

1 Node Descriptor 34 – CO Gas

1.1 Device Description

This sensor measures the concentration of CO gas in the ambient air surrounding the sensor. It operates on an interval profile, but can elect to report data more quickly if the concentration is higher than set user thresholds and preconfigured TWA (OSHA Time Weighted Average) thresholds. The sensor also includes an internal temperature sensor.

1.2 Hardware Details

1.2.1 KWJ CO Sensor Board

Possible hardware combinations include:

- Platform RFSC Rev A, Ver 0: not supported.
- Platform RFSC Rev B, Ver 0: Supported.
- Platform RFSC Rev C, Ver 0: Supported.

Measurement Range	0-1000 ppm accurate, 5000 ppm max
RoHS	Compliant

(Tamb = 25°C)

1.3 Enclosure Details

This sensor is available in WIT, and WIT2. Industrial and Wi-Fi versions have not been released.

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
Sensor Status	4 bit	0 = Sensor operation is normal.

		1 = Current PPM reading is over 50 PPM 2 = TWA PPM reading is over 50 PPM 3 = Current PPM reading is over 125 poison warning 4 = Current PPM reading is over 400 lethal warning 5 = Temperature sensor is not reading correctly
Self Test Status	1 bit	Not used. Always 0.
Not used	1 bit	
Not used	1 bit MSB	

This application specifies two action control types:

Action Control Type		Action	
3	Calibrate Temperature	2	Int16 value of temperature * 10

Action Control Type		Action	
4	Calibrate Gas	2	Int16 - If value is 0, the sensor performs a 0-point calibration. If the value is not 0, then a span calibration is run and the level specified.

1.4.2 SDATA (SDM)

The Spurious Data Message contains the SDATA field, which is defined here. The SDATA field is defaulted to 1 byte for this application.

SDATA[0]: STATE

SDATA[1:2]: Temperature

SDATA[3:4]: Current PPM gas

SDATA[5:6]: TWA PPM gas

1.5 General Configuration Defaults

The Configuration Defaults below are native to the CO Gas sensor only.

Field	Default	Min	Max	Comments
NODEDESC	34	N/A	N/A	Fixed.

1.6 Profile Defaults

The CO Gas sensor operates using the Interval device profile.

THIS TABLE IS NOT CORRECT!!!!!!

Field	Default	Min	Max	Comments
PROFILE				1=Interval profile.
MRES				Measurements per heartbeat, vital to triggering on light state changes.
SYNCMASK				
HYST				
THRSHMIN				
THRSHMAX				
CALVAL_1				
CALVAL_2				
CALVAL_3				
CALVAL_4				Not used.