GREYSTONE
ENERGY SYSTEMS INC

CR3 Series
Cleanroom Monitor

SETUP GUIDE: MODBUS COMMUNICATION

Modbus Specification

ModBus Protocol

This section describes the implementation of the Modbus protocol. It is intended to assist control system programmers who may need to add support to their systems to communicate with this device. This device communicates on standard Modbus networks using RTU mode transmission. It operates as a slave device (address from 1 to 255) and expects a Modbus master device to transmit queries, which it will answer.

RTU Message Format

Modbus Framing	8 bit binary
Data Bits	start bits --- 1 data bits --- 8 parity bits --- none, odd or even stop bits --- 1or 2
Baud Rate	9600, 19200, 38400, 57600, 76800 or 115200
Duplex	Half duplex
Error Checking	Cyclical Redundancy Check (CRC) CRC-16 --- polynomial x16+x15+x2+x0 0x8005 or reversed version 0xA001 or CRC-CITT --- polynomial x16+x12+x5+x0 0x1021 or reversed version 0x8408
Latency	More than 3.5 characters --- minimum, 50, 100, 150, 200, 250, 300 or 350 mS

RTU Framing Support and Bit Sequences

Start	1	2	3	4	5	6	7	8	Stop	
Start	1	2	3	4	5	6	7	8	Stop	Stop
Start	1	2	3	4	5	6	7	8	Odd	Stop
Start	1	2	3	4	5	6	7	8	Even	Stop

Modbus Register Addressing

Modbus Address	Typical Offset	Units	Data Type		Notes
40001	+0		Word	Read	16-bit integer, Digital Input Status 0 = Not Activated, 1 = Activated
40002	+1	°C °F	Word	Read	16-bit integer, Temperature Value x 10 (multiplier = 10) 0 to 500 for 0 to 50.0 °C, 320 to 1220 for 32.0 to 122.0 °F
40003	+2	%RH	Word	Read	16-bit integer, RH Value x 10 (multiplier = 10) 0 to 1000 for 0 to 100.0 %RH
40004	+3	Pa mmWc	Word	Read	16-bit integer, Differential Pressure Value x 1 or 10 (multiplier = 1 or 10) -500 to 500 for -500 to 500 Pa, or -50.0 to 50.0 mmWc
40005	+4		Word	Read	16-bit integer, TEMP Alarm Low Status 0 = No Alarm, 1 = Alarm
40006	+5		Word	Read	16-bit integer, TEMP Alarm High Status 0 = No Alarm, 1 = Alarm
40007	+6		Word	Read	16-bit integer, RH Alarm Low Status 0 = No Alarm, 1 = Alarm
40008	+7		Word	Read	16-bit integer, RH Alarm High Status 0 = No Alarm, 1 = Alarm
40009	+8		Word	Read	16-bit integer, DP Alarm Low Status 0 = No Alarm, 1 = Alarm
40010	+9		Word	Read	16-bit integer, DP Alarm High Status 0 = No Alarm, 1 = Alarm
40011	+10	°C °F	Word	Read	16-bit integer, Temperature Min Value x 10 (multiplier = 10) 0 to 500 for 0 to 50.0 °C, 320 to 1220 for 32.0 to 122.0 °F
40012	+11	°C °F	Word	Read	16-bit integer, Temperature Max Value x 10 (multiplier = 10) 0 to 500 for 0 to 50.0 °C, 320 to 1220 for 32.0 to 122.0 °F
40013	+12	%RH	Word	Read	16-bit integer, RH Min Value x 10 (multiplier = 10) 0 to 1000 for 0 to 100.0 %RH
40014	+13	%RH	Word	Read	16-bit integer, RH Max Value x 10 (multiplier = 10) 0 to 1000 for 0 to 100.0 %RH
40015	+14	Pa mmWc	Word	Read	16-bit integer, DP Min Value x 1 or 10 (multiplier = 1 or 10) -500 to 500 for -500 to 500 Pa, or -50.0 to 50.0 mmWc
40016	+15	Pa mmWc	Word	Read	16-bit integer, DP Max Value x 1 or 10 (multiplier =1 or 10) -500 to 500 for -500 to 500 Pa, or -50.0 to 50.0 mmWc
40017	+16		Word	Read Write	16-bit integer, Min Max Reset 0 = Normal, 1 = Reset all min max values
40018	+17	°C °F	Word	Read Write	16-bit integer, Temperature Offset -5 to 5 °C, -10 to 10 °F
40019	+18	%RH	Word	Read Write	16-bit integer, RH Offset -10 to 10 for -10 to 10 %RH

40020	+19	°C °F	Word	Read Write	16-bit integer, TEMP Alarm Low Setpoint (TALS) x 10 TLS-min <= TALS <= TLS-max (multiplier = 10)
40021	+20	°C °F	Word	Read Write	16-bit integer, TEMP Low Setpoint Min (TLS-min) 0 to 26 °C or 32 to 79 °F
40022	+21	°C °F	Word	Read Write	16-bit integer, TEMP Low Setpoint Max (TLS-max) 4 to 30 °C or 39 to 86 °F
40023	+22	°C °F	Word	Read Write	16-bit integer, TEMP Alarm High Setpoint (TAHS) x 10 THS-min <= TAHS <= THS-max (multiplier = 10)
40024	+23	°C °F	Word	Read Write	16-bit integer, TEMP High Setpoint Min (THS-min) 16 to 46 °C or 61 to 115 °F Note: For CR3C units the max value will be determined by setting of TEMP Analog Input Range
40025	+24	°C °F	Word	Read Write	16-bit integer, TEMP High Setpoint Max (THS-max) 20 to 50 °C or 68 to 122 °F Note: For CR3C units the max value will be determined by setting of TEMP Analog Input Range
40026	+25	°C °F	Word	Read Write	16-bit integer, TEMP Alarm Hysteresis x 10 (multiplier = 10) 0 to 10 for 0 to 1.0 °C or 0 to 20 for 0 to 2.0 °F
40027	+26	sec	Word	Read Write	16-bit integer, TEMP Alarm On Delay 0 to 255 seconds
40028	+27	%RH	Word	Read Write	16-bit integer, RH Alarm Low Setpoint (RHALS) RHLS-min <= RHALS <= RHLS-max
40029	+28	%RH	Word	Read Write	16-bit integer, RH Low Setpoint Min (RHLS-min) 5 to 60 %RH
40030	+29	%RH	Word	Read Write	16-bit integer, RH Low Setpoint Max (RHLS-max) 15 to 70 %RH
40031	+30	%RH	Word	Read Write	16-bit integer, RH Alarm High Setpoint (RHAHS) RHHS-min <= RHAHS <= RHHS-max
40032	+31	%RH	Word	Read Write	16-bit integer, RH High Setpoint Min (RHHS-min) 40 to 90 %RH
40033	+32	%RH	Word	Read Write	16-bit integer, RH High Setpoint Max (RHHS-max) 50 to 100 %RH
40034	+33	%RH	Word	Read Write	16-bit integer, RH Alarm Hysteresis 0 to 5 %RH
40035	+34	sec	Word	Read Write	16-bit integer, RH Alarm On Delay 0 to 255 seconds
40036	+35	Pa mmWc	Word	Read Write	16-bit integer, DP Alarm Low Setpoint (DPALS) For Type A/B, DPLS-min <= DPALS <= DPLS-max For Type C, the rules are descripted in User Menu
40037	+36	Pa mmWc	Word	Read Write	16-bit integer, DP Low Setpoint Min (DPLS-min) Apply Type A/B only -250 to 0Pa or -25 to 0 mmWc (for CR3-x-01-xxx models) -500 to 0 Pa or -50 to 0 mmWc (for CR3-x-02-xxx models)
40038	+37	Pa mmWc	Word	Read Write	16-bit integer, DP Low Setpoint Max (DPLS-max) Apply Type A/B only -200 to 200 Pa or -20 to 20 mmWc (for CR3-x-01-xxx models) -400 to 400 Pa or -40 to 40 mmWc (for CR3-x-02-xxx models)

40039	+38	Pa mmWc	Word	Read Write	16-bit integer, DP Alarm High Setpoint (DPAHS) For Type A/B, DPHS-min <= DPAHS <= DPHS-max For Type C, the rules are descripted in User Menu
40040	+39	Pa mmWc	Word	Read Write	16-bit integer, DP High Setpoint Min (DPHS-min) Apply Type A/B only -200 to 200Pa or -20 to 20 mmWc (for CR3-x-01-xxx models) -400 to 400 Pa or -40 to 40 mmWc (for CR3-x-02-xxx models)
40041	+40	Pa mmWc	Word	Read Write	16-bit integer, DP High Setpoint Max (DPHS-max) Apply Type A/B only 0 to 250 Pa or 0 to 25 mmWc (for CR3-x-01-xxx models) 0 to 500 Pa or 0 to 50 mmWc (for CR3-x-02-xxx models)
40042	+41	Pa mmWc	Word	Read Write	16-bit integer, DP Alarm Hysteresis For Type A,B, 0 to 50 Pa (multiplier = 1) or 0 to 50 mmWc (multiplier = 10) For Type C, the rules are descripted in User Menu
40043	+42	sec	Word	Read Write	16-bit integer, DP Alarm On Delay 0 to 255 seconds
40044	+43	sec	Word	Read Write	16-bit integer, Buzzer Auto Reset Time 5 to 255 seconds
40045	+44	%	Word	Read Write	16-bit integer, Analog Out TEMP Override 0 to 100 %
40046	+45	%	Word	Read Write	16-bit integer, Analog Out RH Override 0 to 100 %
40047	+46	%	Word	Read Write	16-bit integer, Analog Out DP Override 0 to 100 %
40048	+47	sec	Word	Read Write	16-bit integer, Digital Input Self-reset Time 1 to 255 seconds
40049	+48	Pa mmWc	Word	Read Write	16-bit integer, DP Low Range (DP-Low Range) -500 to 0 Pa or -50 to 0 mmWc
40050	+49	Pa mmWc	Word	Read Write	16-bit integer, DP High Range (DP-High Range) 0 to 500 Pa or 0 to 50 mmWc
40051	+50		Word	Read Write	16-bit integer, TEMP Units 0 = °C, 1 = °F
40052	+51		Word	Read Write	16-bit integer, DP Units 0 = Pa, 1 = mmWc
40053	+52		Word	Read Write	16-bit integer, DP Auto Zero 0 = Normal Operation, 1 = Perform Auto Zero
40054	+53		Word	Read Write	16-bit integer, TEMP Response Time 0 = Fast, 1 = Slow
40055	+54		Word	Read Write	16-bit integer, RH Response Time 0 = Fast, 1 = Slow
40056	+55		Word	Read Write	16-bit integer, DP Response Time 0 = Fast, 1 = Slow
40057	+56		Word	Read Write	16-bit integer, TEMP Display 0 = Off, 1 = On
40058	+57		Word	Read Write	16-bit integer, RH Display 0 = Off, 1 = On

40059	+58		Word	Read Write	16-bit integer, DP Display 0 = Off, 1 = On
40060	+59		Word	Read Write	16-bit integer, TEMP Out Direction 0 = Direct, 1 = Reverse
40061	+60		Word	Read Write	16-bit integer, RH Out Direction 0 = Direct, 1 = Reverse
40062	+61		Word	Read Write	16-bit integer, DP Out Direction 0 = Direct, 1 = Reverse
40063	+62		Word	Read Write	16-bit integer, Analog Output Override 0 = Normal, 1 = Override
40064	+63		Word	Read Write	16-bit integer, Buzzer Reset 0 = Manual Only, 1 = Manual + Automatic
40065	+64		Word	Read Write	16-bit integer, Alarm Acknowledge 0 = Normal, 1 = Alarm Acknowledged
40066	+65		Word	Read Write	16-bit integer, Digital Input Mode 0 = Latch, 1 = Momentary Self-reset
40067	+66		Word	Read Write	16-bit integer, Digital Input Status 0 = Inactive, 1 = Active
40068	+67		Word	Read Write	16-bit integer, Setpoint Lock 0 = Not Locked, 1 = Locked
40069	+68		Word	Read Write	16-bit integer, User Menu Lock 0 = Not Locked, 1 = Locked
40070	+69		Word	Read Write	16-bit integer, Installer Menu Lock 0 = Not Locked, 1 = Locked
40071	+70		Word	Read Write	16-bit integer, Display Brightness 0 = Low, 1 = High
40072	+71		Word	Read Write	16-bit integer, TEMP Analog Input Range 0 = 0-35 °C, 1 = 0-50 °C
40073	+72		Word	Read Write	16-bit integer, Analog Input Signal Type 0 = mA, 1 = Voltage
40074	+73		Word	Read Write	16-bit integer, Analog Input Volt Range 0 = 0-5 V, 1 = 0-10 V
40075	+74		Word	Read Write	16-bit integer, Analog Output Signal Type 0 = mA, 1 = Voltage
40076	+75		Word	Read Write	16-bit integer, Analog Output Volt Range 0 = 0-5 V, 1 = 0-10 V
40077	+76		Word	Read Write	16-bit integer, TEMP Alarm Operation 1=Low Alarm, 2=High Alarm, 3=Both, 4=Disable
40078	+77		Word	Read Write	16-bit integer, RH Alarm Operation 1=Low Alarm, 2=High Alarm, 3=Both, 4=Disable
40079	+78		Word	Read Write	16-bit integer, DP Alarm Operation 1=Low Alarm, 2=High Alarm, 3=Both, 4=Disable

40080	+79		Word	Read Write	16-bit integer, Buzzer Assignment 1=TEMP, 2=RH, 3=DP, 4=Disable, 5=All
40081	+80		Word	Read Write	16-bit integer, Digital Input Function 1=Disable, 2=Freeze, 3=Silence

RTU Function Codes

0x03 --- Read holding registers

Query

Slave address (0x01 to 0xFF)	Function code (0x03)	Starting address MSB	Starting address LSB	Quantity of registers MSB	Quantity of registers LSB	CRC LSB	CRC MSB

* Starting address = 0x0000 to 0x0050, Quantity of registers = 0x0001 to 0x0051

Response

Slave address (0x01 to 0xFF)	Function code (0x03)	Byte count 2N	Register value MSB	Register value LSB	…	CRC LSB	CRC MSB

* N= Quantity of registers

0x06 --- Write single register

Query

Slave address (0x01 to 0xFF)	Function code 0x06	Register address MSB	Register address LSB	Register value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	Function code 0x06	Register address MSB	Register address LSB	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* Register address = 0x0010 to 0x0050, Registers value = 0x0000 to 0xFFFF

Exception response

Slave address (0x01 to 0xFF)	Function code + 0x80	Exception code 0x01, 0x02 or 0x03	CRC LSB	CRC MSB

* An exception response is only returned if the CRC is correct
  Exception code 01 --- illegal function, 02 --- illegal address, 03 --- illegal data value

Note that the registers may be read individually or multiple registers may be read at the same time by changing the query as shown below.

To read several registers with one query…

0x03 --- Read ALL REGISTERS

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x00 (Note 1)	0x00	0x05 (Note2)	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x0A (Note 3)	Register value MSB	Register value LSB	. . .	CRC LSB	CRC MSB

Note 1: The starting address (A) may be 0x0000 to 0x0050. The read multiple feature will read all registers from the starting address forward. If the starting address is 0x0000 then registers 40001 to 40081 can be read. If the starting address is 0x000A then registers 40011 to 40081 can be read.

Note 2: The quantity of registers (N) may be 0x0001 to 0x0051, but must be limited to 81 – A. If the starting address (A) is set to 0x0000 then N may be 0x0001 to 0x0051. If the starting address is set to 0x000A then N may be 0x0001 to 0x0047.

Note 3: The byte count (B) will always be 2N. If the quantity of registers (N) is 0x0001 then B will be 0x02. If N is 0x0005 then B will be 0x0A.

The RTU function codes supported by the clean room sensor are shown below.

0x03 --- Read Digital Input Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x00	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value 0x00	Register value LSB *	CRC LSB	CRC MSB

* Register value = 0x0000 for inactive status, 0x0001 for active status

0x03 --- Read Temperature Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x01	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

* Register value = 0x0000 to 0x01F4, corresponding to 0.0 to 50.0 °C (multiplier = 10)
or = 0x0140 to 0x04C4, corresponding to 32.0 to 122.0 °F (multiplier = 10)

The temperature value is either in °C (default) or °F depending on the value of the TEMP Units register. This register has a multiplier of 10, the application must divide by 10 to obtain the correct value.

0x03 --- Read RH Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x02	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

* Register value = 0x0000 to 0x03E8, corresponding to 0 to 100 %RH (multiplier = 10)

This register has a multiplier of 10, the application must divide by 10 to obtain the correct value.

0x03 --- Read Differential Pressure Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x03	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

* Register value = 0xFE0C to 0x1F4, corresponding to -500 to 500 Pa (multiplier = 1)
or = 0xFE0C to 0x01F4, corresponding to -50.0 to 50.0 mmWc (multiplier = 10)

The differential pressure value is either in Pa (default) or mmWc depending on the value of the DP Units register.

This register has a multiplier of 1 or 10, the application must divide by 1 or 10 to obtain the correct value.

0x03--- Read TEMP Alarm Low Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x04	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03 --- Read TEMP Alarm High Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x05	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03--- Read RH Alarm Low Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x06	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03 --- Read RH Alarm High Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x07	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03 --- Read DP Alarm Low Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x08	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03 --- Read DP Alarm High Status

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x09	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register value = 0x0000 for No Alarm, 0x0001 for Alarm.

0x03 --- Read TEMP Minimum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0A	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 10 (multiplier = 10) 0 to 500 for 0 to 50.0 °C, 320 to 1220 for 32.0 to 122.0 °F

0x03 --- Read TEMP Maximum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0B	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 10 (multiplier = 10) 0 to 500 for 0 to 50.0 °C, 320 to 1220 for 32.0 to 122.0 °F

0x03 --- Read RH Minimum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0C	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 10 (multiplier = 10) 0 to 1000 for 0 to 100% RH

0x03 --- Read RH Maximum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0D	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 10 (multiplier = 10) 0 to 1000 for 0 to 100% RH

0x03 --- Read DP Minimum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0E	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 1 or 10 (multiplier = 1 or 10) -500 to 500 for -500 to 500 Pa, -500 to 500 for -50.0 to 50.0 mmWc

0x03 --- Read DP Maximum Value

Query

Slave address (0x01 to 0xFF)	0x03	0x00	0x0F	0x00	0x01	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x03	0x02	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Register Value x 1 or 10 (multiplier = 1 or 10) -500 to 500 for -500 to 500 Pa, -500 to 500 for -50.0 to 50.0 mmWc

NOTE: All registers may be read in the same manner as shown above.

0x06 --- Write Min Max Reset

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x10	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x10	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to reset all the min max values.

The available settings are:
0x0000 = Normal operation
0x0001 = Reset all min max values

0x06 --- Write Temperature Offset

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x11	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x11	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to add or subtract an offset to the temperature value if necessary to conform to a local reference.

For °C operation, Register value = 0xFFCE to 0x0032 for -5 to 5 °C.
Multiplier = 10. Resolution as 5 for 0.5 °C

For °F operation, Register value = 0xFF9C to 0x0064 for -10 to 10 °F.
Multiplier = 10. Resolution as 10 for 1 °F

The TEMP Units (°C or °F) for the device should be selected first, and then add any offset if necessary.

0x06 --- Write RH Offset

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x12	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x12	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to add or subtract an offset to the RH value if necessary to conform to a local reference.

Register value = 0xFFF6 to 0x000A for -10 to 10 %RH. Resolution as 1 %

0x06 --- Write TEMP Alarm Low Setpoint (TALS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x13	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x13	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the low temperature alarm.

Temperature units are either °C or °F as set by TEMP Units.
The default TALS is 15 °C or 59 °F.
Resolution is 0.1° so this register has a multiplier of 10. For 15.6 °C, write 156 = 0x009C.

Rules are enforced: TLS-min <= TALS <= TLS-max
TLS-max – TLS-min >= 4 °C or >= 7 °F
TAHS – TALS >= 2 °C or >= 4 °F

0x06 --- Write TEMP Low Setpoint Min (TLS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x14	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x14	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the low temperature alarm.
Temperature units are either °C or °F as set by TEMP Units.
The default TLS-min is 10 °C or 50 °F. Resolution is 1°.

Register value = 0x0000 to 0x001A for 0 to 26 °C or 0x0020 to 0x004F for 32 to 79 °F.

Rules are enforced: TLS-max – TLS-min >= 4 °C or >= 7 °F

0x06 --- Write TEMP Low Setpoint Max (TLS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x15	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x15	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the low temperature alarm.
Temperature units are either °C or °F as set by TEMP Units.
The default TLS-max is 22 °C or 72 °F. Resolution is 1°.

Register value = 0x0004 to 0x001E for 4 to 30 °C or 0x0027 to 0x0056 for 39 to 86 °F.

Rules are enforced: TLS-max – TLS-min >= 4 °C or >= 7 °F

0x06 --- Write TEMP Alarm High Setpoint (TAHS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x16	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x16	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the high temperature alarm.

Temperature units are either °C or °F as set by TEMP Units.
The default TAHS is 25 °C or 77 °F.
Resolution is 0.1° so this register has a multiplier of 10. For 27.6 °C, write 276 = 0x0114.

Rules are enforced: THS-min <= TAHS <= THS-max
THS-max – THS-min >= 4 °C or >= 7 °F
TAHS – TALS >= 2 °C or >= 4 °F

0x06 --- Write TEMP High Setpoint Min (THS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x17	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x17	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the high temperature alarm.
Temperature units are either °C or °F as set by TEMP Units.
The default THS-min is 20 °C or 68 °F. Resolution is 1°.

Register value = 0x0010 to 0x002E for 16 to 26/46°C or 0x003D to 0x0073 for 61 to 95/115 °F. The max value depends on the TEMP Analog input range setting selected.

Rules are enforced: THS-max – THS-min >= 4 °C or >= 7 °F

0x06 --- Write TEMP High Setpoint Max (THS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x18	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x18	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the high temperature alarm.
Temperature units are either °C or °F as set by TEMP Units.
The default THS-max is 30 °C or 86 °F. Resolution is 1°.

Register value = 0x0014 to 0x0032 for 20 to 35/50 °C or 0x0044 to 0x007A for 68 to 95/122 °F. The max value depends on the TEMP Analog input range setting selected.

Rules are enforced: THS-max – THS-min >= 4 °C or >= 7 °F

0x06 --- Write TEMP Alarm Hysteresis

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x19	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x19	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the hysteresis for the low and high temperature alarms.
Temperature units are either °C or °F as set by TEMP Units.
The default hysteresis is 0.2 °C or 0.4 °F. Resolution is 0.1°. Multiplier = 10.

Register value = 0x0000 to 0x000A for 0 to 1.0 °C or 0x0000 to 0x0014 for 0 to 2.0 °F.

0x06 --- Write TEMP Alarm On Delay

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1A	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1A	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the time delay for the low and high temperature alarms.
The delay prevents the alarm from setting immediately to prevent false alarms.

Register value = 0x0000 to 0x00FF for 0 to 255 seconds. Default value is 5 seconds.

0x06 --- Write RH Alarm Low Setpoint (RHALS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1B	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1B	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the low RH alarm.

The default RHALS is 30 %RH. Resolution is 1 %RH. For 20 %RH, write 0x0014.

Rules are enforced: RHLS-min <= RHALS <= RHLS-max
RHLS-max – RHLS-min >= 10 %RH
RHAHS – RHALS >= 10 %RH

0x06 --- Write RH Low Setpoint Min (RHLS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1C	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1C	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the low RH alarm.
The default RHLS-min is 20 %RH. Resolution is 1 %RH.

Register value = 0x0005 to 0x003C for 5 to 60 %RH.

Rules are enforced: RHLS-max – RHLS-min >= 10 %RH

0x06 --- Write RH Low Setpoint Max (RHLS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1D	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1D	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the low RH alarm.
The default RHLS-max is 40 %RH. Resolution is 1 %RH.

Register value = 0x000F to 0x0046 for 15 to 70 %RH.

Rules are enforced: RHLS-max – RHLS-min >= 10 %RH

0x06 --- Write RH Alarm High Setpoint (RHAHS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1E	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1E	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the high RH alarm.

The default RHAHS is 65 %RH. Resolution is 1 %RH. For 60 %RH, write 0x003C.

Rules are enforced: RHHS-min <= RHAHS <= RHHS-max
RHHS-max – RHHS-min >= 10 %RH
RHAHS – RHALS >= 10 %RH

0x06 --- Write RH High Setpoint Min (RHHS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x1F	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x1F	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the high RH alarm.

The default RHHS-min is 50 %RH. Resolution is 1 %RH.

Register value = 0x0028 to 0x005A for 40 to 90 %RH.

Rules are enforced: RHHS-max – RHHS-min >= 10 %RH

0x06 --- Write RH High Setpoint Max (RHHS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x20	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x20	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the high RH alarm.

The default RHHS-max is 80 %RH. Resolution is 1 %RH.

Register value = 0x0032 to 0x0064 for 50 to 100 %RH.

Rules are enforced: RHHS-max – RHHS-min >= 10 %RH

0x06 --- Write RH Alarm Hysteresis

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x21	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x21	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the hysteresis for the low and high RH alarms.

The default hysteresis is 2 %RH. Resolution is 1 %RH.

Register value = 0x0000 to 0x0005 for 0 to 5 %RH.

0x06 --- Write RH Alarm On Delay

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x22	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x22	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the time delay for the low and high RH alarms.
The delay prevents the alarm from setting immediately to prevent false alarms.

Register value = 0x0000 to 0x00FF for 0 to 255 seconds. Default value is 15 seconds.

0x06 --- Write DP Alarm Low Setpoint (DPALS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x23	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x23	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the low differential pressure alarm.Pressure units are either Pa or mmWc as set by DP Units.
The default DPALS is 0 Pa or 0 mmWc.
Resolution is 1 Pa (multiplier = 1) or 0.1 mmWc (multiplier = 10).
For 30 Pa, write 30 = 0x001E. For 3.0 mmWc, write 30 = 0x001E.

For Type A/B
Rules are enforced: DPLS-min <= DPALS <= DPLS-max
DPLS-max – DPLS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc

For Type C, the rules is descripted in 6.8.6 User Menu

0x06 --- Write DP Low Setpoint Min (DPLS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x24	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x24	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the low differential pressure alarm.
Pressure units are either Pa or mmWc as set by DP Units.
The default DPLS-min is -400/-200 Pa or -40/-20 mmWc. Depending on version used.

Apply Type A/B only
Resolution is 10 Pa or 1 mmWc. Multiplier = 1
Register value = 0xFE0C to 0x0000 for -500/-250 to 0 Pa or 0xFFCE to 0x0000 for -50/-25 to 0 mmWc.

Rules are enforced: DPLS-max – DPLS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc

0x06 --- Write DP Low Setpoint Max (DPLS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x25	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x25	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the low differential pressure alarm.
Pressure units are either Pa or mmWc as set by DP Units.
The default DPLS-max is 200/100 Pa or 20/10 mmWc.

Apply Type A/B only
Resolution is 10 Pa or 1 mmWc . Multiplier = 1
Register value = 0xFE70 to 0x0190 for -400/-200 to 400/200 Pa or 0xFFD8 to 0x0028 for -40/-20 to 40/20 mmWc.

Rules are enforced: DPLS-max – DPLS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc

0x06 --- Write DP Alarm High Setpoint (DPAHS)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x26	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x26	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the setpoint for the high differential pressure alarm.
Pressure units are either Pa or mmWc as set by DP Units.
The default DPAHS is 200/100 Pa or 20/10 mmWc.
Resolution is 1 Pa (multiplier = 1) or 0.1 mmWc (multiplier = 10).
For -100 Pa, write -100 = 0xFF9C. For -10.0 mmWc, write -100 = 0xFF9C.

For Type A/B
Rules are enforced: DPHS-min <= DPAHS <= DPHS-max
DPHS-max – DPHS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc
For Type C, the rules is descripted in 6.8.6 User Menu

0x06 --- Write DP High Setpoint Min (DPHS-min)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x27	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x27	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the minimum setpoint for the high differential pressure alarm.
Pressure units are either Pa or mmWc as set by DP Units. The default DPHS-min is -100/-50 Pa or -10/-5 mmWc.

Apply Type A/B only
Resolution is 10 Pa or 1 mmWc . Multiplier = 1
.
Register value = 0xFE70 to 0x0190 for -400/-200 to 400/200 Pa or 0xFFD8 to 0x0028 for -40/-20 to 40/20 mmWc.

Rules are enforced: DPHS-max – DPHS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc

0x06 --- Write DP High Setpoint Max (DPHS-max)

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x28	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x28	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the maximum setpoint for the high differential pressure alarm.
Pressure units are either Pa or mmWc as set by DP Units.
The default DPHS-max is 400/200 Pa or 40/20 mmWc.

Apply Type A/B only
Resolution is 10 Pa or 1 mmWc . Multiplier = 1

Register value = 0x0000 to 0x01F4 for 0 to 500/250 Pa or 0x0000 to 0x0032 for 0 to 50/25 mmWc.

Rules are enforced: DPHS-max – DPHS-min >= 100 Pa or >= 10 mmWc
DPAHS – DPALS >= 50 Pa or >= 5 mmWc

0x06 --- Write DP Alarm Hysteresis

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x29	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x29	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the hysteresis for the low and high differential pressure alarms.
Pressure units are either Pa or mmWc as set by DP Units.
The default hysteresis is 5 Pa (multiplier = 1) or 0.5 mmWc (multiplier = 10). Resolution is 1 Pa or 0.1 mmWc.

For Type A/B
Register value = 0x0000 to 0x0032 for 0 to 50 Pa or 0x0000 to 0x0032 for 0 to 5.0 mmWc.

For Type C,

DP Alarm Hysteresis (Type C) (DPHY)

Dphy (Resolution = 1 Pa or 0.1 mmWc)
0 to (S/10) (Default = 5 Pa or 0.5 mmWc)
PA
or 0.0 to (S/10)
StA

0x06 --- Write DP Alarm On Delay

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2A	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2A	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the time delay for the low and high differential pressure alarms.
The delay prevents the alarm from setting immediately to prevent false alarms.

Register value = 0x0000 to 0x00FF for 0 to 255 seconds. Default value is 10 seconds.

0x06 --- Write Buzzer Auto Reset Time

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2B	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2B	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the time before the buzzer resets if set to auto reset mode using Buzzer Reset.
Register value = 0x0005 to 0x00FF for 5 to 255 seconds. Default value is 15 seconds.

0x06 --- Write Analog Out TEMP Override

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2C	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2C	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set TEMP analog output value for testing purposes.
The override is normally disabled unless enabled by Analog Output Override.
Enable the override first, then set the 0-100 % output signal as required to test the output signal.
Register value = 0x0000 to 0x0064 for 0 to 100 %. Default value is 50 %.

0x06 --- Write Analog Out RH Override

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2D	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2D	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set RH analog output value for testing purposes.
The override is normally disabled unless enabled by Analog Output Override.
Enable the override first, then set the 0-100 % output signal as required to test the output signal.
Register value = 0x0000 to 0x0064 for 0 to 100 %. Default value is 50 %.

0x06 --- Write Analog Out DP Override

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2E	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2E	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set DP analog output value for testing purposes.
The override is normally disabled unless enabled by Analog Output Override.
Enable the override first, then set the 0-100 % output signal as required to test the output signal.
Register value = 0x0000 to 0x0064 for 0 to 100 %. Default value is 50 %.

0x06 --- Digital Input Self-reset Time

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x2F	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x2F	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the time before the digital input status self-resets.
Only functional if set to momentary self-reset operation using Digital Input Mode.
Register value = 0x0001 to 0x00FF for 1 to 255 seconds. Default value is 30 seconds.

0x06 --- DP Low Range Limit

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x30	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x30	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set Differential Pressure Low Range. This is used to provide the low reading relating to the lowest analog input for external DP sensor. Example for a external 0-60Pa sensor, the value to be written would be 0Pa/0mmWc.
Pressure units are either Pa or mmWc as set by DP Units.
The default is 500 Pa (multiplier = 1) or 50mmWc (multiplier = 10). Resolution is 10 Pa or 1mmWc.

Register value = 0xFE0C to 0x000 for -500 to 0 Pa or 0xFE0C to 0x0000 for -50 to 0mmWc.
Note: The difference between DP Low Range and DP High Range must be >= 10Pa/1mmWc.

0x06 --- DP High Range Limit

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x31	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x31	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set Differential Pressure High Range. This is used to provide the low reading relating to the highest analog input for external DP sensor. Example for a external 0-60Pa sensor, the value to be written would be 0x003C.
Pressure units are either Pa or mmWc as set by DP Units.
The default is 500 Pa (multiplier = 1) or 50mmWc (multiplier = 10). Resolution is 10 Pa or 1mmWc.

Register value = 0x0000 to 0x01F4 for 0 to 500 Pa or 0x0000 to 0x01F4 for 0 to 50mmWc.
Note: The difference between DP Low Range and DP High Range must be >= 10Pa/1mmWc.

0x06 --- Write TEMP Units

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x32	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x32	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* Register value = 0x0000 for °C, 0x0001 for °F. Default is °C.

0x06 --- Write DP Units

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x33	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x33	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* Register value = 0x0000 for Pa, 0x0001 for mmWc. Default is Pa.

0x06 --- Write DP Auto Zero

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x34	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x34	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* Setting this register to 1 will initiate a pressure sensor auto zero function.
This register has no function for the Type C model with remote transmitters.
Rules are enforced: Only perform auto zero function if DP is within ± 0 - 20% of range.
Register value = 0x0000 for Normal Operation, 0x0001 for Perform Auto Zero. Default is 0.

0x06 --- Write TEMP Response Time

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x35	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x35	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* For fast response there is a minimum amount of digital filtering applied to the measurement so that the sensor reacts quickly to changes. Slow response applies a longer period of filtering to the measurement and will slow down the sensor reaction to changes. Fast response = 1 update per second, Slow response = 1 update per 5 seconds.

Register value = 0x0000 for Fast, 0x0001 for Slow. Default is Fast.

0x06 --- Write RH Response Time

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x36	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x36	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* For fast response there is a minimum amount of digital filtering applied to the measurement so that the sensor reacts quickly to changes. Slow response applies a longer period of filtering to the measurement and will slow down the sensor reaction to changes. Fast response = 1 update per second, Slow response = 1 update per 5 seconds.

Register value = 0x0000 for Fast, 0x0001 for Slow. Default is Fast.

0x06 --- Write DP Response Time

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x37	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x37	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* For fast response there is a minimum amount of digital filtering applied to the measurement so that the sensor reacts quickly to changes. Slow response applies a longer period of filtering to the measurement and will slow down the sensor reaction to changes. Fast response = 1 update per second, Slow response = 1 update per 5 seconds.

Register value = 0x0000 for Fast, 0x0001 for Slow. Default is Fast.

0x06 --- Write TEMP Display

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x38	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x38	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register can be used to disable the display of the TEMP value and also the associated LEDs.
Register value = 0x0000 for OFF, 0x0001 for ON. Default is ON.

0x06 --- Write RH Display

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x39	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x39	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register can be used to disable the display of the RH value and also the associated LEDs.
Register value = 0x0000 for OFF, 0x0001 for ON. Default is ON.

0x06 --- Write DP Display

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3A	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3A	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register can be used to disable the display of the DP value and also the associated LEDs.
Register value = 0x0000 for OFF, 0x0001 for ON. Default is ON.

0x06 --- Write TEMP Out Direction

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3B	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3B	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* When set to Direct (0), the TEMP analog output signal will be either 0-5 Vdc, 0-10 Vdc or 4-20 mA.
When set to Reverse (1), the signal will be reversed to 5-0 Vdc, 10-0 Vdc or 20-4 mA.
Register value = 0x0000 for Direct, 0x0001 for Reverse. Default is Direct.

0x06 --- Write RH Out Direction

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3C	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3C	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* When set to Direct (0), the RH analog output signal will be either 0-5 Vdc, 0-10 Vdc or 4-20 mA.
When set to Reverse (1), the signal will be reversed to 5-0 Vdc, 10-0 Vdc or 20-4 mA.
Register value = 0x0000 for Direct, 0x0001 for Reverse. Default is Direct.

0x06 --- Write DP Out Direction

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3D	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3D	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* When set to Direct (0), the DP analog output signal will be either 0-5 Vdc, 0-10 Vdc or 4-20 mA.
When set to Reverse (1), the signal will be reversed to 5-0 Vdc, 10-0 Vdc or 20-4 mA.
Register value = 0x0000 for Direct, 0x0001 for Reverse. Default is Direct.

0x06 --- Write Analog Output Override

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3E	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3E	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to enable the analog output overrides.
Register value = 0x0000 for Normal, 0x0001 for Override. Default is Normal.

0x06 --- Write Buzzer Reset

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x3F	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x3F	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to control the buzzer reset operation. When set to Manual + Automatic (1), the alarm buzzer can be silenced by removing the alarm condition, pressing the <SILENCE> key or by setting Alarm Acknowledge via the network, or it will reset automatically when the Buzzer Auto Reset Time expires. When set to Manual (0), the alarm buzzer will not reset automatically after a time period.

Register value = 0x0000 for Manual Only, 0x0001 for Manual + Automatic. Default is Manual + Automatic.

0x06 --- Write Alarm Acknowledge

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x40	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x40	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to acknowledge an alarm. Writing a 1 causes the same reaction as pressing the <SILENCE> key. Resets to 0 once registered.

Register value = 0x0000 for Normal, 0x0001 for Alarm Acknowledged. Default is Normal.

0x06 --- Write Digital Input Mode

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x41	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x41	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to set the digital input operating mode.

In latch mode, Digital Input Status will activate when there is a contact closure on the digital input and it will remain activated until Digital Input Status is reset manually by writing to the variable.

In momentary self-reset mode, the Digital Input Status will reset itself after a time period as set by Digital Input Self-reset Time between 1-255 seconds.

Register value = 0x0000 for Latch, 0x0001 for Momentary Self-reset. Default is Momentary Self-reset.

0x06 --- Write Digital Input Status

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x42	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x42	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to indicate the digital input status. The register changes to 1 (ACTIVE) if the digital input has been activated. The Digital Input Status has two operating modes as set by Digital Input Mode. It can be either manually reset by writing 0 (INACTIVE) back to the register, or it can be self-resetting after a time period as set by Digital Input Self-reset Time.

Register value = 0x0000 for Inactive, 0x0001 for Active. Default is Inactive.

0x06 --- Write Setpoint Lock

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x43	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x43	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to lock the setpoints. If Locked, then the alarm setpoints cannot be changed via the User Menu. Register value = 0x0000 for Not Locked, 0x0001 for Locked. Default is Not Locked.

0x06 --- Write User Menu Lock

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x44	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x44	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to lock the User Menu. If Locked, then the User Menu cannot be accessed via the <MENU> key. Register value = 0x0000 for Not Locked, 0x0001 for Locked. Default is Not Locked.

0x06 --- Write Installer Menu Lock

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x45	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x45	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to lock the Installer Menu. If Locked, then the Installer Menu cannot be accessed by holding the <UP> and <DOWN> keys.

Register value = 0x0000 for Not Locked, 0x0001 for Locked. Default is Not Locked.

0x06 --- Display Brightness

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x46	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x46	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to control the brightness of the LED displays.

Register value = 0x0000 for Low Brightness, 0x0001 for High Brightness. Default is High Brightness.

0x06 --- TEMP Analog Input Range

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x47	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x47	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register sets the input scale for the TEMP analog input signal. Only used for the remote transmitter model.
Register value = 0x0000 for 0-35 °C, 0x0001 for 0-50 °C. Default is 0-50 °C.

0x06 --- Analog Input Signal Type

Query

Slave address (0x01 to 0xFF)	0x06	0x00	00x48	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	00x48	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register sets the analog input signal type. Only used for the remote transmitter model.
Register value = 0x0000 for mA, 0x0001 for Voltage. Default is mA.

0x06 --- Analog Input Volt Range

Query

Slave address (0x01 to 0xFF)	0x06	0x00	00x49	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	00x49	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register sets the analog input voltage range for voltage signal type. Only used for the remote transmitter model.
Register value = 0x0000 for 0-5 Vdc, 0x0001 for 0-10 Vdc. Default is 0-5 Vdc.

0x06 --- Analog Output Signal Type

Query

Slave address (0x01 to 0xFF)	0x06	0x00	00x4a	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	00x4a	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register sets the analog output signal type.
Register value = 0x0000 for mA, 0x0001 for Voltage. Default is mA.

0x06 --- Analog Output Volt Range

Query

Slave address (0x01 to 0xFF)	0x06	0x00	00x4b	Register value MSB *	Register value LSB *	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x4b	Register value MSB	Register value LSB	CRC LSB	CRC MSB

* This register sets the analog output voltage range for voltage signal type.
Register value = 0x0000 for 0-5 Vdc, 0x0001 for 0-10 Vdc. Default is 0-5 Vdc.

0x06 --- Write TEMP Alarm Operation

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x4c	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x4C	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to configure the operation of the TEMP alarm.

The available settings are:
0x0001 = Low alarm only
0x0002 = High alarm only
0x0003 = Both low and high alarms
0x0004 = Disable low and high TEMP alarms Default is 0x0004

0x06 --- Write RH Alarm Operation

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x4D	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x4D	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to configure the operation of the RH alarm.

The available settings are:
0x0001 = Low alarm only
0x0002 = High alarm only
0x0003 = Both low and high alarms
0x0004 = Disable low and high RH alarms Default is 0x0004

0x06 --- Write DP Alarm Operation

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x4E	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x4E	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to configure the operation of the DP alarm.

The available settings are:
0x0001 = Low alarm only
0x0002 = High alarm only
0x0003 = Both low and high alarms
0x0004 = Disable low and high RH alarms Default is 0x0003

0x06 --- Write Buzzer Assignment

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x4F	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x4F	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to configure the operation of the buzzer and which alarm it will indicate.

The available settings are:
0x0001 = TEMP alarm only
0x0002 = RH alarm only
0x0003 = DP alarm only
0x0004 = Disable the buzzer
0x0005 = Buzzer activates on any alarm Default is 0x0003

0x06 --- Write Digital Input Function

Query

Slave address (0x01 to 0xFF)	0x06	0x00	0x50	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

Response

Slave address (0x01 to 0xFF)	0x06	0x00	0x50	Register Value MSB	Register value LSB	CRC LSB	CRC MSB

* This register is used to configure the function of the digital input.

The available settings are:
0x0001 = Disable (no function)
0x0002 = Door Freeze
0x0003 = Silence Default is 0x0001

Exception response

Slave address (0x01 to 0xFF)	Function code + 0x80	Exception code * 0x01, 0x02 or 0x03	CRC LSB	CRC MSB

* An exception response is only returned if the CRC is correct
Exception code 01 --- illegal function
Exception code 02 --- illegal address
Exception code 03 --- illegal data value