

Unipower[®] HPL430 Load Monitor

Overload-Shockload Dual Limit Monitor

A member of the HPL400 Series Programmable Digital Load Monitors for machinery monitoring, supervision and control.

HPL430 measures motor power, kW[%], with both overload and shockload detection:

- **Max. limit** - overload alarm
- **+dP/dt shockload alarm**
- **SPDT alarm relay**
- Start/nuisance trip **delay timers**
- Optional **Hysteresis** function

Plus auxiliary functions:

- Remote **reset and alarm blocking**
- **Analog 4-20mA output** of kW[%]
- **Phase** rotation and **balance** alarms
- **Program locking**

Full digital design

no pots, no dials, no screw-drivers!

Monitor any size motor

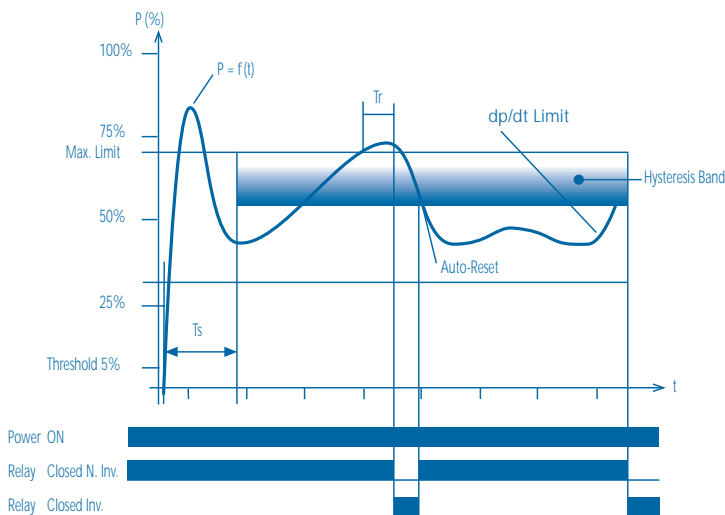
(external CT >8A)

Compact DIN or panel mount

only 2" of rail space!

Peak/Min. kW capture for accurate limit setting

no guessing!



The HPL430 is designed for applications where overload supervision is required under varying running load.

- 1 High ratio gear drives typically have a high idle load when cold and can be difficult to protect only with overload detection. The +dP/dt detector for rate of power increase - shockload - provides effective secondary supervision since sudden changes in power are typically mechanical in nature.
- 2 Bulk solids conveying is also a good example where +dP/dt is useful since running load can vary dramatically.

Function:

The drawing shows a typical AC-motor power curve (ex. Conveyor). The start timer (T_s) filters out from regulation the large power surge on start-up; when T_s expires, limits, hysteresis, T_r etc. become active. When power exceeds Max. Limit, T_r becomes active and a max. alarm is declared at the end of T_r - the relay is switched. Once the power returns within the hysteresis band, the unit is automatically reset - optional hysteresis function. Once reset, the drawing shows a very rapid rise in power which causes a +dP/dt alarm and the relay is again switched.

Note: The +dP/dt function is only active when Hysteresis function is not used.

Technical Specifications:

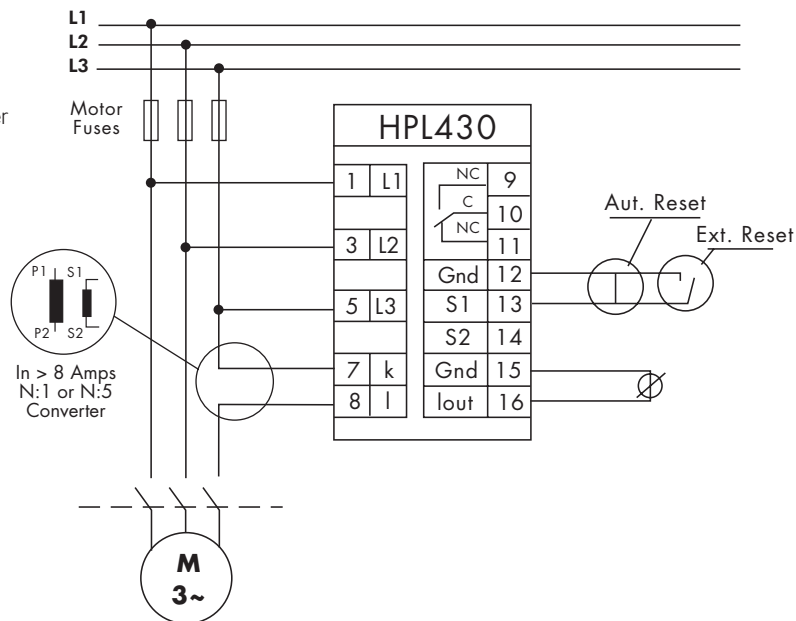
Electrical

- Voltage Range** - See unit for range
Standard ranges—3 x 220, x 380, x 460, x 575V
Also avail.—1 x 24V for 110/220V single phase
- Current Range** - Internal - max. 8A. External - N/1 or N/5 converter
- Cos φ Range** - 0 → 1
- Frequency Range** - 45 → 65 Hz
- Consumption** - Supply voltage = measurement voltage, 3 VA
- Relay Output** - 250VAC/5Amp
- Analog Output** - 4-20 mA. 0-400 Ohm. electrically isolated from the measurement system.

Mechanical

- Housing** - Makrolan 8020 (30% GV), UL94V-1 (house).
Makrolon 2800, UL94V-2 (connector + front).
- Mounting** - Snap-on construction for 35mm DIN rail mounting or panel mounting.
- Protection Class** - IP40 (house), IP20 (connector)
- Terminals** - 12 AWG max., 20A
- Operating Temperature Range** - +5 → +122°F (-15 → +50°C)
- Weight** - Approximately 1 lb. (500g.)
- Dimensions** - D 3.0" x B 2.1" x H 4.3" (D 75 x B 56 x H 110 mm)

Typical Installation:



Functional Ranges:

Mode	Function	Range
KW [%]	kW% Display	measured
Limit [%]	Max. kW Limit	5 - 100 %
Limit [%]	+dP/dt Limit	1 - 50 %
DV/dt	+dV/dt Limit	1 - 25 %
Ts [S]	Start Delay	0.1-25.0 Sec.
Tr [S]	Alarm Delay	0.0-25.0 Sec.
Range	Current Range	1,3,5,8 Amp
Hyst's	Hysteresis	1-50 %
Relay	Relay Polarity	N. Inv. / Inv.

Catalog No. Description:

- HPL430/220** For 3-phase 208 to 240VAC mains
- HPL430/380** For 3-phase 380 to 415VAC mains
- HPL430/460** For 3-phase 460 to 480VAC mains
- HPL430/575** For 3-phase 575 to 600VAC mains.
- HPL430/S24** For single phase applications.
- HF3A,XXX/5** Optional current transformer, specify 050 for 8-50A, 075 for 50-75A, 100 for 75-100A, 150 for 100-150A, other sizes on request.
- UPR.14K50** DIN-rail mounting kit for up to 50A..
- UPE.14Mini** NEMA4X enclosure for HPL unit only.
- UPE.14CH50** NEMA4X enclosure kit, 50A max.

Other Unipower® Digital Load Monitors:

- HPL410** Single limit over- or underload monitor.
- HPL420** Dual limit over/underload monitor.
- HPL440** Conveyor monitor with auto-reverse function.
- PCU4123A** Panel mount universal monitor.
- HPL110** Dual limit over/underload monitor.
- HPL110A** Panel mount version of HPL110.
- HPL220** Dual limit over-/underload monitor for use with external sensor e.g. strain-gage load-cells.

Unipower® Load Sensors:

- HPL100** Basic load sensor with display of kW or kW[%]
- HPL400** Load sensor for kW[%], V, I & Power Factor
- HPL405A** Advanced meter for kW, I, V, P.F. & kWh.
- HPL405A3P** Variant of 405A for unbalanced loads.
- PWM325** Load sensor for variable frequency drives.

Special Functions: Custom programming is possible—please do not hesitate to ask if a standard Unipower® does not cover your application.

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