

CO2Meter.com Indoor Air Quality Products	Revision:	1.2	Date:	1/29/2010
	ID:	AN105	Type:	Application Note
	Author:	Andrew Robinson		

K-33 Host-Initiated Data Logging

Foreword

Please read AN104 to understand the procedure behind accessing EEPROM and RAM with the MODBUS over UART protocol.

The K-33 ELG/BLG sensor can be used with the Sensor Development Kit and your PC to collect data. Under standard operating conditions the sensor will only take a measurement when data collection is enabled via the hardware jumper, however using the Start Measurement command and an extension to the MODBUS protocol we can manually initiate a reading from the sensor.

Command Sequence

Initiating Sensor Read

Issue the following command. Doing so will write 0x35 to the command register byte, initiating a reading.

Request:

Description	Address 1byte	Command 1-byte	Address (see I2C guide) 2-bytes		Count 1-byte	N- Bytes Read n-bytes	Checksum 2-bytes	
Initiates Data collection on K33 Sensors	0xFE	0x41	0x00	0x60	0x01	0x35	0xE8	0x53

Response:

Description	Address 1byte	Command 1-byte	Checksum 2-bytes	
Example (cont.)	0xFE	0x41	0x81	0xE0

Delay

The sensor will take approximately 15 seconds to complete data collection. We recommend pausing for 15 seconds to allow for this procedure to complete, else the data will be inaccurate/stale.

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Reading CO2

Request:

Description	Address 1byte	Command 1-byte	Address (see I2C guide) 2-bytes		N- Bytes to Read 1-byte	Checksum 2-bytes	
Example (reads CO2)	0xFE	0x44	0x00	0x08	0x02	0x9F	0x25

Command Bytes: 0x46- EEPROM Read, 0x44 – RAM Read

Response

Description	Address 1byte	Command 1-byte	Count 1-byte	N- Bytes Read n-bytes		Checksum 2-bytes	
Example (cont.)	0xFE	0x44	0x02	0x01	0x90		

Reading Temp

Request:

Description	Address 1byte	Command 1-byte	Address (see I2C guide) 2-bytes		N- Bytes to Read 1-byte	Checksum 2-bytes	
Example (reads CO2)	0xFE	0x44	0x00	0x12	0x02	0x94	0x45

Command Bytes: 0x46- EEPROM Read, 0x44 – RAM Read

Response

Description	Address 1byte	Command 1-byte	Count 1-byte	N- Bytes Read n-bytes		Checksum 2-bytes	
Example (cont.)	0xFE	0x44	0x02	0x01	0x90		

Reading RH

Request:

Description	Address 1byte	Command 1-byte	Address (see I2C guide) 2-bytes		N- Bytes to Read 1-byte	Checksum 2-bytes	
Example (reads CO2)	0xFE	0x44	0x00	0x14	0x02	0x97	0xE5

Command Bytes: 0x46- EEPROM Read, 0x44 – RAM Read

Response

Description	Address 1byte	Command 1-byte	Count 1-byte	N- Bytes Read n-bytes		Checksum 2-bytes	
Example (cont.)	0xFE	0x44	0x02	0x01	0x90		

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Attached Files

Included in this application note is a simple .Net2.0 based application that implements these commands with some basic retry logic, using the Microsoft Serial Port.

Source code is included.

