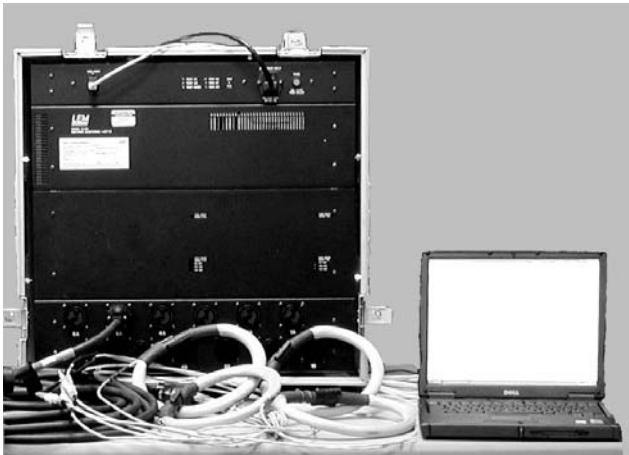




DynAmp

RCEM Portable

Rectifier Condition and Evaluation Monitoring System



Description

The new Portable Rectifier Condition and Evaluation Monitoring System (RCEM) from DynAmp is the culmination of over 20 years of experience making measurements inside large rectifiers.

The system is designed for non-contact measurement of rectifying device currents in polyphase power rectifiers as well as high power supplies and motor drives. The RCEM current sensors are installed on current paths / rectifying devices inside the rectifier then connected to a Data Acquisition Unit (DAU). The DAU monitors each sensor on a continuous basis. The portable DAU utilizes the USB port for easy interface with the laptop computer provided with the system.

Benefit Summary

The analysis of information yielded by the RCEM can be used in a number of ways including:

- Accurately schedule preventative maintenance by monitoring and trending balance of individual currents among parallel rectifying devices.
- Provide current measurement and alarming capabilities at the rectifying device level enabling "over-nameplate" operation, particularly in rectifiers with n-1 capability regarding devices per leg.
- Can be used to characterize rectifier during acceptance testing or commissioning of a new power conversion system.
- The new RCEM Portable is easy to install and use.

Components

Current Measurement Heads

The new portable RCEM is available with flexible Rogowski coil current sensors. Measurement heads are typically directly mounted around rectifying device or buswork. The standard measurement head is 24" (610mm) circumference but custom lengths are available from 15" (380mm) to 48" (1220 mm).

The system is also available with RTV molded heads in round, oval or square configurations from 1.0" ID (25.4mm) to 4.25" (108mm). These sensors are suitable for permanent installation.

Data Acquisition Unit (DAU)

The DAU is constructed of application proven components to ensure the most reliable operation possible in an industrial environment.

In overview, the DAU consists of connectors for up to 120 phase cables from the measurement heads, signal conditioning board rack and boards, and LEM developed data acquisition hardware for analog to digital conversion, scaling, and communication to the provided laptop via simple USB interface.

Each channel of the RCEM has dedicated, analog signal conditioning and RMS conversion circuitry before analog to digital conversion. This eliminates chances of waveform distortion due to aliasing or sampling speed deficiencies. For more detailed analysis, true analog waveforms are available for each channel.

Computer and Control System communications

Users can monitor measurement data in real time via DDE linking to a standard spreadsheet program. Data is presented allowing users to review single leg rectifying device current balance as well as current balance between legs. User settable alarm levels are monitored and users are notified of under current or over current events as shown in the partial screen view below.





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Specifications

Measurement capacity <i>(Max devices / paths)</i>	12 to 240 channels
Six-pulse rectifiers:	(40 per phase)
Twelve-pulse:	(20 per phase)
Maximum channel current	10kA R.M.S.
Measurement accuracy	±5% (LEM_Flex) ±3% (With RTV head)
Data refresh rates at DAU	
Channel scanning rate	3 Sec / 120 channels max. 12.5mS within leg
Digital output	Std. USB port
Cable Length	50ft. (15m)
Max. Distance	96 ft. (30m)
Analog output per channel	1 volt per 1000 amperes; isolated from rectifier under test; isolated from ac line. (Access by connectors on signal conditioning amplifiers)
Operating power	100...240VAC 50/60 Hz.
Ambient temperature range	
DAU	32...122° F / 0 to 50° C
Heads	Flexible: -4...194° F / -20...90° C
	RTV -4...302° F / -20...150° C
Storage Temperature	-40 to 158° F -40 to 70° C
Storage Humidity	85%, non-condensing
Measuring head assembly	
Flexible current sensor:	
Insulation rating:	5550Vac Fiberglass sheathed
Output cable:	Teflon cable
Cable Length	4.50 ft. / 1.4 m
Industrial, RTV molded	
Insulation rating:	3000 Vac.
Output cable:	Teflon or twisted pair
Cable Length:	4.50 ft. / 1.4 m

Sensor Sizes

Split aperture form to be mounted on the bus.

Flexible Heads	7.00" / 178mm ID 8.20" / 208mm OD <i>Custom lengths available</i>
RTV Heads Square	1.75" / 44mm ID 3.25" / 83mm OD
	Oval 2.88" / 73mm x 5.50" / 140mm ID 4.88" / 124mm x 7.50" / 191mm OD
	Round 1.00" / 25mm ID 2.75" / 70mm OD
	1.50" / 38mm ID 3.50" / 90mm OD
	2.75" / 70mm ID 4.25" / 108mm OD
	3.63" / 92mm ID 5.63" / 137mm OD
	4.25" / 108mm ID 6.00" / 152mm OD

Phase Cables

10 pairs
Insulation rating: 600VAC
Cable Length: 33 ft. / 10 m

Ordering Information:

Please specify:

1. The ANSI rectifier configuration for each system.
2. The maximum current output rating for each rectifier.
3. The number of sensors in each rectifier.
(Measurement of more than 120 channels will require a second DAU)
4. The sensor's required aperture size to enclose the bus at the preferred point of measurement.
5. The rms current per sensor point.

Complete BEN072 worksheet

Specifications subject to change without notice

Contact factory for system configuration and quotation