CLEAVELAND/PRICE INC.

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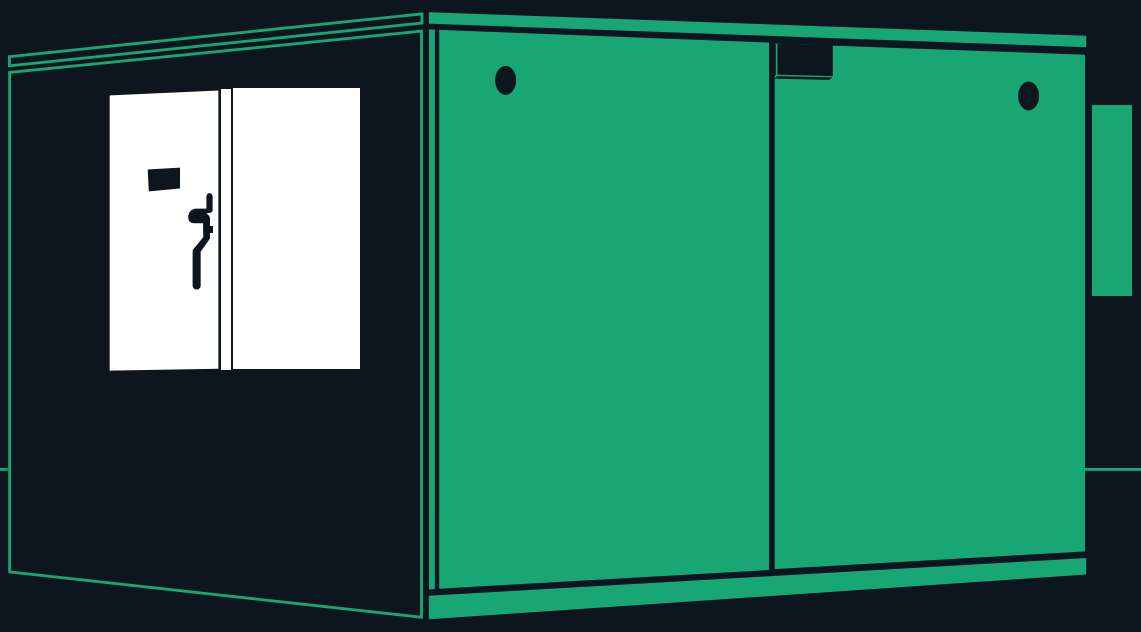
PAD

US Patent Numbers: 7122986 ▪ 5311108 ▪ 5334919

Motor Operated Controller



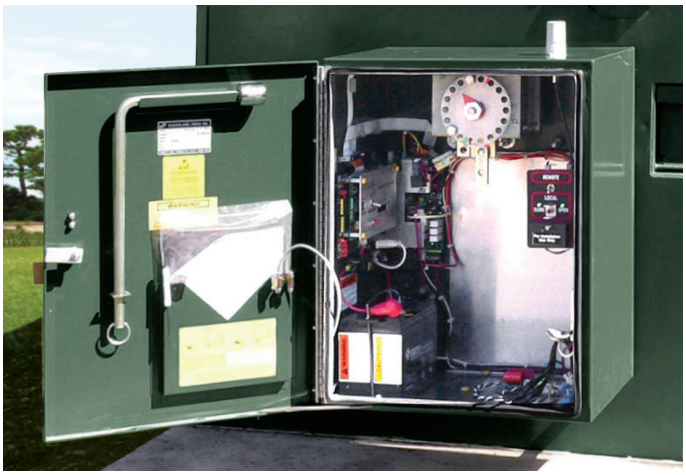
Padmount Switch Automation

The Cleaveland/Price PAD has simple, dependable automation control packages for integrating onto new legacy padmounted switches from any manufacturer into a customer's SCADA or smart grid system. The controllers enable users to perform load switching to balance loads, transfer sources, and when supplied with current and voltage sensors, monitor their system and perform remote switching to detect, locate and isolate faults.

The PAD package consists of a controller and a motor mechanism housed in a common enclosure. Packages are available as a single-switch controller or as a multiple-switch controller for padmount switch forms 6, 9, 10, 11, 13 and 19.

The PAD units mount easily to the customer's padmount switch without the need for field drilling or switch enclosure modification. The mechanism can be installed in minutes and there is no need to take the switch out of service during installation.

PAD units on a two-way S&C PME switch



PAD unit on S&C PME switch

PAD enclosures provide sufficient room to house both an RTU and communication device. Cleaveland/Price can provide an RTU that meets the installation requirements or can provide a customer- specified RTU. PAD units work seamlessly with any SCADA protocol. Communication with the controller can be by radio, cell modem or fiberoptic cable.

Statuses provided in the controllers include:

- Motor position open
- Motor position closed
- Loss of AC
- Remote ready
- Low-battery voltage alarm
- No-Go alarm

Effective Battery Management

The key to a dependable automation system

A single 12-volt 33 amp-hour battery contained within the controller supplies power to the RTU, communication device and motor. A power supply is also provided to accommodate devices that require 24 VDC.

A complete temperature-compensating battery charging system is provided. The electronic system provides battery over-charge protection, as well as a battery charging testing function. The system regularly self-monitors the battery voltage to report real-time battery condition. With loss of charger power, the battery can typically operate a switch and maintain RTU and communication loads for more than 24 hours.

The battery used in the PAD units is a maintenance-free lead acid type that is completely sealed. It has a pressure relief valve that only opens during excessive gas build-up within the battery. Gases are vented via a hose to the outside of the enclosure, preventing the accumulation of corrosive and explosive gases within the enclosure.

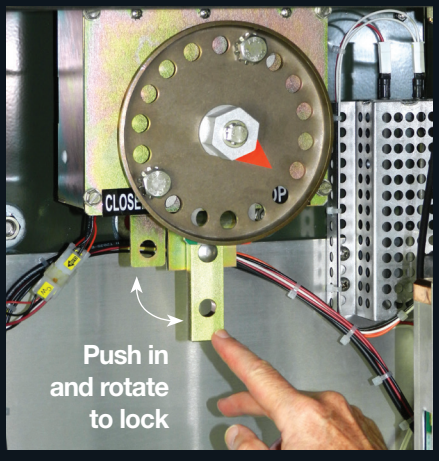
PAD Motor Assembly Features

PAD motor assemblies operate a switch in 4-5 seconds. An optional faster motor is available.

The motor assembly features:

- Open and close travel limits set via the simple travel set control located on the front panel of the controller
- A decoupler that enables motor activation without changing switch position
- Provision for padlocking the motor when the switch is in the open or closed position; either coupled or decoupled
- Stall-out timer
- Provision for manual operation (manual handle is provided)
- Adjustable mechanical stops

The PAD Motor Decoupler



Decoupling the motor from the switch provides provisions for motor operation without operating the pad mount switch. As a result, no switching procedure or circuit outage is required to end-point test the controller's functionality and operational readiness.

The spring loaded decoupling lever is easily accessible from the front of the PAD enclosure and is pushed in to decouple the motor from the switch. The decoupler is keyed to ensure that it only recouples in the same position it was decoupled.

Scan to learn more about our decoupling procedure

Controller Features

Single-Way PAD Controller

1. Control electronics
2. Padlockable motor assembly
3. Heater with thermostat
4. Travel Set Front Panel
5. Customer's electronics
6. AC surge protection
7. Removable access plate
8. Battery with venting hose
9. Powder coated gasketed aluminum enclosure
10. Manual operation handle
11. Stainless steel door hinge, stop, and handle
12. Ground lug

Multi-Way Applications

In two-way and three-way applications, one master PAD unit is provided and a drone unit is supplied for each other switching unit that the user wants to automate. The master PAD contains the RTU and communication device, and communicates with drones through a hardwire connection.

Auto-transfer functions can be supplied, with transfer based upon input from sensing devices. Auto-transfer can be programmed into the RTU or can be configured through an optional auto-transfer PLC with display.

Three-way PAD installation on a Hubbell AIS switch

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