Unipower® HPL440 Load Monitor

Conveyor Overload Monitor with Un-Block Function

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

HPL440 measures motor power, kW[%], with overload detection and auto-reverse:

- **Max. limit** - overload alarm
- **Motor reversal un-blocking function**

Plus auxilliary functions:

- **Remote reset**
- **Analog 4-20mA output** of kW[%]
- **Phase** order and **assymetry** alarms
- **Program locking**

Full digital design
no pots, no dials, no screw-drivers!

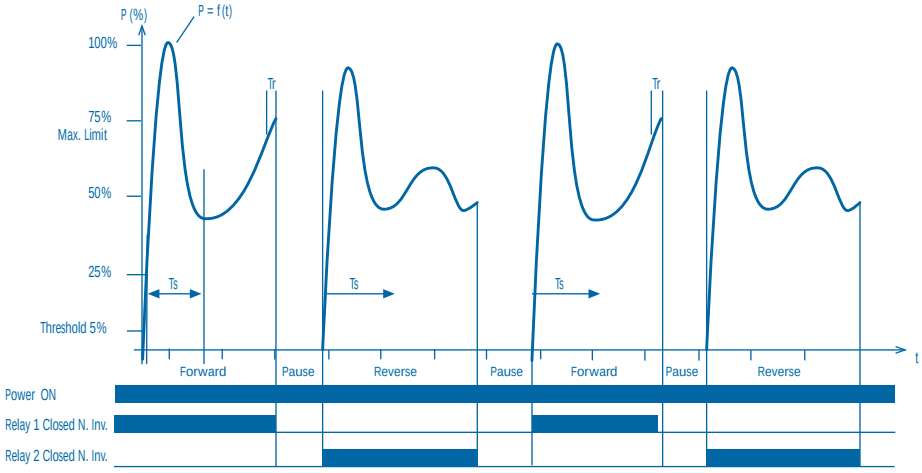
Monitor any size motor
(external CT >8A)

Compact DIN or pannel mount
only 2" of rail space!

Peak/Min. kW capture for accurate limit setting
no guessing!

The HPL440 is designed for overload supervisor of conveyors and features a motor reversal unblock function. The number of reversal attempts along with the dwell periods and duration of reversal are all programmable.

Also, overload detection remains active during reversal and a reverse overload triggers an immediate shut-down with no further unblocking attempts.



Function:

The drawing shows a typical AC-motor power curve (ex. Conveyor). The start timer (Ts) filters out from regulation the large power surge on start-up; when Ts expires, limits and Tr become active. When power exceeds Max. Limit, Tr starts and a max. alarm is declared at the end of Tr - Relay 1 is switched.This starts the un-block sequence of dwell, reverse (triggered by closure of Relay 2), dwell and start forward.

If Max. Limit is again exceeded, the sequence is repeated until the allowed number of repeats has been reached.

If Max. Limit is exceeded in the reverse direction, an immediate un-recoverable shut-down is initiated.

Technical Specifications:

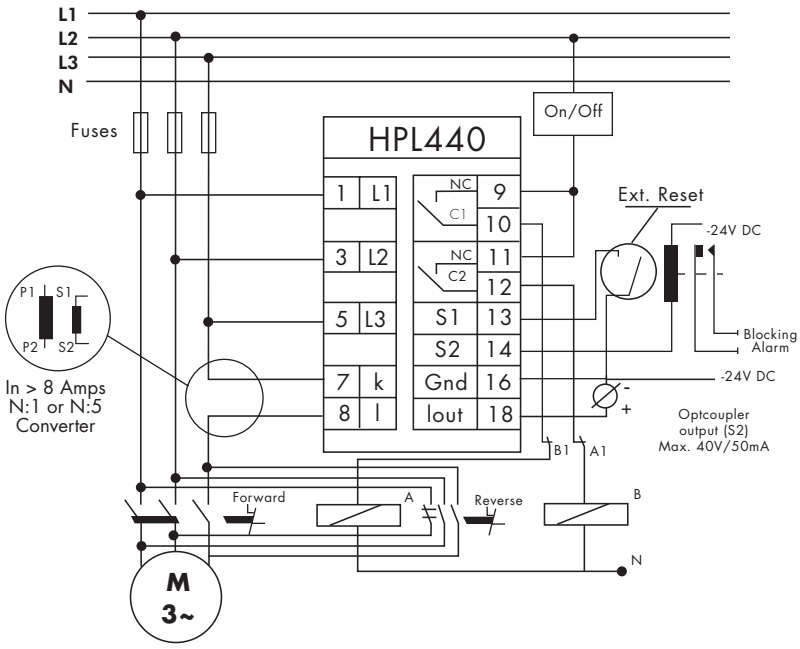
Electrical

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 116 (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 %
Ts [S]	Start Delay	0.1-25.0 Sec.
Rev [S]	Reversal timer	0.1-25.0 Sec.
Rev [N]	Reversal Attempts	1-25 Tries
Range	Current Range	1,3,5,8 Amp
Relay 1	Relay 1 Polarity	N. Inv. / Invert.
Relay 2	Relay 2 Polarity	N. Inv. / Invert.

Catalog No. Description:

HPL440/220	For 3-phase 208 to 240VAC mains
HPL440/380	For 3-phase 380 to 415VAC mains
HPL440/460	For 3-phase 460 to 480VAC mains
HPL440/575	For 3-phase 575 to 600VAC mains.
HPL440/S24	For single phase applications.
HPL440/XXX	for 3-phase mains, specify voltage as 220, 380, 460 or 575VAC
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.
HPL430	dual limit overload & shock load monitor.
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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