SECTION 12

Miscellaneous
(Terminal Blocks, Demand Meters, Recorders, Data Loggers, Chart Paper)

- AEMC
- Electro Industries
- EMM, Inc.
- Graphic Controls
- Osaki
- Yokogawa (YCA)
- Woertz

Miscellaneous products from the following manufacuturers are also available but not shown in catalog:

- Amprobe
- Beede
- Crompton
- Dwyer
- Electro Industries
- Electro-Numerics
- Empro
- Hecon
- Instrument Transformer, Inc.
- Modutec
- M-System
- Power Process Controls
- Rustrak
- Simpson
- Texmate, Inc.
- Triplett (LFE)
- UEI
- Veris

MISCELLANEOUS PRODUCTS

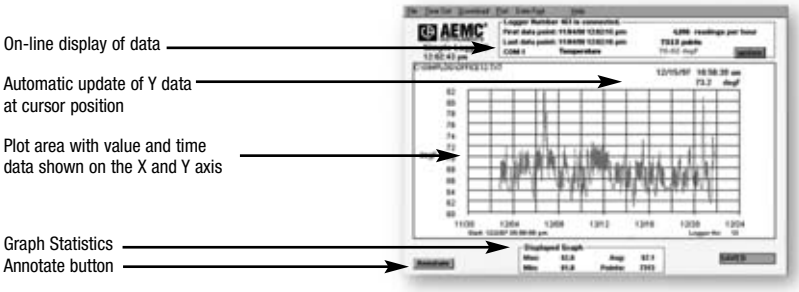
Data Loggers

Data Logging Made Simple...Simple Logger®

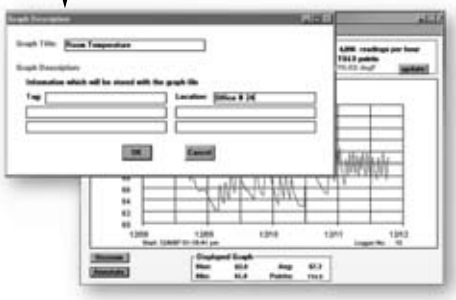
Simple Logger® is a single channel, low cost data logger that requires no user setup. It has the ability to automatically adjust both its scale range and its sample rate to optimize the recording session. Simple Logger® includes a Windows™ based software package that can plot, analyze recording data and print graphs and data listings.

The main advantage of Simple Logger® is its ability to perform a wide variety of recording tasks with high resolution and accuracy without the need for user setup. It achieves this by means of automatic scaling and Time Extension Recording™ (TXR™) along with a flexible input design.

Simply connect the logger to the signal to be recorded and press the button to begin recording. When the session is complete press the button to stop. It is that simple!



Click the annotate button to add a title and descriptive information to your graph. This information can be stored and printed with a graph.



Plot graphs and view statistics quickly and easily when you download data from Simple Logger® to your computer. Scale and time axis update automatically.

Click and drag your mouse to zoom up the desired area of the graph for better viewing the Min, Max and average statistics at the bottom of the graph update automatically with zoom window.

Click the annotate button to add a title and descriptive information to your graph. This information can be stored and printed with the graph.

- No user setup required — one button operation
- Log and measure Amps rms, Volts rms, Temperature, DC Volts, DC Amps
- Autosampling up to 4096/hr — provides for maximum information
- Stores over 8000 readings
- Auto-scaling — provides for optimum resolution for the recording session
- Innovative Time Extensive Recording™ (TXR™) technique provides continuous recording for any length of time without user setup
- Low power — records for up to one year using a 9V Alkaline battery

Software Features

- Windows™ based graphing and analysis software included with each data logger
- Statistics appear on screen: Max, Min, Avg, Data and Time
- On-Line display of data logger values
- Zoom capability with automatic statistics update
- Export data to spreadsheet and database applications
- Print both graph and tabular listings
- Paste graphs into other applications
- Programmable scale and units for all DC loggers Automatic selection for AC loggers

Common Features

Sample rate: 4096/hr maximum

Resolution: 8 to 12 bit

Data storage: 8192 to 65,536 Readings (depending on model)

Power: 9V Alkaline battery

Output: RS-232 via DB9 connector

Indicator: Red LED flashes once every 2 seconds in STANDBY mode, twice every 2 seconds in LOGGING mode, and is off in OFF mode

Controls: One membrane switch used to start and stop recording sessions and to turn the data logger on and off

Environmental

Operating Temperature: -4 to +158°F (-20 to +70°C)

Storage Temperature: -40 to +176°F (-40 to +80°C)

Relative Humidity: 5 to 95% non-condensing

Typical Applications: • Machine load monitoring • Metering CT re-sizing • Temperature monitoring • HVAC troubleshooting • Computer room monitoring • Food storage/Refrigerated freight • Wave soldering • Process control monitoring • Railroad signal monitoring • Surge/sag monitoring • Line voltage/Stray voltage monitoring • Load profiling

AEMC® INSTRUMENTS

Data Loggers

Thermocouple Logger Models L610, L620 & L630

Model L630

Model L610 (Type J)
32° to 1382°F (0° to 750°C)
Model L620 (Type K)
-328° to 2282°F
(-200° to 1250°C)
Model L630 (Type T)
-328° to 662°F
(-200° to 350°C)

- Inputs via color-coded miniature thermocouple jacks
- Open thermocouple
- RS-232 output
- One button operation
- Internal cold junction compensation
- Accuracy: ±0.5% of Reading + T/C Accuracy

Applications
- Process control monitoring
- Refrigeration monitoring
- Wave soldering

Thermistor Logger Model L605

Model L605

Model L605
Internal or External Thermistor
Internal
-4° to 158°F (-20° to 70°C)
External
-4° to 212°F (-20° to 100°C)

- Thermistor type 10kΩ @ 25°C
- RS-232 output
- One button operation
- Accuracy: ±1% of Reading ± 0.25°C

Applications
- Ambient temperature monitoring
- HVAC troubleshooting
- Computer room monitoring
- Wave soldering temperature profiling
- Process control monitoring
- Refrigeration monitoring

4 to 20mA Logger Model L320

Model L320

Model L320
4 to 20mADC

- Auto-Ranging
- Programmable scales
- Programmable units
- RS-232 output
- One button operation
- Standard terminal strip input
- Self adjusting sample rate
- Compact size fits anywhere
- Low loop impedance
- Accuracy: ±1% of Reading + Resolution

Applications
- Process control monitoring troubleshooting
- General purpose DC current monitoring
- Profile temperature, pressure, flow and other parameters directly

DC Voltage Logger Models L410 & L430

Model L410

Model L410
0 to 100mVDC
Model L430
0 to 10VDC

- Input Impedance: 1MΩ
- Programmable scales
- Programmable units
- Input via color-coded safety banana jacks
- RS-232 output
- One button operation
- Accuracy: ±1% of Reading + Resolution

Applications
- Circuit design troubleshooting
- Sensor monitoring
- Battery testing
- Power supply profiling

CATALOG NO.	DESCRIPTION
2113.97	Simple Logger® Model L320 (DC Current, 4 to 20mADC Input)
2114.05	Simple Logger® Model L410 (DC Voltage, 0 to 100mVDC Input)
2114.07	Simple Logger® Model L430 (DC Voltage, 0 to 10VDC Input)
2114.17	Simple Logger® Model L605 (Temperature, Temperature-Internal/External Thermistor)
2116.15	Simple Logger® Model L610 (Temperature, J Thermocouple)
2116.16	Simple Logger® Model L620 (Temperature, K Thermocouple)
2116.17	Simple Logger® Model L630 (Temperature, T Thermocouple)

AEMC® INSTRUMENTS

Data Loggers

AC Current Logger Models L100 & L110

Model L100

Model L100
0 to 1Vrms (for use with voltage output probes)
0 to 10,000Arms (based on probe)

Model L110
0 to 1Arms (for use with current output probes)
0 to 3000Arms (based on probe)

- Supports wide range of current probes with voltage or current outputs
- True RMS measurements
- Input via color-coded safety banana jacks
- Select scale via software to match probe
- RS-232 output
- One button operation
- Accuracy: ±1% of Reading + Resolution

Applications
- Machine load monitoring
- Metering CT re-sizing
- Load profiling
- Fault finding

AC Voltage Logger Models L230 & L260

Model L230

Model L230
0 to 300Vrms

Model L260
0 to 600Vrms

- True RMS measurements
- Input via color-coded safety banana jacks
- Scale automatically selected by software
- RS-232 output
- One button operation
- Accuracy: ±1% of Reading + Resolution

Applications
- HVAC troubleshooting
- Line voltage monitoring
- Surge/sag monitoring
- Dropout monitoring

AC Stray Voltage Logger Model L205

Model L205

Model L205
0 to 25Vrms

- True RMS measurements
- Input via color-coded safety banana jacks
- Scale automatically selected by software
- RS-232 output
- One button operation
- Accuracy: ±1% of Reading + Resolution

Applications
- HVAC troubleshooting
- Line voltage monitoring
- Surge/sag monitoring
- Stray voltage monitoring
- Dropout monitoring

AC Exception Voltage Logger Model L215

Model L215

Model L215
0 to 250Vrms

- 10 samples per second
- Stores data when alarm level is tripped
- True RMS measurements
- 64K storage memory
- 10 bit resolution (250mV)
- Detect sags and swells
- Scale automatically selected by software
- Software programmable HI and LO alarm levels
- RS-232 output
- One button operation
- Alarm trip LED indicator

Applications
- Surge/sag monitoring
- Computer room monitoring
- Residential monitoring
- Machine monitoring
- Marine power monitoring

CATALOG NO.	DESCRIPTION
2113.50	Simple Logger® Model L100 (RMS Current, 0 to 1VAC Input)
2113.85	Simple Logger® Model L110 (RMS Current, 0 to 1AAC Input)
2113.93	Simple Logger® Model L230 (RMS Voltage w/Leads, 0 to 300VAC Input)
2113.94	Simple Logger® Model L260 (RMS Voltage w/Leads, 0 to 600VAC Input)
2116.05	Simple Logger® Model L205 (Stray Voltage w/Leads, 0 to 25.5VAC Input)
2116.07	Simple Logger® Model L215 (RMS Voltage, 0 to 250VAC Input)

AEMC® INSTRUMENTS

Data Loggers

Sentinel® Data Loggers Voltage & Current

Models SDL V301 and SDL A302

Features

- Three- and four-channel voltage and current loggers
- True RMS measurements
- Low-cost, self-contained and portable
- Differential three-phase inputs (Voltage Loggers)
- Three programmable storage modes
- Programmable data storage rate
- Integral flexible current probes for three-phases (Current Loggers)
- Measures up to 3000A (Current Loggers)
- Stores up to 480,000 points (1MB)
- 64 samples per cycle
- Includes DataView® software for data storage, real-time display, analysis and report generation
- Isolated USB communication
- 600V Cat. III

SPECIFICATIONS

MODEL	SDL V301	SDL V401	SDL A301	SDL A302	SDL A303	SDL A304	SDL A401	SDL A402
ELECTRICAL								
Number of Channels	Three	Four	Three	Three	Three	Three	Four	Four
Input Termination	Recessed banana jacks	Recessed banana jacks	Hard-wired flexible CTs	Hard-wired flexible CTs	Hard-wired flexible CTs	Hard-wired flexible CTs	BNC	BNC
Voltage Range	0 to 600VAC/ 0 to 850VDC	0 to 600V/ 0 to 850VDC	–	–	–	–	–	–
Current Range	–	–	5 to 1000A	15 to 3000A	5 to 1000A	15 to 3000A	5 to 1000A or 15 to 3000A, sensor dependent	Probe dependent
Resolution	0.1V	0.1V	0.1A	0.25A	0.1A	0.25A	0.25A	Probe dependent
Accuracy	±(0.25% of Reading + 0.6V) from 85 to 600V ±(1.0% of Reading + 0.6V) from 5 to 85V		±(1% of Reading + 1.5A)	±(1% of Reading + 1.5A)	±(1% of Reading + 1.5A)	±(1% of Reading + 1.5A)	±1% of Reading ±1.5A	Probe dependent
Sample Rate	64 samples/cycle							
Storage Rate	Programmable from 250ms to 12 hours							
Recording Method	Stop when full, FIFO, and Extended Recording Mode (XRM™)*							
Memory Capacity	1MB, stores 480,000 readings							
Communication	USB 2.0 optically isolated to 5500Vrms							
Controls	One button to turn logger on/off and start/stop recording							
Indicators	Red, yellow and green status indicators							
Power Source	Four 1.5V C Alkaline batteries	AC power/ rechargeable NiMH batteries	Four 1.5V C Alkaline batteries	Four 1.5V C Alkaline batteries	AC power/ rechargeable NiMH batteries	AC power/ rechargeable NiMH batteries	AC power/ rechargeable NiMH batteries	AC power/ rechargeable NiMH batteries
Battery Life**	100 hours to 90 days	Power ride through10 hrs	100 hours to 45 days	100 hours to 45 days	Power ride through 10 hrs	Power ride through 10 hrs	Power ride through 10 hrs	Power ride through 10 hrs
MECHANICAL								
Protection Index	IP50	IP50	IP50	IP50	IP50	IP50		
Dimensions	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"	6.73 x 4.76 x 2.17"
Weight	1.8 lbs (0.8kg)	1.8 lbs (0.8kg)	3.2 lbs (1.4kg)	3.2 lbs (1.4kg)	3.2 lbs (1.4kg)	3.2 lbs (1.4kg)	3.2 lbs (1.4kg)	3.2 lbs (1.4kg)

*Extended Recording Mode (XRM™)
This unique recording mode provides the opportunity to continuously record over long periods of time by reducing the stored samples of the oldest data and maintaining matching resolution for the newest data. Each time the memory fills up using XRM™ every other of the oldest stored samples is discarded making room for newer samples. This process continues until the recording is manually stopped.
**Dependent on sample rate.

Consult our website as new models become available.

Data Loggers

Clamp-On AC Logger Model CL600

Model CL600

Specifications

MODEL	CL600
Electrical	
Number of Channels:	1
Measurement Range:	0 to 600Arms
Input Connections:	Split Jaw
Resolution:	8 bit (0.5A)
Accuracy:	2% of Reading + Resolution (0 to 400A) 5% of Reading + Resolution (400 to 600A)
Battery Life:	Up to 1 yr recording @ 25°C
Controls:	One button used to start and stop recording sessions and to turn the data logger on and off
Mechanical	
Size:	5.47 x 2.00 x 1.8" (139 x 51 x 30mm)
Weight:	17.1 oz (484.79g)
Max Conductor Size:	2 conductors: 1" (25.4mm) each 1 conductor: 1.65" (42mm)
Jaw Opening:	1.65" (42mm max)

Features:

- 0 to 600Arms input
- True RMS measurements
- Self contained, no exposed connections
- Overload indication
- RS-232 output

Applications:

- Machine load monitoring
- HVAC troubleshooting
- Load profiling
- Electrical troubleshooting

Catalog No.	Description
2116.11	Simple Logger® Model CL600 (Clamp-On, RMS Current, 0 to 600Arms Input)

Flexible Current Probe Loggers Models AL24-2500 & AL36-2500 AL24-5000 & AL36-5000

Features:

- True RMS recording
- Self contained, no exposed connections
- Weatherproof NEMA 4X, IP65 rated
- Flexible sensor — fits anywhere
- Scale automatically selected in software

Applications:

- Load profiling
- Machine load monitoring
- Substation monitoring

Specifications

MODELS	AL24-2500	AL36-2500	AL24-5000	AL36-5000
Electrical				
Number of Channels:	1			
Input: (switchable)	5 to 250 or 2500Arms		5 to 500 or 5000Arms	
Input Sensor (flexible current sensor):	24" (610mm)	36" (910mm)	24" (610mm)	36" (910mm)
Resolution:	250A range: 11A max 2500A range: 10A max		1500A range: 12A max 5000A range: 20A max	
Accuracy:	1% of Reading + Resolution			
Battery Life:	Up to 6 months recording @ 25°C			
Working Voltage:	600Vac			
Mechanical				
Size:	Sensor: Diameter 0.5" (12.5mm) Logging Module: 1-9/16 x 2-1/2 x 4-1/2" (41 x 64 x 114mm)			
Weight:	15.5 oz (with battery) (439.3g)			
Max Conductor Size:* (Diameter conductor):	8" (190mm)	12" (290mm)	8" (190mm)	12" (290mm)

*Dimensions rounded off

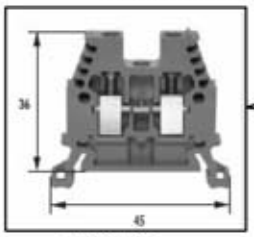
Model AL24-2500

Catalog No.	Description
2113.72	Simple Logger® Model AL24-2500 (RMS Current, 250/2500A, 24" AmpFlex™)
2113.73	Simple Logger® Model AL36-2500 (RMS Current, 250/2500A, 36" AmpFlex™)
2113.74	Simple Logger® Model AL24-5000 (RMS Current, 500/5000A, 24" AmpFlex™)
2113.75	Simple Logger® Model AL36-5000 (RMS Current, 500/5000A, 36" AmpFlex™)

woertz

Terminals

Remember the Allen Bradley 1492-W4?



Woertz 3450 terminal block is a direct drop-in replacement for the 1492-W4!

3450 GR

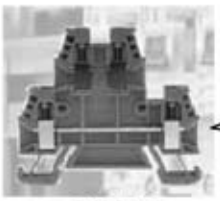
Woertz has brand-labeled the **AB 1492-W…series** of Allen Bradley terminal blocks for many years. Many customers have come to appreciate and depend on the quality and construction of the Woertz terminal block design. **Woertz terminals are a direct cross to the AB 1492-W series of terminal blocks!**

Cross-over list

Please contact us if you do not see the AB parts you currently use.

Woertz Part	AB Part
30150GR -1 level terminal(5mm)	1492-W3
3450GR - terminal; gray (6mm)	1492-W4
3452/6GR- terminal; gray (7mm)	1492-W6
3452/10GR - terminal	1492-W10
30860GR – 2 level term.	1492-WD3
3430GR – 2 level term.	1492-WD4
30403– 3 level term.	1492-WTF3
30544/4V – ground block	1492-WG4
30930 – Fuse block	1492-WFB4
30935– Fuse block	1492-H6
3401/S – slotted Din35mm rail	199-DR1
WR-35ALRR – Alum. Raised rail	1492-DR6

Please contact us to help with crossing over Phoenix, Entrelec, Weidmuller, Wieland



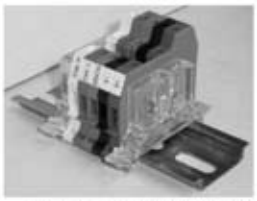
Woertz Part 3430 is a drop-in replacement for the 1492-WD4

3430 BL

We offer low cost custom labels for the terminal blocks with quick turn-a-round.

Other products offered by Woertz-USA:

Devicenet terminas:



Part No's:
30903WE (white)
30903BL (blue)
30903GR (gray)
30903SW (black)
30903RO (red)

Assembly P/N: 30903-DEVNET

Slim – Line pluggable relays:

Woertz's 45739T/… series offers a pluggable 1PDT relay. The terminal base has cage clamp style terminals. (Our CINT-11 series is offered with a screw terminal base).

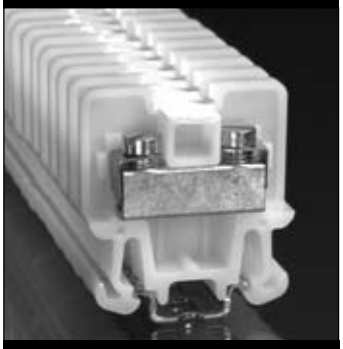
Part No.	Description
45739RT/2	24VDC relay and base
45739RT/15	115VAC/DC relay and base

NPN and PNP Inverters

Woertz's Snapline series of **NPN and PNP Inverters** are the World's smallest electronic terminals on the market today! At only 5.08mm wide (< ¼") part numbers 45323T/NP (source) and 45323T/PN (sink) allow for easy 2-wire configuration and an open collector output.

Nema Style Channel Mounted Terminal Blocks

EA1

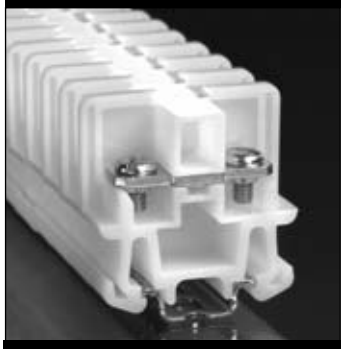


Tubular Screw Type with Pressure Plate
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 55 A
Wire Range = #22 - #8
Recommended Screw Tightening Torque 8 - 16 Inch. Lb.
Density = 30 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EA2

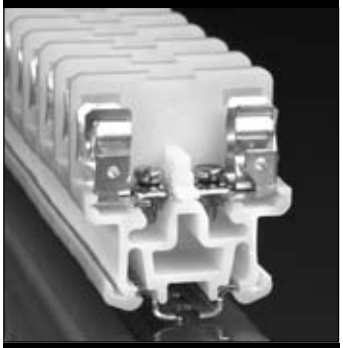
Tubular Screw Type without Pressure Plate
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 55 A
Wire Range = #18 - #8
Recommended Screw Tightening Torque 10 - 16 Inch. Lb.
Density = 30 pcs./FT.
Insulation Termperature Range -40°C - +85°C

ED3



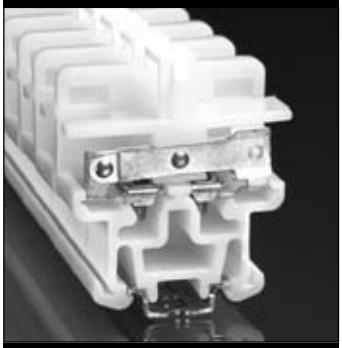
Screw Terminal with #8 Screw
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 35 A
Wire Range = #22 - #10
Recommended Screw Tightening Torque 10 - 16 Inch. Lb.
Density = 22 pcs./FT.
Insulation Termperature Range -40°C - +85°C

ED8



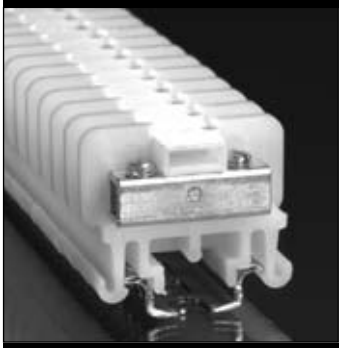
Screw Terminal with Wire Clamp
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 35 A
Wire Range = #22 - #10
Recommended Screw Tightening Torque 10 - 16 Inch. Lb.
Density = 22 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EE6



Fuse Clip Screw Terminal with Wire Clamp
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 10 A
Wire Range = #22 - #10
Recommended Screw Tightening Torque 10 - 16 Inch. Lb.
Density = 16 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EE9

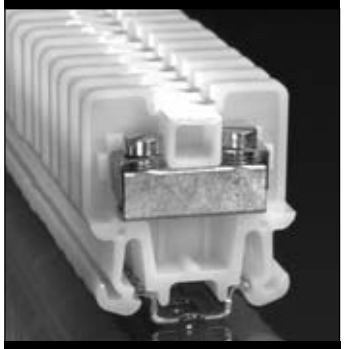


Switch - Screw Terminal with Wire Clamp
Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 10 A
Wire Range = #10 - #16
Recommended Screw Tightening Torque 10 - 16 Inch. Lb.
Density = 16 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EMM INC.

Nema Style Channel Mounted Terminal Blocks

EF1



Tubular Screw Type with Pressure Plate

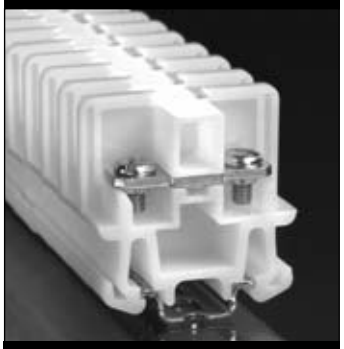
Approvals = UL/CSA
Voltage Rating = 300V
Maximum Current = 25 A
Wire Range = #22 - #14
Recommended Screw Tightening Torque 4 - 14 Inch. Lb.
Density = 35 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EF2

Tubular Screw Type without Pressure Plate

Approvals = UL/CSA
Voltage Rating = 300V
Maximum Current = 25 A
Wire Range = #22 - #14
Recommended Screw Tightening Torque 6 - 14 Inch. Lb.
Density = 35 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EH1



Finger Safe Terminal, Single Circuit, Screw with Pressure Plate

Approvals = UL/CSA
Voltage Rating = 600V
Maximum Current = 30 A
Wire Range = #22 - #12
Recommended Screw Tightening Torque 3 - 7 Inch. Lb.
Density = 50 pcs./FT.
Insulation Termperature Range -40°C - +85°C

EH4

Product Image Unavailable

Fusible Terminal Block with Neon Blown Fuse Indicator, Finger-Safe

Voltage Rating = 100 - 300V AC/DC
Maximum Current = 12 A
Wire Range (Rated Cross Section) #30 - #12 AWG
Wire Strip Length= 0.38"
Recommended Tightening Torque 3 - 7 lbs. - in.
Fuse Size (Not Supplied)= 1/4" x 1-1/4" Fuse
Leakage Current (Indicator Circuit) 2mA @ 300V
Density= 33pcs./ft.
Insulation Temperature Range= -40°C - +105°C

EH5

Product Image Unavailable

Fusible Terminal Block with LED Blown Fuse Indicator, Finger-Safe

Voltage Rating = 10 - 57V AC/DC
Maximum Current = 12 A
Wire Range (Rated Cross Section) #30 - #12 AWG
Wire Strip Length= 0.38"
Recommended Tightening Torque 3 - 7 lbs. - in.
Fuse Size (Not Supplied)= 1/4" x 1-1/4" Fuse
Leakage Current (Indicator Circuit) 2mA @ 24V
Density= 33pcs./ft.
Insulation Temperature Range= -40°C - +105°C

EH6

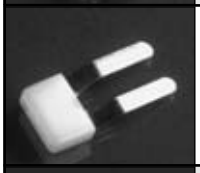
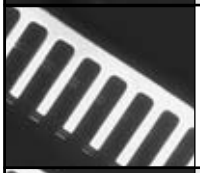
Product Image Unavailable

Fusible Terminal Block without a Blown Fuse Indicator, Finger-Safe

Voltage Rating = 300V AC/DC
Maximum Current = 12 A
Wire Range (Rated Cross Section) #30 - #12 AWG
Wire Strip Length= 0.38"
Recommended Tightening Torque 3 - 7 lbs. - in.
Fuse Size (Not Supplied)= 1/4" x 1-1/4" Fuse
Density= 33pcs./ft.
Insulation Temperature Range= -40°C - +105°C

Accessories for Nema Style Terminal Blocks

	Description	Catalog No.	Std. Pkg.
	End Barriers for Style EA & ED Blocks 600 Volts	**EB1**	**50**
	End Barrier for Style EF Blocks 300 Volt	**EB2**	**50**
	End Barrier for Style EE Blocks 600 Volt	**EB3**	**50**
	End Barrier for Catalog No. EH1	**EB4**	**50**
New Product Available Mid - 1998	**End Barrier for Catalog No. EH4, EH5 and EH6**	**EB5**	**50**
	End Anchor for 300 & 600 V Blocks Clamps to channel by tightening two screws.	**EC2**	**10**
	Retaining Clips – The plated steel clips used to keep blocks from sliding sideways on channel. Each assembly of blocks needs two clips.	**EC1**	**50**
	Mounting Channel – Plated steel channel scored every 13/64 inches, so you can easily break it off at desired length.	**ET1** 3 foot **ET1A** 6 foot	**2**
	Mounting Channel Standoff – White painted steel standoff supports a terminal block channel about 2-inches off the panel surface at a 45° angle. Available in 3 ft. lengths.	**ER1**	**1**

	Description	Catalog No.	Std. Pkg.
	Plug-in Two Pole Jumper for Catalog No. EA1 and EA2 Terminal Blocks	**EJ1**	**50**
	Plug-in Two Pole Jumper for Catalog No. EF1 and EF2 Terminal Blocks	**EJ2**	**50**
	Plug-in Two Pole Jumper for Catalog No. ED3 and ED8 Terminal Blocks	**EJ3**	**50**
	**Plug-in Two Pole Jumper for Catalog No. EH1 (Insulated)**	**EJ4**	**50**
	Plug-in Two Pole Jumper for Catalog No. EH1	**EJ5**	**50**
	**10 Pole Jumper for Catalog No. EH4, EH5 and EH6**	**EJH10**	**5**
	50 Terminal Jumper for Catalog No. EA1 and EA2 **50 Terminal Jumper for Catalog No. EF1 and EF2** **50 Terminal Jumper for Catalog No. EH1**	**EJA50** **EJF50** **EJH50**	**5** **5** **5**
	Vinyl Marking Strip – 24 foot roll of white vinyl marking strips suitable for marking with either pencil or ink.	**EM1**	**1**
	Fuse Puller – (for use with Cat. No. EE-6 Blocks)	**EP1**	**50**
	Hi-Rise Mounting Channel – Extruded aluminum channel 1-3/4" high available in either 3-foot or 6-foot. Provides easier accessibility in deep enclosures.	**ET3R** 3 foot **ET6R** 6 foot	**2** **2**

Graphic Controls

NIST CALIBRATION SERVICE AVAILABLE

Accessories

Graphic Controls is a convenient source for all of your recorder supplies needs: charts, pens, ribbons and accessories. Our charts, pens and ribbons are ***engineered*** for the optimum compatibility with your recording instruments. This assures you of clean and precise recordings.

Listed here are our most popular charts and marking systems to fit Yokogawa equipment. If you cannot find the item you need, please call one of our Customer Service Centers and inquire. Chances are very good we make it. We design and manufacture hundreds of new items every month which are continually added to our files.

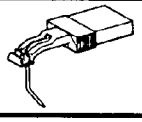
New! µR Series 82-24 Pens available with:

- **more ink for longer writing distance!**
- **sealed pen vent preventing dry-out and extending shelf life!**
- **color-coded pen bodies to match ink contents!**

for use on YOKOGAWA ◆ models such as µR 100, µR 180, µR 250, 4181, 4182, and 4183.

Key: Use this quick picture reference to help identify the type of chart, disposable pen or ribbon you require.

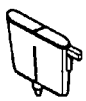
Listed below are only the most popular Yokogawa supplies. We have virtually all of the others, please call.

To fit: Yokogawa Model Number(s)	Chart			Our Matching Pen or Ribbon			
	Format	Size	Order by Number	Key	Yokogawa P/N	Color	Order by Number
µR 100, µR 100F, 4151, 4152, 4153		113mm x 16m	YOK B9565 AW		B9565 AR B9565 AQ B9565 AP B9565 AS	Blue Green Red Violet	YOK 82-24-0103-03 YOK 82-24-0204-03 YOK 82-24-0302-03 YOK 82-24-0406-03
					B9566 DZ	Black	YOK 64-11-100V-01
µR 100, µR 100T, ER 100		113mm x 8m	YOK E9721 NA		B9588 KJ B9588 KH B9588 KG B9588 AY	Blue Green Red Violet	YOK 64-27-0103-03 YOK 64-27-0204-03 YOK 64-27-0302-03 YOK 64-27-0406-03

Graphic Controls

Accessories

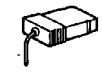
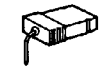
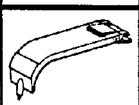
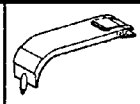
Listed below are only the most popular Yokogawa supplies. We have virtually all of the others, please call.

To Fit: Yokogawa	Chart			Our Matching Pen or Ribbon			
Model Number(s)	Format	Size	Order by Number	Key	Yokogawa P/N	Color	Order by Number
3021		280mm x 15m	YOK B9531 AY (3045-15)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
		280mm x 20m	YOK B9531 AZ (3045-16)				
3023, 3024, 3033		DIN A3	YOK B9526 AW (3084-12)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
		DIN A3 215mm x 15m	YOK B9523 BH (3084-02)				
3025		210mm x 15m	YOK B9523 VY (3084-03)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
3036		270mm x 15m	YOK B9523 BH (3084-02)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
3046/3056		270mm x 15m	YOK 3045-04		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
3047/3057		174mm x 15m	YOK B9529 AA/AC (3045-13)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
		174mm x 20m	YOK B9529 AB/AD (3045-14)				
3066		270mm x 15m	YOK 3045-04		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
		270mm x 20m	YOK 3045-05				
3086		270mm x 20m	YOK 9523 VY (3084-03)		B9518 CS B9518 CT B9518 CV B9518 CU	Black Red Blue Green	YOK 64-19-0101-03 YOK 64-19-0102-03 YOK 64-19-0103-03 YOK 64-19-0104-03
3087 Portable Hybrid		210mm x 17m	YOK B9541 AR (3045-41)		B9541 AT	Multi	YOK 64-11-400V-01
3655/3656 Analyzing Recorder (4 color plotter)		264mm x 20m	YOK B9708 PA	Call Us!	Call Us!		Call Us!

Graphic Controls

Accessories

Listed below are only the most popular Yokogawa supplies. We have virtually all of the others, please call.

To Fit: Yokogawa	Chart			Our Matching Pen or Ribbon			
Model Number(s)	Format	Size	Order by Number	Key	Yokogawa P/N	Color	Order by Number
µR 180, µR 180T, ER 100 4171, 4172, 4173		200mm x 20m	YOK B9573 AN		B9565 AR B9565 AQ B9565 AP B9565 AS	Blue Green Red Violet	YOK 82-24-0103-03 YOK 82-24-0204-03 YOK 82-24-0302-03 YOK 82-24-0406-03
					B9573 RR	Multi	YOK 64-11-200V-01
µR 250, HR 2500E, 3081, 3088, 4081, 4088 Hybrid, 4181, 4182, 4183		344mm x 20m	YOK B9538 RN		B9565 AR B9565 AQ B9565 AP B9565 AS	Blue Green Red Violet	YOK 82-24-0103-03 YOK 82-24-0204-03 YOK 82-24-0302-03 YOK 82-24-0406-03
					B9538 JZ B9541 AT	Multi Multi	YOK 64-11-300V-01 YOK 64-11-400V-01
µR 1000		113mm x 16m	YOK B9565 AW		B9902 AM B9902 AN B9902 AP B9902 AQ	Blue Green Red Violet	YOK 64-42-0103-03 YOK 64-42-0204-03 YOK 64-42-0302-03 YOK 64-42-0406-03
					B9801 AX	Multi	YOK 64-11-700V-01
HR 1300		230mm x 20m	YOK B9855 AY		B9627 AZ	Multi	YOK 64-11-500V-01
HR 2300, HR 2400, 4802 Hybrid		342mm x 30m	YOK B9627 AY		B9627 AZ	Multi	YOK 64-11-500V-01
LR 4100, LR 4200		270mm x 20m	YOK B9619 AH		B9586 YE B9586 YA B9586 YC B9586 YB B9586 YH B9586 YG B9586 YD B9586 YF	Black Red Blue Green Purple Orange Brown Magenta	YOK 64-28-0101-03 YOK 64-28-0102-03 YOK 64-28-0103-03 YOK 64-28-0104-03 YOK 64-28-0106-03 YOK 64-28-0107-03 YOK 64-28-0108-03 YOK 64-28-010C-03
		270mm x 20m	YOK B9622 AH				
LR 8100		270mm x 30m	YOK B9585 AH		B9586 YE B9586 YA B9586 YC B9586 YB B9586 YH B9586 YG B9586 YD B9586 YF	Black Red Blue Green Purple Orange Brown Magenta	YOK 64-28-0101-03 YOK 64-28-0102-03 YOK 64-28-0103-03 YOK 64-28-0104-03 YOK 64-28-0106-03 YOK 64-28-0107-03 YOK 64-28-0108-03 YOK 64-28-010C-03
SRHD		113mm x 8m	YOK E9721 NA		E9721 PA/PE E9721 PB/PF E9721 PC/PG E9721 PD/PH	Black Red Blue Green	YOK 64-18-0101-03 YOK 64-18-0102-03 YOK 64-18-0103-03 YOK 64-18-0104-03

Electro Industries/GaugeTech
The Leader in Web Accessed Power Monitoring

Permanent Mounted Power Quality Recorder

Nexus 1250

Multifunction Power Meter with Waveform Analysis

- Billing Grade Revenue Meter
- RTU with I/O and Control
- Power Quality Recorder
- Internal 10/100BaseT Web Access
- Accu-Measure® Technology
- Total Web Solutions Application
- Provide Real Time Data on the Web
- Improve Operational Efficiencies

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ELECTRICAL & ELECTRONIC MEASURING & TEST EQUIP. 64JA

The Nexus 1250 provides you with the total picture of power usage and power quality for any metered point within a power distribution network, allowing you to make power related decisions quickly and effectively. Measure power usage, record power anomalies and analyze disturbances easily and quickly.

Specifications

Accuracy	
Voltage L-N, Voltage L-L, Current, KW @ Unity PF, KW @ .5 PF, KVA, VAR, PF	Better than 0.2%
Frequency	0.01Hz
Voltage Inputs	
150 Volt PH-N, 300V PH-PH (Suffix-120) – used with PTs for extended range	
300 Volt PH-N, 600 Volt PH-PH (Suffix-G)	
Current Inputs	
5 Amp Inputs 2x Continuous, Programmable to any CT Range	
Fault Current Recording to 60 Amps Peak Secondary Based on 5 Amp Full Scale (1 amp and 0.25 amp current inputs are available as a special order.)	
Communication Format	
Communication Protocols: Modbus TCP/IP, ASCII/RTU, and DNP 3.0	
4 Com Ports: 2 Slave Ports, 2 Selectable Master/Slave Ports (RS485)	
INP2 – 56K Modem with Dial-Out Capability	
INP100 – Total Web Solutions – 10/100BaseT	

Ordering Information

OPTION #	OPTION NAME
	Model
[Nexus1250]	Nexus 1250
	Memory Options
[512K]	512K
[2meg]	2meg
[4meg]	4meg
	Operation Voltages
[120]	150 Volts PH-N; 300 Volts PH-PH
[G]	300 Volts PH-N; 600 Volts PH-PH
	Control Power
[D]	18-60VDC Power Supply
[D2]	90-276 Volts AC/DC Power Supply
	Frequency Range
[60Hz]	60 Hz
[50Hz]	50 Hz
[400Hz]	400 Hz
	Internal Expansion Port Options
[INP2]	56K with Dial-Out
[INP100]	Total Web Solutions, 10/100BaseT
	Standards Compliance
[ICR]	Industry Canada Revenue Metering Approval

YOKOGAWA

Portable Data Stations

Portable Data Station XL100

Features:
- 8 or 16 input channels
- 16 MB internal memory
- External storage: CF/SD card
- Inputs: DCV, TC & RTD
- Record Intervals: 100ms ~ 1 hour
- 3.5” TFT color LCD (320X240 pixels)
- Trend/bar graphs in 16 colors
- Ethernet with web server
- RS-232/485 with Modbus
- Configure up to 4 display groups in digital, bar graph or waveform format
- Alarm summaries, log displays, review functions can be retained/displayed

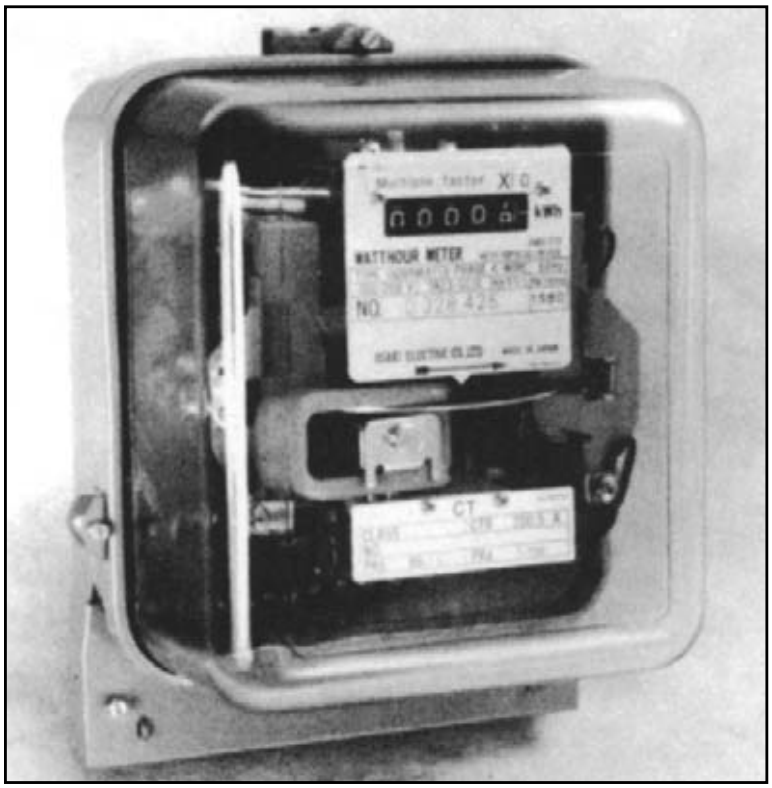
Option Accessories:
- #94009 Rechargeable lithium battery (fully charged operates up to 8 hours)
- #93037 Carrying Case – Stores all accessories
- #91029 Digital I/O Cable - Pulse/Logic inputs or alarm outputs
- #90060 Type K thermocouple – 4 Sets (5m length)

Name	Model	Suffix Code		Specification
Portable data station	XL100	-1		With 8 channel terminal block
		-2		WIth 16 channel terminal block
			-D	Power cord (UL/CSA standard)
			-F	Power cord (VDE standard)
			-H	Power cord (GS standard)
			-R	Power cord (SAA standard)
			-S	Power cord (BS standard)

ELECTRO-MECHANICAL METERS

Three-Phase, 120, 240 & 480V, 3-Wire

Models 9312-M, 9344-M & 9388-M
9000 Series Includes Remote Reading Capability



Features
- Easy-to-read digital dial
- Easy installation
- Meets Ul 1244 Spec
- Meets or exceeds ANSI C-12 standards
- 25-year warranty
- Also available as KVAR meters
- Also available in Single-Phase and Two-Phase Configurations

Options for 9000 series:
- K1 Reed Switch or K4 Impulse Device allows remote reading

Osaki offers a trio of three-phase, 3-wire, current transformer operated meters in the 7000 Series. Each is available in the 9000 series with K1 or K4 remote reading capability.
Our “A-base” design, utilizing external current transformers, along with the meters’ compact size, enables installation in smaller spaces and in far less time than larger flow-through or socket-type meters.