AICRP on Energy in Agriculture & Agro-Based Industries

Department of Unconventional Energy Sources and Ele. Engg.

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SUPPLY OF QUOTATION

No. RE/EAAI/Sup/603/2019,
Date: 18/02/2019

To,

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Subject: Supply of quotations for Data Logger.

Please arrange to supply the quotation for the following specification data logger against the terms and conditions mentioned below on or before **26/02/2019.**

Technical Specification Multipurpose Data logger

Analog Channels:

2- 6 Universal analog input channels

Should capable of interfacing the data logger with computer for transferring of dex files (contains program for operation of data logger) from computer to data logger. 2 channels are independent and supports: one isolated 3-wire or 4-wire input, or two isolated 2-wire inputs, or three common referenced 2-wire inputs. The following maximums apply: Two wire with common reference terminal: 6, Two wire isolated: 4, Three and four wire isolated: 2)

Fundamental Input Ranges:

The fundamental inputs that the logger can measure are voltage, current, resistance and frequency.

Full Scale	Resolution	Full Scale	Resolution
±30 mVdc	0.25 µV	100 Ω	1.5 mΩ
±300 mVdc	2.5 µV	1000 Ω	15 mΩ
±3 Vdc	25 µV	10,000 Ω	150.00 mΩ
±30 Vdc	250 µV	100 Hz	0.0002 %
±0.3 mA	2.5 nA	10 kHz	0.0002 %
±3 mA	25 nA		
±30 mA	250 nA		

Accuracy:

Accuracy table above is % of reading ±0.01% of full scale

Measurement at	5°C to 40°C	– 45°C to 70°C
DC Voltage	0.1%	0.35%
DC Current	0.15%	0.45%
DC Resistance	0.1%	0.35%
Frequency	0.1%	0.25%

Sampling: Integrates over 50/60Hz line period for accuracy and noise rejection, Maximum sample speed: 25Hz, **Effective resolution: 18 bits**, Linearity: 0.01%, Common mode rejection: >90dB, Line series mode rejection: >35dB

Inputs: Inter-Channel Isolation: 100V (relay switching), Analog Section Isolation: 100V (opto-isolated)
Input impedance: >100MΩ, 100KΩ (30v range), Common mode range: ±3.5V or ±35V on 30V range

Sensor Excitation (Supply): Analog channels: selectable 250µA or 2.5mA precision, current source, 4.5V voltage source, or switched external supply,
General Purpose: Switchable 12V regulated supply for powering sensors & accessories (max 150mA)

Supported Analog Sensors:

A wide range of sensor scaling and **linearising facilities including polynomials, expressions and functions.**
Thermocouples: Types: (B, C, D, E, G, J, K, N, R, S, T), Calibration standard: ITS-90
Humidity sensors, RTDs: Materials supported: Pt, Ni, Cu, Resistance range: 10Ω to 10KΩ
Thermistors: Types: YSI 400xx Series, other types*, Resistance range: <10kΩ**
* Other thermistor types are supported by thermistor scaling and calculated channels.
**Resistance range can be increased with the use of a parallel resistor.
Monolithic Temperature Sensors: Types supported: LM34 - 60, AD590, 592, TMPxx, LM135, 235, 335
Strain Gauge and Bridge Sensors: Configurations: ¼ , ½ & full bridge, Excitation: voltage or current.
4-20mA Current Loop: Internal 100Ω shunt or external shunt resistor

Supported Digital Channels:

Digital Input/Outputs: 4 bi-directional channels, Input Type: 4 logic level (max 20/30V), Output Type: 4 with open drain FET (max: 30V, 100mA). **Relay Output**: 1 latching relay, contacts (max: 30Vdc, 1A).

Counter Channels:

Low Speed Counters: 4 counters shared with digital inputs.Low speed counters do not function in sleep mode. Size: 32 bit, Max Count rate: 10 Hz, **Dedicated Counter Inputs**: 4 high speed or 2 phase encoder (quadrature) inputs, Size: 32 bit, Max Count rate: 100 kHz, Input type: 2 logic level inputs (max ±30V), and 2 programmable inputs as either logic level inputs or sensitive inputs (10mV) for magnetic pick-ups (max ±10V).

Serial Channels:

Flexible options to allow data to be logged from a wide range of smart sensors and data streams.
Available ports: **Serial Sensor Port (RS232, RS422,RS485)** or Host RS232 Port*, Baud rate: 300 to 115,200 Baud rate, SB, parity is programmable.*If used as a Serial Sensor channel then the Host Port is not available for other communications.

Calculated Channels

Combine values from analog, digital and serial sensors using expressions involving variables and functions.
Functions: An extensive range of Arithmetic, Trigonometric, Relational, Logical and Statistical functions are available.

Scheduling and Programming of Data Acquisition:

Number of schedules: 11, Schedule rates: 10ms to days,
Unit can be configured for different sensors, files can be created for specific application like AWS, Ozone etc in dex format, Configuration can be stored and retrieved on either the logger or a local computer; view, edit and save logger configurations in an easy-to-use Windows Explorer style and program file can be loaded to logger via USB stick or direct connectivity with PC.

Software Programming

- Program channels for comp. 1 min / 2 min / 10 min .vector average and scaler average of storage of data.
- Compute new variable ass a function of values of input channels.
- Program data format for serial data as per in ascii/ hex format, both through RS 232 & Ethernet port.
- Up loading the data to the selected server using ip.
- Sending SMS from data logger to server.
- Capable of sending serial data string through sms via gsm mode.
- Storage of data card retrieval of data.

An intuitive graphical interface that allows you to configure your data logger, view real-time data in mimics, trend charts or tables and retrieve your historical data for analysis.
Runs directly from your web browser and can be accessed either locally or remotely, anywhere that a TCP/IP connection is available including worldwide over the Internet. You can use any of the logger's built-in communications ports to view dEX including Ethernet, USB1 and RS-232. Pre-installed on every logger, loads in your web browser so there is no need to install cumbersome applications on your computer. will work on all major operating systems including Windows, Mac and Linux. Starts automatically in your default web browser when you connect to your logger using a USB cable.
Channel list Displays name, value, units, alarm state, time stamp and logging state for each measurement.

Alarms:

Condition: high, low, within range and outside range, Delay: optional time period for alarm response
Actions: set digital outputs, transmit message, execute any logger command.

Data Storage:

Internal Store: Capacity: 128MB = approx 10,000,000 data points
Removable USB store device: (optional accessory) Types: compatible with USB 1.1 or USB 2.0 drives, e.g. Flash drive. Capacity: approx. 90,000 data points per megabyte

Communication Interfaces:

Ethernet Port: Interface: 10BaseT (10Mbps), Protocol: TCP/IP,
Host RS232 Port: Speed: 300 to 115,200 baud (57,600 default), Flow Control: Hardware (RTS/CTS), Software (XON/XOFF), None, Handshake lines: DCD, DSR, DTR, RTS, CTS, Modem support: auto-answer and dial out, Protocols: ASCII Command, TCP/IP (PPP), Serial Sensor

.tem:

ual Channel Isolation Technology

Display and Keypad: Type: LCD, 2 line by 16 characters, backlight. Display Functions: channel data, alarms, system status. Keypad: 6 keys for scrolling and function execution. Status LEDs: 4 for sample, disk, attention and power.
Firmware Upgrade: Via: RS232, Ethernet, USB disk.
Real Time Clock: Normal resolution: 200µs, Accuracy: ±1 min/year (0°C to 40°C), ±4 min/year (-40°C to 70°C), **Power Supply:** External voltage range: 10 to 30Vdc; Internal battery: 6Vdc 1.2Ahr lead acid; Peak Power: 12W (12Vdc 1A),
Average power Consumption (typical): Using 12Vdc external power source
Typical Operating Time: from internal 6Vdc, 1.2Ahr battery

Schedule Rate	Average Power (mW)
1 sec	1350
5 sec	500
30 sec	135
5 min	70
1 hrs	60

Sampling Speed	Operating Time
1 second	6.5 hours
5 second	1 day
1 minute	10 days
1 hour	3.5 months

Physical and Environment:

Construction: Powder coated zinc and anodized aluminum. Dimensions: 180 x 137 x 65mm, Weight: 1.5kg (4kg shipping)
Temperature range: -45°C to 70°C *, Humidity: 85% RH, non-condensing
*reduced battery life and LCD operation outside range -15°C to 50°C

Provided with Sensors K-Type **4Nos.** and Humidity Sensor- **2 Nos.**

Terms and Conditions:

1 The sealed quotations should be addressed to **Research Engineer, AICRP on EAAI, Dr. PDKV, Akola.**
2 Quotation for supply of required and due date should be mentioned n envelop in BLOCK LETTERS.
3 Items available in ready stock and which can be supplied against order only be quoted.
4 Price/rates should be inclusive of all taxes, tariff and expenses & F.O.R. Akola.
5 Quotations received after due date will not be considered.
6 The material will have to be supplied within 15 days or as specified in the supply order.
7 Conditional quotations are liable to be rejected.
8 Undersigned reserves full right to reject any or all the quotations without assigning any reason thereof.
9 The payment of bill can only be made after satisfactory compliance of complete supply and hence conditions such as full or part payment in advance or against R. R. nor acceptable.
10 Normal commercial warranty/ guarantee shall be applicable to the supplied goods.

Research Engineer
AICRP on EAAI
Dr. PDKV, Akola