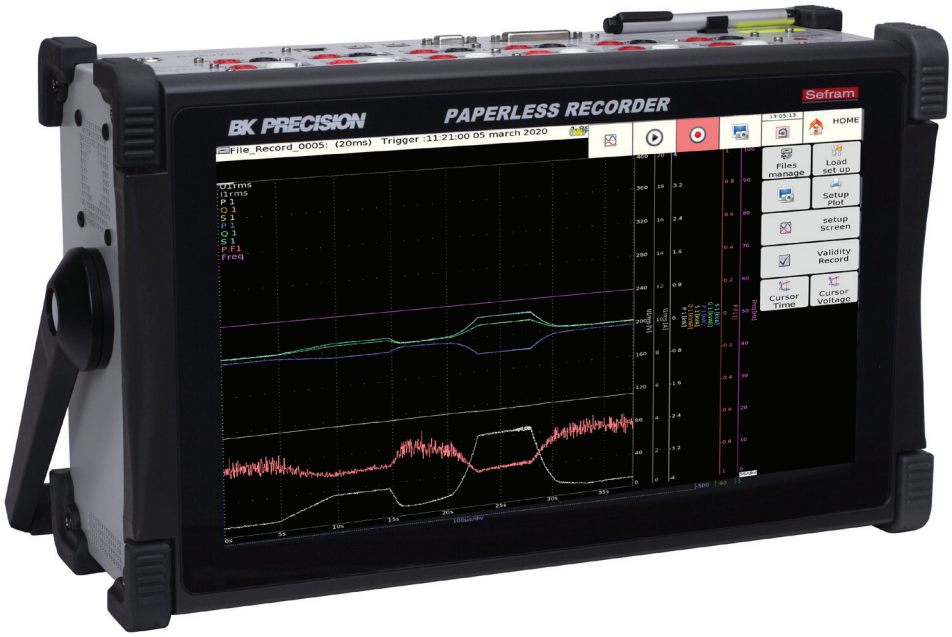
Data Sheet

High Speed Data Acquisition System
DAS1700



The DASI700 combines fast-sampling rates, a large hard drive, and a I5.6" touch screen display. With 3 slots for measurement boards, the DASI700 can be configured for your specific application. Choose any combination of 4 measurement boards for measuring voltage, current, temperature, and strain.

For capturing high speed or transient signals, the DASI700 can simultaneously acquire and record 36 channels at I MSa/s, or 6 channels to the hard drive. It also comes with a 500 GB solid state hard drive for storing large amounts of data. The secondary file function allows you to record low and high-speed data in separate files to reduce file sizes.

A variety of options are available to extend the functionality of the DASI700 including battery operation, IRIG and GPS synchronization, CAN and LIN inputs, and an extension unit which provides 3 additional measurement board slots.

The intuitive user interface makes setup easy, and measurement results can be viewed graphically and numerically. Builtin analysis tools include a mathematical function editor and dedicated power analysis mode for analyzing single and 3-phase electrical networks.

Applications

- Measure and record up to 72 analog channels
- Perform R&D, maintenance, field testing, and process monitoring
- Analyze single or 3-phase power networks (up to I,000 VAC)

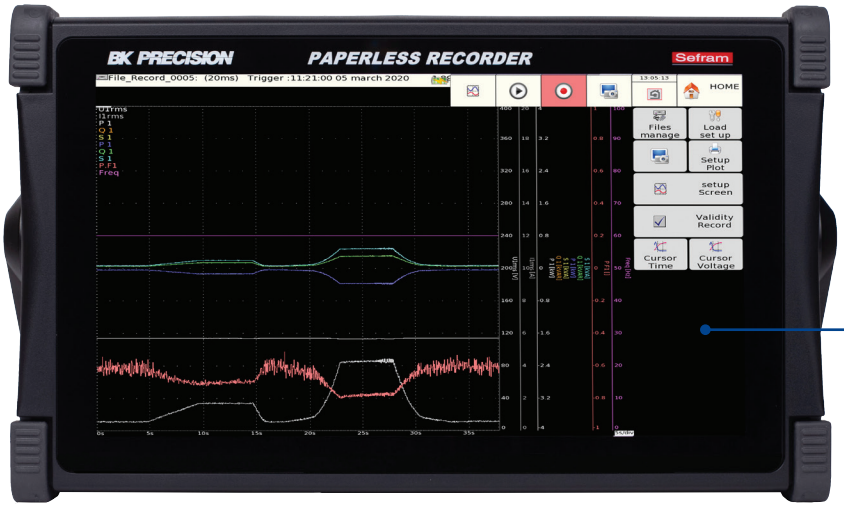
For integrating with external systems and devices, the DASI700 provides I6 logic (digital) inputs and 3 alarm outputs. Logic inputs can be recorded with analog data, or used to start and stop recording. Alarms can be configured based on any combination of analog or logic channels, and used to control external devices or send email notifications.

Connect to the DASI700 remotely via the built-in LAN interface or optional USB WiFi. Software utilities are provided for remote control, file transfer, and viewing live data on a PC.

Features and benefits:

- I MSa/s sampling rate on up to 36 channels simultaneously
- Up to 72 analog inputs (with multiplexed board and extension option)
- Measure up to I000 VRMS
- 3 slots for measurement modules (expandable to 6)
- 4 measurement board types:
  - Universal (6 ch)
  - Multiplexed (I2 ch)
  - Strain Gauge (6 ch)
  - High Voltage (6 ch)
- Temperature measurements with thermocouples and RTDs (PtI00/Pt200/Pt500/PtI000)
- 500 GB internal SSD hard drive (2 TB optional)
- Power Analysis mode for 50 Hz, 60 Hz, 400 Hz, and I kHz single or 3-phase electrical networks
- Advanced calculations and user defined math functions
- Battery option (up to 2 hours)
- I6 logic input channels
- Wide I5.6 inch touchscreen display
- Optional IRIG and GPS synchronization
- Optional CAN and LIN inputs (2 ports each)
- 4 USB host ports, LAN interface, and VGA outputs
- WiFi monitoring and control
- Rugged carrying case included

Front panel



15.6 inch touchscreen
TFT display with touchscreen to facilitate signal viewing and analysis

Rear panel

Optional CAN inputs

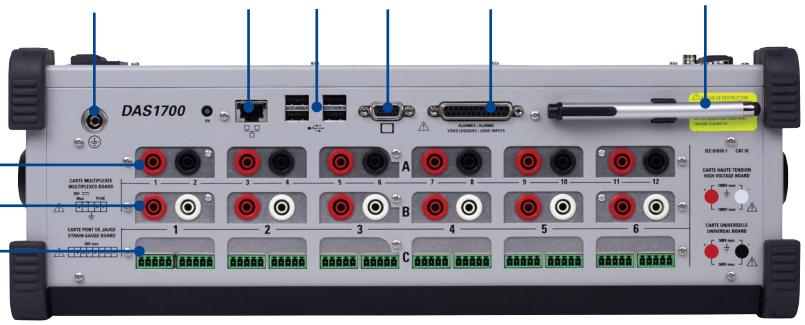
Optional LIN inputs

Optional GPS / IRIG
Internal clock synchronization with IRIG or GPS time

Power supply ON/OFF button

Power button
When battery option is installed

Top panel



Earth terminal

LAN
Remote control and monitoring

USB host

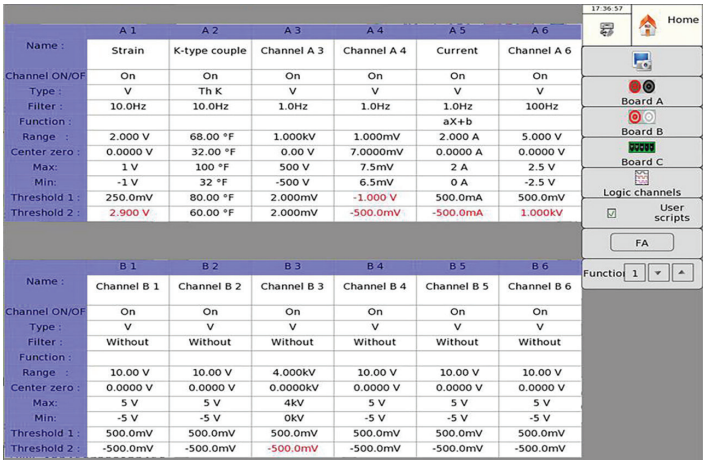
VGA output

Logical inputs & alarms
Pulse counter and frequency measurements

Stylus

Standard 3 board slots
3 additional boards with extension module

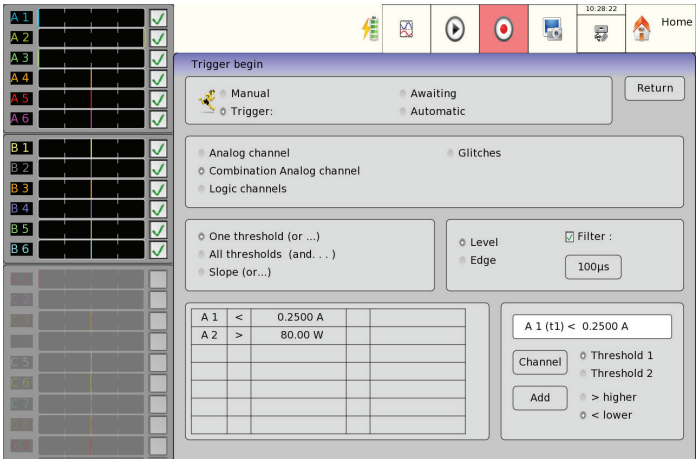
Operation highlights



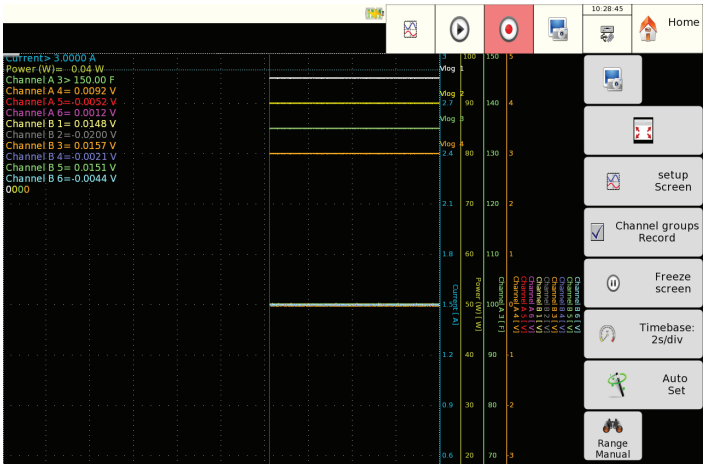
	A 1	A 2	A 3	A 4	A 5	A 6
Name :	Strain	K-type couple	Channel A 3	Channel A 4	Current	Channel A 6
Channel ON/OF	On	On	On	On	On	On
Type :	V	Th K	V	V	V	V
Filter :	10.0Hz	10.0Hz	1.0Hz	1.0Hz	1.0Hz	100Hz
Function :					aX+b	
Range :	2.000 V	68.00 °F	1.000kV	1.000mV	2.000 A	5.000 V
Center zero :	0.0000 V	32.00 °F	0.00 V	7.0000mV	0.0000 A	0.0000 V
Max:	1 V	100 °F	500 V	7.5mV	2 A	2.5 V
Min:	-1 V	32 °F	-500 V	6.5mV	0 A	-2.5 V
Threshold 1 :	250.0mV	80.00 °F	2.000mV	-1.000 V	500.0mA	500.0mV
Threshold 2 :	2.900 V	60.00 °F	2.000mV	-500.0mV	-500.0mA	1.000kV

	B 1	B 2	B 3	B 4	B 5	B 6
Name :	Channel B 1	Channel B 2	Channel B 3	Channel B 4	Channel B 5	Channel B 6
Channel ON/OF	On	On	On	On	On	On
Type :	V	V	V	V	V	V
Filter :	Without	Without	Without	Without	Without	Without
Function :						
Range :	10.00 V	10.00 V	4.000kV	10.00 V	10.00 V	10.00 V
Center zero :	0.0000 V	0.0000 V	0.0000kV	0.0000 V	0.0000 V	0.0000 V
Max:	5 V	5 V	4kV	5 V	5 V	5 V
Min:	-5 V	-5 V	0kV	-5 V	-5 V	-5 V
Threshold 1 :	500.0mV	500.0mV	500.0mV	500.0mV	500.0mV	500.0mV
Threshold 2 :	-500.0mV	-500.0mV	-500.0mV	-500.0mV	-500.0mV	-500.0mV

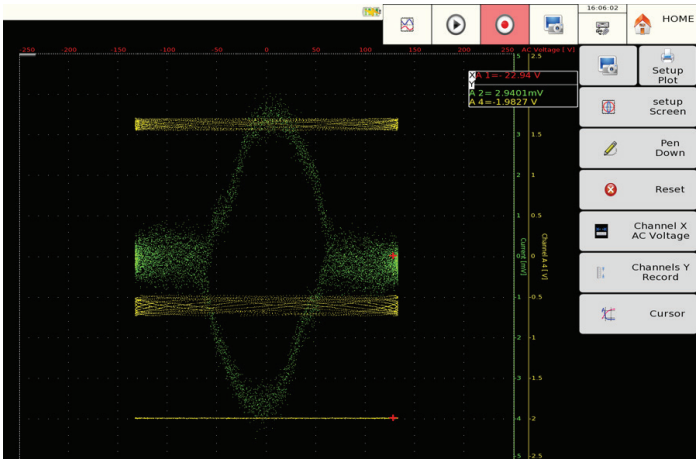
Channel setup displays parameters for up to 12 channels on a single screen



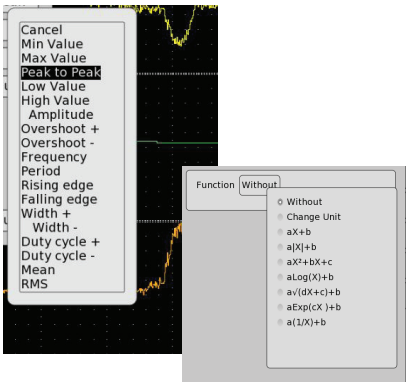
Comprehensive triggering capabilities: Configure triggers on analog and logic input channels. Select from multiple combinations of thresholds, channels and conditions.



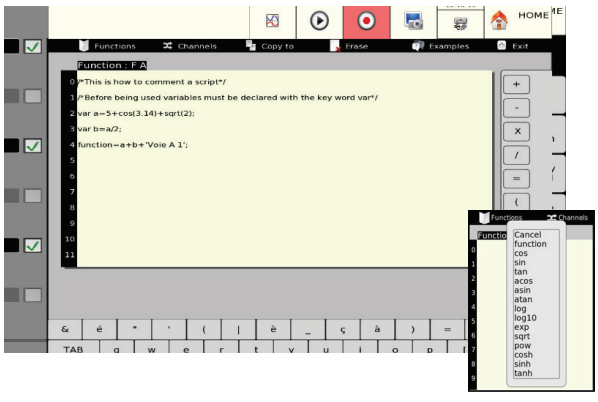
Oscilloscope like display mode with 100 kHz bandwidth



XY mode for plotting one varying signal versus another



Use measurement calculations for on screen display, or software defined formulas on individual channels



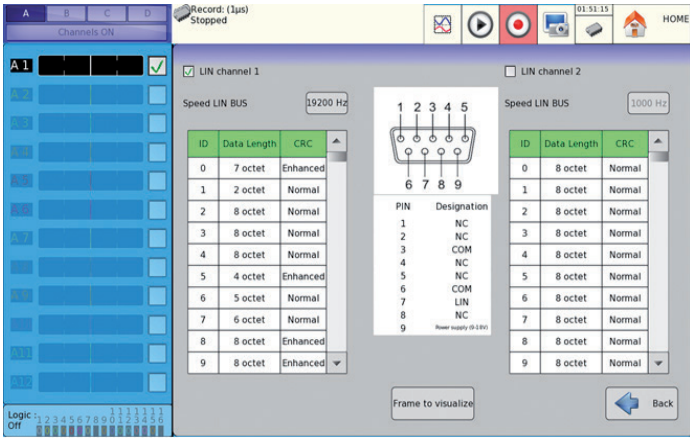
Create user defined formulas on multiple channels with the included text editor for even greater control. The results are shown as dedicated virtual channels for ease of measurement.

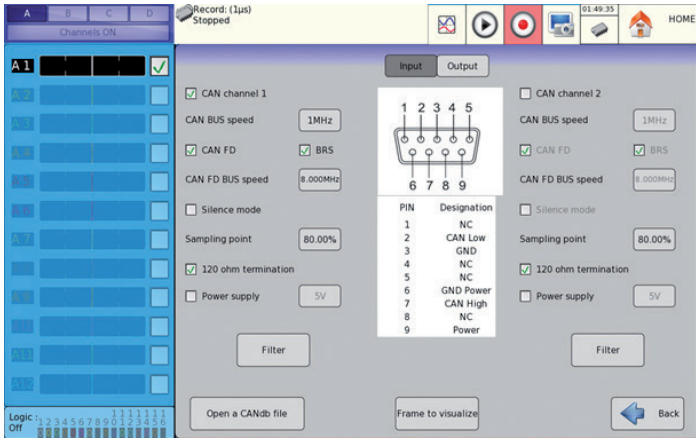
The tools you need

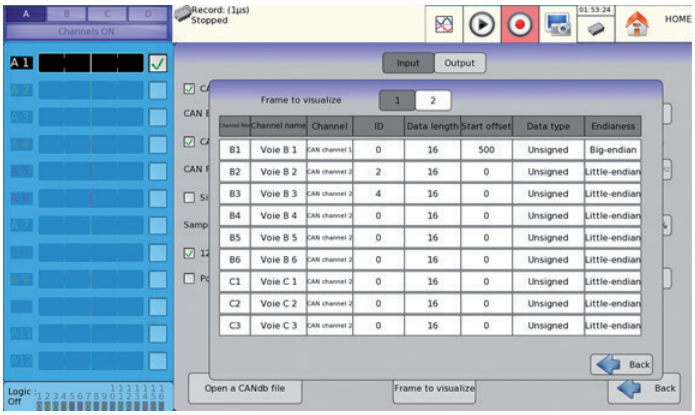
CAN/LIN mode

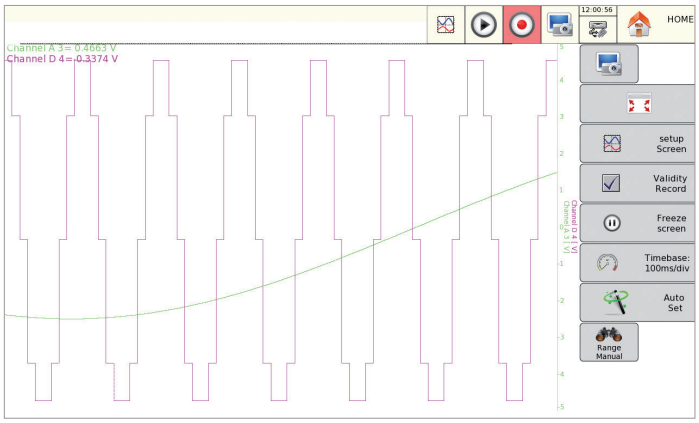
Monitor and analyze industrial and automotive buses with the optional CAN and LIN interface.

- CAN 2.0 A/B
- LIN I.3/2.X
- Analog signal comparison
- Save in csv format
- CAN FD
- Hardware filtering
- Graphical waveform conversion

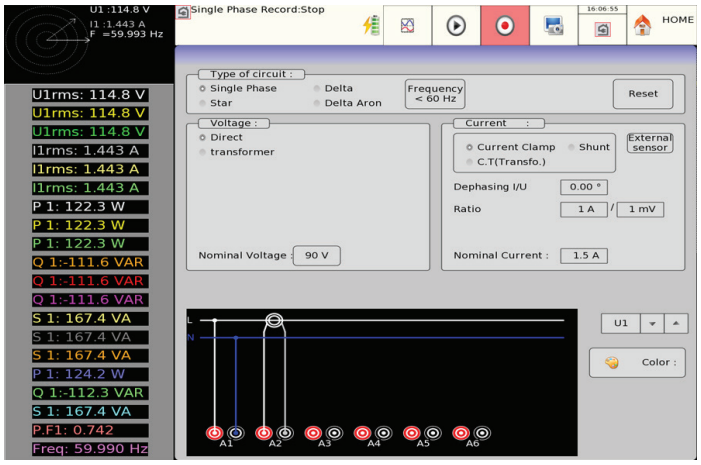


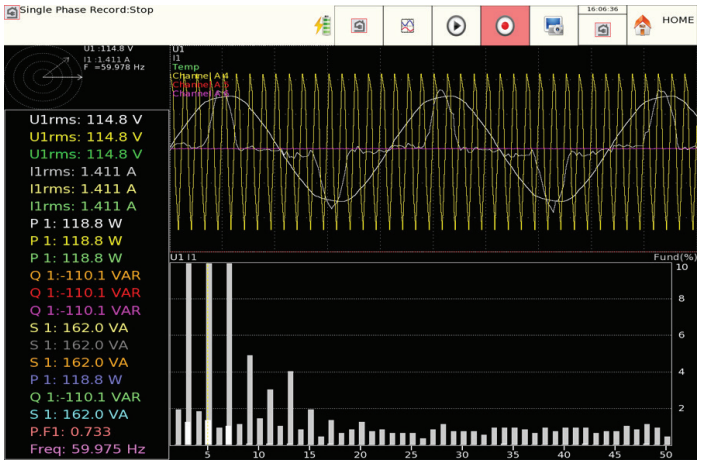






Energy / Power Analysis



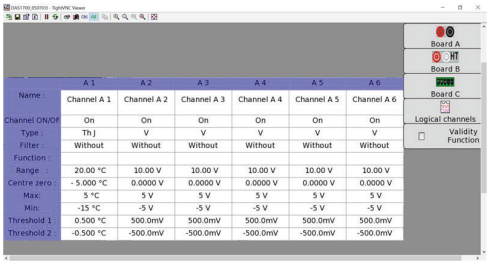


Analyze up to 4 power networks simultaneously in three phase configurations Delta, Delta (Aron), or Star. The real time display of Fresnel diagram, oscilloscope mode, and harmonics (up to 50th) measure and display voltage, current and frequency up to 1 kHz.

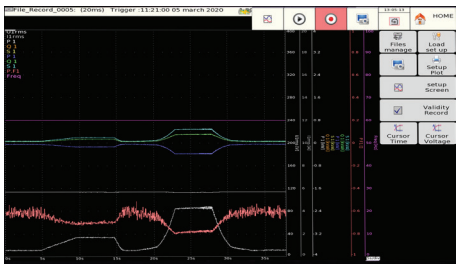
The tools you need

Virtual Network Computing (VNC) capability

The recorder's built-in VNC provides a graphical desktop system to remotely control the instrument from a computer with a full graphical interface that replaces the instrument's front panel using a mouse and keyboard



Channel setup and configuration

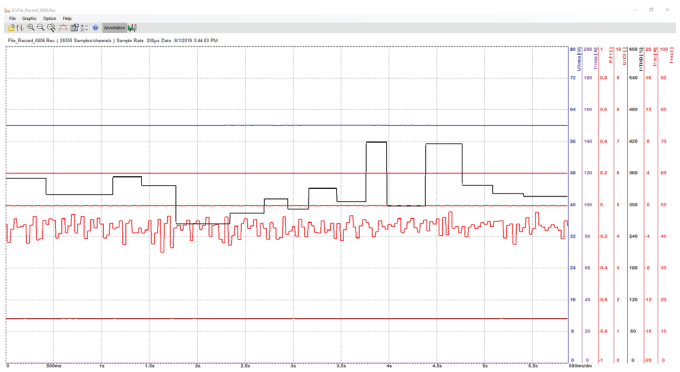


Measurement and evaluation

File Transfer Protocol (FTP)

Access remotely the internal hard drive of the recorder to drag and drop the recording files into your desktop.

Full control of the Data Acquisition System on a computer or mobile device



Sefram Viewer and Sefram Pilot for DAS1700 are license free software that can be downloaded from www.bkprecision.com. The software tools provide the following features:

Sefram Viewer

- Post acquisition analysis
- Display measurement results in graphical or numerical format
- 7 math functions such as y=ax+b, y=ln(x)+b, and y=exp(cx)+b
- Export measurement data to a csv or text file

Sefram Pilot for DAS1700

- Remote control and setup
- Channel and trigger configuration
- Export measurement data to a computer
- Start and stop recording
- Real time display

Measurement Boards

Configure the DAS1700 to fit your needs with any combination of module boards with up to 3 in the base unit, or up to 6 with the extension option.

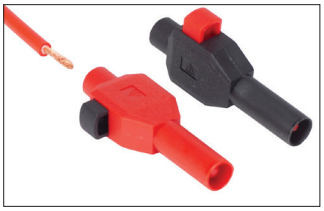
Universal Board	
High Voltage Board	
Multiplexed Board	
Strain Gauge Board	

Extension option for up to 6 measurement boards

Measurement Boards

	Universal	High Voltage	Multiplexed	Strain Gauge
Channels	6	6	12	6
Maximum Voltage	± 500 V or 424 VRMS	± 1000 V or 1000 VRMS	± 25 VDC	± 25 VDC
RMS Voltage	√	√	-	-
Resolution	14 bit	14 bit	16 bit	16 bit
Sampling Rate	1 MSa/s	1 MSa/s	5 kSa/s	100 kSa/s
Voltage	√	√	√	√
Current	√	√	√	-
Frequency	√	√	-	-
Thermocouple	√	-	√	√
Counter	√	√	-	-
Power Analysis	√	√	-	-
PRT Sensor	-	-	Pt100/Pt200/Pt500/Pt1000	Pt100/Pt1000

Included accessories

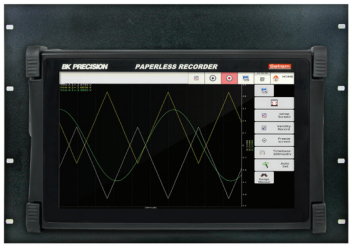


One set of bare wire to banana adapters per channel

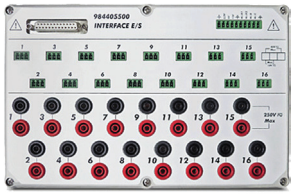
Rugged case

Also included: AC mains adapter 100 / 240 V, 25 pin male connector and backshell, soft wipe, stylus, screwdriver.

Optional accessories



Rackmount kit (917004000)



16 channel isolated logic adapter (917008000)

Specifications, Base Unit

Note: All specifications apply to the unit after a temperature stabilization time of 30 minutes over an ambient temperature range of 23 °C ± 5 °C.

Power Analysis Function	
Networks	Single phase, 3-phase, up to 4 networks simultaneously
Frequency	50-60 Hz, 400 Hz, 1000 Hz
Display	Fresnel diagram, oscilloscope, data
Measurements	Mean value, RMS, peak, crest factor, THD and DF for voltage & current, active, reactive and apparent power, power factor (ø)
Harmonics	Calculated up to rank 50, with display and record

Input Channels, Alarms, and Power		
Input Channels (Logic)	16	
	TTL Maximum Voltage	24 V
	Sampling Interval	1 µs (1 MSa/s) each channel
Alarm outputs	Alarm A, voltage-free relay contact rating, 24 V 100 mA	
	B, C 5 V TTL	
Auxiliary Supply	9 to 15 VDC, 0.2 A limited	

IRIG Option	
Accuracy	5 ms
Sampling Time Accuracy	10 E -12 (only for sampling rate ≥ 200 µs)
IRIG Formats	IRIG-AI33, AI32, A003, A002, BI23, BI22, B003, B002 and AFNOR NFS 87-500
IRIG Signal Amplitude Range	600 mVpp to 8 Vpp
Input Impedance	50 Ω

GPS Option	
Output Accuracy	< ± 100 ns (TCXO, OCXO LQ) < ± 50 ns (OCXO MQ, OCXO HQ)
Output Frequency	10 MHz TTL
Resolution	100 ns
Generated Time Codes	B002, BI22, B003, BI23, B006, BI26, B007, BI27, IEEE1344, C37.118, AFNOR
Input Impedance	50 Ω

Data Acquisition System		
Memory Mode	Fastest sampling rate*	1 MSa/s up to 36 channels
	Memory	128 M words
File Mode (SSD disk streaming)	Fastest sampling rate*	1 MSa/s up to 6 channels
	Internal SSD memory	500 GB (2 TB option)

(*) Universal and high voltage measurement board

General	
Internal Solid State Memory	500 GB (2 TB optional)
Operating Temperature	0 to 40 °C
Storage Temperature	-20 to 60 °C
Display	15.6" TFT LCD 1366 x 768 dots
Power Supply	99 VAC to 264 VAC, 47 to 63 Hz (80 VA max)
Interfaces	4 USB host ports, VGA, LAN
Battery (option)	Non removable, Lithium-ion
Typical Battery Life	2 hours
Weight (one card installed)	17.64 lbs (8 kg)
Dimensions (W x H x D)	10.67" x 18.58" x 6.06" (271 x 472 x 154 mm)
Warranty	2 Years
Supplied Accessories	Power cord, 25 pin male connector and backshell, rugged carrying case, bare wire to banana adapters, multiplexed board connectors (12), strain gauge board connectors (6), Stylus, soft wipe, screwdriver, calibration certificate and test report

Specifications, Measurement Boards

Note: All specifications apply to the unit after a temperature stabilization time of 30 minutes over an ambient temperature range of 23 °C ± 5 °C.

Universal Input Board		
Number of Channels		6
Voltage		
Maximum Input Voltage		± 500 VDC or 424 VRMS
Accuracy		± 0.1% of the full scale + 10 µV
True RMS AC/DC Ranges		200 mV to 500 V
RMS Voltage Accuracy		1% of full range
Response Time		100 ms typical (40 ms to 50 Hz)
Crest Factor		2
Input Impedance (DC)		1 MΩ for ranges > 1 V, 25 MΩ for ranges < 1 V
Input Capacitance		150 pF
High Input Impedance Option		10 MΩ for ranges > 1 V, 25 MΩ for ranges < 1 V
Channel Isolation		> 100 MΩ at 650 VDC
Safety		CAT III 500 V
Bandwidth and Filters		
Bandwidth (-3 dB)		100 kHz
True RMS Bandwidth		5 Hz to 500 Hz
Analog Filters		100 Hz, 1 kHz, 10 kHz (20 dB/decade slope)
Digital Filters		< 100 Hz
Sensitivity		100 mV RMS min.
Duty Cycle		10%
Frequency Range		1 Hz to 100 kHz
Basic Accuracy		0.02% of full scale
Data Acquisition		
Resolution		14 bits
Sampling Interval		1 µs (1 MSa/s) each channel
RMS Sampling Interval		200 µs (5 kSa/s) each channel
Temperature		
Sensor Range by Type (cold junction compensation: ± 1.25 °C)	J	-346 °F to 2192 °F (-210 °C to 1200 °C)
	K	-418 °F to 2498 °F (-250 °C to 1370 °C)
	T	-328 °F to 752 °F (-200 °C to 400 °C)
	S	-58 °F to 3200 °F (-50 °C to 1760 °C)
	B	392 °F to 3308 °F (200 °C to 1820 °C)
	E	-418 °F to 1832 °F (-250 °C to 1000 °C)
	N	-418 °F to 2372 °F (-250 °C to 1300 °C)
	C	32 °F to 4208 °F (0 °C to 2320 °C)
	L	-328 °F to 1652 °F (-200 °C to 900 °C)

High Voltage Board	
Number of Channels	6
Voltage	
Maximum Input Voltage	± 1000 VDC or 1000 VRMS
Accuracy	± 0.2% of the full scale
DC Voltage Ranges	± 50 mV to ± 1000 V
AC Voltage Ranges	100 mV to 1000 VRMS
RMS Voltage Accuracy	1% of full range
Response Time	100 ms typical (40 ms to 50 Hz)
Crest Factor	2.2
Input Impedance	11 MΩ for ranges < 10 V, 25 MΩ for ranges ≥ 1 V
Input Capacitance	150 pF
Channel Isolation	> 100 MΩ at 1500 VDC
Safety	CAT III 1000 V and CAT IV 600 V
Bandwidth and Filters	
Bandwidth	26 kHz
True RMS Bandwidth	5 Hz to 500 Hz
Analog Filters	100 Hz, 1 kHz, 10 kHz
Slope	40 dB/decade
Digital Filters	< 100 Hz
Sensitivity	100 mV RMS min.
Duty Cycle	10%
Frequency Range	10 to 100 kHz
Basic Accuracy	0.2% of full scale
Data Acquisition	
Resolution	14 bits
Sampling Interval	1 µs (1 MSa/s) each channel
RMS Sampling Interval	200 µs (5 kSa/s) each channel

Specifications, Measurement boards (cont.)

Note: All specifications apply to the unit after a temperature stabilization time of 30 minutes over an ambient temperature range of 23 °C ± 5 °C.

Multiplexed Board		
Number of Channels		12
Voltage		
Maximum Input Voltage		± 25 VDC
DC Voltage Range		± 0.5 mV to ± 25 V
Accuracy		± 0.1% of the full scale + 10 µV
Input Impedance (DC)		1 MΩ for ranges > 2 V, 10 MΩ for ranges < 2 V
Input Capacitance		150 pF
Bandwidth and Filters		
Digital Filters		< 100 Hz
Data Acquisition		
Resolution		16 bits
Sampling Interval		200 µs (5 kSa/s) each channel
Temperature with Thermocouple		
Sensor Range by Type (cold junction compensation: ± 1.25 °C)	J	-346 °F to 2192 °F (-210 °C to 1200 °C)
	K	-418 °F to 2498 °F (-250 °C to 1370 °C)
	T	-328 °F to 752 °F (-200 °C to 400 °C)
	S	-58 °F to 3200 °F (-50 °C to 1760 °C)
	B	392 °F to 3308 °F (200 °C to 1820 °C)
	E	-418 °F to 1832 °F (-250 °C to 1000 °C)
	N	-418 °F to 2372 °F (-250 °C to 1300 °C)
	C	32 °F to 4208 °F (0 °C to 2320 °C)
	L	-328 °F to 1652 °F (-200 °C to 900 °C)
Temperature with RTD		
Current	Pt100	1.0 mA
	Pt200	0.5 mA
	Pt500	0.2 mA
	Pt1000	0.1 mA
Temperature Range		-328 °F to 1562 °F (-200 °C to +850 °C)
Measurements		2, 3, 4 wires
Accuracy at 20 °C		± 0.03 °C

Strain Gauge Board		
Number of channels		6
Strain Gauge		
Units		µStr
Bridge Type		Full Bridge, Half Bridge
Bridge Voltage		± 1 V and ± 2.5 V
Accuracy		± 0.1% of the full scale + 10 µV
Ranges (µStr)		1,000, 2,000, 5,000, 10,000
Voltage		
Maximum Input Voltage		50 VDC
Accuracy		± 0.2% of the full scale
DC Voltage Range		1 mV to 50 V
Input Impedance		2 MΩ for ranges < 1 V, 1 MΩ for ranges > 1 V
Bandwidth and Filters		
Bandwidth (-3 dB)		18 kHz
Analog Filters		100 Hz, 1 kHz
Digital Filters		< 100 Hz
Data Acquisition		
Resolution		16 bits
Sampling Interval		10 µs (100 kSa/s) each channel
Temperature with Thermocouple		
Sensor Range by Type (cold junction compensation: ± 1.25 °C)	J	-346 °F to 2192 °F (-210 °C to 1200 °C)
	K	-418 °F to 2498 °F (-250 °C to 1370 °C)
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	C	32 °F to 4208 °F (0 °C to 2320 °C)
	L	-328 °F to 1652 °F (-200 °C to 900 °C)
Temperature with RTD		
Current	Pt100	1.0 mA
	Pt200	0.5 mA
Temperature Range		-328 °F to 1562 °F (-200 °C to +850 °C)
Measurements		2, 3, 4 wires
Accuracy at 20 °C		± 0.03 °C

Ordering Information

Step 1: Determine the number and types of measurement boards for your application. Select up to 3 boards (base unit), or 6 with the optional expansion chassis.

Board Type	Supported Measurements	Channels	Part Number (factory installed)	Part Number (not installed)
Universal	Voltage (± 500 VDC or 424 VRMS), Temperature (thermocouples), & Current (with shunt)	6	DAS984401000	984401000
High Voltage	Voltage (± 1000 VDC or 1000 VRMS) and Current (with shunt)	6	DAS916006000	916006000
Multiplexed	Voltage (± 25 VDC), Temperature (with thermocouples), Temperature (with RTDs), and Current (with shunt)	12	DAS984402000	984402000
Strain Gauge	Bridge type measurements, Voltage (up to 50 V), Temperature (with thermocouples), and Temperature with RTDs	6	DAS984402500	984402500

Note: Refer to the Measurement Boards and Specifications sections for additional information.

Step 2: Select factory installed base unit options

Option	Part Number
CAN/LIN option(1)	917005500
GPS option(2)	917005600
IRIG option(2)	917005000
2 TB Hard drive option	917007000
Battery option(1) (up to 2 hours of run time)	917003000
Extension option (provides 3 additional measurement board slots)	917001000
Fanless option(1)	917009000

(1) Not compatible with the extension option
(2) The GPS and IRIG options cannot be installed at the same time

Step 3: Select your accessories

Accessory	Part Number
Rack mount kit	917004000
USB Wifi dongle	902402000
Isolated logic channel module	917008000
Logic channels patch cord	902407000
50 ohm shunt, 0.1%, 0.05A max	989007000
10 ohm shunt, 0.1%, 0.15A max	989008000
1 ohm shunt, 0.1%, 0.5A max	989006000
0.1 ohm shunt, 1%, 1A max	989007200
0.01 ohm shunt, 1%, 3A max	989007100
0.01 ohm shunt, 0.5%, 30A max	207030301
0.001 ohm shunt, 0.5%, 50A max	207030500
Flexible AC current clamp 3000A	A1587
Banana / BNC female adapter	SO415

Step 4: Contact your authorized sales representative

Americas

1. Order base unit (DAS1700), measurement boards, and accessories separately.
2. To request a quote, select "Quote Request" at https://www.bkprecision.com/products/data-acquisition-recorders-loggers/DAS1700. Use the "Application Information" field to list required accessories.

   Or, visit our where to buy page at https://www.bkprecision.com/wtb/where-to-buy to view a list of authorized distributors.

Europe

1. Configure system part number as follows:
   DAS1700/_XX_ _YY_ _ZZ_, where
   XX = Quantity of Multiplexed boards
   YY = Quantity of Universal boards
   ZZ = Quantity of High Voltage boards

   Note: The sum of the boards must be 3 or less; 6 or less when the optional expansion chassis is selected.
2. Order additional options and accessories separately per the tables above.
3. Visit https://www.sefram.com/en/contact-us.html to request a quote.

About B&K Precision

For more than 70 years, B&K Precision has provided reliable and value-priced test and measurement instruments worldwide.

Our headquarters in Yorba Linda, California houses our administrative and executive functions as well as sales and marketing, design, service, and repair. Our European customers are most familiar with B&K through our French subsidiary, Sefram. Engineers in Asia know us through our B+K Precision Taiwan operation. The independent service centers in Singapore and Brasil service customers in Singapore, Malaysia, Vietnam, Indonesia and South America, respectively.

B&K Precision group member Independent service center Service center location

Quality Management System

B&K Precision Corporation is an ISO9001 registered company employing traceable quality management practices for all processes including product development, service, and calibration.

ISO9001:2015 Certification body NSF-ISR
Certificate number 6Z241-IS8

NSF-ISR
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About Sefram

Established in 1947, Sefram has been designing and manufacturing data recorders for more than 70 years. Sefram joined the test and measurement division of Schlumberger in 1978, and has been a subsidiary of B&K Precision since 2004. Certified ISO 9001, Sefram's strategy is to provide innovative and high-quality test and measurement products for electronic and electrical applications.

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