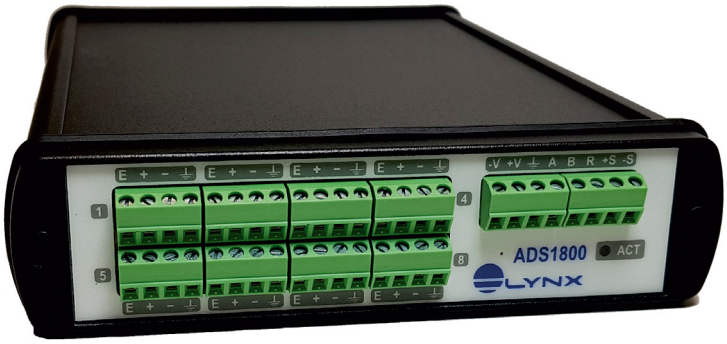
ADS1800 / ADS1800-SV

Compact and Flexible
Data Acquisition System (DAQ system)



- 08 universal analog inputs
- 24 bits A/D converter per channel
- Internal memory for recording
- LVDT measurement
- CAN bus receive/transmit

Versatility

- The ADS1800 is a high performance data acquisition system with eight universal analog inputs individually configurable by software.
- It allows the installation of a distributed data acquisition system, which drastically reduces the cost of wiring, since the modules can be close to the measuring points.
- The ADS1800 compact enclosure allows the use in various applications, even those where space is a limiting factor.

Flexibility

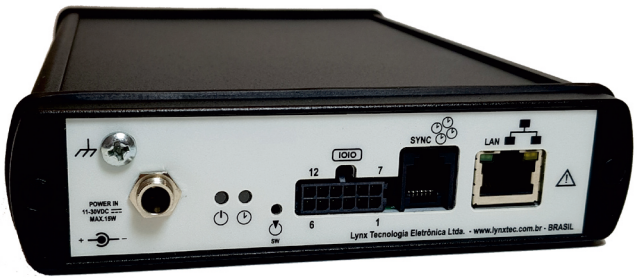
- Analog inputs individually configurable for different types of sensors: thermocouples, Pt100, IEPE accelerometers (ICP®), strain gages in ½, ¼ and full-bridge circuits, LVDT, among others. Configuration is performed by software.
- With screw terminals for easy field sensor connection.
- Powered by AC adapter (90 to 240 VAC) or DC power (11 to 30 VDC), ideal for onboard vehicle applications.
- Synchronism between ADS1800 using *Lynx – TetraSync®* technology: by internal clock, by Precision Time Protocol (IEEE 1588), by external source and by Global Positioning System (GPS) (optional) (1).
- Communication with the PC computer using a wired Ethernet (TCP/IP) or Wi-Fi® wireless communication (optional) (1).
- CAN bus measurement acquisition.

High performance

- Maximum sampling rate of 24,000 samples/second on ADS1800 and 96,000 samples/second on ADS1800-SV model.
- 24-bits Delta-Sigma A/D converter per channel.
- Ethernet interface (10Base-T/100Base-TX) for communication with a PC.

Ease to use

- Channel configuration through L*ynx – ADS1800 Assistant*, easy and intuitive program.
- Inputs with overvoltage and overcurrent protection.
- Outputs with short-circuit protection.
- Automatic discovery in the communication network using *Lynx@Net®* technology.
- Calibration by software and data acquisition using *Lynx – AqDados* program (optional).
- Data visualization, processing and analysis using *Lynx – AqDAnalysis* program (optional).
- Drivers for *MATLAB®, LabVIEW®* and *Phyton®*.
- Internal shunt-cal resistor activated by software.
- Wrong resistive bridge complement detection.
- AC or DC excitation voltage for sensors.
- Internal self-test with extensive fault coverage.
- Recording data up to 1,000 samples/second on internal memory.



Lynx Electronic Technology LTD
Street Dr. José Elias, 368 CEP 05083-030 - São Paulo/SP - Brazil
Phone: +55 (11) 3839-5910
lynxtec@lynxtec.com.br

www.lynxtec.com.br

Technical specifications

Analog inputs and A/D converter

Parameters	ADS1800	ADS1800-SV
Analog inputs per module	08 channels with instrumentation amplifiers	
Analog/Digital converter (A/D) and resolution	24-bits Delta-Sigma A/D converter per channel	
Maximum sampling rate	24,000 samples/second per channel	96,000 samples/second per channel
Sampling rates	24k, 12k, 8k, 4k, 2k, 1k, 800, 500, 400, 250, 200, 100, 50, 25, 5 or 1 sample(s)/second	96k ,48k, 24k, 12k, 8k, 4k, 2k, 1k6, 1k, 800, 500, 400, 200, 100 50, 25, 5 or 1 sample(s)/second
Measuring ranges	±10 V, ±3.33 V, ±1 V, ±333 mV±100 mV, ±33.3 mV, ±10 mV, ±3.33 mV or ±20 mA	
Input types (software selectable)	☑ Direct voltage input (±10 mV to ± 10 V, input impedance of 100 kΩ) ☑ Input current (up to ±20 mA) ☑ Thermocouple temperature sensors (types B, E, J, K, N, R, S and T) ☑ Platinum resistance thermometers Pt100 ☑ Wheatstone resistive bridge sensors (full, ½ and ¼ bridge, 120 Ω, 350Ω by internal jumper) ☑ Potentiometric transducers ☑ Accelerometers or microphones CCP type - *Constant Current Powered* (IEPE - *Integrated Electronics Piezo Electric*, ICP®, Isotron®, Deltatron®, Piezotron®) ☑ Electrical resistance (100 Ω to 10 MΩ), PTC, NTC, thermistors ☑ Rotary inductive sensors (magnetic pickup) ☑ LVDT and inductive bridges ☑ Frequency or period measurement up to 200 kHz (must select one channel at a time for measurement)	
Anti-aliasing filter	Low Pass Filter, Butterworth type, 2nd order, cut-off frequency in 10.1 kHz	Low Pass Filter, Butterworth type, 2nd order, cut-off frequency in 20.0 kHz
Low-Pass Filter (LPF)	Digital, dependent on the selected sampling rate	
Internal shunt calibration resistor	Yes: internal precision resistor (120.0 kΩ, 0.05%, 10 ppm/ °C)	
Balance bridge circuit	Yes: up to ±20 mV/V resistive bridge 120 Ω, controlled by software	
Input connector sockets (options)	VB - Terminal blocks with screw connection, SMKDS 1/ 4-3.81 model (PC, Phoenix Contact) VP - Pluggable terminal blocks w/ screw connection, MC 1,5/4-ST-3.81 model (PC), only ADS1800	

Auxiliary inputs and outputs

Pulse counter input (1)	Yes: 01 quadrature counter input up to 1 MHz, 32-*bits*, programmable as period, frequency or time counter, available at A, B, R and GND terminals
Digital input	Yes: 02 inputs up to 30 V, isolated
Digital output	Yes: 02 outputs up to 30 V, isolated
Analog output	Yes: 01 output, DC or AC voltage up to ±10V or current up to ±20mA, frequency up to 6 kHz, available in -S and +S terminals
Excitation voltages for sensors per channel (selectable by software)	☑ Range DC: 0 VDC, 1 VDC, 2 VDC, 5 VDC, 10 VDC or adjustable range, max. 45 mA ☑ Range AC: 1.25 VRMS or 2.5 VRMS; type of signal: sine; carrier frequency: 3.0 or 4.8 kHz
Auxiliary voltage output for sensor excitation	☑ +5/+12/+24 VDC, selectable by software, available in +V terminal, max. 50 mA ☑ -12 VDC, fixed, available in -V terminal, max. 50 mA
PWM digital output (1)	Yes: 01 output, frequency: 1 Hz to 12 kHz, duty cycle: 0.1% to 99.9%, available at R terminal
Cold Junction Compensation (CJC)	Yes: internal cold junction circuitry, when thermocouple sensors are used

Communication and Synchronism

CAN bus communication	Yes: 01 ISO11898 port, up to 1 Mbps; Receiving up to 48 signals (10000 readings/sec. max.); Transmitting up to 10 internal signals (100 readings/sec. per signal); support J1979 protocol
Communication with the PC	Ethernet interface 10/100 Mbits/s (10/100Base-T), TCP/IP protocol and RJ-45 type connector
Synchronism capability with a similar system	Yes: using *Lynx - TetraSync®* technology: trigger by internal clock, PTP Ethernet (IEEE-1588 PTPv2), external synchronization source or GPS (1)

Physical characteristics and operating conditions

Supply voltage range	AC: 90 to 240 VAC (AC adapter included) or DC: 11 to 30 VDC, max. 1.5 A
Power consumption	15 W
Temperature range	operation: 0 to 55 °C | storage: -10 to 70 °C
Relative humidity	10 to 80%, non condensing
Enclosure material	Extruded aluminum
Dimensions	35 x 140 x 205 (mm, height x length x width)
Weight	690 g (approx.)

(1) Inquiry Lynx engineering department for more product details. Revision: 6.16.09.2019.