sigPOD 2200

General Purpose Industrial Process Monitor

sciemetric®

PRODUCT SPECIFICATIONS

New and Improved

The sigPOD 2200 is an in-station process monitoring platform that uses advanced signature analysis to track manufacturing processes, deliver real-time pass/fail feedback and the most advanced defect detection. The sigPOD 2200 is a drop-in replacement for the previous generation sigPOD 1200. It features the same mounting holes, same connectors and pinouts, and the same panel mount cutout, but adds significant new features. The sigPOD 2200 is expandable with the Model 1608 and 1618 units for higher channel count applications.

Analog Inputs (4x)

- One ADC per channel to eliminate crosstalk and maintain sample rates
- Σ-Δ mode at up to 125 kS/s with built-in anti-aliasing and max -3 dB bandwidth of 37 kHz
- SAR mode at up to 27 kS/s with superior clock resolution
- ADC sample resolution increase from 16 bits to 24 bits
- 16 gain ranges from ±12.5 V to ±104 mV
- Native 4-20 mA support with build in current sense and loop power
- Native 4-wire, 3-wire and 2-wire RTD drive circuit with programmable current from 100 µA to 1 mA
- Built-in single-ended/differential mode
- Solid state shunt cal relay good for billions of actuations
- Enable/disable the 10.00 V excitation power supply with current limiting and fault detection

Encoder Inputs (4x)

- Enable/disable open collector mode adds/removes pull-up current
- Schmitt trigger inputs add hysteresis to reduce cross talk
- All pins are now configurable as general-purpose outputs
- Enable/disable the +5V sensor power supply with current fault detection

Connector Improvements

- Adds (2x) USB 3.1 ports
- Adds DisplayPort (1x) and HDMI (1x)
- Adds user-replaceable microSD card for production data to eliminate system disk wear

CPU improvements

- Increased compute performance by up to 3x over previous sigPOD 1200

Technical Specifications

Power

- Supply Voltage: 24 VDC (22 to 26 VDC)
- Shield connection: 1 MΩ || 1 nF between SHLD and DGND
- Power consumption: 72 W maximum, 30 W typical

General

- Dimensions / Weight:
  - 0H00: 245 mm x 191 mm x 52 mm / 1.6 kg
  - TH00: 302 mm x 210 mm x 68 mm / 3.0 kg
- Operating Temperature: 5 °C to 45 °C (ambient conditions)
- Cooling system: fan-less
- Operating conditions: indoor use only out of direct sunlight
- Overvoltage Category: OVC 1
- Humidity: 10-90% relative humidity (non-condensing) per IEC 600685-2-67:2012
- Pollution degree: 2
- Ingress Protection*
  - Panel Mount: Dust protected, dripping water.
  - With optional hood: Dust protected, dripping water.
  - Without hood: Dust protected, no water protection

  **Self-proclaimed formal IP ratings pending.*
- Max Altitude: 2000 m
- CPU: Intel Atom x6425E (2.00 GHz / 3.00 GHz)
- RAM: 16 GB LPDDR4x
- eMMC (OS drive): 64 GB
- microSD card (data): 16 GB
- Operating System: Windows 10 IoT LTSC 2021
- Software: Sciemetric InspeXion
- Standard Applications: Sciemetric PSV, IPT

Interfaces

- (1x) HDMI 2.0b port, supports up to 1920x1080p @ 60 Hz
- (1x) DisplayPort 1.4, supports up to 4160 x 2160p @ 60 Hz
- (2x) USB 2.0 ports, current limited to 500 mA
- (2x) USB 3.1 ports, current limited to 900 mA
- (2x) Ethernet ports, 10/100/1000Base-T
- (1x) microSD 3.0 port

Analog Inputs

- Number of Channels: 4
- Max Sample Rate:
  - 125 kS/s (ΣΔ mode)
  - 27 kS/s (SAR mode)
- Bipolar / Unipolar: Software configurable
- Isolated: No
- Working Common Mode: ±12.5 V (SIG and SENS)
- ±SIG Input
  - Voltage Mode:
    - FS Range: ±12.5, ±10, ±8.33, ±6.67, ±5, ±3.33, ±2.5, ±1.67, ±1.25, ±0.833, ±0.625, ±0.417, ±0.313, ±0.208, ±0.156, ±0.104 V
    - Input impedance:
      - ~25 MΩ (powered on)
      - ~1.6 MΩ (powered off)
    - Single ended mode: Software configurable 50 µA pull-down on -SIG to AGND
  - Current Mode:
    - FS Range: ±20 mA
    - Input Impedance: 30 Ω to 60 Ω
    - Sense resistance: ~24 Ω
    - Loop power: Software configurable for internal / external loop power
  - RTD mode
    - Drive current: User selectable (100, 400, 500, 600, 900, 1000 µA)
    - 4-wire mode: Yes for HW Rev 3 and higher
    - 3-wire mode: Yes
    - 2-wire mode: Yes (100 µA only)
  - Input Protection: -15 V ... +45 V (±SIG to AGND)
  - Max Common Mode: ±15 V to AGND
  - Max differential (+SIG to -SIG): ±50 V

- ±SENSE Input
  - Differential: Yes
  - Single Ended: No
  - Bandwidth @ 125 kHz: 35 kHz (typical)
  - FS Range: ±64 V
  - Input Impedance: 2.082 MΩ
  - Maximum common mode: ±15 V to AGND
- Shunt Calibration
  - Type: Solid State Relay
  - On Resistance: < 150 mΩ
- +EX to -EX
  - Toggleable ON/OFF: Yes
  - Voltage: 10.000 ± 0.010 V @ 0 mA
  - Max Continuous Load : 100 mA
  - Current Limit: > 250 mA
  - Over current fault reporting: Yes
  - Isolated: No. -EX = AGND
  - Source Impedance: TYP 185 mΩ, Max 500 mΩ
  - Noise: < 1 mVrms with 27 kHz BW
  - Short Circuit Protection: Continuous
  - ΣΔ Anti-Aliasing Filter: Sinc 3 filter
  - Cross Talk: <-100 dB @ 60 Hz
  - CMRR (DC to 60 Hz): <-100 dB @ 60 Hz

Encoder Inputs

- Number of channels: 4
- Sensor type: Rotary encoders, Linear Scales
- Signal Type: Quadrature or Single Phase
- Input Voltage: 5 V TTL or OC (Open Collector)
- Counter depth: 32-bit
- Digital IO per channel: 3 (A, B, Z)
  - Polarity: Uni-directional
  - Input High: 2.4 V
  - Input Low: 0.6 V
  - Input Hysteresis: > 0.4 V
  - Open Collector Pull-up: Toggleable ON/OFF pull-up to ~3 V
  - Max input speed: ~1 MHz TTL, 50 kHz Open Collector
  - Output enable: Toggleable ON/OFF
  - Output High: 5.0 V
  - Output Low: < 20 mV TYP
  - Output current continuous: 100 mA
- Input Protection: 6.5 VDC max
- GPIO: 3 pins per channel, individually software configurable
- +5V Power supply to DGND
  - Toggleable ON/OFF: Yes
  - Voltage: (5.0 ± 0.2) V
  - Max continuous load: 150 mA
  - Current limiting: > 500 mA
  - Over current fault reporting: Yes
  - Isolated: No

Digital Inputs

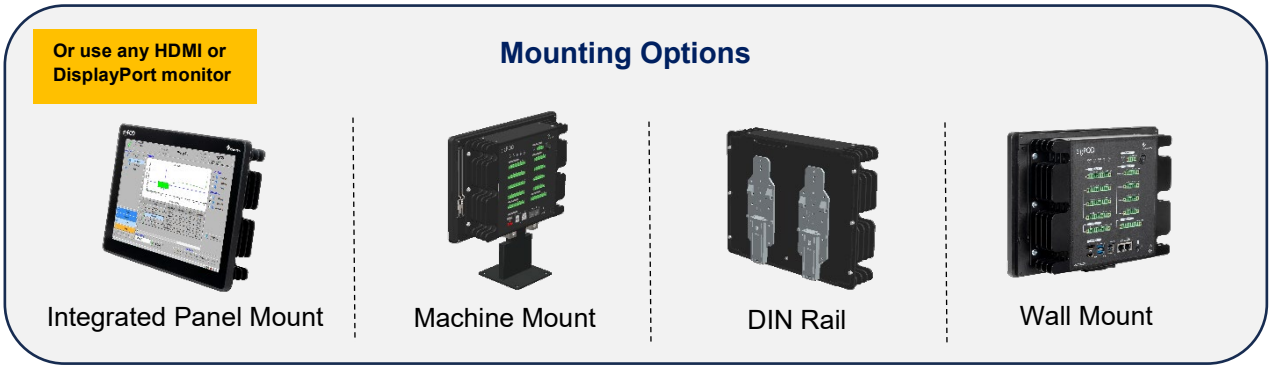
- Number of channels: 8
- Polarity: Bidirectional
- Isolation voltage: ±120 V (Optically Isolated)
- Input current: < 2.3 mA
- Input Low: 8 VDC maximum
- Input High: 16 VDC minimum
- Hysteresis: None
- Maximum input voltage: ±48 V
- Switching speed (max): 2 ms

Digital Outputs

- Number of channels: 8
- Polarity: Bidirectional
- Isolation voltage: ±120 V (Optically Isolated)
- Switching capability: ±1 A @ ±48 VDC or VAC peak
- Off resistance: >100 MΩ
- On resistance: < 0.14 Ω
- Power on state: All Off
- Switching speed (max): < 2 ms

Mounting Information

The Sciemetric sigPOD can be installed inside a cabinet or outside a cabinet. Mounting options for a sigPOD with the integrated TFT screen include panel, machine, and desktop. Mounting options for a sigPOD without the integrated TFT screen include DIN Rail, machine, and desktop. Please see the sigPOD technical specification section for additional information and specifications. Users must provision for cable connector dimensions and cable bend radii.



Ordering Information

Description	Part Number
sigPOD 2204 with Integrated TFT	**10500-2204-TH00**
sigPOD 2204 without Integrated TFT	**10500-2204-0H00**
DIN Rail Mount	**10500-2200-DIN0**
Machine Mount	**10500-1200-MCH0**
Panel Mount	**10500-2200-PNL1**
Desktop Mount	**10500-1200-DSK0**
Peripheral Bundle	**10500-1200-BDL1**
Connector Bundle	**10500-1200-BDL2**
NEMA Hood	**10500-2200-HOD1**
DisplayPort to VGA Adapter	**10500-2200-VGA0**
USB to 4 channel RS232 Adapter	**10500-2200-R232**

Other Accessories

Description	Part Number
sigPOD Ethernet IP Software License	**10500-1200-ETH0**
sigPOD PROFINET Software License	**10500-1200-PRF0**
sigPOD Modbus TCP Software License	**10500-1200-MOD0**

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REV 3.1, May 2025