Soil heat flux sensor Hukseflux HFP01 with SDI-12 Interface

Main features:

- Digital SDI-12 output
- High sensitivity
- Robust and stable sensor
- Sensor manufactured by Hukseflux is directly connected to the SDI-12 interface manufactured by EMS
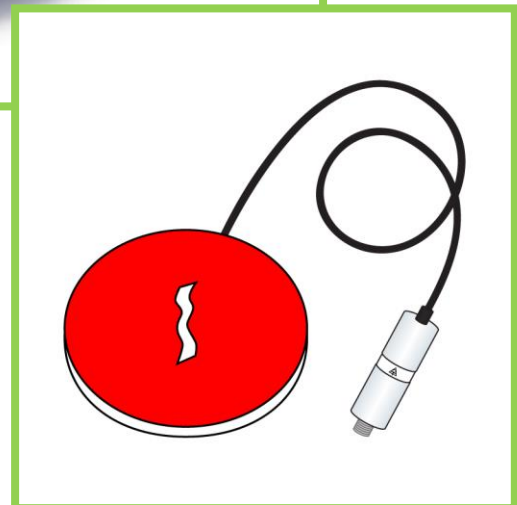
Specification:

Output	SDI-12 version 1.3
Heat flux measuring range	-300 to 300 W/m^2
Protection rating	IP67
Standard cable length (from sensor to interface)	5 m
Operating temperature	-40 to 80 °C
Operating humidity	0 to 100%
Connection	M8 connector male 3-pin

**HFP01/SDI-12 interface
- male connector wiring**

Data

+Vcc   -Vcc
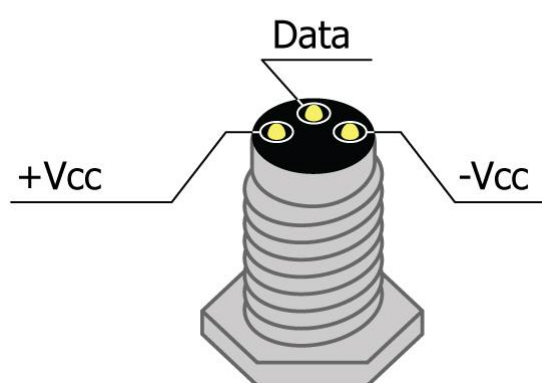
**Standard M8 female
connector cable wiring**

Brown - +Vcc
Black   - Data
Blue   - -Vcc

SDI-12 interface specification

Sensor system EMS HUKSEFLUX HFP01 is compatible with SDI-12 version 1.3 (more info at http://sdi-12.org/archives.php), except for continuous measurements (aR0 - aR9 or aRC0 - aRC9).

Overview of supported commands:

Datalogger commands are in bold. Each response from the sensor is terminated by <CR> <LF>

Info command - aI!

For instance:

1I! 113HUXEFLUXHFP_011.1Sn#1234567890

Parameter	Length	Description
1I!	3	Request to read the sensor information at address 1
1	1	Sensor address - here 1
13	2	SDI version - here 1.3
HUXEFLUX	8	Manufacturer - completed with space 0x20
HFP_01	6	Model - completed with space 0x20
1.1	3	FW Sensor version - here 1.1
Sn#1234567890	13	Serial number of the sensor

Measurement command - aM!

For instance:

1M! 10011

Parameter	Length	Description
1M!	3	Sensor measurement request at address 1
1	1	Sensor address - here 1
001	3	Time after which the measured data will be available in seconds - here 1. If the data is available earlier, the sensor sends the address terminated by the <CR> <LF> - service request.
1	1	Number of variables returned - here 1

Data command - aD0!

For instance (1M):

1D0! 1+128.1XYZ

Parameter	Length	Description
1D0!	4	Sensor data request at address 1
1	1	Sensor address - here 1
+128.1	Variable	Heat flux [W/m2]
XYZ	3	16-bit CRC - added only if aMC! or aCC! commands were requested for the measurement

Change Address - aAb!

For instance:

1A2! 2

Parameter	Length	Description
1A2!	4	Request to change the sensor address on the address 1 to address 2
2	1	New sensor address - here 2

Address Query command -?! - Be careful - there must be only one sensor on the line!

For instance:

?! 2

Parameter	Length	Description
?!	2	Retrieving the sensor address
2	1	Attached sensor address - here 2.

Concurrent Measurement - aC!

For instance:

1C! 100101

Parameter	Length	Description
1C!	3	Sensor measurement request at address 1
1	1	Sensor address - here 1
001	3	Time after which the measured data will be available in seconds - here 1
01	2	Number of variables returned - here 1

Measurement command with CRC - aMC!

For instance:

1MC! 10011

Parameter	Length	Description
1MC!	4	Sensor measurement request at address 1 with CRC data control
1	1	Sensor address here 1
001	3	Time after which the measured data will be available in seconds - here 1. If the data is available earlier, the sensor sends the address terminated by the <CR> <LF> - service request.
1	1	Number of variables returned - here 1

Concurrent Measurement with CRC - aCC!

For instance:

1CC! 100101

Parameter	Length	Description
1CC!	4	Sensor measurement request at address 1 with CRC data control
1	1	Sensor address here 1
001	3	Time after which the measured data will be available in seconds - here 1
01	2	Number of variables returned - here 1

Verification command - aV!

For instance:

1V! 10011

Parameter	Length	Description
1V!	3	Sensor measurement request at address 1
1	1	Sensor address here 1
001	3	Time after which the measured data will be available in seconds - here 1
1	1	Number of variables returned - here 1

Acknowledge Active – a!

For instance:

2! 2

Parameter	Length	Description
2!	2	Check the sensor connection
2	1	Sensor address respond - here 2