REGENT

SmartSense(IoT)

Spring Applied Brake or Clutch IoT Controller

The **SmartSense(IoT)** Spring Applied Brake or Clutch Controller is a solid-state power supply and control for 24 VDC spring applied clutches & brakes which can be integrated into an industrial Internet of Things, IoT, system.

Brake or clutch performance is optimized by applying full voltage until armature movement is detected by **the SmartSense(IoT)**, no customer sensor required, then automatically reducing to an adjustable holding voltage. Therefore, full voltage is only applied for the time necessary for armature movement, compensating for heat and wear each cycle, before reducing power consumption and coil heating while the brake is disengaged. This also allows for faster brake engagement when coil voltage is removed.

Outputs for actual clutch or brake wear, worn condition for replacement, sudden excessive brake or clutch wear, and armature movement allow total remote monitoring of your brake or clutch for easy integration into an IoT system.

Also, the brake or clutch output will turn off if there is no armature movement within 4 seconds of initiation indicating a brake failure.

IOT FEATURES

0-10V output proportional to wear
- no guessing when to replace brake or clutch
- save maintenance & down time cost by not replacing too early
- no worry of brake failure by replacing too late

10V output signaling 80% wear
- warning to replace your brake or clutch

10V output signaling wear is excessive
- know if your clutch or brake is suddenly wearing quickly

10V output signaling armature movement
- enhance positioning & stopping
- eliminate overlap between brake disengagement and motor starting

OTHER FEATURES

No sensors required, just connect to your brake or clutch

Auto-adjusting full voltage time for fast brake turn-off (release)
- no need to guess how long for armature movement
- compensates each cycle for temp & wear

Adjustable holding voltage
- saves energy
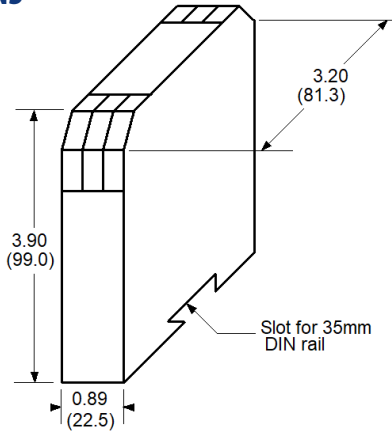- reduces heat build-up
- lowers power consumption

LED load indicator with brightness proportional to brake voltage

For More Information Call 203-732-6200 or Email Sales@RegentControls.com
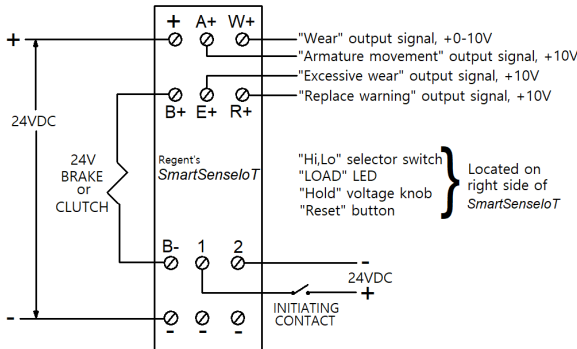
DIMENSIONS

3.20
(81.3)

3.90
(99.0)

Slot for 35mm
DIN rail

0.89
(22.5)

WIRING DIAGRAM

+

24VDC

24V
BRAKE
or
CLUTCH

−

+ A+ W+

B+ E+ R+

Regent's
SmartSenseIoT

B− 1 2

"Wear" output signal, +0-10V
"Armature movement" output signal, +10V
"Excessive wear" output signal, +10V
"Replace warning" output signal, +10V

"Hi,Lo" selector switch
"LOAD" LED
"Hold" voltage knob
"Reset" button

Located on
right side of
SmartSenseIoT

24VDC
+

−

INITIATING
CONTACT

All "−" terminals are internally connected and are common reference for all output signals.

OPERATION (refer to Wiring Diagram)

INITIAL SETUP TO BE DONE WHEN SETTING UP A NEW LOAD (i.e. brake or clutch) FOR THE 1ST TIME

1. Set "Hi,Lo" switch appropriate for load (Lo ≤ 20W, Hi > 20W)
   WARNING: Improper switch setting may damage the SmartSense(IoT) control.

2. Apply power to +,- terminals.
3. With "HOLD" knob at max (fully clockwise), apply voltage to 1,2 terminals and allow load to warm up for 20 minutes.
4. Remove voltage from 1,2 terminals and press "Reset" button.
5. Re-apply voltage to 1,2 terminals;
   - "LOAD" LED should turn on & Wear output should be 0V.
6. Remove voltage from 1,2; "LOAD" LED should turn off.

NORMAL OPERATION

1. Apply power to +,- terminals;
   - "LOAD" LED & load should be off & "WEAR" output should be 0V.
2. When signal is applied to 1,2 terminals;
   - Load should turn on fully & "LOAD" LED should turn on full brightness until armature movement is detected then load voltage should reduce to voltage set by "HOLD" & LED should dim proportionally
   - A+ 10V output should turn on at 1st armature movement
3. When signal is removed from 1,2 terminals;
   - Load, "LOAD" LED & A+ output should turn off
   - W+ output will update on next cycle (0-10V proportional to 0-100% wear)

NOTES:

1. R+ 10V output will turn on when wear reaches 80%
2. E+ 10V output will turn on if wear increases by 5% on each of 3 successive cycles
3. Pressing RESET erases all previous wear data and resets control with current data as new baseline.
4. Please contact Regent Controls for brakes or clutches ≤ 6W.

SmartSense(IoT) Specifications

LINE INPUT (+,-)
   Voltage: 24 VDC +/-10%
   Current: Sufficient for load
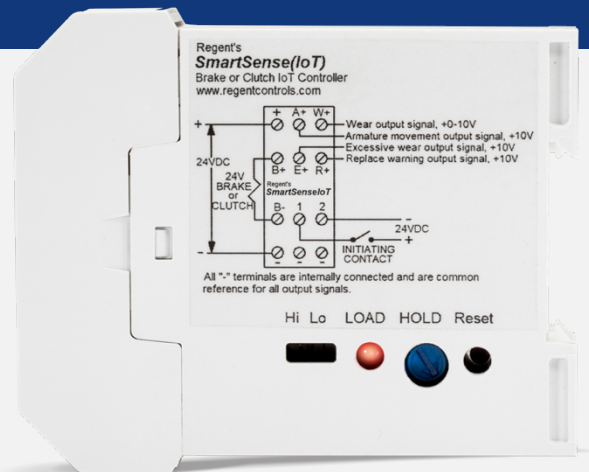
LOGIC INPUT (1,2)
   Voltage: 24 VDC +/-10%
   Current: 25 mA burden

LOAD OUPUT (B+,B-)
   Full voltage: 24 VDC
   Holding voltage: Adjustable, 5-60% of load voltage
   Coil wattage: 6 W to 90 W max
   Off-state leakage: <500 uA

SIGNAL OUTPUTS for IoT integration
   Armature movement (A+, -): 10 VDC, 50 mA max
   Wear (W+, -): 0-10V, 50 mA max
   Replace warning (R+, -): 10V, 50 mA max
   Excessive wear warning (E+, -): 10V, 50 mA max

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www.regentcontrols.com

+ A+ W+
Wear output signal, +0-10V
Armature movement output signal, +10V
Excessive wear output signal, +10V
Replace warning output signal, +10V
B+ E+ R+
24VDC
24V
BRAKE
or
CLUTCH
Regent's
SmartSenseIoT
B- 1 2
24VDC
+
INITIATING
CONTACT
All "-" terminals are internally connected and are common reference for all output signals.

Hi Lo   LOAD   HOLD   Reset

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