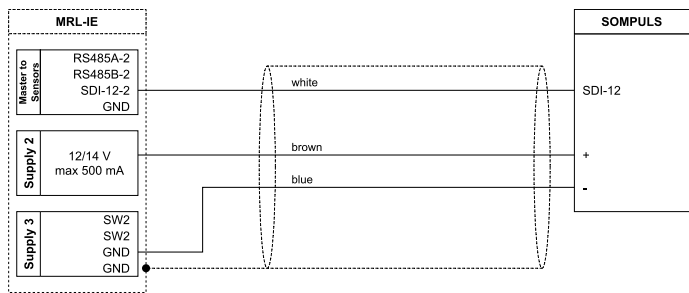
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	m	3	-4.6875	-18.75	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.



SDI-12 setup

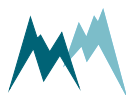


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



24 Level RL

The RL instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

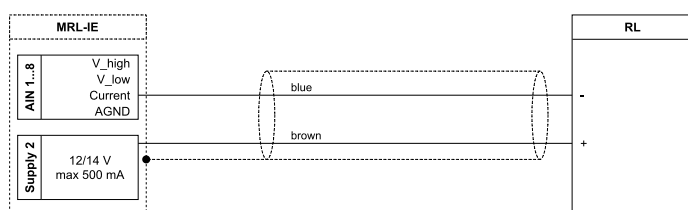
Sensor database ID	038
Name	RL-35
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	m	0.000	35.000

Analog setup

Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	60 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

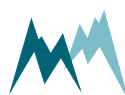
Measurement table

Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	m	3	-2.1875 ^a	-8.75 ^a	AIN		AN 1	

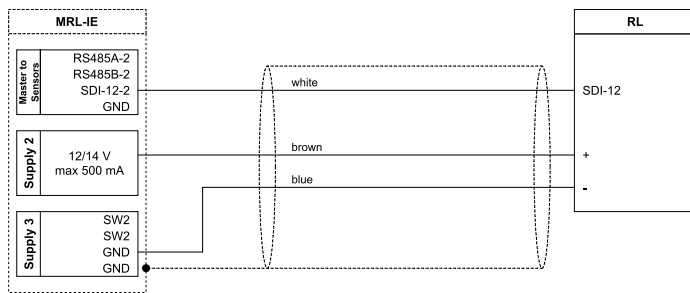
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.

^aMeasurement range 0...35 m



SDI-12 setup

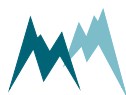


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



25 Fissurometer-50

Electronic fissurometers record length changes via linear potentiometers. These can be used, for example, on rock formations or building elements to record changes in crack and fissure widths between two parallel or perpendicular surfaces.

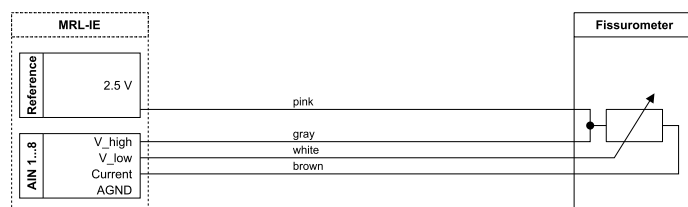
Sensor database ID	039
Name	Fissurometer-50
Measured Quantities	Extension
Manufacturer	-

Measurement range

	Unit	Min	Max
Extension	mm	0.000	50.000

Analog setup

Wiring



ANALOG settings

Signal class	Resistance
Analog inputs	
AIN signal type	R meas < 100k
Warm-up time	1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Extension	mm	2	0.01	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



26 Global radiation Schenk 8101

The 8101 is used to record the global radiation. The global radiation is the direct solar radiation incident on the earth from the upper half space and the indirect diffuse radiation of the sky. It covers a spectral range from approx. 300 to over 3000 nm, i.e. from the UV to the visible to the far infrared range.

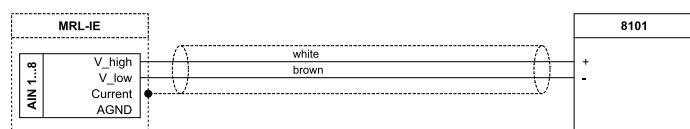
Sensor database ID	040
Name	Schenk 8101
Measured Quantities	Global radiation
Manufacturer	-

Measurement range

	Unit	Min	Max
Global radiation	W/m ²	0	1500

Analog setup

Wiring



ANALOG settings

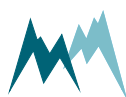
Signal class	Voltage
Analog inputs	
AIN signal type	Diff. volt. 0.032V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Global radiation	W/m ²	None	**	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**set as given in the calibration certificate



27 Global radiation Schenk 8102

The 8102 is used to record the global radiation. The global radiation is the direct solar radiation incident on the earth from the upper half space and the indirect diffuse radiation of the sky. It covers a spectral range from approx. 300 to over 3000 nm, i.e. from the UV to the visible to the far infrared range.

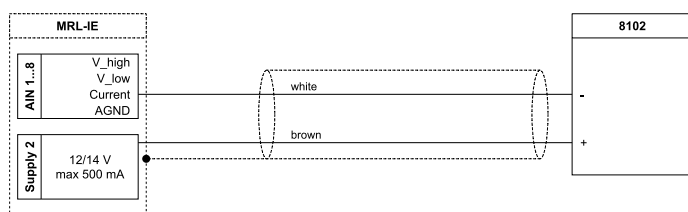
Sensor database ID	041
Name	Schenk 8102
Measured Quantities	Global radiation
Manufacturer	-

Measurement range

	Unit	Min	Max
Global radiation	W/m ²	0	1500

Analog setup

Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Global radiation	W/m ²	None	93.75	-375	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

28 Wind speed and wind direction Young 05103L

The Young Wind 05103L is a high performance wind sensor with 4 .. 20 mA output. The rugged, corrosion-resistant construction makes it ideal for a wide range of wind measuring applications.

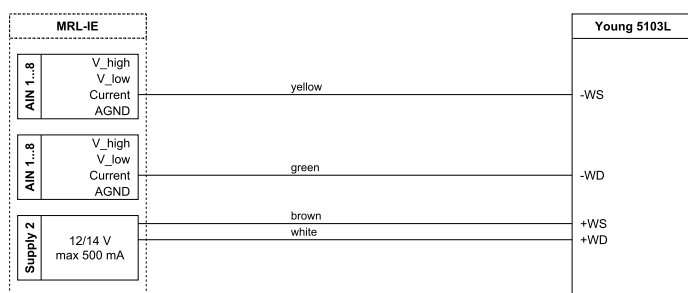
Sensor database ID	042
Name	05103L
Measured Quantities	Wind speed, wind direction
Manufacturer	Young

Measurement range

	Unit	Min	Max
Wind speed	m/s	0	100
Wind direction	°	0	360

Analog setup

Wiring



ANALOG settings

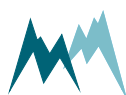
Signal class	Voltage
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

	Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
01	Meanval	Wind speed mean	m/s	2	6.25	-25	AIN		AN 1	
03	Meanval	Wind dir. mean	°	None	22.5	-90	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**wind direction where the wind gust came from



29 Level SOMLEVEL-15

The SOMLEVEL instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

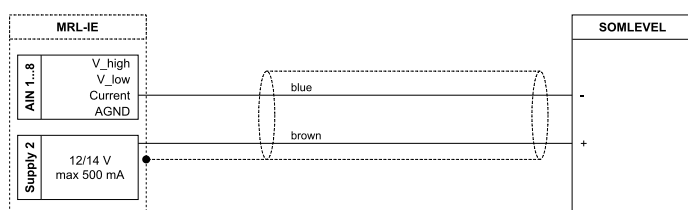
Sensor database ID	043
Name	SOMLEVEL-15
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	mm	0	15000

Analog setup

Wiring



ANALOG settings

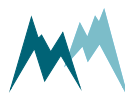
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	20 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

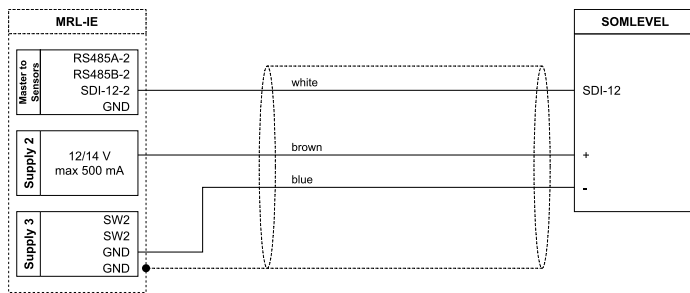
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	3	-937.5	-3.75	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.



SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



30 Level SOMLEVEL-30

The SOMLEVEL instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

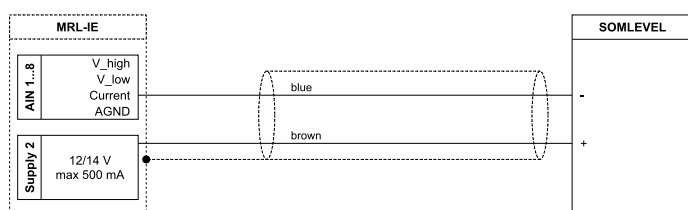
Sensor database ID	044
Name	SOMLEVEL-30
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	mm	0	30000

Analog setup

Wiring



ANALOG settings

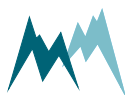
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	20 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

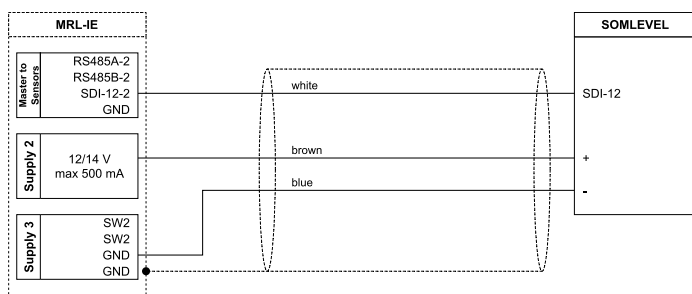
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	3	-1875	-7.5	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.



SDI-12 setup

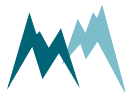


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



31 Level SOMPULS-120

The SOMPULS instruments are contact-free level sensors typically applied in hydrology and waste water treatment to determine water levels of rivers, channels, tanks and basins. Other areas of application include the filling level of bulk solids in silos and bunkers.

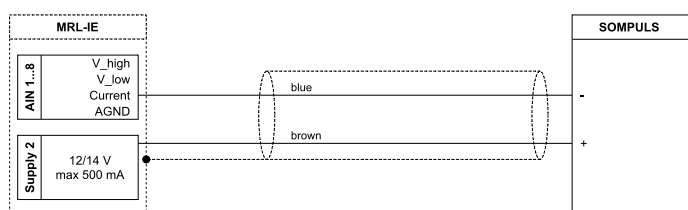
Sensor database ID	045
Name	SOMPULS-120
Measured Quantities	Distance, Level
Manufacturer	-

Measurement range

	Unit	Min	Max
Distance	m	0.000	120.000

Analog setup

Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	60 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Switched (only AIN)
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

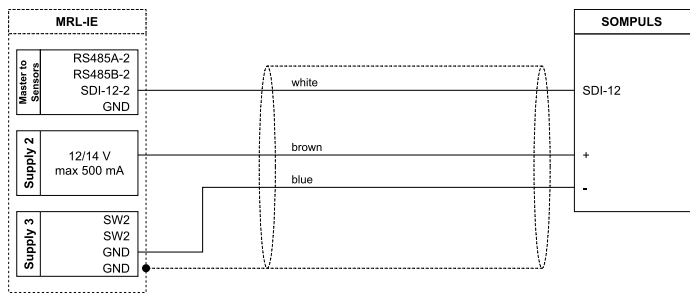
Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	m	3	-7.5	-30	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For sensor setting where 4 mA corresponds to distance 0 m and 20 mA to maximum distance.



SDI-12 setup

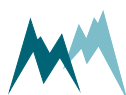


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Level	m	3	1	0	SDI12	0	1	
Actual	Distance	m	3	1	0	SDI12	0	2	
Actual	Sensor T	°C	1	1	0	SDI12	0	3	
Actual	Reliability	dB	1	1	0	SDI12	0	4	
Actual	Status	-	None	1	0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



32 Fissurometer-100

Electronic fissurometers record length changes via linear potentiometers. These can be used, for example, on rock formations or building elements to record changes in crack and fissure widths between two parallel or perpendicular surfaces.

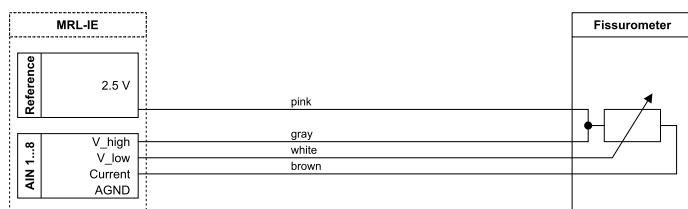
Sensor database ID	046
Name	Fissurometer-100
Measured Quantities	Extension
Manufacturer	-

Measurement range

	Unit	Min	Max
Extension	mm	0	100

Analog setup

Wiring



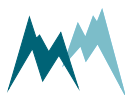
ANALOG settings

Signal class	Resistance
Analog inputs	
AIN signal type	R meas < 100k
Warm-up time	1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Switched (only AIN)
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Extension	mm	2	0.02	0	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



33 Evaporation VDM

The VDM measures the water level of an evaporation pan to estimate the evaporation rate.

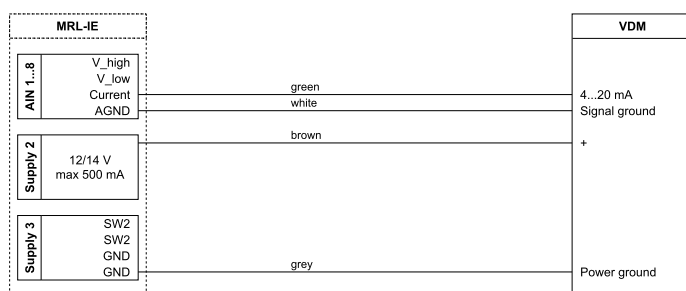
Sensor database ID	047
Name	VDM
Measured Quantities	Water level
Manufacturer	-

Measurement range

	Unit	Min	Max
Water level	mm	0.0	100.0

Analog setup

Wiring



ANALOG settings

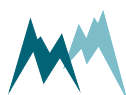
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	5 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale**	Offset**	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Position	mm	None	6.25	90	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For a sensor setting where 4 mA corresponds to a lower limit of 115 mm and 20 mA to an upper limit of 215 mm.



34 Hail disdrometer HDI

The HDI is a robust, maintenance-free hail sensor with an acoustic detector. It counts the hailstone hits and has a disdrometer function to classify hail by its size.

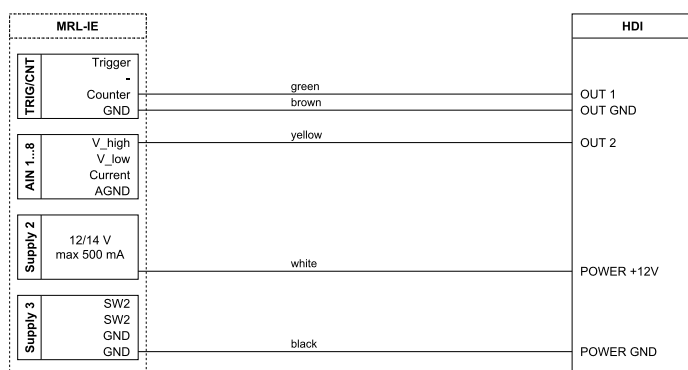
Sensor database ID	100
Name	HDI (Hail disdrometer)
Measured Quantities	Hits, size distribution
Manufacturer	-

Measurement range

	Unit	Min	Max
Hail hit counts	hits/s	0	25

Analog setup

Wiring



ANALOG settings

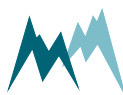
Signal class	Counter, Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

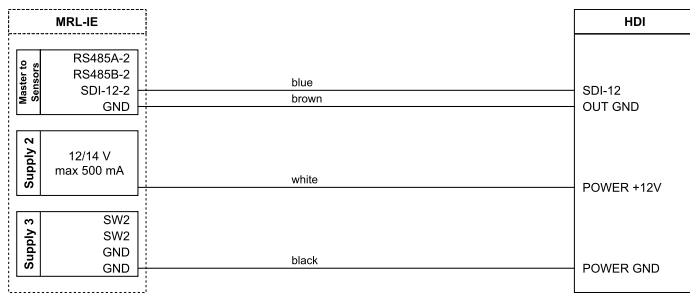
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Hit counts	hits	None	1	0	COUNT			
Actual	Hail intensity	hits/s	1	10**	0**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a 0 ... 2.5V sensor output that corresponds to a hail intensity of 0 ... 25 hits/s



SDI-12 setup

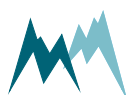


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Min. hit rate	hits/s	As S		0	SDI12	1	1	
Actual	Mean hit rate	hits/s	As S		0	SDI12	1	2	
Actual	Max. hit rate	hits/s	As S		0	SDI12	1	3	
Actual	Std. hit rate	hits/s	As S		0	SDI12	1	4	
Actual	Total hits	hits	As S		0	SDI12	1	5	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the HDI manual



35 Rain & hail detector RHD

The RHD is a robust, maintenance-free rain sensor with an acoustic detector. It measures rain intensity, detects hail and has a disdrometer function to classify raindrops by their size.

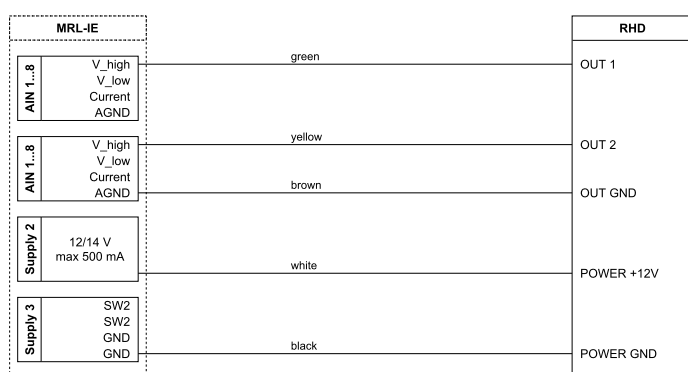
Sensor database ID	101
Name	RHD (rain & hail detection)
Measured Quantities	Rain intensity, rain sum, hail counts, drop size distribution
Manufacturer	-

Measurement range

	Unit	Min	Max
Rain intensity	mm/h	0	250
Hail intensity	hits/s	0	5

Analog setup

Wiring



ANALOG settings

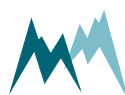
Signal class	Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

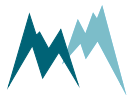
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Rain intensity	mm/h	1	100**	0**	AIN		AN 1	
Actual	Hail intensity	hits/s	1	2**	0**	AIN		AN 2	

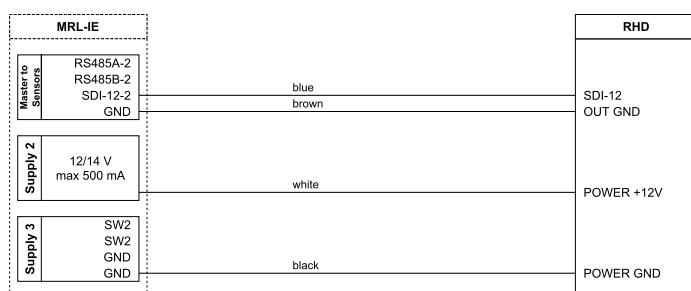
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a 0 ... 2.5V sensor output that corresponds to a rain intensity of 0 ... 250 mm/h and a hail intensity of 0 ... 5 hits/s





SDI-12 setup

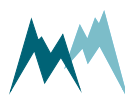


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Min. intensity	mm/h	As S		0	SDI12	1	1	
Actual	Mean intensity	mm/h	As S		0	SDI12	1	2	
Actual	Max. intensity	mm/h	As S		0	SDI12	1	3	
Actual	Std. intensity	mm/h	As S		0	SDI12	1	4	
Actual	Total rain	mm	As S		0	SDI12	1	5	
Actual	Hail hits	hits	As S		0	SDI12	1	6	
Actual	Hail mean rate	hits/s	As S		0	SDI12	1	7	
Actual	Hail max. rate	hits/s	As S		0	SDI12	1	8	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the HDI manual

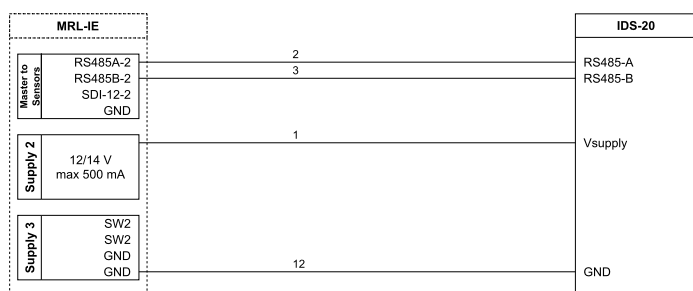


36 Ice detection IDS-20

The IDS-20 is an ice detection sensor applied in power generation, infrastructure protection and aviation. It detects icing layers between 0.01 and 80 mm by analyzing the complex impedance at the sensor surface at different frequencies.

Sensor database ID	102
Name	IDS-20
Measured Quantities	Ice layer thickness
Manufacturer	Sommer Messtechnik

SBP (RS-485) setup



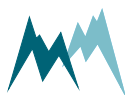
Measurement table

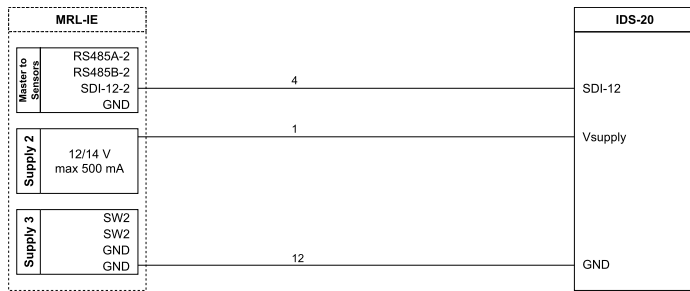
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SBP	1	1	
Actual	Humidity	%	As S		0	SBP	1	2	
Actual	Dew point	°C	As S		0	SBP	1.	3	
Actual	Relay A	0/1	As S		0	SBP	1	4	
Actual	Relay B	0/1	As S		0	SBP	1	5	
Actual	Relay Function	0/1	As S		0	SBP	1	6	
Actual	Ice	mm	As S		0	SBP	1	7	
Actual	Water	mm	As S		0	SBP	1	8	
Actual	Ice rate	mm/h	As S		0	SBP	1	9	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the IDS-20 manual

SDI-12 setup





Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	0	1	
Actual	Humidity	%	As S		0	SDI12	0	2	
Actual	Dew point	°C	As S		0	SDI12	0	3	
Actual	Relay A	0/1	As S		0	SDI12	0	4	
Actual	Relay B	0/1	As S		0	SDI12	0	5	
Actual	Relay Function	0/1	As S		0	SDI12	0	6	
Actual	Ice	mm	As S		0	SDI12	0	7	
Actual	Water	mm	As S		0	SDI12	0	8	
Actual	Ice rate	mm/h	As S		0	SDI12	0	9	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the IDS-20 manual



37 Flow velocity RG-30

The RG-30 radar sensor is a measurement device for the contact-free determination of the flow velocity of open rivers and channels. The sensor detects the surface flow velocity by the principle of the Doppler frequency shift.

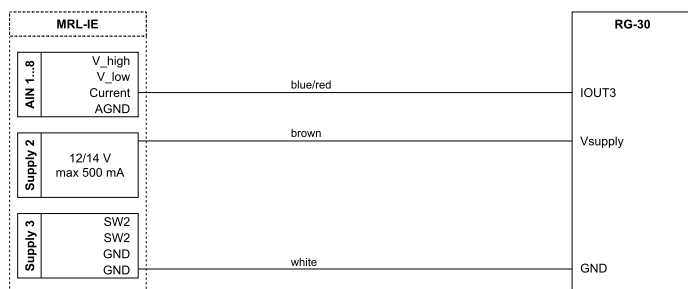
Sensor database ID	103
Name	RG-30
Measured Quantities	Flow velocity
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0.1	15

Analog setup

Wiring



ANALOG settings

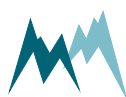
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

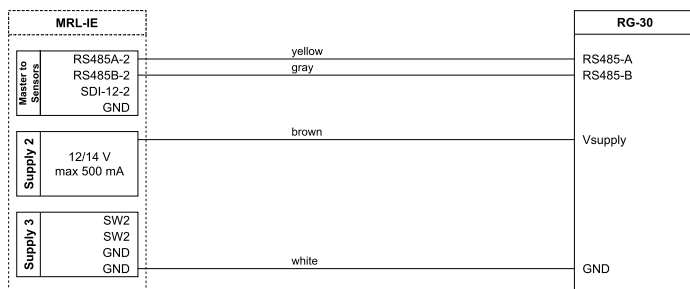
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Velocity	m/s	2	0.625 ^a	-2.5 ^a	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^afor s measurement range of 0 ... 10 m/s (can be set in RG setup)



SBP (RS-485) setup



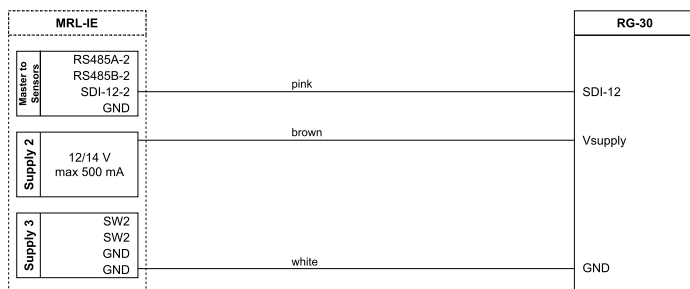
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Velocity	m/s	As S		0	SBP	1.	3	
Actual	Quality (SNR)	-	As S		0	SBP	1	4	
Actual	Opposite dir.	%	As S		0	SBP	1	9	
Actual	Supply V	V	As S		0	SBP	1	10	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the RG-30 manual

SDI-12 setup

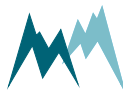


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Velocity	m/s	As S		0	SDI12	0	3	
Actual	Quality (SNR)	-	As S		0	SDI12	0	4	
Actual	Opposite dir.	%	As S		0	SDI12	0	9	
Actual	Supply V	V	As S		0	SDI12	0	10	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the RG-30 manual



38 Water discharge RQ-30

The RQ-30 is a contact-free measurement system to determine the water discharge of natural rivers and channels. It contains a radar level sensor and a radar velocity detector, and calculates the discharge internally.

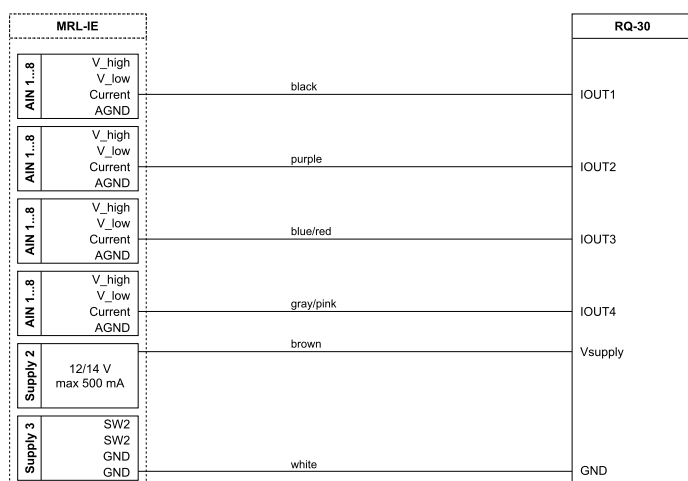
Sensor database ID	104
Name	RQ-30
Measured Quantities	Flow velocity, water level, water discharge
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0.1	15
Level	m	0	35

Analog setup

Wiring

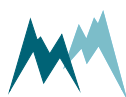


ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	T	°C	1	6.25 ^a	-65 ^a	AIN		AN 1	
Actual	Level	m	3	4.6875 ^b	-18.75 ^b	AIN		AN 2	
Actual	Velocity	m/s	2	0.625 ^c	-2.5 ^c	AIN		AN 3	



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Flow	m ³ /s	3	6.25 ^d	-25 ^d	AIN		AN 4	

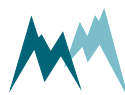
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^afor a measurement range of -40 ... 60 °C (can be set in RQ setup)

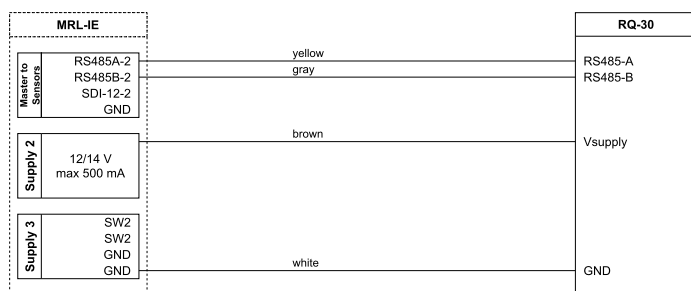
^bfor a measurement range of 0 ... 75 m (can be set in RQ setup)

^cfor s measurement range of 0 ... 10 m/s (can be set in RQ setup)

^dfor s measurement range of 0 ... 100 m³/s (can be set in RQ setup)



SBP (RS-485) setup



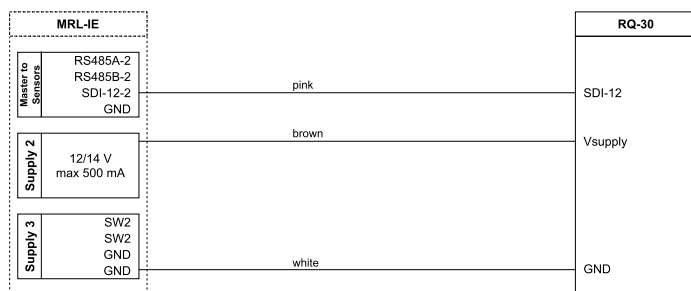
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SBP	1	1	
Actual	Water level	m	As S		0	SBP	1	2	
Actual	Velocity	m/s	As S		0	SBP	1.	3	
Actual	Quality (SNR)	-	As S		0	SBP	1	4	
Actual	Flow	m ³ /s	As S		0	SBP	1	5	
Actual	Area	m ²	As S		0	SBP	1	6	
Actual	Flow sum	m ³	As S		0	SBP	1	9	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the RQ-30 manual

SDI-12 setup



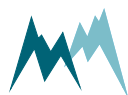
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SDI12	0	1	
Actual	Water level	m	As S		0	SDI12	0	2	
Actual	Velocity	m/s	As S		0	SDI12	0	3	
Actual	Quality (SNR)	-	As S		0	SDI12	0	4	
Actual	Flow	m ³ /s	As S		0	SDI12	0	5	

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Area	m ²	As S		0	SDI12	0	6	
Actual	Flow sum	m ³	As S		0	SDI12	0	9	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the RQ-30 manual

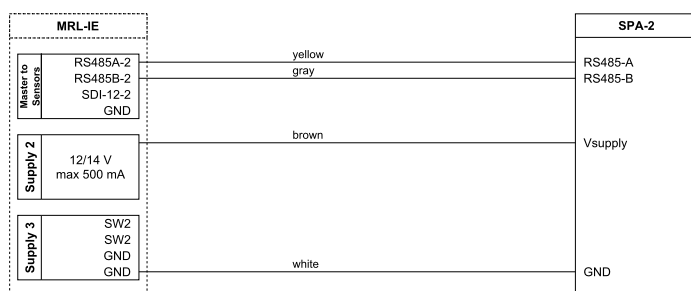


39 SWE and snow density SPA-2

The SPA-2 snow pack analyzer measures the volumetric contents of ice and water within a snow pack, and together with the snow depth calculates the snow water equivalent (SWE) and snow density.

Sensor database ID	105
Name	SPA-2
Measured Quantities	Ice content, water content, SWE, snow depth, snow density
Manufacturer	Sommer Messtechnik

SBP (RS-485) setup



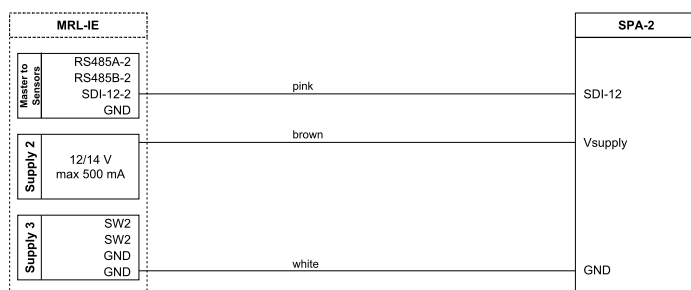
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Snow depth	mm	As S		0	SBP	1	1	
Actual	Ice content S1	%	As S		0	SBP	1	2	
Actual	Water content S1	%	As S		0	SBP	1.	3	
Actual	Density S1	kg/m ³	As S		0	SBP	1	4	
Actual	SWE S1	mmWS	As S		0	SBP	1	5	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SPA-2 manual

SDI-12 setup



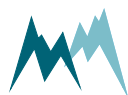
Measurement table



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Snow depth	mm	As S		0	SDI12	0	1	
Actual	Ice content S1	%	As S		0	SDI12	0	2	
Actual	Water content S1	%	As S		0	SDI12	0	3	
Actual	Density S1	kg/m ³	As S		0	SDI12	0	4	
Actual	SWE S1	mmWS	As S		0	SDI12	0	5	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SPA-2 manual



40 Water discharge SQ-R, SQ-U

The SQ-U and SQ-R are contact-free measurement systems to determine the water discharge of artificial canals. They contain an ultrasonic (SQ-U) or radar (SQ-R) level sensor and a radar velocity detector, and calculate the discharge internally.

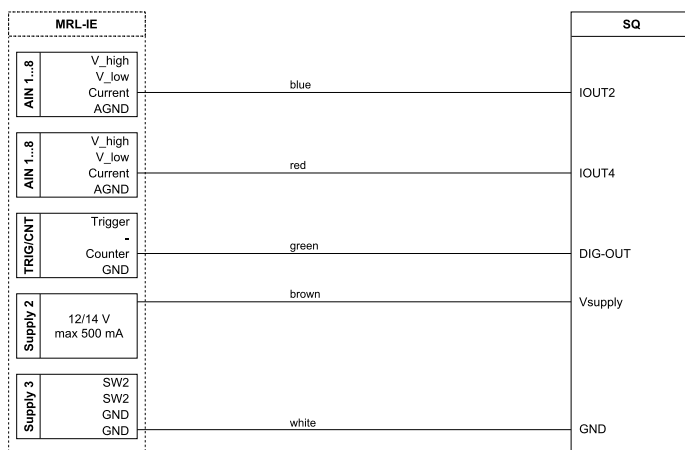
Sensor database ID	106
Name	SQ-R, SQ-U
Measured Quantities	Flow velocity, water level, water discharge
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0	15
Water level	mm	0	8000

Analog setup

Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

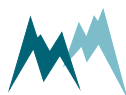
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	None	500 ^a	-2000 ^a	AIN		AN 1	
Actual	Flow	m ³ /s	3	0.3125 ^b	-1.25 ^b	AIN		AN 2	
Sum	Flow sum	m ³	3	1 ^c	0 ^c	COUNT			

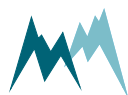
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^afor a measurement range of 0 ... 8000 mm (can be set in SQ setup)

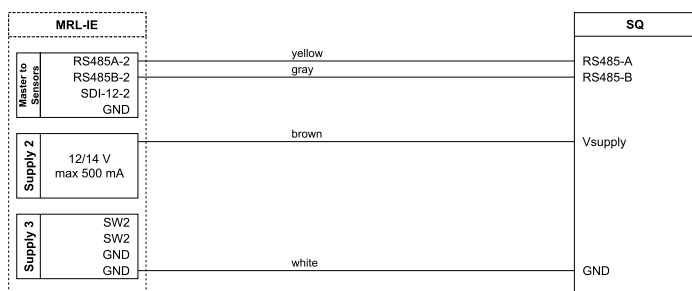
^bfor a measurement range of 0 ... 5 m³/s (can be set in SQ setup)

^cfor s sensor output of 1 m³/impuls (can be set in SQ setup)





SBP (RS-485) setup



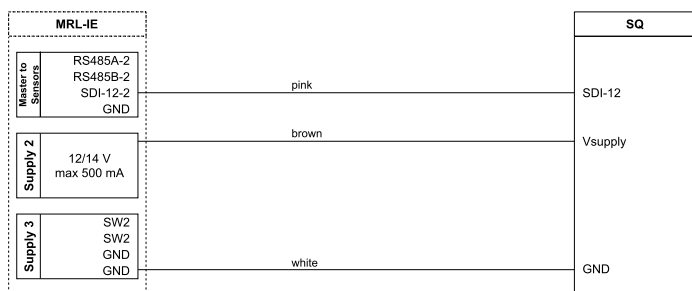
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SBP	1	1	
Actual	Water level	m	As S		0	SBP	1	2	
Actual	Velocity	m/s	As S		0	SBP	1.	3	
Actual	Quality (SNR)	-	As S		0	SBP	1	4	
Actual	Flow	l/s	As S		0	SBP	1	5	
Actual	Flow sum	m ³	As S		0	SBP	1	6	
Sum	Daily flow	m ³	As S		0	SBP	1	5	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

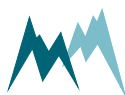
**Additional variables may be added according to the SQ-R manual

SDI-12 setup



Measurement table

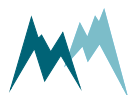
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SDI12	0	1	
Actual	Water level	m	As S		0	SDI12	0	2	
Actual	Velocity	m/s	As S		0	SDI12	0	3	
Actual	Quality (SNR)	-	As S		0	SDI12	0	4	
Actual	Flow	l/s	As S		0	SDI12	0	5	



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Flow sum	m ³	As S		0	SDI12	0	6	
Sum	Daily flow	m ³	As S		0	SDI12	0	5	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SQ-R manual



41 Snow height USH-9

The USH-9 is a continuous measurement device for the contact-free determination of snow depth and water level. It measures the transit time of an ultrasonic signal between a variable surface and the USH-9 sensor, and translates it to a snow or water level.

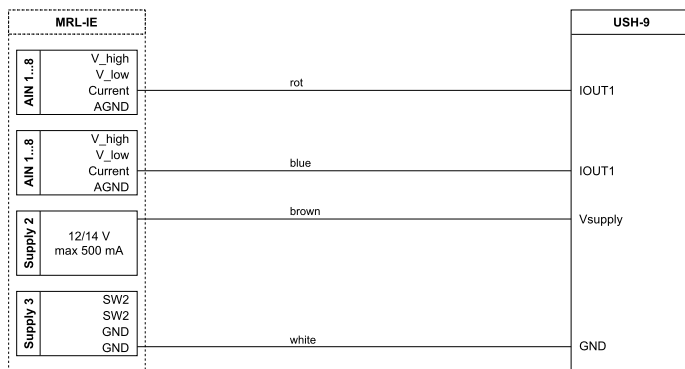
Sensor database ID	107
Name	USH-9
Measured Quantities	Snow depth (water level, distance)
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Snow depth	mm	0	10000
Temperature	°C	-40	60

Analog setup

Wiring



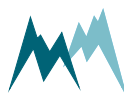
ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

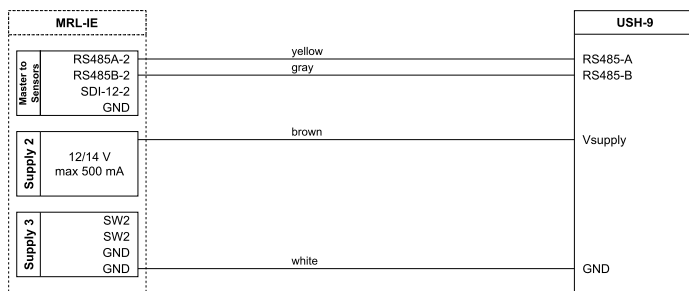
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Distance	mm	None	625	-2500	AIN		AN 1	
Actual	T	°C	1	6.25	-65	AIN		AN 2	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



SBP (RS-485) setup



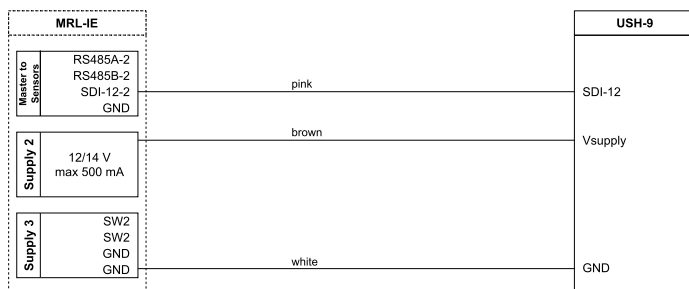
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	As S		0	SBP	1	1	
Actual	Distance	mm	As S		0	SBP	1	2	
Actual	T	°C	As S		0	SBP	1.	3	
Actual	Status	-	As S		0	SBP	1	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the USH-9 manual

SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	As S		0	SDI12	1	1	
Actual	Distance	mm	As S		0	SDI12	1	2	
Actual	T	°C	As S		0	SDI12	1	3	
Actual	Status	-	As S		0	SDI12	1	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the USH-9 manual



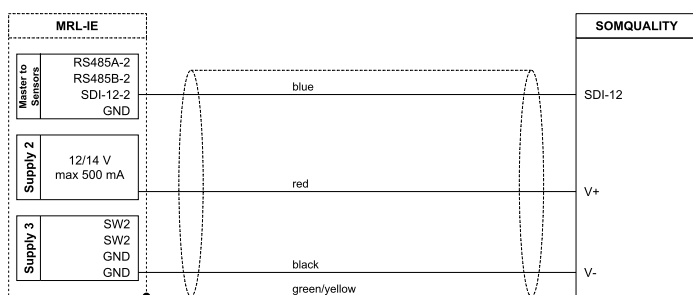
42 Conductivity SOMQUALITY-C4E

The electrode operates with 4 electrodes: an alternating current with constant voltage is applied between a primary pair of graphite-electrodes. The secondary platinum-electrodes regulate the voltage applied to the primary electrodes to compensate the fouling. The voltage measured between the primary electrodes is a function of the resistance and thus of the conductivity.

Sensor database ID	108
Name	SOMQUALITY-C4E
Measured Quantities	Conductivity, salinity
Manufacturer	-

SDI-12 setup

Wiring

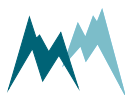


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	3	1	
Actual	Conductivity	µS/cm	As S		0	SDI12	3	2	
Actual	Salinity	ppt	As S		0	SDI12	3	3	
Actual	TDS-KCl	ppm	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

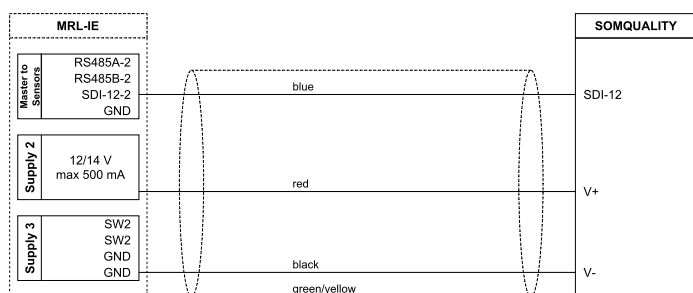


43 Dissolved oxygen SOMQUALITY-DO

The OPTOD (Optical Dissolved Oxygen technology) of the SOMQUALITY-DO is based on luminescent optical technology. Without calibration requirements and thanks to an ultra low power technology, the OPTOD sensor meets the demands of field works and short or long term campaigns.

Sensor database ID	109
Name	SOMQUALITY-DO
Measured Quantities	Dissolved oxygen
Manufacturer	-

SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	3	1	
Actual	Oxygen	%Sat	As S		0	SDI12	3	2	
Actual	Oxygen	mg/l	As S		0	SDI12	3	3	
Actual	Oxygen	ppm	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

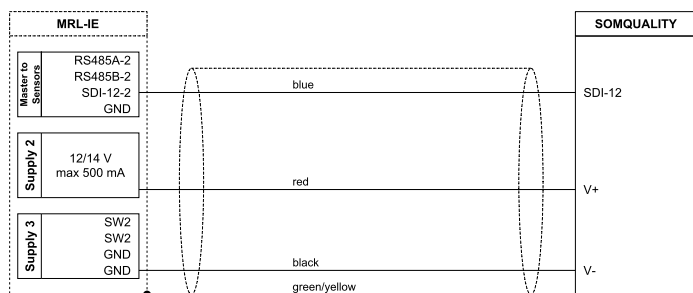


44 Conductivity SOMQUALITY-CTZN

The SOMQUALITY-CTZN determines the solubility by an inductive measurement. A ring-type coil is excited at fixed intervals and the response is retrieved on a second coil, which is linked to the excited coil. The connectivity between the coils, which is determined by the level of conductivity, takes place via the conducting solution.

Sensor database ID	110
Name	SOMQUALITY-CTZN
Measured Quantities	Conductivity, Salinity
Manufacturer	-

SDI-12 setup



Measurement table

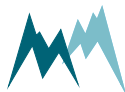
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	3	1	
Actual	Conductivity	mS/cm	As S		0	SDI12	3	2	
Actual	Salinity	ppt***	As S		0	SDI12	3	3	
Actual	Unc. cond.****	mS/cm	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

***parts per thousand

****Uncompensated conductivity

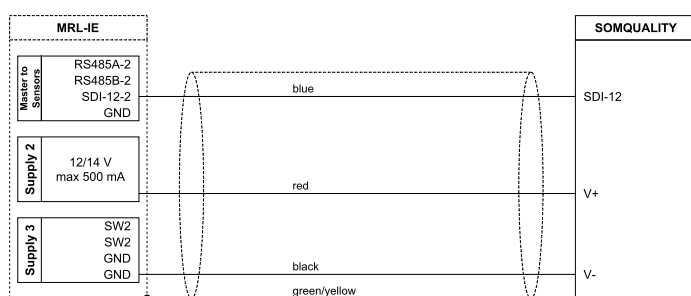


45 Turbidity SOMQUALITY-TSS

The principle of measurement is based on the attenuation of an infrared signal of 870 nm through an optical path of 5 mm. The sensor returns suspended solids (g/l), turbidity (FAU) and sludge blanket derived from the transmitted IR.

Sensor database ID	111
Name	SOMQUALITY-TSS
Measured Quantities	Sludge blanket, turbidity
Manufacturer	-

SDI-12 setup

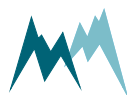


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	3	1	
Actual	Sludge blanket	%	As S		0	SDI12	3	2	
Actual	Suspended solids	g/l	As S		0	SDI12	3	3	
Actual	Turbidity	FAU***	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

***Formazine attenuation units

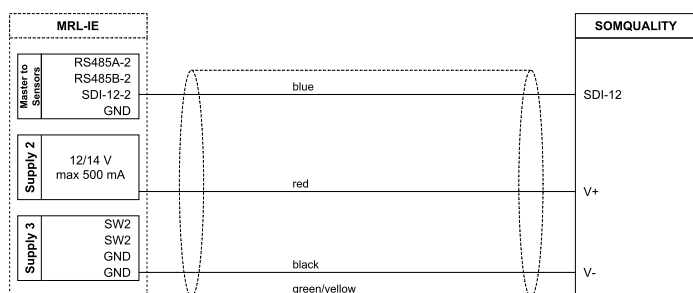


46 pH & redox SOMQUALITY-PHEHT

The SOMQUALITY-PHEHT sensor has been designed to perform under hard conditions, ranging from pure mountain water with a conductivity as low as 20 $\mu\text{S}/\text{cm}$, lakes and rivers (100-2000 $\mu\text{S}/\text{cm}$), seawater (50 mS/cm) to waste water with a conductivity higher than 200 mS/cm .

Sensor database ID	112
Name	SOMQUALITY-PHEHT
Measured Quantities	pH, redox-potential, temperature
Manufacturer	-

SDI-12 setup

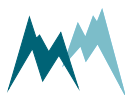


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	$^{\circ}\text{C}$	As S		0	SDI12	3	1	
Actual	ph	ph	As S		0	SDI12	3	2	
Actual	Redox	mV	As S		0	SDI12	3	3	
Actual	pH	mV	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

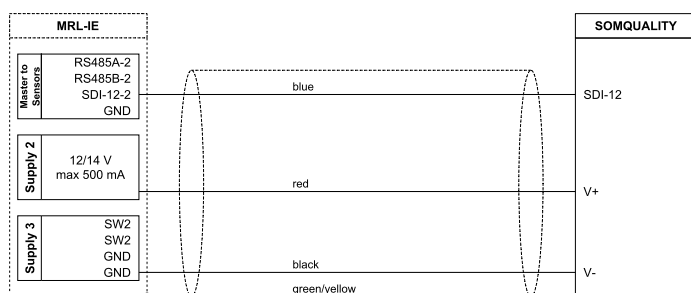


47 Turbidity SOMQUALITY-NTU

The measurement principle of the SOMQUALITY-NTU turbidity sensor is based on infrared light scatter at an angle of 90°. Thanks to the measurement at a wavelength of 880 nm and the wide detection range of 0 to 4'000 NTU, the sensor can be used in various water and wastewater treatment applications.

Sensor database ID	113
Name	SOMQUALITY-NTU
Measured Quantities	Turbidity, temperature
Manufacturer	-

SDI-12 setup



Measurement table

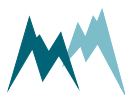
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Temperature	°C	As S		0	SDI12	3	1	
Actual	Turbidity	NTU***	As S		0	SDI12	3	2	
Actual	Turbidity	FNU****	As S		0	SDI12	3	3	
Actual	Turbidity	mg/l	As S		0	SDI12	3	4	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

***Nephelometric Turbidity Units

****Formazin Nephelometric Units



48 Snow water equivalent SSG-2

The SSG-2 snow scale is a precision device for measuring the snow water equivalent (SWE) of a snow pack. It is equipped with analog and digital ports, which allow integration into weather stations and other monitoring systems.

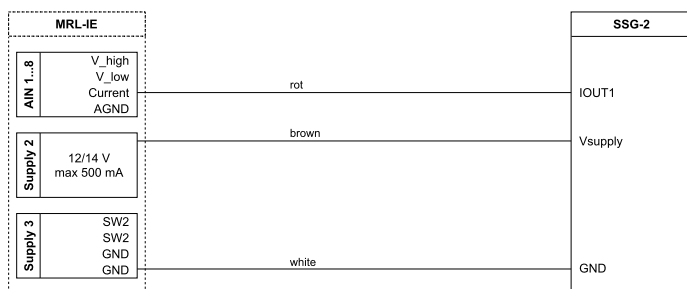
Sensor database ID	114
Name	SSG-2
Measured Quantities	Snow water equivalent
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Snow water equivalent	mm	0	1000

Analog setup

Wiring



ANALOG settings

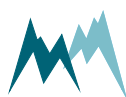
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

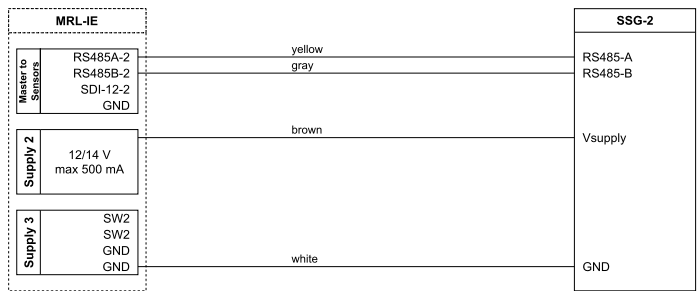
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	SWE	mm	None	62.5**	-250**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**For a measurement range of 0 ... 1000 mmWC. This range can be set in the setup of the SSG-2.



SBP (RS-485) setup



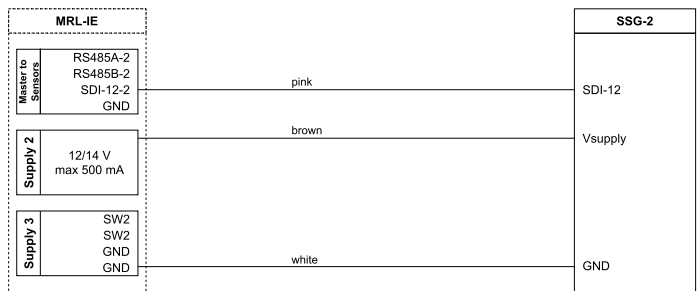
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	SWE	mm	As S		0	SBP	1	1	
Actual	Load cell T	°C	As S		0	SBP	1	2	
Actual	Ground T	°C	As S		0	SBP	1.	3	
Actual	Error code	-	As S		0	SBP	1	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SSG-2 manual

SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	SWE	mm	As S		0	SDI12	0	1	
Actual	Load cell T	°C	As S		0	SDI12	0	2	
Actual	Ground T	°C	As S		0	SDI12	0	3	
Actual	Error code	-	As S		0	SDI12	0	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SSG-2 manual



49 Flow velocity SV

The SV radar sensor is a measurement device for the contact-free determination of the flow velocity of open rivers and channels. The sensor detects the surface flow velocity by the principle of the Doppler frequency shift.

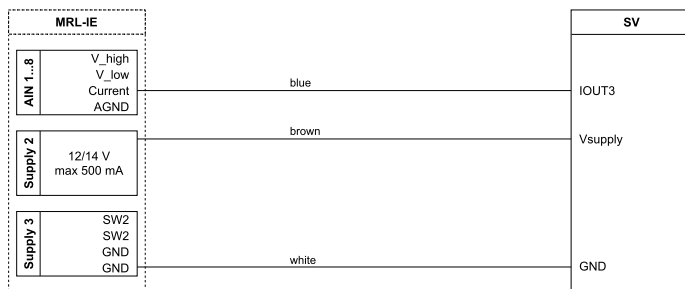
Sensor database ID	115
Name	SV
Measured Quantities	Flow velocity
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0.1	15

Analog setup

Wiring



ANALOG settings

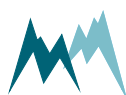
Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

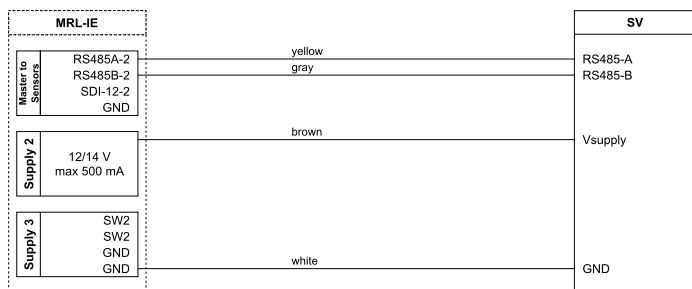
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Velocity	m/s	2	0.3125**	-1.25**	AIN		AN 1	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**for a measurement range of 0 ... 5 m/s (can be set in SV setup)



SBP (RS-485) setup



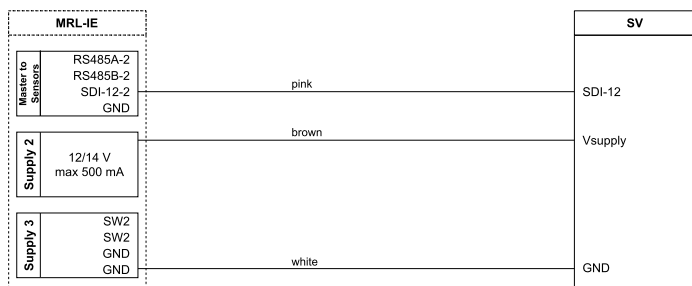
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SBP	1	1	
Actual	Velocity	m/s	As S		0	SBP	1.	3	
Actual	Quality (SNR)	-	As S		0	SBP	1	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SV manual

SDI-12 setup

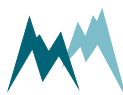


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SDI12	0	1	
Actual	Velocity	m/s	As S		0	SDI12	0	3	
Actual	Quality (SNR)	-	As S		0	SDI12	0	4	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SV manual

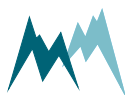


50 Serial camera SOMCAM-2W

The SOMCAM-2W is a 2-megapixel serial camera for imaging applications.

Sensor database ID	116
Name	SOMCAM-2W
Measured Quantities	-
Manufacturer	-

SBP (RS-485) setup

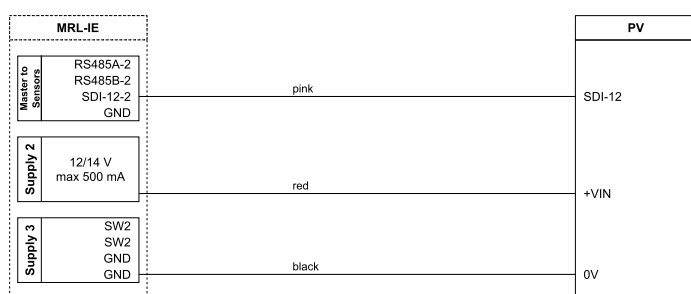


51 Velocity PV

The PV uses advanced signal processing techniques and low noise electronics to provide velocity measurements in both, clean and dirty water, at very low velocities and in very shallow water.

Sensor database ID	117
Name	PV
Measured Quantities	Velocity
Manufacturer	Valeport Ltd

SDI-12 setup

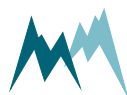


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Velocity	m/s	2	1	0	SDI12	0	1	_C
Actual	T	°C	1	1	0	SDI12	0	2	_C
Actual	Quality	-	1	1	0	SDI12	0	4	_C

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



52 Water discharge PQ

The PQ is measurement system is consisting of a level sensor (pressure or non-contact radar) and a Valeport 810 ultrasonic velocity sensor to determine the water discharge of artificial canals.

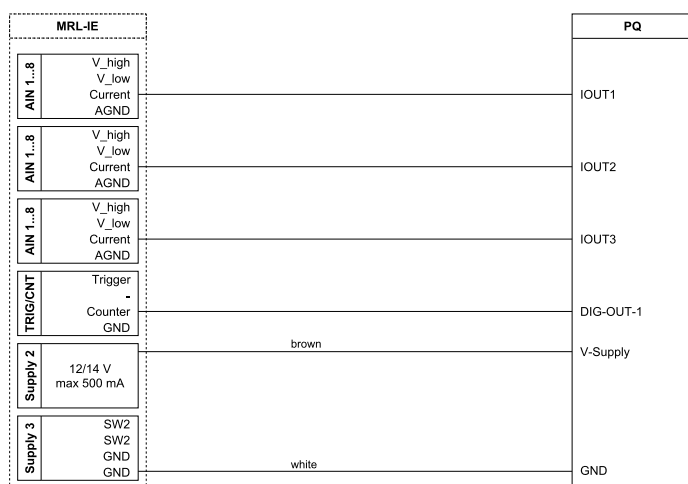
Sensor database ID	118
Name	PQ
Measured Quantities	Flow velocity, water level, water discharge
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0	5
Water level	mm	0	15000

Analog setup

Wiring

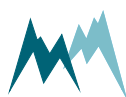


ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	None	937.5 ^a	-3750 ^a	AIN		AN 1	
Actual	Velocity	m/s	2	0.3125 ^b	-1.25 ^b	AIN		AN 2	
Actual	Flow	m ³ /s	2	0.625 ^c	-2.5 ^c	AIN		AN 3	



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Sum	Flow sum	m ³	3	1 ^d	0 ^d	COUNT			

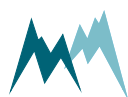
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^afor a measurement range of 0 ... 15000 mm (can be set in PQ setup)

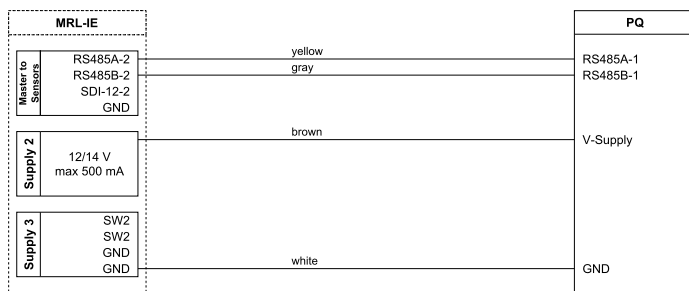
^bfor a measurement range of 0 ... 5 m/s (can be set in PQ setup)

^cfor a measurement range of 0 ... 10 m³/s (can be set in PQ setup)

^vfor s sensor output of 1 m³/impuls (can be set in PQ setup)



SBP (RS-485) setup

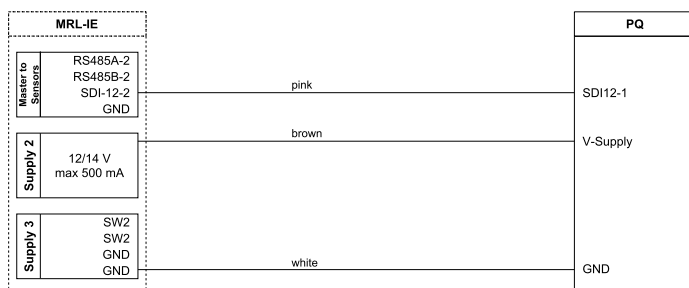


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Water level	m	As S		0	SBP	1	1	
Actual	Velocity	m/s	As S		0	SBP	1.	2	
Actual	Flow	l/s	As S		0	SBP	1	3	
Actual	Flow sum	m ³	As S		0	SBP	1	4	
Actual	Daily flow	m ³	As S		0	SBP	1	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

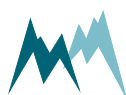
SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Water level	m	As S		0	SDI12	0	1	
Actual	Velocity	m/s	As S		0	SDI12	0	2	
Actual	Flow	l/s	As S		0	SDI12	0	3	
Actual	Flow sum	m ³	As S		0	SDI12	0	4	
Actual	Daily flow	m ³	As S		0	SDI12	0	5	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details



53 Water discharge SQ-ATEX

The SQ-ATEX sensor is a measurement device for continuous, contact-free determination of the water discharge in explosive atmospheres.



ATTENTION Please read the SQ-ATEX manual carefully before you install the device in explosive atmospheres!

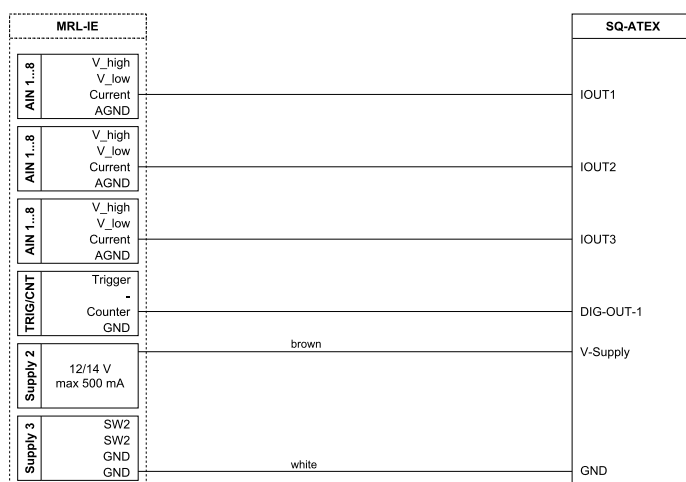
Sensor database ID	119
Name	SQ-ATEX
Measured Quantities	Flow velocity, water level, water discharge
Manufacturer	Sommer Messtechnik

Measurement range

	Unit	Min	Max
Flow velocity	m/s	0	15
Water level	mm	0	8000

Analog setup

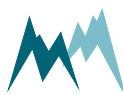
Wiring



ANALOG settings

Signal class	Current
Analog inputs	
AIN signal type	4...20 mA
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Level	mm	None	500 ^a	-2000 ^a	AIN		AN 1	
Actual	Velocity	m/s	2	0.3125 ^b	-1.25 ^b	AIN		AN 2	
Actual	Flow	m ³ /s	2	0.3125 ^c	-1.25 ^c	AIN		AN 3	
Sum	Flow sum	m ³	3	1 ^d	0 ^d	COUNT			

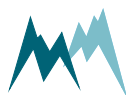
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^afor a measurement range of 0 ... 8000 mm (can be set in SQ-ATEX setup)

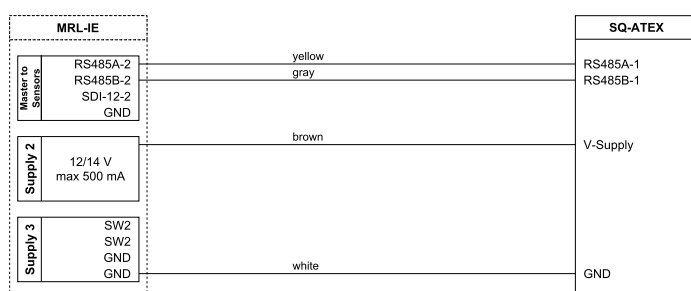
^bfor a measurement range of 0 ... 5 m/s (can be set in SQ-ATEX setup)

^cfor a measurement range of 0 ... 5 m³/s (can be set in SQ-ATEX setup)

^dfor s sensor output of 1 m³/impuls (can be set in SQ-ATEX setup)



SBP (RS-485) setup



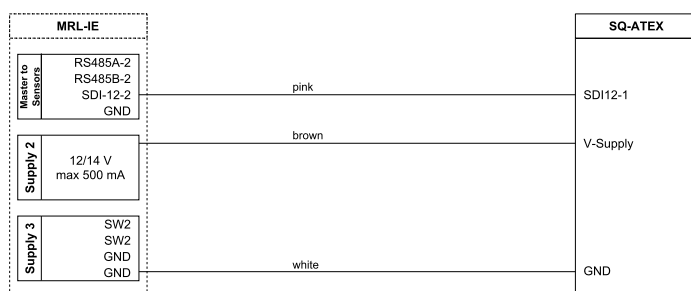
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SBP	1	1	
Actual	Water level	m	As S		0	SBP	1	2	
Actual	Velocity	m/s	As S		0	SBP	1.	3	
Actual	Quality	-	As S		0	SBP	1	4	
Actual	Flow	l/s	As S		0	SBP	1	5	
Actual	Flow sum	m ³	As S		0	SBP	1	6	
Actual	Daily flow	m ³	As S		0	SBP	1	11	
	... **								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

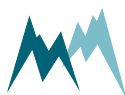
**Additional variables may be added according to the SQ-R manual

SDI-12 setup



Measurement table

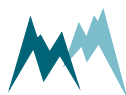
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Self-check	-	As S		0	SDI12	0	1	
Actual	Water level	m	As S		0	SDI12	0	2	
Actual	Velocity	m/s	As S		0	SDI12	0	3	
Actual	Quality	-	As S		0	SDI12	0	4	



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Flow	l/s	As S		0	SDI12	0	5	
Actual	Flow sum	m ³	As S		0	SDI12	0	6	
	...**								

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**Additional variables may be added according to the SQ-R manual



54 Precipitation weighing gauge NIWA-215

The NIWA- 215 weighing rain gauge detects solid and liquid precipitation and returns the one-minute-intensity, total precipitation and the duration of rain events.

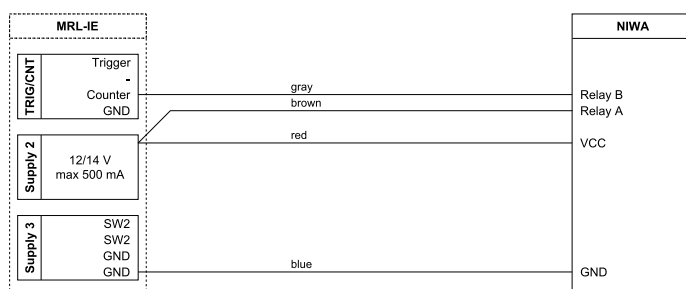
Sensor database ID	120
Name	NIWA-215
Measured Quantities	Total precipitation, 1-minute precipitation
Manufacturer	-

Measurement range

	Unit	Min	Max
Precipitation	mm	0	-

Analog setup

Wiring



ANALOG settings

Signal class	Counter
Analog inputs	
AIN signal type	Voltage 2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Off
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Sum	Precip. sum	mm	1	0.1 ^a	0 ^a	COUNT			
Intens.	Intensity	mm/h	1	0.6 ^b	0 ^b	COUNT			

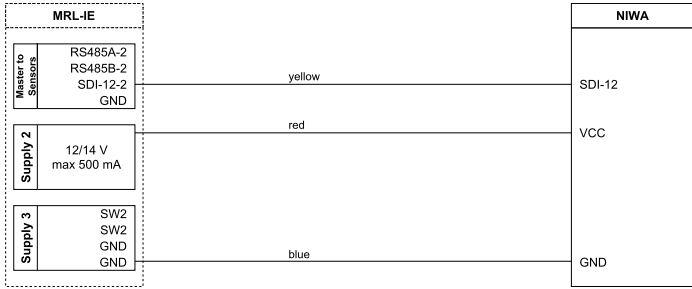
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

^aselectable (1 pulse = 0.01 or 0.1 or 1 mm)

^bfor option 1 pulse equals 0.1 mm and a storage interval of 10 minutes.



SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Precip. 1min**	mm	As S		0	SDI12	0	1	
Actual	Total weight	g	As S		0	SDI12	0	2	
Actual	Precip. sum	mm	As S		0	SDI12	0	3	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**precipitation accumulated in 1 minute

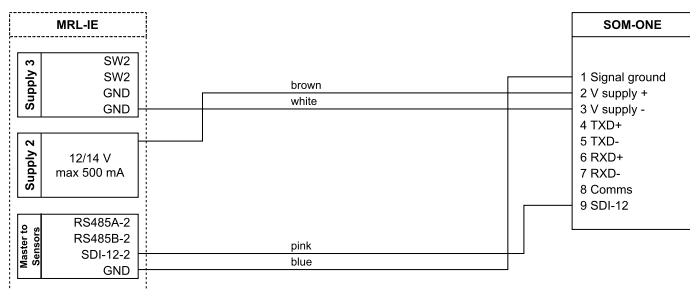


55 Compact weather station SOM-ONE-300

The SOM-ONE is a compact weather station with multiple sensors for a wide variety of applications.

Sensor database ID	121
Name	SOM-ONE-300
Measured Quantities	Air temperature, relative humidity, barometric pressure,
Manufacturer	-

SDI-12 setup



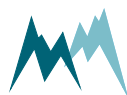
SDI-12-2 Master	
Sensor supply (always on)	12V / 14V
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Air T	°C	As S		0	SDI12	0	1	_M1
Actual	rH	%	As S		0	SDI12	0	2	_M1
Actual	Dewpoint	°C	As S		0	SDI12	0	3	_M1
Actual	Wet bulb T	°C	As S		0	SDI12	0	3	_M1_D1
Actual	Pressure	hPa	As S		0	SDI12	0	4	_M1
Actual	Status	-	As S		0	SDI12	0	5	_M1

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

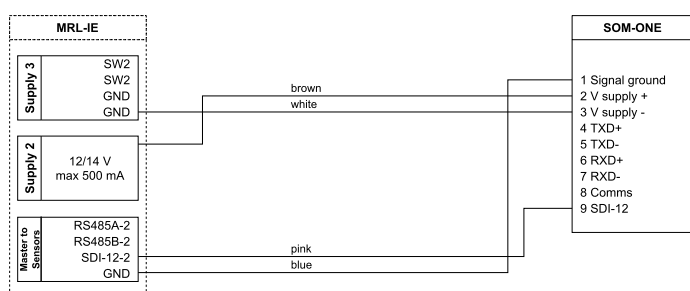


56 Compact weather station SOM-ONE-500

The SOM-ONE is a compact weather station with multiple sensors for a wide variety of applications.

Sensor database ID	122
Name	SOM-ONE-500
Measured Quantities	Air temperature, relative humidity, barometric pressure, Windspeed
Manufacturer	-

SDI-12 setup



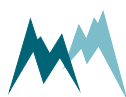
SDI-12 Master	
Sensor supply (always on)	12V / 14V
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Air T	°C	As S		0	SDI12	0	1	_M1
Actual	rH	%	As S		0	SDI12	0	2	_M1
Actual	Dewpoint	°C	As S		0	SDI12	0	3	_M1
Actual	Pressure	hPa	As S		0	SDI12	0	4	_M1
Actual	Rel. Wind speed	m/s	As S		0	SDI12	0	2	
Actual	Rel. Wind dir	°	As S		0	SDI12	0	1	
Actual	Corr. Wind dir	°	As S		0	SDI12	0	3	
Actual	Avg. Wind speed	m/s	As S		0	SDI12	0	2	_M9
Actual	Avg. Wind dir	°	As S		0	SDI12	0	1	_M9
Actual	Wind gust speed	m/s	As S		0	SDI12	0	4	_M9
Actual	Wind gust dir	°	As S		0	SDI12	0	3	_M9
Actual	Status	-	As S		0	SDI12	0	5	_M1
Actual	Sun Azimuth	°	As S		0	SDI12	0	4	_M7
Actual	Sun Elevation	°	As S		0	SDI12	0	5	_M7
Actual	Sunrise	h:m	As S		0	SDI12	0	1	_M7
Actual	Solar noon	h:m	As S		0	SDI12	0	2	_M7
Actual	Sunset	h:m	As S		0	SDI12	0	3	_M7
Actual	Twilight Civil	h:m	As S		0	SDI12	0	6	_M7
Actual	X Tilt	°	As S		0	SDI12	0	3	_M4
Actual	Y Tilt	°	As S		0	SDI12	0	4	_M4

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

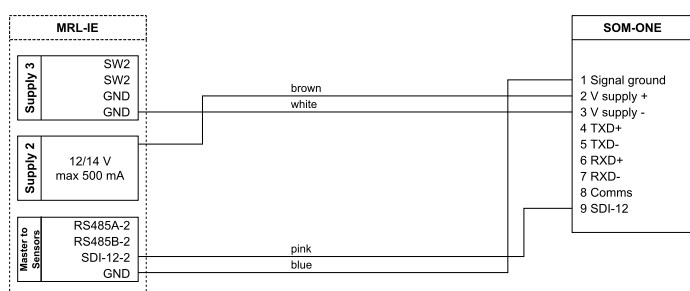


57 Compact weather station SOM-ONE-550

The SOM-ONE is a compact weather station with multiple sensors for a wide variety of applications.

Sensor database ID	123
Name	SOM-ONE-550
Measured Quantities	Air temperature, relative humidity, barometric pressure, Windspeed, precipitation
Manufacturer	-

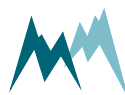
SDI-12 setup



SDI-12 Master	
Sensor supply (always on)	12V / 14V
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Air T	°C	As S		0	SDI12	0	1	_M1
Actual	rH	%	As S		0	SDI12	0	2	_M1
Actual	Dewpoint	°C	As S		0	SDI12	0	3	_M1
Actual	Pressure	hPa	As S		0	SDI12	0	4	_M1
Actual	Rel. Wind speed	m/s	As S		0	SDI12	0	2	
Actual	Rel. Wind dir	°	As S		0	SDI12	0	1	
Actual	Corr. Wind dir	°	As S		0	SDI12	0	3	
Actual	Avg. Wind speed	m/s	As S		0	SDI12	0	2	_M9
Actual	Avg. Wind dir	°	As S		0	SDI12	0	1	_M9
Actual	Wind gust speed	m/s	As S		0	SDI12	0	4	_M9
Actual	Wind gust dir	°	As S		0	SDI12	0	3	_M9
Actual	Status	-	As S		0	SDI12	0	5	_M1
Actual	Sun Azimuth	°	As S		0	SDI12	0	4	_M7
Actual	Sun Elevation	°	As S		0	SDI12	0	5	_M7
Actual	Sunrise	h:m	As S		0	SDI12	0	1	_M7
Actual	Solar noon	h:m	As S		0	SDI12	0	2	_M7
Actual	Sunset	h:m	As S		0	SDI12	0	3	_M7
Actual	Twilight Civil	h:m	As S		0	SDI12	0	6	_M7
Actual	X Tilt	°	As S		0	SDI12	0	3	_M4



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Y Tilt	°	As S		0	SDI12	0	4	_M4
Actual	Precip. Intens.	mm/h	As S		0	SDI12	0	1	_M3
Actual	Precip total	mm	As S		0	SDI12	0	2	_M3

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted

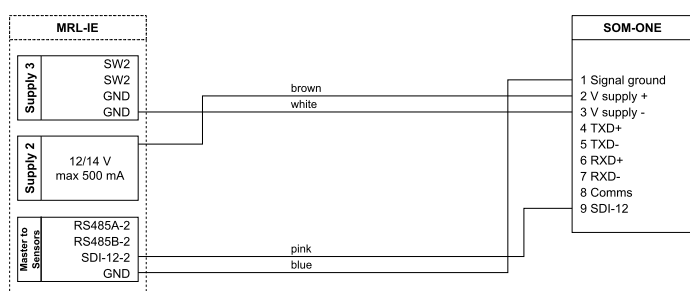


58 Compact weather station SOM-ONE-551

The SOM-ONE is a compact weather station with multiple sensors for a wide variety of applications.

Sensor database ID	124
Name	SOM-ONE-551
Measured Quantities	Air temperature, relative humidity, barometric pressure, Windspeed, precipitation, solar radiation
Manufacturer	-

SDI-12 setup



SDI-12 Master	
Sensor supply (always on)	12V / 14V
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

Measurement table

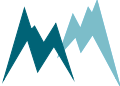
Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Air T	°C	As S		0	SDI12	0	1	_M1
Actual	rH	%	As S		0	SDI12	0	2	_M1
Actual	Dewpoint	°C	As S		0	SDI12	0	3	_M1
Actual	Pressure	hPa	As S		0	SDI12	0	4	_M1
Actual	Rel. Wind speed	m/s	As S		0	SDI12	0	2	
Actual	Rel. Wind dir	°	As S		0	SDI12	0	1	
Actual	Corr. Wind dir	°	As S		0	SDI12	0	3	
Actual	Avg. Wind speed	m/s	As S		0	SDI12	0	2	_M9
Actual	Avg. Wind dir	°	As S		0	SDI12	0	1	_M9
Actual	Wind gust speed	m/s	As S		0	SDI12	0	4	_M9
Actual	Wind gust dir	°	As S		0	SDI12	0	3	_M9
Actual	Status	-	As S		0	SDI12	0	5	_M1
Actual	Sun Azimuth	°	As S		0	SDI12	0	4	_M7
Actual	Sun Elevation	°	As S		0	SDI12	0	5	_M7
Actual	Sunrise	h:m	As S		0	SDI12	0	1	_M7
Actual	Solar noon	h:m	As S		0	SDI12	0	2	_M7
Actual	Sunset	h:m	As S		0	SDI12	0	3	_M7
Actual	Twilight Civil	h:m	As S		0	SDI12	0	6	_M7
Actual	X Tilt	°	As S		0	SDI12	0	3	_M4
Actual	Y Tilt	°	As S		0	SDI12	0	4	_M4
Actual	Precip. Intens.	mm/h	As S		0	SDI12	0	1	_M3



Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM**	S-MEA	S-ADD
Actual	Precip total	mm	As S		0	SDI12	0	2	_M3
Actual	Solar rad.	W/m ²	As S		0	SDI12	0	1	_M4
Actual	Sunshine	h	As S		0	SDI12	0	2	_M4

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**SDI-12 address may need to be adjusted



59 Snow drift SND

The SND sensor is an ultra-robust instrument for measuring solid particle flux intensities and wind speeds.

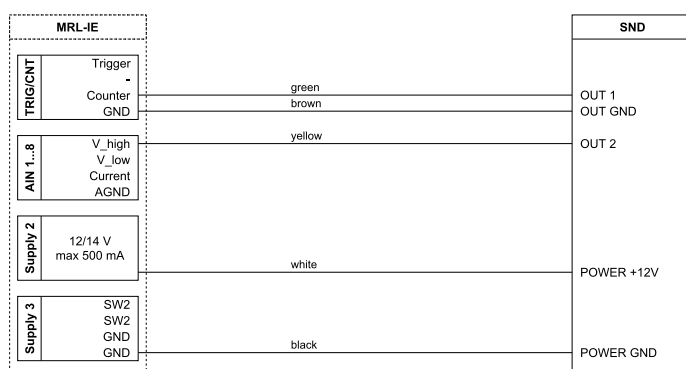
Sensor database ID	125
Name	SND
Measured Quantities	Particle flux, wind speed
Manufacturer	-

Measurement range

	Unit	Min	Max
Particle flux	g/(m ² s)	0	250
Wind speed	km/h	0	250

Analog setup

Wiring



ANALOG settings

Signal class	Counter, Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

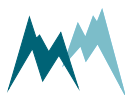
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Flux	g/(m ² s)	1	100**	0**	AIN		AN 1	
Actual	Wind speed	km/h	1	100***	0***	AIN		AN 2	

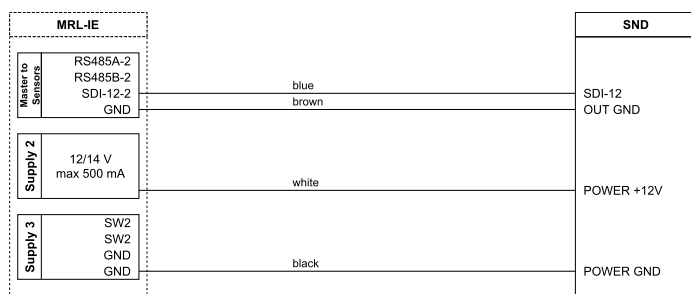
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a 0 ... 2.5V sensor output that corresponds to a flux of 0 ... 250 g/m²/s

***applicable for a 0 ... 2.5V sensor output that corresponds to a wind speed of 0 ... 250 km/h



SDI-12 setup

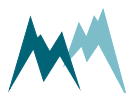


Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Min. flux	g/(m ² s)	As S		0	SDI12	1	1	
Actual	Mean flux	g/(m ² s)	As S		0	SDI12	1	2	
Actual	Max. flux	g/(m ² s)	As S		0	SDI12	1	3	
Actual	Std. flux	g/(m ² s)	As S		0	SDI12	1	4	
Actual	Total flux	g/m ²	As S		0	SDI12	1	5	
Actual	Min. wind**	km/h	As S		0	SDI12	1	6	
Actual	Mean wind**	km/h	As S		0	SDI12	1	7	
Actual	Max. wind**	km/h	As S		0	SDI12	1	8	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**only available if SDI-12 output is set to *Wind speed and particle flux*



60 Sand drift SAD

The SAD sensor is an ultra-robust instrument for measuring solid particle flux intensities and wind speeds.

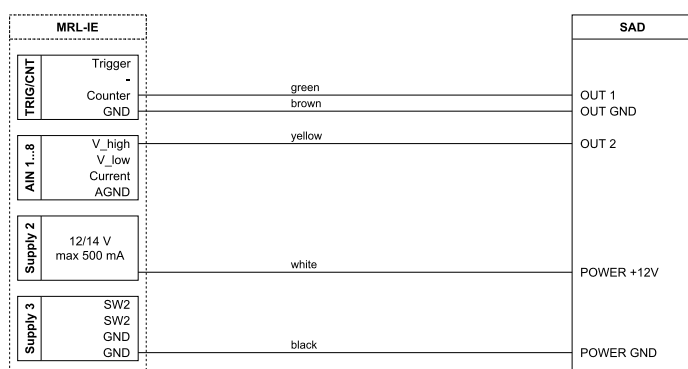
Sensor database ID	126
Name	SAD
Measured Quantities	Particle flux, wind speed
Manufacturer	-

Measurement range

	Unit	Min	Max
Particle flux	g/(m ² s)	0	250
Wind speed	km/h	0	250

Analog setup

Wiring



ANALOG settings

Signal class	Counter, Voltage
Analog inputs	
AIN signal type	Voltage
	2.5V
Warm-up time	0.1 sec
ADC - conv. Rate	62 Hz
ADC filter	Off
Sensor supply	
SW2	Off
12 V / 14 V	Always on
5 V	Off
2.5 V	Off
External sensor supply	Not used
Additional measurement settings	
12 V / 14 V output voltage	12 Volt

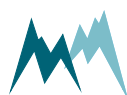
Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Flux	g/(m ² s)	1	100**	0**	AIN		AN 1	
Actual	Wind speed	km/h	1	100***	0***	AIN		AN 2	

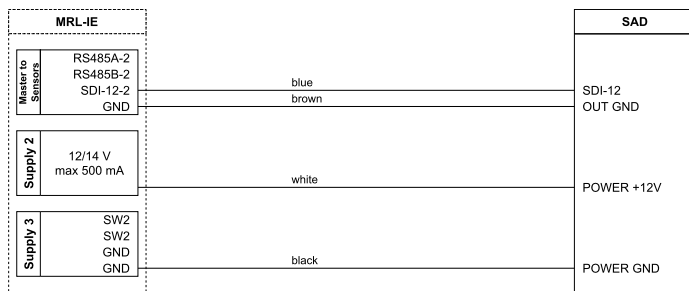
*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**applicable for a 0 ... 2.5V sensor output that corresponds to a flux of 0 ... 250 g/m²/s

***applicable for a 0 ... 2.5V sensor output that corresponds to a wind speed of 0 ... 250 km/h



SDI-12 setup



Measurement table

Function*	Identifier	Unit	Decimals	Scale	Offset	S-TYP	S-NUM	S-MEA	S-ADD
Actual	Min. flux	g/(m ² s)	As S		0	SDI12	1	1	
Actual	Mean flux	g/(m ² s)	As S		0	SDI12	1	2	
Actual	Max. flux	g/(m ² s)	As S		0	SDI12	1	3	
Actual	Std. flux	g/(m ² s)	As S		0	SDI12	1	4	
Actual	Total flux	g/m ²	As S		0	SDI12	1	5	
Actual	Min. wind**	km/h	As S		0	SDI12	1	6	
Actual	Mean wind**	km/h	As S		0	SDI12	1	7	
Actual	Max. wind**	km/h	As S		0	SDI12	1	8	

*options: off, actual, meanval, minimum, maximum, sum, intens., diff.; see MRL manual for details

**only available if SDI-12 output is set to *Wind speed and particle flux*

