UNIVERSAL INPUT DATA ACQUISITION MODULE

- Universal Inputs.
- 16 bit Sigma Delta A/D.
- Inter Channel isolation.
- Dual Redundant Com Ports.
- Easily expandable.
- MODBUS Connectivity.

MCIH
For Accuracy & Reliability
'UNIDAQ' is an isolated eight channel Data Acquisition Module, featuring universal input capabilities. The module conditions the signals, converts them into digital data and transmits as modbus compatible RS - 485 output. Several ‘UNIDAQ’ modules can be integrated to form a PC - based Data Acquisition system. This makes it scalable when there is need for expansion.

‘UNIDAQ’ employs cutting edge signal conditioning technology to offer the best accuracy and performance reliability in harsh industrial environments. Each channel of the module has standalone - isolated electronics integral with frontend protection circuits, 16-bit A/D converter and a micro controller. Thus intelligence is embedded at every channel to ensure flexibility and speed of data conversion. As the channels are engineered to be separate physical entities with opto isolation, best CMRR and output stability is achieved even at the presence of dangerously high common mode voltages or ground loop disturbances.

Unidaq has a unique architecture, wherein each input channel has its own CJC sensor embedded in to the terminals, to enhance thermocouple measurement accuracy. All the eight channels perform the measurement simultaneously and the digital data is collected by a module resident RISC host controller to optimise scan time. Unidaq has isolated dual redundant RS- 485 ports, to enable redundant data acquisition.

UNIDAQ is DIN RAIL mountable and is suitable for installation in control room or in the field near the process when mounted in IP - 65 enclosures. As UNIDAQ modules can be distributed over the field, long runs of sensitive sensor cabling can be eliminated thus minimizing the cost. As only digital signal is transmitted from field, noise immunity is enhanced many fold.
MULTITUDE OF SIGNALS - ONE MODULE

- Simplifies Inventory
- Terminal embedded CJC Sensor
  - Accurate T/C Measurement
- No Input MUX
  - Enhanced Reliability

WINDING EMBEDDED RTDs & GROUNDED THERMOCOUPLES

DISTRIBUTED & SCALABLE ARCHITECTURE

UNIDAQs can be seamlessly integrated to build Data Acquisition System which is scalable up to 2240 Analog Channels with an unsurpassed 100 millisecond channel update interval. As each UNIDAO module has a localized control processor in it, expanding the DAQ system seldom affects the system speed or performance.

7 Module / 56 Ch Per Network Segment

ETHERNET HUB

Console 1

Console 2

Console 3

FIELD

CONTROL ROOM
SPECIFICATIONS

**INPUT TYPE & ACCURACY**

<table>
<thead>
<tr>
<th>Input</th>
<th>Basic Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>-180 to 760°C</td>
<td>± 0.4°C</td>
</tr>
<tr>
<td>K</td>
<td>-180 to 1372°C</td>
<td>± 0.4°C</td>
</tr>
<tr>
<td>E</td>
<td>-50 to 1000°C</td>
<td>± 0.4°C</td>
</tr>
<tr>
<td>T</td>
<td>-200 to 400°C</td>
<td>± 0.4°C</td>
</tr>
<tr>
<td>R</td>
<td>0 to 1768°C</td>
<td>± 1.5°C</td>
</tr>
<tr>
<td>S</td>
<td>0 to 1768°C</td>
<td>± 1.5°C</td>
</tr>
<tr>
<td>B</td>
<td>400 to 1820°C</td>
<td>± 1.5°C</td>
</tr>
<tr>
<td>C</td>
<td>0 to 2320°C</td>
<td>± 0.8°C</td>
</tr>
<tr>
<td>N</td>
<td>-180 to 1300°C</td>
<td>± 1.2°C</td>
</tr>
<tr>
<td>Pt-100(a385)</td>
<td>-200 to 850°C</td>
<td>± 0.3°C</td>
</tr>
<tr>
<td>Pt-500(a385)</td>
<td>-200 to 850°C</td>
<td>± 0.3°C</td>
</tr>
<tr>
<td>Pt-100(a392)</td>
<td>-200 to 850°C</td>
<td>± 0.3°C</td>
</tr>
<tr>
<td>Ni-120</td>
<td>-80 to 260°C</td>
<td>± 0.3°C</td>
</tr>
<tr>
<td>mV1</td>
<td>-35 to +35</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>mV2</td>
<td>-70 to +70 mV</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>mV3</td>
<td>-140 to +140 mV</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>Ohms1</td>
<td>0 to 400 Ω</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>Ohms2</td>
<td>0 to 2000 Ω</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>Ohms3</td>
<td>0 to 4000 Ω</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>mA</td>
<td>0 to 20 mA</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>V1</td>
<td>-5V to 5V</td>
<td>± 0.04 % FS</td>
</tr>
<tr>
<td>V2</td>
<td>-10V to 10V</td>
<td>± 0.04 % FS</td>
</tr>
</tbody>
</table>

**GENERAL SPECIFICATION**

- **Power Supply**: 20 - 35 V DC / 150 mA (max)
- **Operating Temp**: 0 to 55 °C
- **Storage Temp**: 0 to 70 °C
- **Humidity**: 0 - 95% Non condensing

**PROTECTION PARAMETERS**

- **Input Voltage**: 24 V AC Peak/DC (max)
- **Input Current**: 50 mA (max)
- **Common mode**: 600V AC Peak/DC (max)

**COMMUNICATION SPECIFICATION**

- **Primary Com Port**: Modbus compatible - RS-485
- **Auxiliary Com Port**: (Optional) isolated RS-485
- **Band Rate**: 38.4 kbps (max)
- **Update rate**: 100msec / channel
- **MaxNo.of Channels**: 2240 channels

**NOTE 1**: Differential voltage between any pair of terminals.
**NOTE 2**: Between current terminals.
**NOTE 3**: Between Channels / Between Input and Com Port / Between Comport and Earth.
**NOTE 4**: Upto 7 modules or 56 channels per network segment, through Gateway module GM4810.
**NOTE 5**: 2240 channels (40 network segments) linked through Gateway module GM4810 which are inter connected through Ethernet Hub to PC / Supervisory system.

**DIMENSIONS**

- **Dimensions**: 213(L) X 151(B) X 74(D) mm
- **Material**: Anodised Aluminum
- **Protection**: IP 54
- **Mounting**: 35 mm Top hat DIN RAIL.

**RELATED MODULES**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Channel Universal Data Acquisition Module with one RS - 485 Port</td>
<td>UNIDAQ 0801</td>
</tr>
<tr>
<td>8 Channel Universal Data Acquisition Module with Dual Redundant RS - 485 Port</td>
<td>UNIDAQ 0802</td>
</tr>
<tr>
<td>Gateway Module</td>
<td>RS 485 to Ethernet (for PC LAN connectivity)</td>
</tr>
</tbody>
</table>

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Specifications are subject to change without any notice due to continuous development.