

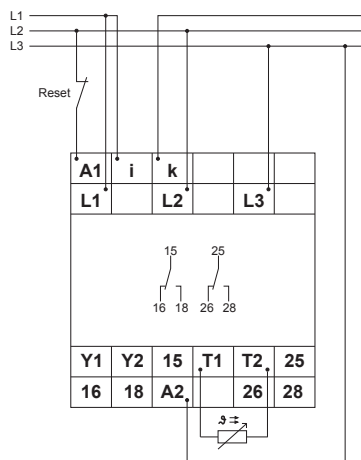
LOAD MONITOR Real Power Watt Type: LMWB

FEATURES

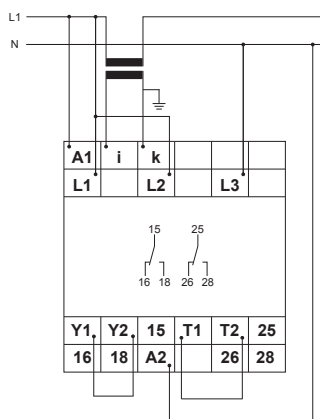
- True power monitor for motors and other loads
- Temperature monitoring of motor windings
- Single and symmetric 3-Phase loads
- 0,75kW, 1,5kW, 3kW and 6kW ranges w/o ext. CT
- Min. and max. monitoring with individual or parallel working relays or 2 max. or 2 min. thresholds with individual relays
- Adjustable start-up delay 1-100s
- Off delay 0,1-50s
- Recognition of disconnected load
- Reset Key
- Fault latch
- Supply voltages selectable via power modules

CONNECTION DIAGRAM

Three-phase connection with temperature monitoring. $I_N < 12A$



Single-phase connection with current transformer and fault latch



DESCRIPTION:

The unit monitors the true power supplied to a single phase or a symmetrical 3-phase load up to 7,2 kW without using external current transformers. For a higher resolution the LMWB has 4 ranges. The overload current can be up to 6 or 12A continuously depending on range.

The LMWB has two adjustable set points that can be used for setting either one maximum and one minimum level or two individual min. or max. levels. The status of the load and each level is signalled by separate LED's and output relays.

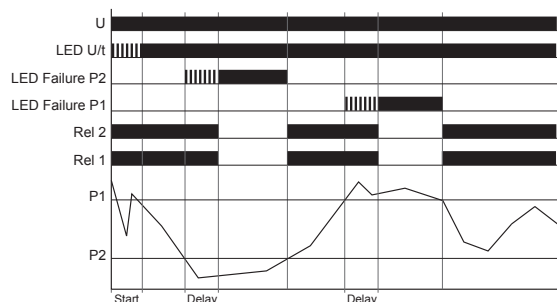
When the load exceeds the set points an adjustable time delay controls the time from the fault is recognised until the relay drops out. During the delay time the LED related to the set point will indicate the condition by flashing until the relay reacts and the LED being permanently on.

The relays can be latched in their fault position by bridging the terminals Y1 and Y2. The LED's will be on during the time where the relays are latched independently of the actual load status. Releasing the latch can be done by interrupting the power supply or pressing the reset key.

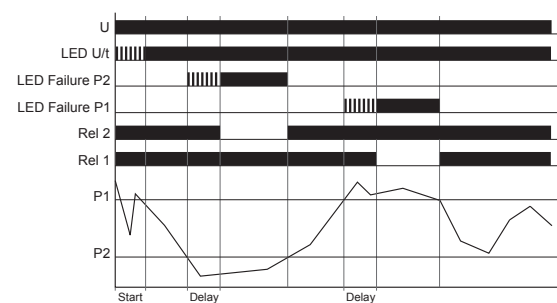
The unit is equipped with a start-up delay in order to suppress error messages during machine start. The delay period starts when supply voltage is applied.

For a complete load protection the LMWB include a temperature monitor that can be used with the standard PTC resistors used in motor windings. The temperature monitor is overriding the load function on relay 2.

FUNCTION DIAGRAM (Further examples in the manual) Window function (WIN)



Minimum and maximum monitoring



SPECIFICATIONS

INPUT	
Waveform Sinus	10 to 400 Hz / 10 to 100 Hz weighted PWM
Measuring voltage	1-phase 0 to 480VAC 3-phase 0 to 480/277VAC
Input resistance, voltage	1,25MΩ
Measuring Input current	0-12A (cont. w. >5mm airspace between units)
Range 0,75kW, 1,5kW	0,15 - 6A
Range 3kW, 6kW	0,3 - 12A
Input resistance, current	<10mΩ
Detection of disconnected load	I <
Interruption 0,75kW, 1,5kW	<150mA
Recognition 0,75kW, 1,5kW	>300mA
Interruption 3kW, 6kW	<180mA
Recognition 3kW, 6kW	>360mA
Temperature monitoring	Terminals T1-T2
Release value (Relay off)	≥3,6kΩ
Response value (Relay on)	≤1,8kΩ
Measuring voltage	<7,5V @ R ≤ 4,0 (IEC 60947-5-1)
Overvoltage category	III (IEC 60664-1)
Rated surge voltage	4kV
Fault latch	Y1-Y2 bridged. Potential equal to measuring circuit

PERFORMANCE PARAMETERS

Switching threshold P1	Adjustable 10% to 120% of P _N
Switching threshold P2	Adjustable 5% to 110% of P _N
Hysteresis	1% of max. measuring range
Basic accuracy	±2% of max. scale value
Adjustment accuracy	≤5% of max. scale value
Repetition accuracy	±2%
Frequency dependence	≤0,025% / Hz
Temperature dependence	≤0,02% / °C
TIMING	
Start up suppression time	1...100 s
Tripping delay	0,1s...50s
Reset time	500ms

OUTPUT

Relay	2 x potential free change over contacts
Switching capacity	5A/250VAC (w. >5mm airspace betw. units)
Fusing	5 A, Fast
Mechanical life	> 20 x 10 ⁶ operations
Electrical life	> 2 x 10 ⁵ operations at 1000VA resistive load
Switching capacity	max. 60/min at 1000VA resistive load
	max. 6/min at 1000VA resistive load
	IEC 60947-5-1
Rated surge voltage	4kV

SUPPLY

AC supply range	12-500VAC (specification on power module)
	Selectable via power module TR3
	Terminals A1-A2 are galvanically separated
AC frequency range	50 to 60Hz (specification on power module)
Reset time	>500ms
Power consumption	3,5 VA (3W)
Duty cycle	100%
Overvoltage category	III (IEC 60664-1)
Rated surge voltage	4kV

AMBIENT CONDITIONS

Temperature range	- 25°C to + 55°C ambient (IEC 60068-1)
	- 25°C to + 40°C ambient (UL 508)
Humidity	15% - 85% RH (IEC 60721-3-3 class 3k3)
Pollution degree	3 (IEC 60664-1)
Vibration resistance	10 to 55Hz 0,35 (IEC 60069-2-6)
Shock resistance	15g 11ms (IEC 60068-2-27)

MECHANICAL

Housing	Self-extinguishing plastic. IP40
Terminals	Tightening torque max. 1Nm (PZ1) IP20. 1 x 4 or 1 x 0,5 to 2,5mm ² with end sleeve 2 x 2,5 or 2 x 0,5 to 1,5mm ² with end sleeve
Mounting	DIN rail TS 35 (EN 60715). Any position
Weight	0.230 kg in 45 mm. housing



EN 60715
EN 60947-8
IEC 60068-1
IEC 60068-2-27
IEC 60068-2-6
IEC 60664-1
IEC 60721-3-3 Class 3k3
IEC 60947-5-1

ORDERING INFORMATION

EXAMPLE:

TYPE
Load monitoring relay

SUPPLY
AC with transformer

SUPPLY VOLTAGE
From 99 to 140 VAC
From 198 to 264 VAC
From 341 to 440 VAC

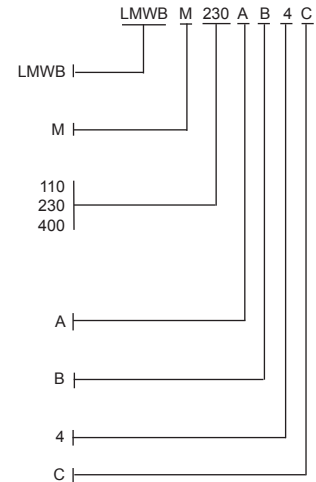
Other Voltages on request

ADJUSTMENT
Switch and trimpot adjustable

HOUSING
Rail mounting.(internal transformer)

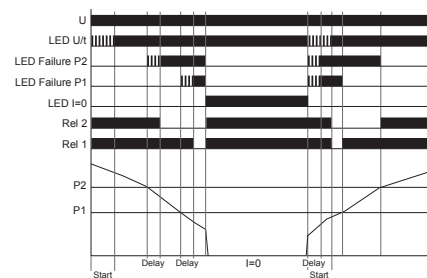
SIZE
45 mm. 2 C/O

CODE END

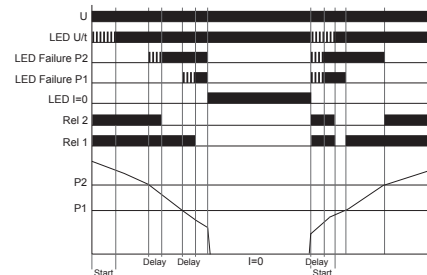


FURTHER EXAMPLES

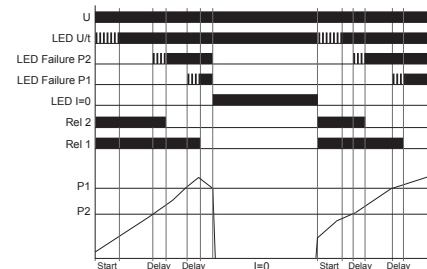
I=0 ON with minimum monitoring (2MIN + I=0 ON)



I=0 Inv. with minimum monitoring (2MIN + I Inv.)



I=0 ON with maximum monitoring (2MAX + I=0 ON)



I=0 with maximum monitoring (2MAX + I=0 Inv.)

