TSI® MODEL 8610, 8610-AS EVERWATCH® CIMETRICS™ COMMUNICATIONS

APPLICATION NOTE LC-111

Cimetrics™ communications are installed in all Model 8610 fume hood monitors. This document provides the technical information needed to communicate between the host DDC system and Model 8610 units. This document assumes the programmer is familiar with Cimetrics™ protocol. Further technical assistance is available from TSI if your question is related to TSI interfacing to a DDC system. If you need further information regarding Cimetrics™ programming in general, please contact:

Cimetrics Inc.
55 Temple Place
Boston, MA 02111-1300
Phone: (617) 350-7550
Fax: (617) 350-7552
Website: http://www.cimetrics.com

The Cimetrics™ protocol utilizes TINY-NSP Nine Bit Serial Protocol for data transfer and error checking. Check the Cimetrics Inc. TINY-NSP User's Manual for additional information.

Blocks of data can be read from each device. Using a block format will speed up the access time for each device. The size of the blocks is limited to 15 bytes. This means the maximum message length that can be transferred is 15 bytes. The typical response time of the device is around 0.05 seconds with a maximum of 0.1 seconds.

Unique to TSI

The list of variable addresses shown below skips some numbers in the sequence due to internal Model 8610 functions. This information is not useful to the DDC system and is therefore deleted. Skipping numbers in the sequence will not cause any communication problems.

RAM Variables

These variables can be read using Cimetrics command **06 Read_From_Slave_Int_Ram**. They can be written to using Cimetrics command **03 Write_To_Slave_Int_Ram.** The ram variables correspond to what is shown on Digital Interface Module (DIM) display. TSI offers a number of different models, so if a feature is not available on a unit, the variable is set to 0.

8610 Fume Hood Monitor

Variable Name	Variable Address	Information Provided to Master System	Integer DDC system receives
Model Number	35	Model Number	8610
Face Velocity	37	Fume Hood Face Velocity	Displayed in ft/min.
Status Index	39	Status of EVERWATCH® device	0 Normal 1 Low Alarm 2 High Alarm 3 Sensor Error 5 Data Error
Low Alarm	41	Low Alarm Setpoint	Displayed in ft/min.
High Alarm	43	High Alarm Setpoint	Displayed in ft/min.
Filter Index	45	Index for display averaging time	0 1 Second 1 2 Seconds 2 3 Seconds 3 5 Seconds 4 10 Seconds 5 20 Seconds
Alarm Mode	47	Alarm Reset Mode	0 Unlatched 1 Latched
Audible Disable	49	Permanent Mute Capability	0 Off 1 On
Output Mode	51	Analog Output Mode	0 Current 1 Voltage
Network Protocol	53	Communications Protocol	0 Modbus 1 Cimetrics
Network	55	Address of unit for communications.	0 to 247
Calibration Code Enable	69	Calibration pass code enable.	0 Off 1 On
Configuration Code Enable	71	Configuration pass code enable	0 Off 1 On
*Remote Low Alarm	77	Second low alarm setpoint for remote mode.	Displayed in ft/min.
*Remote High Alarm	79	Second high alarm setpoint for remote mode.	Displayed in ft/min.
*Setback Mode	81	Control mode of device.	Write only variable, reading will always give a value of 2. Initiates mode change. 1 put unit in setback or remote mode. 0 put unit in normal mode.

Note: *These items only available on 8610-AS version.*

EXAMPLE of **06 Read_From_Slave_Int_Ram** function format.
This example reads variable addresses 37 and 39 (Face Velocity and Status Index).

QUERY	
Field Name	(Hex)
Target Node Address	01
Message Length	07
Eight-Bit Checksum	**
Source Node Address	00
Command Opcode	06
Data Address	25
Data Number Bytes	04

RESPONSE	
Field Name	(Hex)
Target Node Address	00
Message Length	09
Eight-Bit Checksum	**
Source Node Address	01
Command Opcode	12
Data (High Byte)	00
Data (Low Byte)	64 (100 ft/min)
Data (High Byte)	00
Data (Low Byte)	00 (Normal- No Alarm)

EXAMPLE of **03 Write_To_Slave_Int_Ram** function format.
This example changes the low alarm setpoint to 60 ft/min.

QUERY	
Field Name	(Hex)
Target Node Address	01
Message Length	08
Eight-Bit Checksum	**
Source Node Address	00
Command Opcode	03
Data Address	29
Data Value (High)	00
Data Value (Low)	3C

RESPONSE	
Field Name	(Hex)
Target Node Address	00
Message Length	05
Eight-Bit Checksum	**
Source Node Address	01
Command Opcode	11

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TSI Incorporated – Visit our website **www.tsi.com** for more information.

USA	**Tel:** +1 800 874 2811	**India**	**Tel:** +91 80 67877200
UK	**Tel:** +44 149 4 459200	**China**	**Tel:** +86 10 8251 6588
France	**Tel:** +33 4 91 11 87 64	**Singapore**	**Tel:** +65 6595 6388
Germany	**Tel:** +49 241 523030		

