# 35900E Series II Dual-Channel Interface with Modular Input/Output

## Specifications

### Analog-to-Digital Conversion

#### General Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Freescale MCF5328 @ 76.8 MHz</td>
</tr>
<tr>
<td>Number of channels</td>
<td>Two independent</td>
</tr>
<tr>
<td>Type of A/D conversion</td>
<td>Continuously integrating dual-slope, 100% area recovery</td>
</tr>
<tr>
<td>Memory</td>
<td>32 MB RAM</td>
</tr>
</tbody>
</table>

#### Electrical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input signal voltage range</td>
<td>–18 mV to +1.0 V</td>
</tr>
<tr>
<td>Maximum (no damage)</td>
<td>±10 V</td>
</tr>
<tr>
<td>Analog dynamic range</td>
<td>&gt; 140 dB (≤2 Hz) typical</td>
</tr>
<tr>
<td>Resolution</td>
<td>24 bits</td>
</tr>
<tr>
<td>Common-mode voltage</td>
<td>±100 V maximum: relative to instrument chassis</td>
</tr>
<tr>
<td>DC input impedance</td>
<td>Differential: 33 MΩ typical 8 MΩ minimum</td>
</tr>
<tr>
<td>Common-mode: 500 MΩ minimum</td>
<td></td>
</tr>
<tr>
<td>Input noise</td>
<td>40 nV rms, typical (with input shorted) 150 nV rms, maximum</td>
</tr>
<tr>
<td>Common-mode rejection</td>
<td>140 dB minimum, dc to 100 Hz</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>15 Hz</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>0.8 µV/°C, typical: 0 °C to 35 °C</td>
</tr>
<tr>
<td></td>
<td>1.7 µV/°C, typical: 35 °C to 55 °C</td>
</tr>
<tr>
<td></td>
<td>3.5 µV/°C, maximum: 0 °C to 35 °C</td>
</tr>
<tr>
<td></td>
<td>10 µV/°C, maximum: 35 °C to 55 °C</td>
</tr>
<tr>
<td>Integral nonlinearity</td>
<td>0.004% FS, typical (monotonicity guaranteed) 0.02% FS, maximum</td>
</tr>
<tr>
<td>Conversion factor</td>
<td>10 nV per count (±3%)</td>
</tr>
<tr>
<td>Area resolution</td>
<td>65 nV-second (±3%)</td>
</tr>
<tr>
<td>A/D sampling rate</td>
<td>0.1 to 100 Hz</td>
</tr>
<tr>
<td>RFI immunity</td>
<td>Maximum baseline shift of 50 µV with application of up to 3 V/m of RF field strength from 26 MHz to 1,000 MHz</td>
</tr>
</tbody>
</table>

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Run Control Specifications

Remote Control
Remote start/stop/ready: Two independent connectors, open collector TTL input/output

Digital I/O
Number of lines: 16 lines per channel (8 bidirectional, 8 input only)
I/O signal levels: TTL level inputs, open collector outputs
Input common mode range: 0–5 V
Connectors: Two 25-pin female D-subminiature connectors

Notes:
1. Differential ratings apply between the positive and negative input terminals.
2. The common mode ratings apply between both positive and negative input terminal and common GROUND (instrument ground or chassis).

Host Communications Specifications

LAN
Network type: Ethernet
Protocol: TCP/IP
Cable requirements: Twisted-pair cable (unshielded/shielded [10BaseT])

RS-232-C MIO Card
Type of interface: RS-232-C
Baud rates: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400
Transmission: Full duplex
Parity: Even, odd, none
Start bits: One
Stop bits: One
Pacing: XON/XOFF both directions, hardware handshake
Connectors: One standard male DB-9 D-subminiature connector

Instrument Control Port Specifications

Type of interface: RS-232-C
Baud rates: 300, 1200, 2400, 4800, 9600
Transmission: Full duplex
Parity: Even, odd, none
Start bits: One
Stop bits: One, two
Pacing: XON/XOFF both directions, hardware handshake
Connectors: Two standard 9-pin male D-subminiature connectors

Physical Specifications

Mechanical
Size: 325 mm (12.8 inches) wide
285 mm (11.2 inches) deep
104 mm (4.1 inches) high
Weight: 2.4 kg (5.3 lbs)

Electrical
Line voltage range: 100 V–240 V
Line voltage fluctuations: ±10% maximum
Line frequency range: 50/60 Hz
Line power consumption: 25 W
Safety classification: IEC safety Class III (Excludes the power adapter. The power adapter is grounding protected.)
Safety installation category: IEC overvoltage category II

Environmental
Heat dissipation: Nominal: 137 Btu/h
Maximum: 205 Btu/h
Temperature ranges: Operating: 5 °C to +40 °C
Humidity: 0% to 80% (noncondensing)
Altitude: 2,000 meters maximum
Safety pollution degree: IEC pollution degree 2

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