Table 1: Deta units for both raw and processed

Parameter	ID	Values	Sensor Output	FW Output	Beehive Output	Decoder Output
Coresense FW version	0xFD	Firmware version (HW/SW)	No Units	No Units	No Units	No Units
		Build time				
		Build git				
Metsense board						
Metsense MAC ID	0x00	MAC Address	No Unit	No Unit	No Unit	No Unit
TMP112	0x01	Temperature	12-bit register	°C	°C	°C
HTU21D	0x02	Temperature	16-bit register	°C	°C	°C
		Relative Humidity		%RH	%RH	%RH
HIH4030	0x03	Relative Humidity	voltage	voltage	voltage	%RH
BMP180	0x04	Temperature	16-bit register	°C	°C	°C
		Pressure		Pa	Pa	Pa
PR103J2	0x05	Temperature	voltage	voltage	voltage	°C
TSL250RD	0x06	Visible Light	voltage	voltage	voltage	μW/m^2
MMA8452Q	0x07	Acceleration in X	16-bit register	g	g	g
		Acceleration in Y				
		Acceleration in Z				
		Intensity	n/a			
SPV1840LR5H-B	0x08	RMS Sound Level	voltage	voltage	voltage	voltage
TSYS01	0x09	Temperature	24-bit register	°C	°C	°C
Lightsense board						
HMC5883L	0x0A	Magnetic Field in Z	16-bit register	G	G	G
		Magnetic Field in Y				
		Magnetic Field in Z				
HIH6130	0x0B	Temperature	14-bit register	°C	°C	°C
		Relative Humidity		%RH	%RH	%RH
APDS-9006-020	0x0C	Ambient light intensity	voltage	16-bit ADC	16-bit ADC	Lux

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Table 1 – *Continued from previous page*

Parameter	ID	Values	Sensor Output	FW Output	Beehive Output	Decoder Output
TSL260RD	0x0D	IR intensity	voltage	16-bit ADC	16-bit ADC	$\mu W/m^2$
TSL250RD	0x0E	Visible light intensity	voltage	16-bit ADC	16-bit ADC	$\mu W/m^2$
MLX75305	0x0F	Light	voltage	16-bit ADC	16-bit ADC	$\mu W/m^2$
ML8511	0x10	UV intensity	voltage	16-bit ADC	16-bit ADC	UV index
TMP421	0x13	Temperature	16-bit register	°C	°C	°C
Chemsense board (Chemsense board firmware is not completed)						
Total reducing gases	0x15	Raw Concentration	n/a	AFE ADC counts	AFE ADC counts	AFE ADC counts
Nitrogen dioxide	0x17					
Ozone	0x18					
Hydrogen sulphide	0x19					
Total oxidizing gases	0x1A					
Carbon monoxide	0x1B					
Sulfur dioxide	0x1C					
SHT25	0x1D	Temperature	n/a	100ths of °C	100ths of °C	°C
		Relative Humidity		100ths of %RH	100ths of %RH	%RH
LPS25H	0x1E	Temperature	n/a	100ths of °C	100ths of °C	°C
		Pressure		Pa	Pa	Pa
Si1145	0x1F	UV intensity	n/a	n/a	n/a	n/a
		Visible light intensity				
		IR intensity				
Chemsense MAC ID	0x20	MAC Address	No Unit	No Unit	No Unit	No Unit
CO ADC temp	0x21	ADC temperature	n/a	100ths of °C	100ths of °C	°C
IAQ IRR ADC temp	0x22					
O3 NO2 ADC temp	0x23					
SO2 H2S ADC temp	0x24					
CO LMP temp	0x25					

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Table 1 – *Continued from previous page*

Parameter	ID	Values	Sensor Output	FW Output	Beehive Output	Decoder Output
Accelerometer	0x26	Acceleration in X	n/a	raw register	raw register	raw register
		Acceleration in Y				
		Acceleration in Z				
		Vibration				
Gyro	0x27	Orientation in X	n/a	raw register	raw register	raw register
		Orientation in Y				
		Orientation in Z				
		Orientation Index				
Alpha sensor						
Histogram	0x28	Bin count	raw register	raw register	n/a	raw register
		Average Time				
		Sample flow rate				
		Temp/Pressure(alter)				
		Sampling period				
		Sum of the counts				
		PM 1				
		PM 2.5				
		PM 10				
Serial	0x29	Serial Number	No Unit	No Unit	n/a	n/a
Firmware	0x30	Firmware version	No Unit	No Unit	No Unit	No Unit
Configuration A	0x31	Bin Boundaries	raw register	raw register	n/a	raw register
		Bin Particle Volumes A				
Configuration B	0x32	Bin Particle Volumes B				
		Bin Particle Densities A				
Configuration C	0x33	Bin Particle Densities B				
		Bin Sample Vol Weightings A				

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Table 1 – *Continued from previous page*

Parameter	ID	Values	Sensor Output	FW Output	Beehive Output	Decoder Output
Configuration D	0x34	Bin Sample Vol Weightings B	raw register	raw register	n/a	raw register
		Gain Scaling Coefficient				
		Sample Flow Rate				
		Laser DAC and Fan DAC				
		Conversion factor				
		Space Bytes				
Rain Gauge						
Rain Gauge	0xFC	Rainfall	voltage	event counts	n/a	in. or mm
Soil Moisture Sensor (5TE Decagon)						
Soil Sensor	0xFB	Dielectric permittivity	No Unit	No Unit	n/a	No Unit
		Electric conductivity	dS/m	dS/m	n/a	dS/m
		Temperature	°C	°C	n/a	°C

* Decoder means a decoder for testing coresense firmware, which is in waggle/coresense/v3/integrated/software.

* If output of Beehive and Decoder are different, that means conversion equation used in decoder is not yet completely verified.

* Conversion equations used in the decoder are explained in Waggle Doc (v3dataExchange.pdf) in waggle/coresense/v3/docs.

* Data from Alpha sensor using SPI communication is not yet completed, which is through the coresense FW. The data can just translated into human readable values through coresense decoder.