IMP-865 DATA ACQUISITION SYSTEM

FEATURES:

- Direct Sensor Inputs
- Control Outputs
- Internal/External Solid-State Storage
- Phone/Dedicated Line or Radio Telemetry
- Low Power
- Built-in Surge Protection
- MODBUS interface

The IMP-865 is a versatile digital data acquisition system designed for the most demanding environmental monitoring applications. It includes 8 differential or 16 single ended analog inputs, 2 pulse counters and 8 digital I/O ports. It can function as a stand-alone station or be operated via a PC singly or in a network.

Direct sensor interface including the supply of three precision excitation voltages is possible with the IMP-865. The input signals are processed by a custom application program that is factory supplied and may be modified by the user. The standard internal battery-backed SRAM memory stores 500,000 data points and the application program. A 4 Mbyte memory option provides a storage capacity of 2,000,000 data points. A removable solid-state storage module or CompactFlash® memory is also available to further increase storage capacity, transport data and/or download a new application program.

Programming of the IMP-865 is easily done with a PC and the support software or an optional, portable keyboard/display unit. 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-865 (P/N 102654-G0-H0) consists of a P/N 102655 data logger mounted in a 16 x 14 x 6 inch, NEMA-4X enclosure. The G1 option provides an enclosure size of 18 x 16 x 8 inches and the G2 option is 24 x 24 x 8 inches. The H1 option adds 2 Mbyte of internal memory. A rack mountable version of the IMP-865 is also available (P/N 102658-G0-H0) which uses only 5-1/4 x 19 inches of panel space.

The IMP-865 requires a 12-volt DC power source such as our P/N 101139 battery backup power supply. When battery backup is not required, our P/N 100519 power supply is provided.

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

Programmable between ±2.5 V with 0.67 mV resolution.

RANGE AND RESOLUTION
Voltage outputs measurement, one at a time.

ANALOG OUTPUTS
Input resistance: 20 Gohms typical
Input current: ±1 nA typical, ±6 nA max. @ 50°C,
±0.1% FSR @ 50°C.

Differential with 60 Hz rejection:
- 0.18 µV RMS
- Slow differential: 0.25 µV RMS
- Fast differential: 0.82 µV RMS

Input noise voltage (for ±2.5 mV range):
- 1/60 Hz Analog Integration: ~20 ms
- 250 µs Analog Integration: ~1 ms

Offset for SE measurement = Basic Res + 2 µV
Offset for DF measurement w/ input reversal = Basic Res/2 + 0.5 µV

Input hysteresis: 1.4 V
Input resistance: 100 kohms

INPUT CURRENT SOURCING: 25 mA
INPUT SINKING: 25 mA

FREQUENCY SWEEP FUNCTION: The switched outputs provide a programmable swept frequency, 0 to 2.5 V square wave for exciting vibrating wire transducers.

RESISTANCE MEASUREMENTS
Measurement types: The IMP-865 provides ratiometric bridge measurements of 4-, 6-, and 8-wire full bridge, and 2-, 3-, and 4-wire half bridges. Precise dual polarized excitation using any of the switched outputs eliminates dc errors.

Accuracy: ±0.02% of FSR plus bridge resistor error.

PERIOD AVERAGING MEASUREMENTS
Definition: The average period for a single cycle is determined by measuring the duration of a specified number of cycles. Any of the 16 single-ended analog input channels can be used. Signal attenuation and AC coupling are typically required.

INPUT FREQUENCY RANGE & SPECIFICATION:
<table>
<thead>
<tr>
<th>Input Frequency (Hz)</th>
<th>Input Signal Peak to Peak</th>
<th>Pulse Width (µs)</th>
<th>Frequency (Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±2500</td>
<td>500 mV</td>
<td>10 V</td>
<td>200 kHz</td>
</tr>
<tr>
<td>±250</td>
<td>10 mV</td>
<td>2 V</td>
<td>50 kHz</td>
</tr>
<tr>
<td>±25</td>
<td>5 mV</td>
<td>2 V</td>
<td>8 kHz</td>
</tr>
<tr>
<td>±2.5</td>
<td>2 mV</td>
<td>2 V</td>
<td>5 kHz</td>
</tr>
</tbody>
</table>

High frequency pulse mode
- Maximum input frequency: 250 kHz
- Voltage threshold: above 0.9 V to above 2.2 V after filter with 1.2 µs time constant.
- Maximum input voltage: ±20 V

Low level ac mode
- Voltage threshold: 18 mV @ 1 Hz
- Minimum ac input open time: 6 ms
- Maximum bounce time: 1 ms open without being counted

High frequency pulse mode
- Maximum input frequency: 250 kHz
- Voltage threshold: 20 V
- Minimum ac input open time: 20 µs
- Maximum bounce time: 600 µs

ACM AND INTERFACE
- PARALLEL INTERFACE: 40-pin interface for attaching data storage or communication peripherals such as the CFM/105 module
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CPU AND INTERFACE
- PROCESSOR: Hitachi H8S 2322
- SOFTWARE: IMP-865
- SDI-12 INTERFACE STANDARD
- POLYNOMIAL LINEARIZATION ERROR: Typically ±0.02% for SDI-12 asynchronous communication.

DATA STORAGE
- 1 Mbyte SRAM standard

SYSTEM POWER REQUIREMENTS
- Voltage: 9.6 to 16 Vdc
- Sleep Mode: 0.5 mA
- 1 Hz Sample Rate: 0.6 mA
- 100 Hz Sample Rate: 7.0 mA
- 1000 Hz Sample Rate: 20.0 mA

BATTERIES: Any 12 V battery can be connected as a primary power source. Several power supply options are available.

PHYSICAL SPECIFICATIONS
- Size: 8.5" x 3.9" x 0.85" - Measurement & Control Module; 9.4" x 4.0" x 2.4" - with Wiring Panel.

WARRANTY
- Three years against defects in materials and workmanship.