

1 Node Descriptor 22 – 0-20 mA Current

1.1 Device Description

The 0-20 mA Current sensor is capable of measuring the current off another device or sensor, up to 20mA (DC), by connecting the leads into the current loop. Examples of interfacing devices include, but are not limited to: Current transducers (CTs) with outputs up to 20 mA, pH sensor, dissolved oxygen sensor, pressure sensor, magnetic flow meters, velocity or acceleration sensors, industrial vibration sensors, industrial accelerometers, any kind of sensor that specifies the output is in (mA) within the range of 0 – 20. It is capable of driving power to the externally connected sensor, up to the battery voltage and 10 mA, or can control power by using a low side current driver switch.

1.2 Hardware Details

1.2.1 Wire

Possible hardware combinations include:

- Platform RFSC Rev A, Ver 0: Not supported.
- Platform RFSC Rev B, Ver 0: SP4 – black wire, SP5 – red wire. 51 Ω resistor between SP4 & SP5.
- Platform RFSC Rev C, Ver 0: SP4 – black wire, SP5 – red wire. 51 Ω resistor between SP4 & SP5.

1.3 Enclosure Details

Available in WIT, WIT2, Industrial.

1.4 Message Details

1.4.1 STATE (SOM, SDM)

Both the Spurious Orphan Message (SOM) and the Spurious Data Message (SDM) contain the STATE field. STATE is defined here. (For definition of STATE, refer to Monnit Network Specifications, Section 4.2).

Field	Length	Description
Test Active	1 bit LSB	Test state is active (1) or inactive (0)
Aware State	1 bit	Aware state is active (1) or inactive (0)
Sensor Disable	1 bit	Sensor is disable (communication still happens)
RSVD	1 bit	Currently not used
Calibrate Active	1 bit	Calibrate is active (1) or inactive (0)
Self Test Status	1 bit	Not used. Always 0.
Not Used	1 bit	
Not Used	1 bit MSB	

This application does not specify any Action Control Types.

1.4.2 SDATA (SDM)

The Spurious Data Message contains the SDATA field, which is defined here. The SDATA field is defaulted to 2 bytes for this application.

SDATA[0]: STATE.

SDATA[1-2]: Unsigned Int16, milliamps * 100.

Field	Length	Value	Format
SDATA[0]	1 byte	Int8	STATE
SDATA[1-2]	2 bytes	Int16	Milliamps multiplied by 100.

1.5 General Configuration Defaults

The Configuration Defaults below are native to the 0-20 mA sensor only.

Field	Default	Min	Max	Comments
NODEDESC	22	N/A	N/A	Fixed.

1.6 Profile Defaults

The 0-20 mA Current sensor operates using the Interval device profile.

Field	Default	Min	Max	Comments
PROFILE	1	N/A	N/A	1=Interval profile.
MRES	1	1	250	Measurements per heartbeat
SYNCMASK	0	0	0x00FF	Synchronization or offset of heartbeats.
HYST	0	0		Buffer zone around a threshold value.
THRSHMIN	0	0	2400	Minimum Threshold for awareness.
THRSHMAX	2450	0	2450	Maximum Threshold for awareness.
CALVAL_1	12200	0	65535	Default calibration value applied.
CALVAL_2	0	0	65535	Unused.
CALVAL_3	0	0	1	Power Options. 0=none, 1=digital high, 2=digital low, 3=switchable low side driver*
CALVAL_4	0	0	0xFFFFFFFF	Delay time in milliseconds.

*NPN Collector input, up to 40V, sinking up to 20 mA. Base has 10K resistor on input, emitter is grounded and collector is the signal to I/O on processor.