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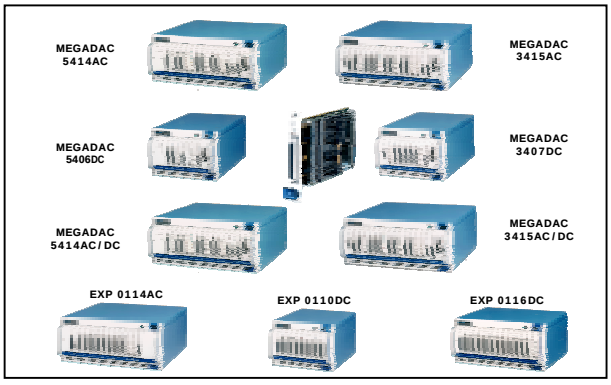
MEGADAC
INPUT & OUTPUT MODULES

Optim's Input and Output modules simplify the connection of your sensors and transducers eliminating the need for extra equipment since they feature on-board signal conditioning. Designed with high levels of noise immunity, each channel has an individual input amplifier to achieve higher accuracy, better inter-channel isolation, and lower temperature drifts. All modules feature input protection capable of withstanding ESD voltages up to 1000 volts without damage.

The following pages contain specifications and accessories for various input and output modules available for the MEGADAC.

Input & Output Modules	Channels per Module	Excitation Type	Sample & Hold	Typical Sensor Types	Analog Outputs	Page Number
AD 694SH	4	Constant V	Yes	Strain 1/4, 1/2, Full, Any Full Bridge type	Yes	2-3
AD-1 604CHA	4	Charge Amp	Yes	Charge Type Sensors	Yes	4-5
AD 614IE	4	Constant I	Yes	Internal Electronics Sensors (LEMO)	Yes	6-7
AD 614IE	4	Constant I	Yes	Internal Electronics Sensors (25-Pin)	Yes	6-7
AD 624ACX	4	AC Voltage	Yes	AC LVDT	No	8
AD 684SH-1	4	Constant V	Yes	Strain 1/4, 1/2, Full, Any Full Bridge type	No	9-10
AD-1 808FB-1	8	Constant V	No	Strain 1/4, 1/2, Full, Any Full Bridge type	No	11-12
AD 808QB/120	8	Constant I	No	Strain 1/4, 1/2	No	13-14
AD 808QB/350	8	Constant I	No	Strain 1/4, 1/2	No	15-16
AD 808D-1	8	None	No	Any Voltage Input	No	17
AD 816TC	16	None	No	Thermocouple Type E, J, K, T	No	18
DI 5032	1	None	No	Digital Inputs	No	19
TM 5004	2/4	None	No	Pulse, Time, Rate, Period, Frequency	No	20
IRIG-B 5000	1	None	No	IRIG Time Stamp (data correlation with other devices)	No	22
AC 3884VW-1K	8	Special	No	Vibrating Wire	No	23-24
AC 3884VW-4K	8	Special	No	Vibrating Wire	No	25-26
AC 3884WM	16	Special	No	Water Mark	No	27
DAC 5416	4	None	No	Analog Outputs for Input Modules	Yes	29

Module Accessories	Number of Channels	Typical Sensor Types	Page Number
FtoV-01	1 (In-Line)	Frequency to Voltage (Used In-Line with AD 684SH-1, AD 694SH, AD-1 808FB-1)	21
FtoV-05	1 (In-Line)	Frequency to Voltage (Used In-Line with AD 684SH-1, AD 694SH, AD-1 808FB-1)	21
FtoV-25	1 (In-Line)	Frequency to Voltage (Used In-Line with AD 684SH-1, AD 694SH, AD-1 808FB-1)	21
CB100	Uses 1 Slot	Constant Voltage Excitation (Bi-polar) typically used with DC LVDT's ± 15 V	28



Input Modules Are Interchangeable Across All MEGADAC Platforms

INPUT & OUTPUT MODULES
AD 694SH

- 4 Input Channels
- 4 Independent Analog Output Channels
- Integrated Voltage Excitation, and Signal Conditioning
- ± 10 Volts Full Scale (Input & Output) (Up to ± 210 Volts)
- Computer Controlled:
  Gains from 1 to 4000,
  Sensor Excitation
  Programmable 8-pole Filter
  VCAL & Shunt CAL
  Auto Balance & Auto Zero
- Increased Balance Range
- Remote Sense for Excitation
- Full Differential Inputs
- Simultaneous Sample & Hold
- Unipolar Excitation
- Input Protection
- D-Subminiature (37) Pin Connector Kit



AD 694SH
Optim Part NBR - PL2356

Optim' s four channel AD 694SH Input & Analog Output Signal Conditioning Modules are the most versatile modules available supporting a wide range of active and passive transducers, with an optional Input Resistor Network allowing up to ± 210 Volts Full Scale on Input.

As an added value, the AD 694SH can also be used as a Signal Conditioner with balanced analog outputs (the output is after the filter & gain and before the ADC). The AD 694SH has identical signal conditioning & filtering characteristics to Optim's AD 684SH-1 modules. This on-board, integrated, Signal Conditioning satisfies requirements for Strain Gages, Pressure Transducers, Displacement Transducers, DC LVDT's and Load Cells.

As a Signal Conditioner the AD 694SH's outputs can support real-time simulator servo controllers, control stands, scopes, chart recorders & other monitoring channels.

The flexibility of the AD 694SH module is due to its computer controlled functionality. Computer controlled functions provide quicker setups during installation and completely eliminate the chance of error caused by misplaced jumper settings.

The computer controlled features provided by the AD 694SH module include selections for gains up to 4,000:1, voltage calibration, shunt cal, filtering, Auto Balance, Auto Zero, Signal Conditioning, and Constant Voltage Excitation.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ☑ **Acceleration**
- ☑ **Analog Voltage**
- ❑ Angular Displacement
- ☑ **Capacitive Sensors**
- ❑ Charge Mode Transducers
- ☑ **Current Sensors**
- ☑ **Conditioned Signal Measurements**
- ❑ Digital Bit Stream Inputs
- ☑ **Displacement**
- ☑ **Distance**
- ☑ **Engine Performance Monitoring**
- ☑ **Excitation (Unipolar)**
- ❑ Excitation (Bipolar)
- ☑ **Flow Meters**
- ☑ **Force Transducers**
- ☑ **Frequency (Using InLine F to V)**
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ☑ **Level Sensors**
- ☑ **Load Cells**
- ❑ LVDT's (AC)
- ☑ **LVDT's (DC)**
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ☑ **Position Transducers**
- ☑ **Power**
- ☑ **Pressure**
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ☑ **Resistive Sensors**
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ☑ **Strain Gages 1/4 Bridge**
- ☑ **Strain Gages 1/2 Bridge**
- ☑ **Strain Gages Full Bridge**
- ☑ **String Pots**
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ☑ **Torque Sensors**
- ❑ Totalizer
- ☑ **Velocity**
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ☑ **Voltage Measurements**
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ☑ **Analog Output**
- ☑ **DAC Playback with DAC 5416**
- ☑ **Controller Test Stands**
- ☑ **Real-Time Monitoring**
- ☑ **Signal Conditioning for External Devices such as Simulator Servo Controllers**

AD 694SH
Specifications & Accessories

Optim Part NBR - PL2356

INPUT	
Number of input channels	4 channels/module
Input impedance	> 100 MOhms
Full-scale input voltage	± 10 V
(Optional Input Resistor Network)	± 210 V
Input protection	± 50 V continuous, brief surges to 1000 V
Common mode range	± 10 V
Common mode rejection (DC to 60 Hz)	> 80 dB (gains 1 to 8) > 96 dB (gains 10 to 80) > 105 dB (gains 100 to 4000)
Input noise	0.2 µV p-p at 0.1 to 10 Hz
Offset (RTO)	< 5 mV + 2 µV x gain
Offset tempco (RTI)	30 µV/°C (gains 1 to 8), 3 µV/°C (gains 10 to 80), 0.3 µV/°C (gains 100 to 800), 0.15 µV/°C (gains 1000 to 4000)
GAIN	
Gain steps	1, 2, 4, 8, 10, 20, 40, 80, 100, 200, 400, 800, 1000, 2000, 4000
Gain accuracy	250 ppm (gains 1 to 80) 500 ppm (gains 10 to 800) 750 ppm (gains 1000 to 2000) 1000 ppm (gain of 4000)
Gain stability	100 ppm/year
Gain tempco	6 ppm/°C
Gain nonlinearity	100 ppm
Max bandwidth	20 KHz (-3 dB) (gains 1 to 80) 10 KHz (-3 dB) (gains 100 to 800) 1 KHz (-3 dB) (gains 1000 to 4000)
Slew rate	.7 V/µS
Settling time	28 µS to 0.01% (gains 1 to 80) 140 µS to 0.01% (gain 100 to 800) 1300 µS to 0.01% (gain 1000 to 4000)

BALANCE	
Gains 1, 10, 100, 1000	50%
Gains 2, 20, 200, 2000	100%
Gains 4, 40, 400, 4000	200%
Gains 8, 80, 800	400%
FILTER	
Type	8-pole Butterworth
Frequency	Computer controlled 1.69 Hz - 20 KHz (other ranges special)
Rolloff	48 dB/octave
Passband	0.1 dB
Stopband	86 dB
Frequency accuracy	2% of computer setting
Gain accuracy	150 ppm
Offset (RTO)	< 5 mV
Offset tempco	60 µV/°C
Distortion	150 ppm
Nonlinearity	300 ppm
Noise (RTO)	300 µVRMS
SAMPLE & HOLD	
Supported	Droop 25 mV/Sec
OUTPUT	
Number of output channels	4 channels/module
Voltage Range	±10V (DC Single Ended)
Output impedance	600 Ohms
EXCITATION	
Type	Constant voltage with ± sense, unipolar
Settings	Computer controlled +10, +5, +2, 0 volts
Accuracy	400 ppm
Output tempco	25 ppm/°C
RCAL Type (field changeable)	Resistor shunt, computer controlled, 100 KΩ
VCAL Type	Voltage substitution, four voltages internal/external & balance
CONNECTOR	
Type of connector	D-Subminiature 37-Pin

STB 684/120	
Four Channel Standard Terminal Junction Box	Optim Part NBR
Connector for AD 684SH-1 / AD 694SH Module	PL2333
Full, 1/2, and 1/4 (120 Ohm) Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

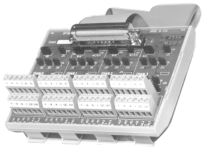
STB 684/350	
Four Channel Standard Terminal Junction Box	Optim Part NBR
Connector for AD 684SH-1 / AD 694SH Module	PL2334
Full, 1/2, and 1/4 (350 Ohm) Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

CABLE AD694 ANALOG OUT	
AD 694SH 37 Pin conversion cable to 4 BNC's KC39-30 (3ft (0.9m))	Optim Part NBR
plus cables to 4 BNC's BENDIX PT01A-10-6S(SR) (2ft (0.6m))	7900021

FtoV-01	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-01
Input Frequency Range from 0Hz to 1kHz	
Includes Adapter Connectors & Cables	

FtoV-05	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-05
Input Frequency Range from 0Hz to 5kHz	
Includes Adapter Connectors & Cables	

FtoV-25	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-25
Input Frequency Range from 0Hz to 25kHz	
Includes Adapter Connectors & Cables	



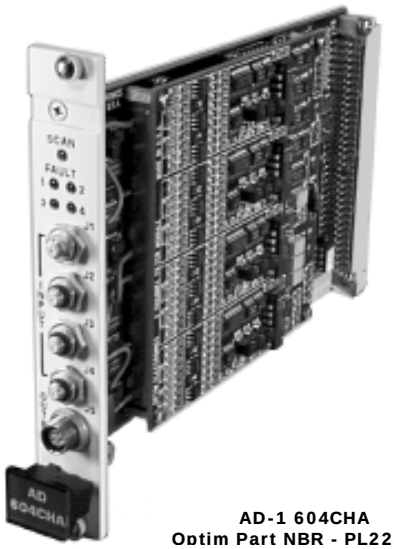
Standard Terminal Blocks (STB)

In-Line Frequency to Voltage Module



INPUT & OUTPUT MODULES
AD-1 604CHA

- 4 Input Channels
- 4 Independent Analog Output Channels
- Integrated Charge Converter and Signal Conditioning
- Full Scale Input: 100 to 10,000 pC
- Typical Accelerometer Input Sensitivity: 0.3 to 300 pC/g
- Programmable Card Gains/Channel (1, 10 or 100)
- Programmable ADC Gains/Channel
- Programmable 8-pole Filter
- Simultaneous Sample & Hold
- Microdot Connectors for Inputs
- 5 Pin LEMO Connector for Outputs



AD-1 604CHA
Optim Part NBR - PL2257-1

The AD-1 604CHA four channel charge amplifier module with Analog In/Out Signal Conditioning converts high impedance charge signals from charge mode sensors into proportional low impedance voltage signals. Programmable sensitivities, sample & hold circuitry, programmable 8-pole Butterworth filters, and buffered AC outputs add to the versatility of these four channel modules.

As a Signal Conditioner, the AD-1 604CHA includes the standard MEGADAC interface, in addition to Analog outputs. These outputs can support real-time simulator servo controllers, control stands, scopes, chart recorders & other monitoring devices.

Charge amplifier input modules are generally used for piezoelectric, quartz, or any other charge mode transducer *(without built-in, charge converting electronics)* including accelerometer, pressure or force sensors.

Typical applications include dynamic force and vibration testing, pressure measurement, and transient response analysis.

Charge amp sensors work the same way as Internal Electronics Sensors (IES) except that the power supply (the IE part of an IES gage) is external to the sensor. Although smaller in size, the noise rejection is not as high as with IES gages.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ☑ **Acceleration**
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ☑ **Charge Mode Transducers**
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ☑ **Engine Performance Monitoring**
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ☑ **Force Transducers**
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ☑ **Load Cells**
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ☑ **Piezoelectric Sensors**
- ❑ Position Transducers
- ❑ Power
- ☑ **Pressure**
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ☑ **Torque Sensors**
- ❑ Totalizer
- ☑ **Velocity**
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ☑ **Analog Output**
- ☑ **DAC Playback with DAC 5416**
- ☑ **Controller Test Stands**
- ☑ **Real-Time Monitoring**
- ☑ **Signal Conditioning for External Devices such as Simulator Servo Controllers**



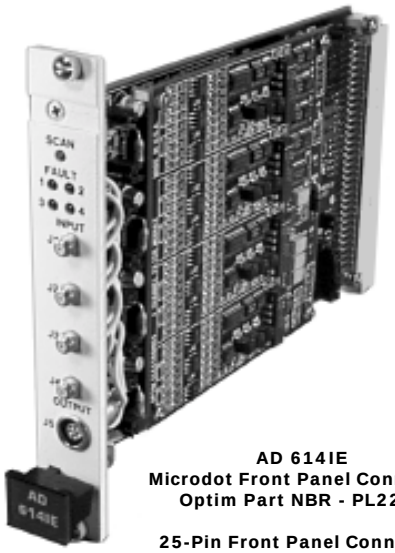
AD-1 604CHA
Specifications & Accessories

Optim Part NBR - PL2257-1

CHARGE INPUT	
Number of channels	4 channels/module
Full scale ranges	100 pC, 1,000 pC, & 10,000 pC
Frequency response	0.15 Hz to 20 KHz at -3 dB
Input mode	Single-ended, grounded
Connector	Micro-Dot/SMC
TRANSFER CHARACTERISTICS	
Sensitivity (charge mode) (Programmable)	0.1, 1, 10 mV/pC
Gain Values	1, 10, 100 (Programmable)
ADC Gain Values	1, 2, 4, 8 (Programmable)
Accuracy	± 0.5% (gains 1 to 8) ± 0.6% (gains 10 to 80) ± 0.9% (gains 100 to 800)
Temperature coefficient	± 50 ppm/°C (gains 1 to 8) ± 100 ppm/°C (gains 10 to 80) ± 200 ppm/°C (gains 100 to 800)
Harmonic distortion	± 45 ppm (gains 1 to 8) ± 60 ppm (gains 10 to 80) ± 105 ppm (gains 100 to 800)
Rise time	1 V/µs
Recovery time	10 µs
Maximum bandwidth	20 KHz (@ Sensitivity=1 mV/pC) Full Power
OUTPUT	
4 channels/module	
Rated voltage	±10V
Output impedance	100 Ohms
Noise	at 0.1 to 10 Hz 6.0 µVp-p
Connector	5-Pin Limo
FILTER	
Type	8-pole Butterworth
Frequency other ranges special	Computer controlled 1.69 Hz - 20 KHz,
Rolloff	48 dB/octave
Passband	0.1 dB
Stopband	86 dB
Frequency accuracy	2% of computer setting
Gain accuracy	150 ppm
Offset (RTO)	< 5 mV
Offset tempco	60 µV/°C
Distortion	150 ppm
Nonlinearity	300 ppm
Noise (RTO)	300 µVRMS
CALIBRATION TYPES	
	Voltage substitution calibration (50 mV, 500 mV & 5 V)
SCAN LED	
	Green when channel is being scanned
FAULT LED	
	Latched Red when channel overloaded
CONNECTOR	LEMO 5-Pin for Output Microdot for Input

INPUT & OUTPUT MODULES
AD 614IE

- 4 Input Channels
- 4 Independent Analog Output Channels
- Integrated 4mA Constant Current Power Supply, and Signal Conditioning
- Amplifies Transducer Output Voltage
- Programmable Card Gains/Channel (1, 10 or 100)
- Programmable ADC Gains/Channel
- Programmable 8-pole Filter
- Simultaneous Sample & Hold
- Connector Alternatives:
  - AD 614IE (PL2256)
    Microdot Connectors for Inputs
    5 Pin LEMO Connector for Outputs
  - AD 614IE (PL2256-1)
    D-Subminiature (25) Pin Connector Kit
    Combined for Input and Outputs



AD 614IE
Microdot Front Panel Connector
Optim Part NBR - PL2256

25-Pin Front Panel Connector
Optim Part NBR - PL2256-1

Optim's AD 614IE is a programmable four channel Integral Electronic Sensor (IES) power supply and amplifier, with Analog In/Out Signal Conditioning, providing large dynamic range and wide frequency bandwidth for applications using IES type accelerometer, pressure, or force transducers.

As a Signal Conditioner, the AD 614IE includes the standard MEGADAC interface, in addition to Analog outputs. These outputs can support real-time simulator servo controllers, control stands, scopes, chart recorders & other monitoring devices. Internal Electronics Sensors (IES) are sensors with a very wide bandwidth *(but no DC response)*, high noise rejection and simple cabling requirements.

IES gages differ from strain gages powered by constant current supplies in that in the IES case, the constant current supply is used to power the sensor, much like constant voltage is used to power an LVDT. Each channel includes a precision constant current power supply, a high caliber programmable amplifier, individual sample & hold, front end VCAL calibration, and a programmable 8-pole Butterworth filter.

Optim's AD 614IE input module supplies constant current excitation to piezoelectric sensors with built-in or in-line electronics and couples them to the MEGADAC for laboratory, field and factory environments. Primarily used in remote applications, such as vehicular road response studies, Optim's AD 614IE modules are factory set to supply constant current excitation to power the sensor and drive the output signal.

TYPICAL MEASUREMENT APPLICATIONS

- ☐ AC Operated Sensors
- ☑ **Acceleration**
- ☐ Analog Voltage
- ☐ Angular Displacement
- ☐ Capacitive Sensors
- ☐ Charge Mode Transducers
- ☐ Current Sensors
- ☐ Conditioned Signal Measurements
- ☐ Digital Bit Stream Inputs
- ☐ Displacement
- ☐ Distance
- ☑ **Engine Performance Monitoring**
- ☐ Excitation (Unipolar)
- ☐ Excitation (Bipolar)
- ☐ Flow Meters
- ☑ **Force Transducers**
- ☐ Frequency (Using InLine F to V)
- ☐ Humidity
- ☑ **Integral Electronics Sensors (IES)**
- ☐ IRIG-B Time/Date Synchronization
- ☐ Level Sensors
- ☑ **Load Cells**
- ☐ LVDT's (AC)
- ☐ LVDT's (DC)
- ☐ Moisture Content
- ☐ Monitoring Switch Closures
- ☐ Period
- ☑ **Piezoelectric Sensors**
- ☐ Position Transducers
- ☐ Power
- ☑ **Pressure**
- ☐ Pulse Encoders
- ☐ Pulse Sensors
- ☐ Rate
- ☐ Resistive Sensors
- ☐ Rotary Transformer Torque Cell
- ☐ Rotational Speed Comparison
- ☐ RTD's
- ☐ RVDT's
- ☐ Speed Sensors
- ☐ Strain Gages 1/4 Bridge
- ☐ Strain Gages 1/2 Bridge
- ☐ Strain Gages Full Bridge
- ☐ String Pots
- ☐ System Synchronization with External IRIG Devices
- ☐ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ☐ Thermistors
- ☐ Time/Data Correlation (IRIG)
- ☑ **Torque Sensors**
- ☐ Totalizer
- ☑ **Velocity**
- ☐ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ☐ Voltage Measurements
- ☐ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ☑ **Analog Output**
- ☑ **DAC Playback with DAC 5416**
- ☑ **Controller Test Stands**
- ☑ **Real-Time Monitoring**
- ☑ **Signal Conditioning for External Devices such as Simulator Servo Controllers**



AD 614IE
Specifications & Accessories

Optim Part NBR's - PL2256 & PL2256-1

INPUT	
Number of channels	4 channels/module
Coupling	AC or DC (Jumper Selectable)
Mode	Single-ended
Voltage range (w/out damage)	+50, -20 V
Impedance	10 µF in Series with 100 KΩ
AC coupling	0.15 Hz at - 3dB
Input Connector	Microdot/SMC
SENSOR POWER SUPPLY	
Current source	4mA
Compliance voltage	23 VDC
Current source accuracy	±15%
Noise	< 0.9 µA RMS
GAIN	
Gain values	1, 10, 100 (Programmable)
ADC Gain values	1, 2, 4, 8 (Programmable)
Accuracy	±0.03%
Temperature coefficient	±20ppm/°C
Harmonic distortion	< 0.05% at 1 KHz, 1 VRMS
Nonlinearity	±100 ppm
Slew rate	.7 V/µS
Frequency response (AC mode)	at -3 dB
	0.16 Hz to 20 KHz (gains 1 to 80)
	10 KHz (gains 100 to 800)
OUTPUT	
4 channels / module	
Rated voltage	±10V
Output impedance	100 Ohms
Noise	0.707 µVRMS RTI and 200 µVRMS RTO
Output Connector	5-Pin LEMO
FILTER	
Type	8-pole Butterworth
Frequency	Computer controlled 1.69 Hz - 20 KHz,
other ranges special	
Rolloff	48 dB/octave
Passband	0.1 dB
Stopband	86 dB
Frequency accuracy	2% of computer setting
Gain accuracy	150 ppm
Offset (RTO)	< 5 mV
Offset tempco	60 µV/°C
Distortion	150 ppm
Nonlinearity	300 ppm
Noise (RTO)	300 µVRMS
CALIBRATION TYPES	
	Voltage substitution calibration
SCAN LED	
	Green when any channel is being scanned
FAULT LED	
	Latched Red when channel encounters
	Overload, Short Circuit or Open Circuit
CONNECTOR	LEMO 5-Pin for Output & Microdot for Input (**Optim Part NBR PL2256**)
	D-Subminiature 25-Pin for both Input & Output (**Optim Part NBR PL2256-1**)

INPUT MODULES
AD 624ACX

- 4 Input Channels
- Integrated AC Voltage Excitation and Signal Conditioning
- Fixed Frequency - 2.5 KHz or 10 KHz
- 2.5 VRMS Excitation Voltage
- Programmable Card Gains/Channel (1, 10 or 100)
- Programmable ADC Gains/Channel
- Programmable 8-pole Filter
- D-Subminiature (25) Pin Mating
- Connector Kit



AD 624ACX
Optim Part NBR - PL2258

The AD 624ACX four channel analog input modules provide AC voltage excitation, programmable amplification and filtering for AC operated sensors, such as LVDT's.

Two fixed frequencies (2.5 KHz or 10 KHz) at 2.5 VRMS excitation are available.

Specifications

INPUT		**FILTER**	
Number of channels	4 channels/module	Type	8-pole Butterworth
		Frequency	Computer controlled 1.69 Hz - 20 KHz, other ranges special
GAIN			
Gain values	1, 10, 100 (Programmable)	Rolloff	48 dB/octave
ADC Gain values	1, 2, 4, 8 (Programmable)	Passband	0.1 dB
Accuracy	±0.25%	Stopband	86 dB
Temperature coefficient	±20ppm/°C	Frequency accuracy	2% of computer setting
Nonlinearity	±500 ppm	Gain accuracy	150 ppm
Frequency response (AC mode)		Offset (RTO)	< 5 mV
	DC to 250 KHz with 2.5 KHz Excitation	Offset tempco	60 µV/°C
	DC to 1000 KHz with 10 KHz Excitation	Distortion	150 ppm
Gain Tempco	100ppm/°C	Nonlinearity	300 ppm
Offset Drift	200ppm/°C	Noise (RTO)	300 µVRMS
CONNECTOR	25-pin D	**FAULT LED**	Latched Red when channel overloaded
EXCITATION	2.5 VRMS	**SCAN LED**	Green when channel is being scanned
CALIBRATION TYPES	AC Voltage substitution	**CONNECTOR**	D-Subminiature 25-Pin

TYPICAL MEASUREMENT APPLICATIONS

- ☑ **AC Operated Sensors**
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ☑ **Displacement**
- ☑ **Distance**
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ☑ **LVDT's (AC)**
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
AD 684SH-1

- 4 Independent Analog Output Channels
- Integrated Voltage Excitation, and Signal Conditioning
- ± 10 Volts Full Scale (Input & Output) (Up to ± 210 Volts)
- Computer Controlled:
  Gains from 1 to 4000,
  Sensor Excitation
  Programmable 8-pole Filter
  VCAL & Shunt CAL
  Auto Balance & Auto Zero
- Increased Balance Range
- Remote Sense for Excitation
- Full Differential Inputs
- Simultaneous Sample & Hold
- Unipolar Excitation
- Input Protection
- D-Subminiature (37) Pin Connector Kit



AD 684SH-1
Optim Part NBR - PL2269-1

Optim's four channel AD 684SH-1 input modules with on-board integrated Signal Conditioning support a wide range of active and passive transducers such as Strain Gages, Pressure Transducers, Displacement Transducers, DC LVDT's and Load Cells.

The AD 684SH-1 modules flexibility is due to its computer controlled functionality.

Computer controlled functions provide quicker setups during installation and completely eliminate the chance of error caused by misplaced jumper settings.

The computer controlled features provided by the AD 684SH-1 module include selections for gains up to 4,000:1, voltage calibration, shunt calibration, filtering, Auto Balance, Auto Zero, Signal Conditioning, and Constant Voltage Excitation.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ☑ **Acceleration**
- ☑ **Analog Voltage**
- ❑ Angular Displacement
- ☑ **Capacitive Sensors**
- ❑ Charge Mode Transducers
- ☑ **Current Sensors**
- ☑ **Conditioned Signal Measurements**
- ❑ Digital Bit Stream Inputs
- ☑ **Displacement**
- ☑ **Distance**
- ☑ **Engine Performance Monitoring**
- ☑ **Excitation (Unipolar)**
- ❑ Excitation (Bipolar)
- ☑ **Flow Meters**
- ☑ **Force Transducers**
- ☑ **Frequency (Using InLine F to V)**
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ☑ **Level Sensors**
- ☑ **Load Cells**
- ❑ LVDT's (AC)
- ☑ **LVDT's (DC)**
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ☑ **Position Transducers**
- ☑ **Power**
- ☑ **Pressure**
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ☑ **Resistive Sensors**
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ☑ **Strain Gages 1/4 Bridge**
- ☑ **Strain Gages 1/2 Bridge**
- ☑ **Strain Gages Full Bridge**
- ☑ **String Pots**
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements
  E,J,K & T Type TC's
  (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ☑ **Torque Sensors**
- ❑ Totalizer
- ☑ **Velocity**
- ❑ Vibrating Wire Gages:
  Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ☑ **Voltage Measurements**
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD 684SH-1
Specifications & Accessories

Optim Part NBR – PL2269-1

INPUT	
Number of channels	4 channels/module
Input impedance	> 100 MOhms
Full-scale input voltage	± 10 V
(Optional Input Resistor Network)	± 210 V
Input protection	± 50 V continuous, brief surges to 1000 V
Common mode range	± 10 V
Common mode rejection	> 80 dB (gains 1 to 8)
(DC to 60 Hz)	> 96 dB (gains 10 to 80)
	> 105 dB (gains 100 to 4000)
Input noise	0.2 µV p-p at 0.1 to 10 Hz
Offset (RTO)	< 5 mV + 2 µV x gain
Offset tempco (RTI)	30 µV/°C (gains 1 to 8)
	3 µV/°C (gains 10 to 80)
	0.3 µV/°C (gains 100 to 800)
	0.15 µV/°C (gains 1000 to 4000)
GAIN	
Gain steps	1, 2, 4, 8, 10, 20, 40, 80, 100
	200, 400, 800, 1000, 2000, 4000
Gain accuracy	250 ppm (gains 1 to 80),
	500 ppm (gains 10 to 800)
	750 ppm (gains 1000 to 2000),
	1000 ppm (gain of 4000)
Gain stability	100 ppm/year
Gain tempco	6 ppm/°C
Gain nonlinearity	100 ppm
Max bandwidth	20 KHz (-3 dB) (gains 1 to 80)
	10 KHz (-3 dB) (gains 100 to 800)
	1 KHz (-3 dB) (gains 1000 to 4000)
Slew rate	.7 V/µS
Settling time	28 µS to 0.01% (gains 1 to 80)
	140 µS to 0.01% (gain 100 to 800)
	1300 µS to 0.01% (gain 1000 to 4000)
CONNECTOR	D-Subminiature 37-Pin

BALANCE	45%
FILTER	
Type	8-pole Butterworth
Frequency	Computer controlled 1.69 Hz - 20 KHz
	(other ranges special)
Rolloff	48 dB/octave
Passband	0.1 dB
Stopband	86 dB
Frequency accuracy	2% of computer setting
Gain accuracy	150 ppm
Offset (RTO)	< 5 mV
Offset tempco	60 µV/°C
Distortion	150 ppm
Nonlinearity	300 ppm
Noise (RTO)	300 µVRMS
SAMPLE & HOLD	
Supported	Droop 25 mV/Sec
EXCITATION	
Type	Constant voltage with ± sense, unipolar
Settings	Computer controlled +10, +5, +2, 0 volts
Accuracy	400 ppm
Output tempco	25 ppm/°C
RCAL Type	Resistor shunt, computer controlled
	100 KΩW (field changeable)
VCAL Type	Voltage substitution, four voltages
	internal/external & balance
Internal Voltages	2 V, 0.2 V, 20 mV, 2 mV
Accuracy	500 ppm (gains 1 to 40),
	750 ppm (gains 80 to 400),
	2500 ppm (gains 800 to 4000)
SCAN LED	Green when any channel is being scanned
FAULT LED	Latched Red when channel overloaded
EXCITATION LED	Latched Red if channel encounters open or shorted excitation or sense lines

STB 684/120	
Four Channel Standard Terminal Junction Box	Optim Part NBR
Connector for AD 684SH-1 / AD 684SH-1 Module	PL2333
Full, 1/2, and 1/4 (120 Ohm) Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

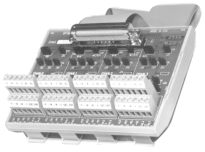
STB 684/350	
Four Channel Standard Terminal Junction Box	Optim Part NBR
Connector for AD 684SH-1 / AD 684SH-1 Module	PL2334
Full, 1/2, and 1/4 (350 Ohm) Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

CABLE AD694 ANALOG OUT	
AD 684SH-1 37 Pin conversion cable to 4 BNC's KC39-30 (3ft (0.9m))	Optim Part NBR
plus cables to 4 BNC's BENDIX PT01A-10-6S(SR) (2ft (0.6m))	7900021

FtoV-01	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-01
Input Frequency Range from 0Hz to 1kHz	
Includes Adapter Connectors & Cables	

FtoV-05	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-05
Input Frequency Range from 0Hz to 5kHz	
Includes Adapter Connectors & Cables	

FtoV-25	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-25
Input Frequency Range from 0Hz to 25kHz	
Includes Adapter Connectors & Cables	



Standard Terminal Blocks (STB)

In-Line Frequency to Voltage Module



INPUT MODULES
AD-1 808FB-1

- 8 Input Channels
- Integrated Voltage Excitation, and Signal Conditioning
- Full Differential Inputs
- Individual Card Gains/Channel (1 or 100)
- Programmable ADC Gains/Channel
- Three Pole Selectable Filter (100 Hz Default)
- 3 Constant Unipolar Voltage Sources (2, 5 or 10) with Remote Sense
- RCAL, VCAL and BAL
- Input Protection
- D-Subminiature (37) Pin Mating Connector Kit



AD-1 808FB-1
Optim Part NBR - PL2246

For ¼, ½ & Full Bridge configurations, Optim's **AD-1 808FB-1** Differential Input Modules accept signals directly from virtually all Active and Passive Transducers.

The AD-1 808FB-1 modules provide signal conditioning, 3 selectable voltage excitation levels, anti-alias filtering, and have two selectable gain settings (1 or 100) per channel. This gain in conjunction with the MEGADAC's Programmable ADC converters gain, produces a maximum system gain of 3,200:1.

Specifications

INPUT		**GAIN**	
Number of channels	8 channels/module	Gain	Selectable as 1 or 100
Input impedance	> 20 MOhms min.	Gain accuracy	300 ppm max at 25°C
FS input voltage	± 10 V at Gain = 1	Gain stability	100 ppm/year
	± 0.2 at Gain = 100	Gain tempco	50 ppm/°C max
Input protection	± 50 V continuous,	Gain linearity	40 ppm max
	brief surges to 1000 V	Max bandwidth	2 KHz (-3 dB) Full Power
Common mode range	± 13 V min.	**RCAL-VCAL-BAL-ZERO**	
Common mode rejection	>95 dB DC to 60 Hz	RCAL	Shunt Cal 100 KΩ resistor
	at gain = 100	VCAL	Voltage substitution calibration
Input noise RTI	1.8 µV RMS max		50 mV and 5 V
	0.1 to 80 Hz at gain = 1	BAL	Removes sensor offsets
Offset RTI	< 300 µV balanced to 0	ZERO	<5 µV
Offset tempco (RTI)	2 µV/°C max	**VOLTAGE EXCITATION**	
FILTER		Voltage	Selectable as 10, 5, or 2
Type	3-pole active Butterworth	Current	Two sources at 180 mA each
Frequency	100 Hz as shipped, can be changed	Current Limit	automatic at 200 mA per source
Slew Rate	1.2 V/µS		Red LED fault indicator
		Accuracy	400 ppm max (remote sense at 25 °C)
		Tempco	50 ppm/°C max
		CONNECTOR	D-Subminiature 37-Pin

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ☑ **Acceleration**
- ☑ **Analog Voltage**
- ❑ Angular Displacement
- ☑ **Capacitive Sensors**
- ❑ Charge Mode Transducers
- ☑ **Current Sensors**
- ☑ **Conditioned Signal Measurements**
- ❑ Digital Bit Stream Inputs
- ☑ **Displacement**
- ☑ **Distance**
- ☑ **Engine Performance Monitoring**
- ☑ **Excitation (Unipolar)**
- ❑ Excitation (Bipolar)
- ☑ **Flow Meters**
- ☑ **Force Transducers**
- ☑ **Frequency (Using InLine F to V)**
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ☑ **Level Sensors**
- ☑ **Load Cells**
- ❑ LVDT's (AC)
- ☑ **LVDT's (DC)**
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ☑ **Position Transducers**
- ☑ **Power**
- ☑ **Pressure**
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ☑ **Resistive Sensors**
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ☑ **Strain Gages 1/4 Bridge**
- ☑ **Strain Gages 1/2 Bridge**
- ☑ **Strain Gages Full Bridge**
- ☑ **String Pots**
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ☑ **Torque Sensors**
- ❑ Totalizer
- ☑ **Velocity**
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ☑ **Voltage Measurements**
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD-1 808FB-1 Accessories

STB 808FB/120	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
Connector For AD-1 808FB-1 Module	PL2249
½ & ¼ (120)Ohm Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

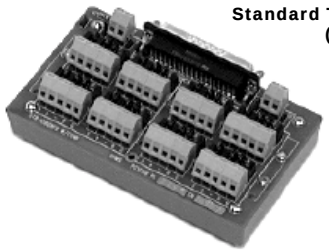
STB 808FB/350	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
Connector For AD-1 808FB-1 Module	PL2251
½ & ¼ (350)Ohm Bridge Completion	
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

STB CB100/AD 808	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
for CB100 Module for Signal Conditioning	PL2255
of +/- 15 Volts Bi-Polar Excitation	
Transducers, such as LVDT's	
Connector for AD 808D-1 or AD-1 808FB-1 Module	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

FtoV-01	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-01
Input Frequency Range from 0Hz to 1kHz	
Includes Adapter Connectors & Cables	

FtoV-05	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-05
Input Frequency Range from 0Hz to 5kHz	
Includes Adapter Connectors & Cables	

FtoV-25	
In-Line Frequency to Voltage Converter	Optim Part NBR
Provides F to V Conversion for One Channel	PL2578-25
Input Frequency Range from 0Hz to 25kHz	
Includes Adapter Connectors & Cables	



Standard Terminal Block (STB)



In-Line Frequency to Voltage Module

INPUT MODULES
AD 808QB/120

- 8 Input Channels
- Integrated Constant Current Excitation, and Strain Gage Signal Conditioning
- Full Differential Inputs
- Individual Card Gain of 100 per Channel
- Programmable ADC Gains/Channel
- Three Pole Selectable Filter (100 Hz Default)
- 4 or 10 mA Current Sources
- Quarter Bridge Completion/Channel (120 Ohm)
- RCAL, VCAL and BAL
- Input Protection
- D-Subminiature (37) Pin Mating Connector Kit



AD-1 808QB/120
Optim Part NBR - PL2163

Optim's AD 808QB/120 Strain Gage Modules are designed exclusively for ¼ & ½ bridge strain gage measurements, providing strain gage signal conditioning with constant current excitation, on-board 120 Ohm bridge completion, anti-alias filtering, and programmable ADC gains up to 3,200:1.

Each channel forces a constant current through the transducer, thus eliminating signal losses due to wiring lengths and resistance's.

Constant current excitation provides the maximum output in terms of output voltage per input strain (µVolts/µe), and the highest linearity in terms of output voltage per input resistance change.

Constant current also provides the lowest sensitivity to active noise levels, such as electrostatic and electromagnetic fields, and passive noise levels, which are found in lead wires, switches, slip-ring resistance's and their changes with time and temperature.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ☑ **RTD's**
- ❑ RVDT's
- ❑ Speed Sensors
- ☑ **Strain Gages 1/4 Bridge**
- ☑ **Strain Gages 1/2 Bridge**
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ☑ **Thermistors**
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

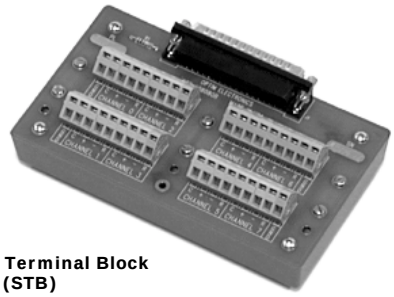
- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD 808QB/120
Specifications & Accessories

Optim Part NBR – PL2163

INPUT	
8 channels/module	
Input impedance	> 100 MOhms min.
FS input voltage	± 0.1 V
Input protection	± 15 V continuous,
brief surges to 1000 V	
Common mode range	0 to 7 v at 10 mA,
0 to 10 v at 4 mA	
Common mode rejection	>110 dB at 80 Hz
Input noise RTI	0.8 µV RMS max < 80 Hz
Offset RTI	< 125 µV balanced to 0
Offset tempco (RTI)	0.6 µV/°C max
GAIN	
Gain	100
Gain accuracy	200 ppm typical, 500 ppm max
Gain stability	70 ppm/year
Gain tempco	5 ppm/°C
Gain linearity	10 ppm max
Max bandwidth	12 KHz full power, 24 KHz small signal
Slew rate	1.2 V/µS
FILTER	
Type	3-pole active Butterworth
Frequency	100 Hz as shipped,
can be easily changed	
RCAL-VCAL-BAL-ZERO	
RCAL	Shunt Cal 100 KΩ resistor (field changeable)
VCAL	Voltage substitution calibration 50 mV
BAL	Removes sensor offsets
ZERO	<5 µV after BAL
CURRENT EXCITATION	
Current	Selectable as 4 or 10 mA
Compliance	0-7 V at 10 mA, 0-10 V at 4 mA
Accuracy	500 ppm max
Tempco	3 ppm/°C track max
QUARTER BRIDGE COMPLETION	
Value	120 Ohms ±0.01% 2 ppm/°C
CONNECTOR	D-Subminiature 37-Pin

STB 808QB	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
Connector For AD 808QB/120 Module	PL2113
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	



Standard Terminal Block (STB)

INPUT MODULES
AD 808QB/350

- 8 Input Channels
- Integrated Constant Current Excitation, and Strain Gage Signal Conditioning
- Full Differential Inputs
- Individual Card Gain of 100 per Channel
- Programmable ADC Gains/Channel
- Three Pole Selectable Filter (100 Hz Default)
- 4 or 10 mA Current Sources
- Quarter Bridge Completion/Channel (350 Ohm)
- RCAL, VCAL and BAL
- Input Protection
- D-Subminiature (37) Pin Mating Connector Kit



AD-1 808QB/350
Optim Part NBR - PL1921

Optim's AD 808QB/350 Strain Gage Modules are designed exclusively for ¼ & ½ bridge strain gage measurements, providing strain gage signal conditioning with constant current excitation, on-board 350 Ohm bridge completion, anti-alias filtering, and programmable ADC gains up to 3,200:1.

Each channel forces a constant current through the transducer, thus eliminating signal losses due to wiring lengths and resistance's.

Constant current excitation provides the maximum output in terms of output voltage per input strain (µVolts/µe), and the highest linearity in terms of output voltage per input resistance change.

Constant current also provides the lowest sensitivity to active noise levels, such as electrostatic and electromagnetic fields, and passive noise levels, which are found in lead wires, switches, slip-ring resistance's and their changes with time and temperature.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ☑ **RTD's**
- ❑ RVDT's
- ❑ Speed Sensors
- ☑ **Strain Gages 1/4 Bridge**
- ☑ **Strain Gages 1/2 Bridge**
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ☑ **Thermistors**
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

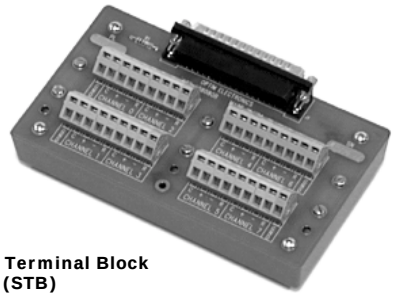
- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD 808QB/350
Specifications & Accessories

Optim Part NBR – PL1921

INPUT	
8 channels/module	
Input impedance	> 100 MOhms min.
FS input voltage	± 0.1 V
Input protection	± 15 V continuous,
brief surges to 1000 V	
Common mode range	0 to 7 v at 10 mA,
0 to 10 v at 4 mA	
Common mode rejection	>110 dB at 80 Hz
Input noise RTI	0.8 µV RMS max < 80 Hz
Offset RTI	< 125 µV balanced to 0
Offset tempco (RTI)	0.6 µV/°C max
GAIN	
Gain	100
Gain accuracy	200 ppm typical, 500 ppm max
Gain stability	70 ppm/year
Gain tempco	5 ppm/°C
Gain linearity	10 ppm max
Max bandwidth	12 KHz full power, 24 KHz small signal
Slew rate	1.2 V/µS
FILTER	
Type	3-pole active Butterworth
Frequency	100 Hz as shipped,
	can be easily changed
RCAL-VCAL-BAL-ZERO	
RCAL	Shunt Cal 100 KΩ resistor (field changeable)
VCAL	Voltage substitution calibration 50 mV
BAL	Removes sensor offsets
ZERO	<5 µV after BAL
CURRENT EXCITATION	
Current	Selectable as 4 or 10 mA
Compliance	0-7 V at 10 mA, 0-10 V at 4 mA
Accuracy	500 ppm max
Tempco	3 ppm/°C track max
QUARTER BRIDGE COMPLETION	
Value	350 Ohms ±0.01% 2 ppm/°C
CONNECTOR	D-Subminiature 37-Pin

STB 808QB	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
Connector For AD 808QB/350 Module	PL2113
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	



Standard Terminal Block (STB)

INPUT MODULES
AD 808D-1

- 8 Input Channels
- Full Differential Inputs
- Individual Card Gains/Channel (1 or 100)
- Programmable ADC Gains/Channel
- Three Pole Selectable Filter (100 Hz Default)
- VCAL and BAL
- Input Protection
- D-Subminiature (37) Pin Mating Connector Kit

Optim's AD 808D-1 Differential Input Modules accept signals directly from Voltage or other pre-conditioned Transducers and include anti-alias filtering.



AD 808D-1
Optim Part NBR - PL2250

Each module has two selectable gain settings (1 or 100) per channel. This gain in conjunction with the MEGADAC's Programmable ADC gain can produce a maximum system gain of 3,200:1.

TYPICAL MEASUREMENT APPLICATIONS

- ☐ AC Operated Sensors
- ☐ Acceleration
- ☑ **Analog Voltage**
- ☐ Angular Displacement
- ☐ Capacitive Sensors
- ☐ Charge Mode Transducers
- ☐ Current Sensors
- ☑ **Conditioned Signal Measurements**
- ☐ Digital Bit Stream Inputs
- ☐ Displacement
- ☐ Distance
- ☐ Engine Performance Monitoring
- ☐ Excitation (Unipolar)
- ☐ Excitation (Bipolar)
- ☐ Flow Meters
- ☐ Force Transducers
- ☐ Frequency (Using InLine F to V)
- ☐ Humidity
- ☐ Integral Electronics Sensors (IES)
- ☐ IRIG-B Time/Date Synchronization
- ☐ Level Sensors
- ☐ Load Cells
- ☐ LVDT's (AC)
- ☐ LVDT's (DC)
- ☐ Moisture Content
- ☐ Monitoring Switch Closures
- ☐ Period
- ☐ Piezoelectric Sensors
- ☐ Position Transducers
- ☐ Power
- ☐ Pressure
- ☐ Pulse Encoders
- ☐ Pulse Sensors
- ☐ Rate
- ☐ Resistive Sensors
- ☐ Rotary Transformer Torque Cell
- ☐ Rotational Speed Comparison
- ☐ RTD's
- ☐ RVDT's
- ☐ Speed Sensors
- ☐ Strain Gages 1/4 Bridge
- ☐ Strain Gages 1/2 Bridge
- ☐ Strain Gages Full Bridge
- ☐ String Pots
- ☐ System Synchronization with External IRIG Devices
- ☐ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ☐ Thermistors
- ☐ Time/Data Correlation (IRIG)
- ☐ Torque Sensors
- ☐ Totalizer
- ☐ Velocity
- ☐ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ☑ **Voltage Measurements**
- ☐ Voltage Source

ANALOG OUTPUT APPLICATIONS

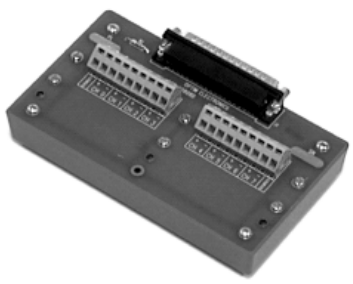
- ☐ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ☐ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ☐ Signal Conditioning for External Devices such as Simulator Servo Controllers

Specifications & Accessories

INPUT		**GAIN**	
Number of channels	8 channels/module	Gain	Selectable as 1 or 100
Input impedance	> 20 MOhms min.	Gain accuracy	300 ppm max at 25°C
FS input voltage	± 10 V at Gain = 1	Gain stability	100 ppm/year
± 0.2 at Gain = 100		Gain tempco	50 ppm/°C max
Input protection	± 50 V continuous,	Gain linearity	40 ppm max
brief surges to 1000 V		Max bandwidth	2 KHz (-3 dB)
Common mode range	± 13 V min.	Slew rate	1.2 V/µS
Common mode rejection	>95 dB DC to 60 Hz at gain = 100	**VCAL-BAL-ZERO**	
Input noise RTI	1.8 µV RMS max 0.1 to 80 Hz at gain = 1	VCAL	Voltage substitution calibration
Offset RTI	< 300 µV balanced to 0		50 mV and 5 V
Offset tempco (RTI)	2 µV/°C max	BAL	Removes sensor offsets
FILTER		ZERO	<5 µV
Type	3-pole active Butterworth		
Frequency	100 Hz as shipped, can be easily changed	**CONNECTOR**	D-Subminiature 37-Pin

STB 808D	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
Connector For AD 808D Module	PL22114
Includes External Shunt Cal	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	

STB CB100/AD 808	
Eight Channel Standard Terminal Junction Box	Optim Part NBR
for CB100 Module for Signal Conditioning	PL2255
of +/- 15 Volts Bi-Polar Excitation	
Transducers, such as LVDT's	
Connector for AD 808D-1 or AD-1 808FB-1 Module	
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	



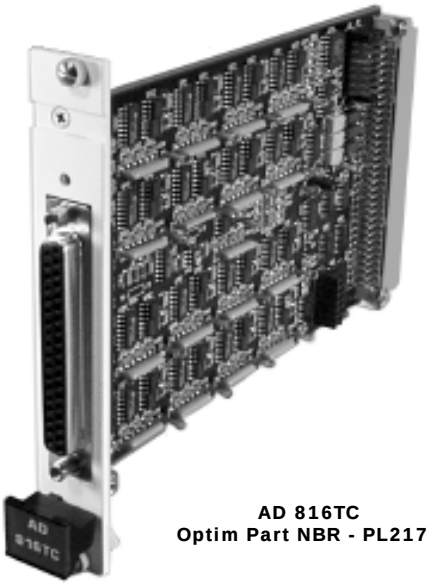
Standard Terminal Block (STB)

INPUT MODULES
AD 816TC

- 16 Differential Thermocouple Channels
- Gain of 100 per Channel
- Programmable ADC Gain per Channel
- VCAL and BAL
- Three Pole 40 Hz Filters (Selectable)
- Input Protection
- Includes Jack Panel with Cold Junction
- Compensation and Isothermal Block

The AD 816TC connects directly to any E, J, K, or T type thermocouple. It has sixteen input channels per module, and provides a thermal compensation mass with +/- 10 volts common mode protection.

TCS for Windows provides the voltage-to-temperature linearization equations for all popular thermocouples.



AD 816TC
Optim Part NBR - PL2179

Specifications & Accessories

INPUT	
Number of channels	16 channels/module
Input Impedance	>10 Meg Ohm
FS Input Voltage	+/- 100 mV
Input Protection	+/- 50 V continous brief surges to 1 kV
Common mode range	+/- 8 V
Common mode rejection	> 80 dB at 60 Hz
Input Noise	0.01°C < 40 Hz (0.5 µV)
Offset	< 0.1°C (5 µV)
Offset Tempco	0.01°C/°C (0.2µV/°C)
VCAL - ZERO	
VCAL	Voltage substitution calibration 50 mV
ZERO	< 5µV
GAIN	
Gain	100
Gain Accuracy	300 ppm
Gain Stability	100 ppm/year
Gain Tempco	5 ppm/°C
Gain nonlinearity	25 ppm
Max Bandwidth	40 Hz (-3 dB)
Settling Time	80 mS to 0.02%
Slew rate	1.2 V/µS
FILTER	
Type	1-pole RC on input 3-pole active Butterworth after gain
Frequency	20 Hz as shipped
Gain Tempco	10 ppm/°C
Offset (RTO)	< 5 mV
Offset Tempco(RTO)	10 µV/°C
CONNECTOR	D-Subminiature 37-Pin

* Measurements given in °C are based on an E type thermocouple at 60.9 µV/°C

JACK PANEL OPTIONS	
Includes 10ft (3m) Cable	Optim Part NBR
Type E	PL2210
Type J	PL2180
Type K	PL2181
Type T	PL2182
Stand Alone or DIN Rail Mounting	



Jack Panel Included
*** Please Specify Thermocouple Type (E, J, K, or T) When Ordering**

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ☑ **Temperature Measurements E,J,K & T Type TC's**
- ❑ (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages:
- ❑ Strain Gages, Load Cells & Bolts,
- ❑ Pressure Transducers, Stressmeters,
- ❑ Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
DI 5032

- Two Independent 16 Bit Digital Input
- Channels
- TTL Compatible
- D-Subminiature (37 Pin) Mating
- Connector Kit

Optim'S DI 5032 Digital Input Module provides two 16-bit parallel input channels for connecting digital sensors and other external digital sources directly to the MEGADAC.

Inputs are TTL compatible in 2's compliment, binary, or BCD data formats.



DI 5032
Optim Part NBR – PL1412

Specifications

INPUT	
Number of Input Channels	2 (16-Bit) channels/module
Input Signal Level	CMOS compatible (optional TTL compatible) Internal 10 KOhm pull up resistors Operates with inputs of up to +/- 20 Volts
CONNECTOR	D-Subminiature 37-Pin

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ☑ **Digital Bit Stream Inputs**
- ❑ Displacement
- ❑ Distance
- ☑ **Engine Performance Monitoring**
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ☑ **Monitoring Switch Closures**
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
TM 5004

- 2 (Two) 32 Bit or 4 (Four) 16 Bit Precision
- Counter/Timer Channels
- Measures up to 200 KHz (32 Bit) or 100 KHz (16 Bit) Independent of the MEGADAC's Scanning Rate
- Frequency, Period & Rate Measurements with 8 Selectable Time Bases
- Totalizer Measurements with Reset Capabilities:
  - Reset at the Start of Test
  - Reset after Every Measurement
  - Reset based on an External Event
- Selectable Input Gain: 1, 25, or 500
- Selectable Input Threshold: 0, 1.2, 1.8, or 2.4 V
- Input Filters for Noise Reduction
- D-Subminiature (15 Pin) Mating Connector Kit



TM 5004
Optim Part NBR – PL2205

The TM 5004 modules count time periods, frequency, pulse outputs, and other event-driven incremental occurrences. Measuring at rates independent of the MEGADAC's scanning rate, the TM 5004 can measure frequencies up to 200 kHz, periods down to 100 ns, and includes a totalizer for counting increments in excess of 1 billion. Eight computer controlled time bases are provided for frequency, period and rate measurements.

For totalizer/counter applications the TM 5004 provides internal reset capabilities, allowing you to control when the counting originates. The TM 5004 can be programmed to reset it's counters at the beginning of your test, or reset after every measurement, since it is measuring at rates independent of the MEGADAC's scanning rate. The TM 5004 can also be driven to reset based on an external event, providing you a variety of alternatives for resolving your application requirements.

Specifications

INPUT	
Number of Input channels	4 (16 Bit) or 2 (32 Bit) channels/module
Input Impedance	>1 Meg Ohm
Input Threshold	0, 1.2, 1.8, or 2.4 V
Input Hysteresis	0.5 V after gain
Input Range	10 mV to 30 V
Input Protection	+/- 100 V continous brief surges to 1 kV
Input Frequency Max	200 KHz

TIMEBASE	
Selections	1, 10, 100 Hz 1, 10, 100 KHz 1, 10 MHz
Stability	100 ppm from 0 °C to 50 °C
MODES	
Operating	Frequency Counter Period Counter Totalizer with External Reset Scan Reset & Test Reset
CONNECTOR	D-Subminiature 15-Pin

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ☑ **Angular Displacement**
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ☑ **Conditioned Signal Measurements**
- ☑ **Digital Bit Stream Inputs**
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ☑ **Flow Meters**
- ❑ Force Transducers
- ☑ **Frequency (also see FtoV module)**
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ☑ **Monitoring Switch Closures**
- ❑ Period
- ❑ Piezoelectric Sensors
- ☑ **Position Transducers**
- ❑ Power
- ❑ Pressure
- ☑ **Pulse Encoders**
- ☑ **Pulse Sensors**
- ☑ **Rate**
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ☑ **Rotational Speed Comparison**
- ❑ RTD's
- ❑ RVDT's
- ☑ **Speed Sensors**
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ☑ **Totalizer**
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
F to V (In-Line)

- In-Line Frequency to Voltage Module
- Input Module Used Provides:
  Excitation Source and Voltages
  Filter Frequency
- Sensitivity
  5000mV/1000Hz/10V (FtoV-1)
  5000mV/5000Hz/10V (FtoV-5)
  5000mV/25000Hz/10V (FtoV-25)



(0 to 1 kHz) Frequency to Voltage Module
Optim Part NBR – PL2578-01

(0 to 5 kHz) Frequency to Voltage Module
Optim Part NBR – PL2578-05

(0 to 25 kHz) Frequency to Voltage Module
Optim Part NBR – PL2578-025

The Frequency to Voltage Converter (FtoV) module provides a quick and user friendly way to measure a frequency to a voltage-measuring card.

The FtoV module is designed to work in-line with Optim's AD-1 808FB-1, AD 684SH-1 and AD 694SH modules. The FtoV is packaged in a metalized case with two DB9 connectors. One FtoV provides frequency to voltage conversion for one input. There are three different FtoV modules covering the frequency ranges from 0 to 1 kHz, 0 to 5 kHz, and 0 to 25 kHz.

Specifications

FREQUENCY RANGE	
Minimum	0 Hz
Maximum FtoV-1	1 kHz
Maximum FtoV-5	5 kHz
Maximum FtoV-25	25 kHz
INPUT	
Amplitude Minimum	10 mV
Amplitude Maximum	30V
Impedance	>100k Ohms
OUTPUT VOLTAGE	0 – 5V
LINEARITY	1.0% of Full Scale
INTERNAL CALIBRATION FREQUENCY	
FtoV-1	512 Hz
FtoV-5	4096 Hz
FtoV-25	16,384 Hz
RISE TIME/TRANSIENT RESPONSE TIME	
FtoV-1	
0Hz to 1kHz	500 milliseconds/2Hz
1kHz to 0Hz	500 milliseconds/2Hz
FtoV-5	
0Hz to 5kHz	200 milliseconds/5Hz
5kHz to 0Hz	200 milliseconds/5Hz
FtoV-25	
0Hz to 25kHz	20 milliseconds/50Hz
25kHz to 0Hz	20 milliseconds/50Hz
CONNECTOR	D-Subminiature 9-Pin (DB9S to Sensor) (DB9P to MEGADAC)

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ☑ **Frequency (InLine F to V)**
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements
  E,J,K & T Type TC's
  (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages:
  Strain Gages, Load Cells & Bolts,
  Pressure Transducers, Stressmeters,
  Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ❑ DAC Playback with DAC 5416
- ❑ Controller Test Stands
- ❑ Real-Time Monitoring
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
IRIG-B 5000

- Receives IRIG-B Time Codes For
- Synchronizing Data with Other
- Systems & Events
- Allows MEGADAC to Time Stamp Measurements with up to 10 Millisecond Resolution

The IRIG-B module is designed for applications requiring time/data correlation such as video recorders filming an event being measured, multiple system synchronization, or high accuracy time measurements.



IRIG-B 5000
Optim Part NBR – PL1778

Optim's IRIG-B module allows you to time stamp your measurements with up to 10 millisecond resolution. This time tag can then be transferred along with the data to provide a means of uniquely identifying individual sets of data points.

Specifications

INPUT	
Number of Input channels	4 channels/module
Input impedance	10 MOhms
Digital input voltage	1 Vpp to 10 Vpp
Analog input voltage	1 Vpp to 10 Vpp 1 KHz timecode 0.2 Vpp to 2 Vpp
Input protection	± 50 V continuous, brief surges to 1000 V
Resolution	10 mSec
OUTPUT	
Output impedance	100 Ohms
Output voltage	5 Vpp
Accuracy	0.01%
CONNECTOR	BNC

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ☑ **IRIG-B Time/Date Synchronization**
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ☑ **Time/Data Correlation (IRIG)**
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

INPUT MODULES
AD 3884VW-1K

- 8 Differential Vibrating Wire Channels
- 8 Differential Thermistor Channels
- Swept Square Wave Wire Excitation
- 450 to 1000 Hz
- FCal, F-Start, F-Stop, and Equipment Check
- 3 Pole Bandpass Wire Filter
- 100 µA Pulsed Thermistor Excitation
- VCAL, RCAL, and BAL
- 80 Hz Lowpass Thermistor Filter
- 0-50 KOhm = 0-5 V Full Scale
- Input Protection
- Includes Terminal Boxes
- D-Subminiature (37 Pin) Mating Connector Kit



AD 3884VW-1K
Optim Part NBR - PL2049

The AC 3884VW modules are designed exclusively for strain gages, pressure transducers, load cells & bolts, stressmeters, jointmeters, crackmeters, and temperature sensors measuring vibrating wire transducers.

The AC 3884VW features differential vibrating wire channels, differential thermistor channels, swept square wave wire excitation, a 3 pole bandpass wire filter, 100 µA pulsed thermistor excitation, 80 Hz lowpass thermistor filter, and 0-50 KOhm = 0-5 V full scale.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ☑ **Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature**
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD 3884VW-1K
Specifications & Accessories

Optim Part NBR – PL2049

AC 3884VW VIBRATING WIRE SPECIFICATIONS	
INPUT	
Number of channels	8 channels/module
Input impedance	> 2 MOhms
Input protection	-2 to +7 V continuous
	brief surges to 1000 V
Common mode rejection	>80 dB min. at 60 Hz
Gain	2156:1
Filter Type	3-pole Bandpass
Filter Frequency	350 Hz to 6000 Hz
EXCITATION	
Type	Swept Square Wave low to high
1K	Start 450 Hz, Stop 1000 Hz
Sweep duration	350 mS
Wire settle duration	50 mS
Clock timebase	500, 1000, 2000, and 4000 KHz
Number of cycles	32, 64, and 128
CAL-ZERO-BAL	
CAL	Stop Sweep
FCAL	8, 4, 2, 1 KHz and 500 Hz
Zero	Start Sweep
CONNECTOR	D-Subminiature 37-Pin (Shared by both)

AC 3884VW THERMISTOR SPECIFICATIONS	
INPUT	
Number of channels	8 channels/module
Input impedance	> 2 MOhms
FS input voltage	0 to +5 Volts
Input protection	± 12 V continuous
	brief surges to 1000 V
Offset	< 8 mV max, balanced to 0
Offset tempco	13.0 µV/°C max
GAIN	
Gain	1
Gain error	250 ppm max
Gain stability	100 ppm/year
Gain tempco	60 ppm/°C max
Gain linearity	80 ppm max
EXCITATION	
Type	Pulsed Constant Current
Value	100 µA
Tolerance	300 ppm
Tempco	60 ppm/°C max
Voltage Range	5 V max (50 KOhms)
FILTER	
Type	3-pole Butterworth
Frequency	100 Hz
CAL-ZERO-BAL	
CAL	5.000 volts
RCAL	50 KOhms (5.000 V) 0.01%
ZERO	0.000 volts
CONNECTOR	D-Subminiature 37-Pin (Shared by both)

STB AC 3884VW	
Standard Terminal Block for Connections	Optim Part NBR
Includes 10ft (3m) Interconnecting Cable	PL2090



Standard Terminal Block (STB)

INPUT MODULES
AD 3884VW-4K

- 8 Differential Vibrating Wire Channels
- 8 Differential Thermistor Channels
- Swept Square Wave Wire Excitation
- 2000 to 4000 Hz
- FCal, F-Start, F-Stop, and Equipment Check
- 3 Pole Bandpass Wire Filter
- 100 µA Pulsed Thermistor Excitation
- VCAL, RCAL, and BAL
- 80 Hz Lowpass Thermistor Filter
- 0-50 KOhm = 0-5 V Full Scale
- Input Protection
- Includes Terminal Boxes
- D-Subminiature (37 Pin) Mating Connector Kit



AD 3884VW-4K
Optim Part NBR - PL2049-2

The AC 3884VW modules are designed exclusively for strain gages, pressure transducers, load cells & bolts, stressmeters, jointmeters, crackmeters, and temperature sensors measuring vibrating wire transducers.

The AC 3884VW features differential vibrating wire channels, differential thermistor channels, swept square wave wire excitation, a 3 pole bandpass wire filter, 100 µA pulsed thermistor excitation, 80 Hz lowpass thermistor filter, and 0-50 KOhm = 0-5 V full scale.

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ☑ **Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature**
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

AD 3884VW-4K
Specifications & Accessories

Optim Part NBR – PL2049-2

AC 3884VW VIBRATING WIRE SPECIFICATIONS	
INPUT	
Number of channels	8 channels/module
Input impedance	> 2 MOhms
Input protection	-2 to +7 V continuous brief surges to 1000 V
Common mode rejection	>80 dB min. at 60 Hz
Gain	2156:1
Filter Type	3-pole Bandpass
Filter Frequency	350 Hz to 6000 Hz
EXCITATION	
Type	Swept Square Wave low to high
4K	Start 2000 Hz, Stop 4000 Hz
Sweep duration	350 mS
Wire settle duration	50 mS
Clock timebase	500, 1000, 2000, and 4000 KHz
Number of cycles	32, 64, and 128
CAL-ZERO-BAL	
CAL	Stop Sweep
FCAL	8, 4, 2, 1 KHz and 500 Hz
Zero	Start Sweep
CONNECTOR	D-Subminiature 37-Pin (Shared by both)

AC 3884VW THERMISTOR SPECIFICATIONS	
INPUT	
Number of channels	8 channels/module
Input impedance	> 2 MOhms
FS input voltage	0 to +5 Volts
Input protection	± 12 V continuous brief surges to 1000 V
Offset	< 8 mV max, balanced to 0
Offset tempco	13.0 µV/°C max
GAIN	
Gain	1
Gain error	250 ppm max
Gain stability	100 ppm/year
Gain tempco	60 ppm/°C max
Gain linearity	80 ppm max
EXCITATION	
Type	Pulsed Constant Current
Value	100 µA
Tolerance	300 ppm
Tempco	60 ppm/°C max
Voltage Range	5 V max (50 KOhms)
FILTER	
Type	3-pole Butterworth
Frequency	100 Hz
CAL-ZERO-BAL	
CAL	5.000 volts
RCAL	50 KOhms (5.000 V) 0.01%
ZERO	0.000 volts
CONNECTOR	D-Subminiature 37-Pin (Shared by both)

STB AC 3884VW	
Standard Terminal Block for Connections	Optim Part NBR
Includes 10ft (3m) Interconnecting Cable	PL2090



Standard Terminal Block (STB)

INPUT MODULES
AD 3884WM

- 16 Differential Input Channels
- 100 µA Pulsed Excitation
- RCAL, VCAL and BAL
- 80 Hz Filters
- 0-50 KOhm = 0-5 V Full Scale
- Input Protection
- Includes Terminal Boxes
- D-Subminiature (37 Pin) Mating Connector Kit

Optim's AC 3884WM modules are designed exclusively for applications requiring humidity, moisture & resistive sensor measurements.



AD 3884WM
Optim Part NBR - PL2050

The AC 3884WM features differential inputs with 100 µA pulsed excitation, 80 Hz Filters, and 0-50 KOhm = 0-5 V full scale.

Specifications

INPUT		**EXCITATION**	
Number of channels	8 channels/module	Type	Pulsed AC Constant Current
Input impedance	> 1 MOhm differential		100 µA
Resistance to ground	1 KΩ to -INPUT of selected channel	Tolerance	300 ppm
		Tempco	15 ppm/°C max
	22 KΩ to -INPUT not selected	Voltage Range	5 V max (50 KOhms)
FS input voltage	0 to +5 Volts		
Input protection	± 12 V continuous	**FILTER**	
	brief surges to 1000 V	Type	3-pole Butterworth
Common mode rejection	>60 dB min. at 60 Hz	Frequency	80 Hz as shipped
Offset	< 8 mV max, balanced to 0		
Offset tempco	20.0 µV/°C max	**CAL-ZERO-BAL**	
GAIN		CAL	5.000 volts
Gain	1	RCAL	50 KOhms (5.000 V) 0.01%
Gain error	300 ppm max	ZERO	0.000 volts
Gain stability	100 ppm/year		
Gain tempco	60 ppm/°C max		
Gain linearity	80 ppm max	**CONNECTOR**	D-Subminiature 37-Pin

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ☑ **Moisture Content**
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

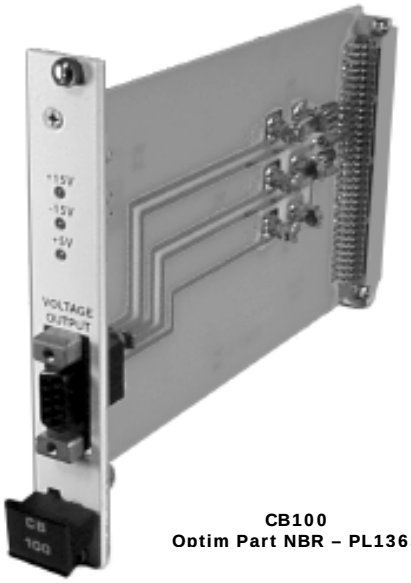
- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

EXCITATION MODULES
CB100

- Common Voltage Excitation Supply
- +5, +15 & -15 Voltage Outputs
- 250 mA Capacity
- Input Protection
  -Outputs fused at 500mA
- D-Subminiature (9 Pin) Mating Connector Kit

The CB 100 module allows access to the MEGADAC's ±15 volt and +5 volt power supplies.

With a maximum of 250 mA per supply, these modules can be used for Signal Conditioning of ±15 volt bi-polar excitation transducers, such as LVDT's.

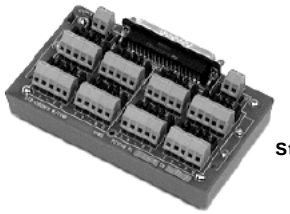


CB100
Optim Part NBR – PL1365

Specifications & Accessories

EXCITATION	
Number of channels	N/A uses 1 module slot
Voltages	+5, +15, and -15 Volts @ 250 mA each
Filtering	Ferrite Bead Inductors
Fuses	5mm x 20 mm, 500mA (Individually Fused)
DISPLAY	
Type	LED Indicators
CONNECTOR	D-Subminiature 9-Pin

STB CB100/AD 808	
Standard Terminal Junction Box	Optim Part NBR
for AD 808 Series Modules	PL2255
Includes 10ft (3m) Interconnecting Cable	
Stand Alone or DIN Rail Mounting	



Standard Terminal Block (STB)

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ☑ **Excitation (Unipolar)**
- ☑ **Excitation (Bipolar)**
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
- ❑ Pulse Encoders
- ❑ Pulse Sensors
- ❑ Rate
- ❑ Resistive Sensors
- ❑ Rotary Transformer Torque Cell
- ❑ Rotational Speed Comparison
- ❑ RTD's
- ❑ RVDT's
- ❑ Speed Sensors
- ❑ Strain Gages 1/4 Bridge
- ❑ Strain Gages 1/2 Bridge
- ❑ Strain Gages Full Bridge
- ❑ String Pots
- ❑ System Synchronization with External IRIG Devices
- ❑ Temperature Measurements E,J,K & T Type TC's (Centigrade & Fahrenheit)
- ❑ Thermistors
- ❑ Time/Data Correlation (IRIG)
- ❑ Torque Sensors
- ❑ Totalizer
- ❑ Velocity
- ❑ Vibrating Wire Gages: Strain Gages, Load Cells & Bolts, Pressure Transducers, Stressmeters, Jointmeters, Crackmeters, Temperature
- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ❑ DAC Playback with DAC 5416
- ❑ Controller Test Stands
- ❑ Real-Time Monitoring
- ☑ **Signal Conditioning for External**
- ☑ **Devices such as Simulator**
- ☑ **Servo Controllers**

OUTPUT MODULES
DAC 5416

- 4 Independent Analog Output Channels
- Real-Time Output & Signal Playback
- Variable Playback Speeds
- Programmable 8 Pole Reconstruction
- Filters
- ± 10 Volts Full Scale
- 16 Bit Resolution
- BNC Connectors



DAC 5416
Optim Part NBR - PL2423

The MEGADAC's hardware has built-in intelligence for controlling Digital-To-Analog modules, supporting real-time scopes & chart recorders.

The output signals are true recreations of the actual input signals. Both the analog output display speed and reconstruction filter frequency can be changed for Post-Test playback of recorded data.

Specifications

OUTPUT	
4 channels/module	
Accuracy	+/- 0.05%
Linearity	+/- 1 LSB
Voltage Range	+/- 10 volts
Resolution	312.5 microvolts
Dynamic Range	86 dB
Calibration	+/- 32,000 counts = +/- 10 volts
Output Impedance	100 Ohms
Filtering	8-pole Butterworth (programmable)
CONNECTOR	BNC

TYPICAL MEASUREMENT APPLICATIONS

- ❑ AC Operated Sensors
- ❑ Acceleration
- ❑ Analog Voltage
- ❑ Angular Displacement
- ❑ Capacitive Sensors
- ❑ Charge Mode Transducers
- ❑ Current Sensors
- ❑ Conditioned Signal Measurements
- ❑ Digital Bit Stream Inputs
- ❑ Displacement
- ❑ Distance
- ❑ Engine Performance Monitoring
- ❑ Excitation (Unipolar)
- ❑ Excitation (Bipolar)
- ❑ Flow Meters
- ❑ Force Transducers
- ❑ Frequency (Using InLine F to V)
- ❑ Humidity
- ❑ Integral Electronics Sensors (IES)
- ❑ IRIG-B Time/Date Synchronization
- ❑ Level Sensors
- ❑ Load Cells
- ❑ LVDT's (AC)
- ❑ LVDT's (DC)
- ❑ Moisture Content
- ❑ Monitoring Switch Closures
- ❑ Period
- ❑ Piezoelectric Sensors
- ❑ Position Transducers
- ❑ Power
- ❑ Pressure
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- ❑ Voltage Measurements
- ❑ Voltage Source

ANALOG OUTPUT APPLICATIONS

- ❑ Analog Output
- ☑ **DAC Playback with DAC 5416**
- ❑ Controller Test Stands
- ☑ **Real-Time Monitoring**
- ❑ Signal Conditioning for External Devices such as Simulator Servo Controllers

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