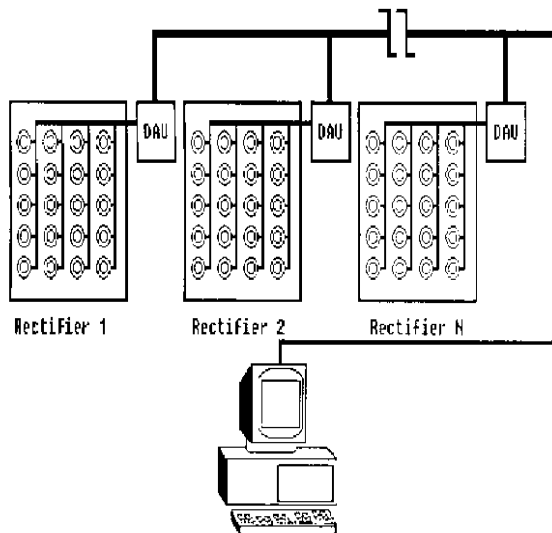




DynAmp

RCEM

Rectifier Condition and Evaluation Monitoring System



Description

The Rectifier Condition and Evaluation Monitoring System (RCEM) is designed for non-contact measurement of rectifying device currents in polyphase power rectifiers as well as high power power supplies and motor drives. 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 storing each measurement set in DAU memory. Each measurement set is checked against user settable alarm points. The DAU has analog outputs and digital interfaces to communicate to and receive commands from an optional PC, as well as rectifier and process control systems.

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.
- Help reduce chances of catastrophic failures

Components

Current Measurement Heads

Truly industrial, split-apart, flexible heads with Hi-gain Rogowski Coil technology. Compared to more basic, low-gain "cable" type sensors, Hi-gain technology minimizes effect of EMC noise typical in high power rectifiers. Measurement heads are typically directly mounted around rectifying device or buswork. A number of standard measurement head sizes are available as well as custom sizes to exactly fit the application making them ideal for both temporary as well as fixed installations.

Data Acquisition Unit (DAU)

The DAU is constructed of industrialized, application proven components to ensure the most reliable operation possible in harsh environments. In addition, should a problem ever develop, all components are user replaceable minimizing down time as factory service requirements.

In overview, the DAU consists of connectors for the current measurement head cables, signal conditioning board rack and boards, and industry standard PLC hardware for analog to digital conversion, scaling, storage and communication via RS232 / RS485 or other buses including ModBus and ModBus +.

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

With the optional computer, 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, over current and diode failure events.

Because data is stored in the industry standard PLC hardware in memory arrays, users can program their rectifier and/or process control systems to access the information via industry standard busses such as ModBus. With this information, more advanced and integrated measurement and control possibilities are possible.



Specifications

Measurement capacity (Max devices / paths)	240 channels
Six-pulse rectifiers:	(40 per phase)
Twelve-pulse:	(20 per phase)
Maximum channel current	4999 amperes R.M.S.
Measurement accuracy	±3%
Data refresh rates at DAU	
Channel scanning rate	30ms / 6 channels
Alarm Scan Rate	30ms / 6 channels
Digital output	RS232 port / RS485 port Optional Mod Bus and Mod Bus +
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	115/120 230/240 Vac, +10%, -13%, 50 to 60 Hz 50 VA max. for DAU
Ambient temperature range	
DAU	32° to 122° F 0° to +50° C
Measuring heads	-4° to 302° F -20° to +150° C
Measuring head assembly	Industrial, RTV molded Insulation rating 3000 Vac. Output cable : twisted wire pair cable 40 ft. / 12 meter length

Sensor Sizes

Split aperture form to be mounted on the bus.

Square Sensors (standard)	1.75" / 44mm ID 3.25" / 83mm OD
Oval Sensors	2.88" / 73mm x 5.50" / 140mm ID 4.88" / 124mm x 7.50" / 191mm OD
Round Sensors	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

Ordering Information:

Please specify:

1. How many rectifiers are in the overall system.
2. The ANSI rectifier configuration for each system.
3. The maximum current output rating for each rectifier.
4. The number of sensors in each rectifier.
5. The sensor's required aperture size to enclose the bus at the preferred point of measurement.
6. The rms current per sensor point.

Complete BEN072 worksheet

Specifications subject to change without notice

Contact factory for system configuration and quotation