Limit monitors for alternating and direct current

WQ.... (alternating current) and PQ.... (direct current)

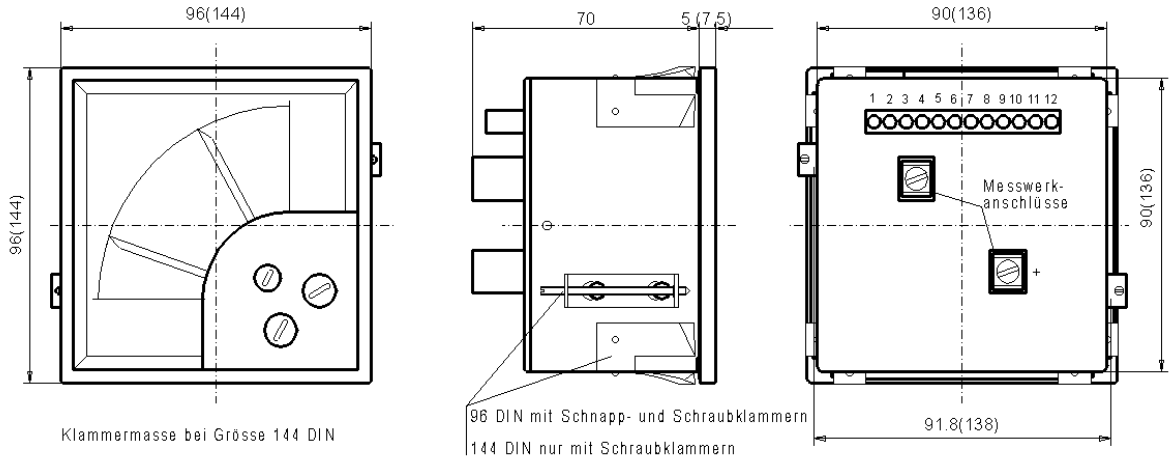
Application
The limit monitors monitor one or two limit values which can be set anywhere within the scale range. They can be used for all values which can be measured electrically.

Function
Moving-iron or moving-coil elements are used for measurement purposes. The contact markers are set on the front panel using a screwdriver (a knurled knob option is also available); they can be set to values anywhere within the scale range. Reflector light barriers are used for contactless and reactionless scanning of the meter pointer. The output relay is energised via line-side amplification stages.

Technical data

Input	Input values	Direct current, direct voltage, alternating current or alternating voltage, depending on the type of meter.
	Meas. ranges	**Types WQ... for alternating current or alternating voltage,** moving-iron element
	direct	**Current** min. 0-40 mA, max. 0-60 A
	indirect	Via current converter, sec. 1 A or 5 A, scaling acc. to primary current
	direct	**Voltage** min. 0-6 V, max. 0-600 V
	indirect	Via voltage converter, sec. 100 V, scaling acc. to primary voltage
		Types PQ... for direct current or direct voltage, moving-coil element
	direct	**Current** min. 0-100 µA, max. 0-25 A
	indirect	Via shunt 60 mV, 100 mV or 150 mV, scaling acc. to rated current
	indirect	Via transducer 0-20 mA, 4-20 mA or 0-10 V, scaling acc. to transducer
	direct	**Voltage** min. 0-25 mV, max. 0-600 V
Contact markers	Limit value setting	Set anywhere in scale range via front panel using screwdriver
	Option	Knurled knob
	Scanning	Optical, with reflector light barrier
Switching behaviour	Switching accuracy	+/- 1% of scale length, (+/- 0.9 mm for ..96DIN.. or +/-1.3 mm for ..144DIN..)
	Hysteresis	+/- 0.5% of scale length, (+/- 0.4 mm for ..96DIN.. or +/-0.6mm for ..144DIN..)
	Switching state	Closed-circuit principle (relay drops out when limit value is overshot)
	Option	Open-circuit principle (inverse switching state)
	Response delay	100 ms after limit value overshoot
	Option	A fixed value of 0-30 seconds or a configurable value of 1-30 seconds per contact
	Temperature range	-25 to +20 to +30 to +55°C
Relay contacts		1 changeover contact per limit value
	Switching capacity	max. 8 A, 250 V, 2000 VA
	Test voltage	2.5 kV, 50 Hz, 10 sec.
Regulations	EMC	DIN EN 61326
	Mechanical strength	DIN EN 61 010 Part 1
	Electrical safety	DIN EN 61 010 Part 1, totally insulated housing, protection class II, at rated voltages up to 600 V (working voltage to earth)
	Accuracy, overload	DIN EN 60 051
	Degree of protection	DIN EN 60529, housing IP52, terminals IP10
Test voltage		2.5 kV, 50 Hz, 10 seconds, between meas. input, housing, aux. voltage and relay contacts
Auxiliary voltage		230 V AC ± 15%, 45-65 Hz, 2 VA
	Options	• 110 V AC ± 15%, 45-65 Hz, 2 VA • 24 V DC, -15% to +25%, 2 W, (EMC DIN EN 61326 Class A)
	Wide-range power supply units	• 6-30 V AC+DC or 36-265 V AC+DC, 2 VA, (EMC DIN EN 61326 Class A)
Weight		Types ..96DIN 400 g, types ..144DIN 760 g

Dimensions



Electrical Connection

The connection for the contact device is made via a 12-pin terminal strip, screw-type terminal max. 4 mm².
The meter is connected via two connection bolts on the rear of the device (safe from touch by the back of the hand).
With ..PQ..... types, note the polarity when connecting a DC type measured variable!

Fusing

The devices are fitted with short-circuit-proof transformers; an overvoltage protection device is not required for the limit value relay.

Connection