



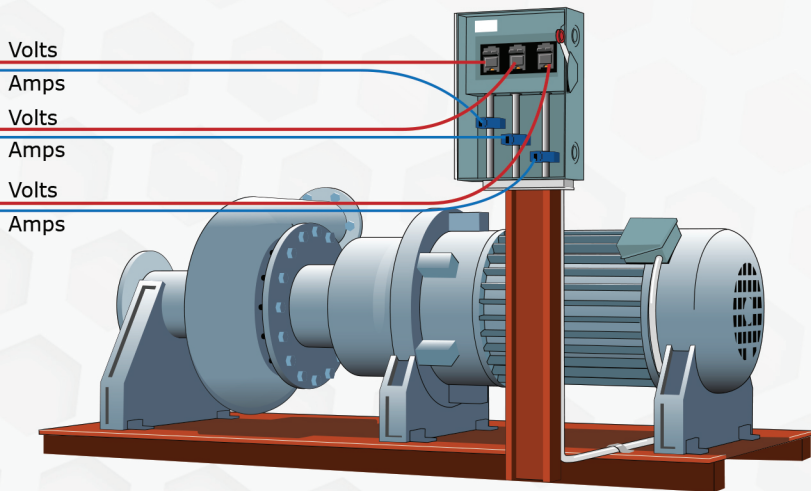
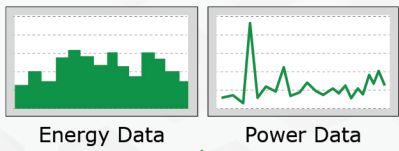
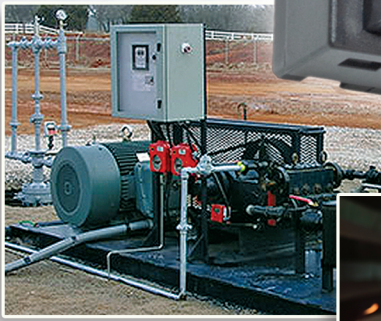
groov RIO EMU ENERGY MONITORING UNIT

OPTO 22
Your Edge in Automation.™



groov[®] RIO EMU

ENERGY MONITORING UNIT



Use groov RIO EMUs in two ways:

As an edge energy monitoring unit, communicating data between loads and data destinations.

- Push data directly to on-premises or cloud apps, databases, or other software, typically using the included Node-RED
- Publish data to an MQTT broker
- Respond to Modbus/TCP requests for data
- Configure with browser-based *groov* Manage software
- Manage local user accounts and permissions, or from a central location through an LDAP server
- Access PAC control strategy tags, I/O data, and PID control info via native OPC UA server

As a traditional energy monitoring unit, configuring channels through your control program:

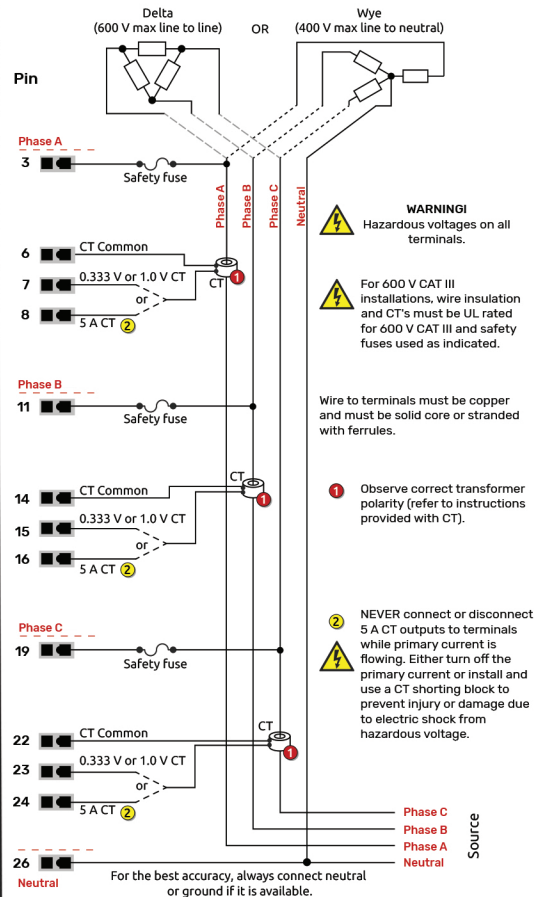
- With a *groov* EPIC processor running a PAC Control strategy; add a *groov* RIO EMU as an I/O unit
- With a *groov* EPIC processor running a CODESYS application, download and install the Opto 22 CODESYS Library Package to the CODESYS Development System, then add a *groov* RIO EMU as an Ethernet device
- With a custom control program through either *groov* RIO's OptoMMP memory map, its REST API, or through secure shell access (requires free GROOV-LIC-SHELL license)

Visit <https://op22.co/rioemu> to learn more!

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Power Data	Units
Data (power) values are provided through channels 0-12 for phase A, 18-30 for phase B, and 36-48 for phase C. For each phase, the module provides:	
True Power	W
Reactive Power	VAR
Apparent Power	VA
Frequency	Hz
Harmonic True Power	W
Power Factor	%
Peak Voltage	V
Peak Current	A

Energy Data	Units
Accumulated energy values for Net, Positive, Negative, Net Reactive, and Apparent energy are provided through channels 13-17 for phase A, 31-35 for phase B, and 49-53 for phase C.	
Summation values for Net, Positive, Negative, Net Reactive, and Apparent energy are provided through channels 57-62.	
Total True Power	W
Total Reactive Power	VAR
Total Apparent Power	VA
Total Net Energy	kWh, mWh
Total Unsigned Energy	kWh, mWh
Total Positive Energy	kWh, mWh
Total Negative Energy	kWh, mWh
Total Net Reactive Energy	kVARh, mVARh
Total Net Apparent Energy	kVAh, mVAh
Average Power Factor	%



OPTO 22

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