**IMP-855 DATA ACQUISITION SYSTEM**

**FEATURES:**

- Direct Sensor Inputs & Control Outputs
- 28 Single Ended Inputs, 16-bit A/D
- Built-in Keyboard & 128x64 LCD Display
- Optically Isolated RS-232C Port
- Internal/External Solid-State Storage
- Phone/Dedicated Line or Radio Telemetry
- Low Power
- Built-in Surge Protection

The IMP-855 is a versatile digital data acquisition system designed for environmental monitoring applications. It can function as a stand-alone station or be operated via a computer singly or in a network.

Direct sensor interface including the supply of excitation voltages is possible with the IMP-855. The input signals are processed by a custom application program that is factory supplied and may be modified by the user. Data will either be stored in internal memory, a removable CompactFlash® card, or a remote computer for later processing. The CompactFlash® card can be used to transport and download a new application program.

User programming of the IMP-855 is easily accomplished via an IBM PC-compatible computer with the logger support software. A comprehensive on-board instruction set is included which can be programmed to perform calculations on any desired channel including interactions between channels.

The basic IMP-855 (P/N 102710-G1-H0) consists of a data logger mounted in a 18 x 16 x 8 inch, NEMA-4X enclosure with 4Mbytes of internal memory capable of storing up to 2M final data points. A CompactFlash® card interface is available to increase the data storage capacity. The G2 option provides an enclosure size of 24 x 24 x 8 inches. A rack mountable version of the IMP-855 is also available (P/N 102711-G0-H0).

The IMP-855 requires a 12-volt DC power source such as our 8AH battery backup power (P/N 101139). When battery backup is not required, our P/N 100520-G0-H1 power supply is provided.

A large selection of communications, storage, measurement and control peripherals are available. Please contact Climatronics for a system quotation based on your specific requirements.
SPECIFICATIONS

Electrical specifications are valid over a -25° to +50°C range unless otherwise specified; (-40° to 85°C, optional) non-condensing environment required. To maintain electrical specifications, yearly calibrations are recommended.

ANALOG INPUTS (SE1-SE28 or DI1-DI14)
NUMBER OF CHANNELS: 14 differential or 28 single-ended, individually configured. Ratiometric resistive bridge, thermocouple and period average (frequency) measurements are also supported on all analog input channels. Channel expansion provided by AM16/32 and AMGT Multiplexers.

RANGES AND RESOLUTION: 16-bit basic resolution (Basic Rs). Resolution of DF measurements with input reversal is half the Basic Rs (17 bits).

<table>
<thead>
<tr>
<th>Full Scale</th>
<th>Input Range (mV)</th>
<th>DF Res (µV)</th>
<th>Single-Ended</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5000</td>
<td>±5000</td>
<td>83.33</td>
<td>167</td>
</tr>
<tr>
<td>±1000</td>
<td>±1000</td>
<td>33.3</td>
<td>16.67</td>
</tr>
<tr>
<td>±200</td>
<td>±200</td>
<td>3.33</td>
<td>6.67</td>
</tr>
<tr>
<td>±50</td>
<td>±50</td>
<td>0.83</td>
<td>1.67</td>
</tr>
<tr>
<td>±20</td>
<td>±20</td>
<td>0.33</td>
<td>0.67</td>
</tr>
</tbody>
</table>

±Range overload of ±9% exists on all ranges to guarantee that the full-scale range values will not cause overrange. Resolution of DF measurements with input reversal

ACCURACY:
±0.04% of FSR ± offset; 0° to 40°C
±0.07% of FSR ± offset; -25°C to 50°C
±0.13% of setting ± 0.5 µV; 0° to 40°C
±0.15% of setting ± 0.5 µV; -40°C to 85°C

ACCURACY OF BUILT-IN REFERENCE JUNCTION: ±0.3°C, -25° to 50°C

VOLTAGE RATIO ACCURACY:
Assuming excitation voltage of at least 500 mV, and not including bridge resistor errors:
±0.06% of voltage reading + offset/Vr
±0.025% of voltage reading + offset/Vr; -25° to 50°C
±0.10% of voltage reading + offset/Vr; -40° to 80°C

ACCURACY WITH CURRENT EXCITION:
Assuming current excitation of at least 500 µA:
±0.02% of voltage reading + offset/Ir

ACCURACY WITH CURRENT EXCISION:
Assuming current excitation + offset/Ir

INPUT NOISE VOLTAGE: For DF measurements with input reversal on ±20 mV input range; digital resolution dominates for higher ranges

50/60 Hz Integration: 0.40 µV rms

COMMON MODE RANGE: ±5.0 V
DC COMMON MODE REJECTION: >100 dB
NORMAL MODE REJECTION: 70 dB @ 50 Hz when using 50 Hz rejection

SUSTAIN INPUT VOLTAGE W/O DAMAGE: ±16 Vdc max

INPUT CURRENT: ±1.0 mA typ; ±6 mA maximum

INPUT RESISTANCE: >20 Gohms typical

ACCURACY OF BUILT-IN REFERENCE JUNCTION THERMISTOR (for thermocouple measurements):
±3°C, -25°C to 75°C
±8°C, 40°C to 85°C

PERIOD AVERAGING MEASUREMENTS
Any of the 28 SE single-ended analog input channels can be used for period averaging. Accuracy is ±0.01% of reading + resolution (where resolution is 96 bits divided by the specified number of cycles to be measured).

Input Amplitude & Frequency

<table>
<thead>
<tr>
<th>Volt</th>
<th>Range</th>
<th>Gain Code</th>
<th>Signal (peak to peak) Min (mV) Max (V)</th>
<th>Pulse W</th>
<th>Min. µs</th>
<th>Max. Freq (kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mV100</td>
<td>200</td>
<td>10</td>
<td>2.5</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>mV20</td>
<td>200</td>
<td>2</td>
<td>5.0</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>mV50</td>
<td>500</td>
<td>5</td>
<td>10.0</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>mV20</td>
<td>200</td>
<td>2</td>
<td>25.0</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

°Maximum signal must be centered at data logger ground
Assuming 50% duty cycle

ANALOG OUTPUTS (Vs1-Vs4, Vs1-km3, CA01, CA02)
4 switched voltage and 3 switched current outputs for ratiometric sensor/bridge excitation and 2 continuous voltage outputs. Switched outputs active only during measurement.

Climatronics Corporation
140 Wilbur Place
Bohemia, NY 11716-2404

INPUT RANGE:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Source/Sink</th>
<th>Compliance Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5 V</td>
<td>±5 V</td>
<td>±0.17 V/mA</td>
</tr>
<tr>
<td>±10 V</td>
<td>±10 V</td>
<td>±0.33 V/mA</td>
</tr>
<tr>
<td>±20 V</td>
<td>±20 V</td>
<td>±0.67 V/mA</td>
</tr>
<tr>
<td>±50 V</td>
<td>±50 V</td>
<td>±1.67 V/mA</td>
</tr>
</tbody>
</table>

INPUT Hysteresis:

INPUT FREQUENCY:

HIGH FREQUENCY:

SWITCH CLOSURE FREQUENCY:

OUTPUT VOLTAGES:

OUTPUT RESISTANCE:

ADDITIONAL DIGITAL PORTS:

SWITCHED 12 V (SV12V)
Two independent 12 V unregulated sources switched on and off under program control. Thermal fuse hold current = 960 mA @ 20°C, 650 mA @ 50°C, 360 mA @ 85°C

CE COMPLIANCE:
STANDARD (S) TO WHICH CONFORMITY IS DECLARED: IEC61326:2002

COMMUNICATIONS:
RS-232 PORTS:
5-pin: DCE (electrically isolated) for computer or non-CXI modem connection
COM1 to COM4: Four independent Tx/Rx pairs on control ports (non-isolated)
Baud Rate: Selectable from 300 to 115.2 kbps
Format: 7, 8 data bits; 1, 2 stop bits; odd, even, or no parity
CS I/O PORT:
IPORT: Interface with CSI peripherals
SDI-12: Digital I/O Ports 1, 3, 5 and 7 support SDI-12 asynchronous communication; up to ten SDI-12 sensors can be connected to each port. Meets SDI-12 Standard version 1.3 for data logger mode.
SDM PORT:
Interface with CSI Synchronous Devices for Measurement
PERIPHERAL PORT:
Interface with CFM100 CompatiFlash Module

SYSTEM:
PROGRAM EXECUTION INTERVALS:
10 ms to 30 min. @ 10 ms increments

POWER REQUIREMENTS:
VOLTAGE:
11 to 16 Vdc
TYPICAL CURRENT DRAW:
Sleep mode 2 mA, 1 Hz sample rate (one fast SE meas.): 3 mA, 100 Hz sample rate (one fast SE meas.): 10 mA
100 Hz sample rate (one fast SE meas.): 36 mA

DISPLAY:
128 x 64 character backlit LCD

CLOCK ACCURACY:
±3 min. per year

SYSTEM POWER REQUIREMENTS:
10 Ahr alkaline or 7 Ahr rechargeable base; low profile base without batteries optional. 1200 mAh lithium battery for clock and SRAM backup typically provides 3 years of service.

INTERNAL BATTERIES:
10 Ahr alkaline or 7 Ahr rechargeable base; low profile base without batteries optional. 1200 mAh lithium battery for clock and SRAM backup typically provides 3 years of service.

EXTERNAL BATTERIES:
12 VDC nominal; reverse polarity protected

PHYSICAL SPECIFICATIONS
SIZE: 9.5” x 7.0” x 3.8” (24.1 cm x 17.8 cm x 9.6 cm)
Terminal strips extend 0.875” (2.2 cm) and terminal strip cover extends 1.575” (4.0 cm) above the panel surface.
WEIGHT: 3.6 lbs (1.6 kg) with low-profile base
8.3 lbs (3.8 kg) with alkaline base
10.7 lbs (4.8 kg) with rechargeable base

WARRANTY:
Three years against defects in materials and workmanship.

TEL: 631-567-7300
FAX: 631-567-7585
E-Mail: sales@climatronics.com

Rev. 12 Nov 2009