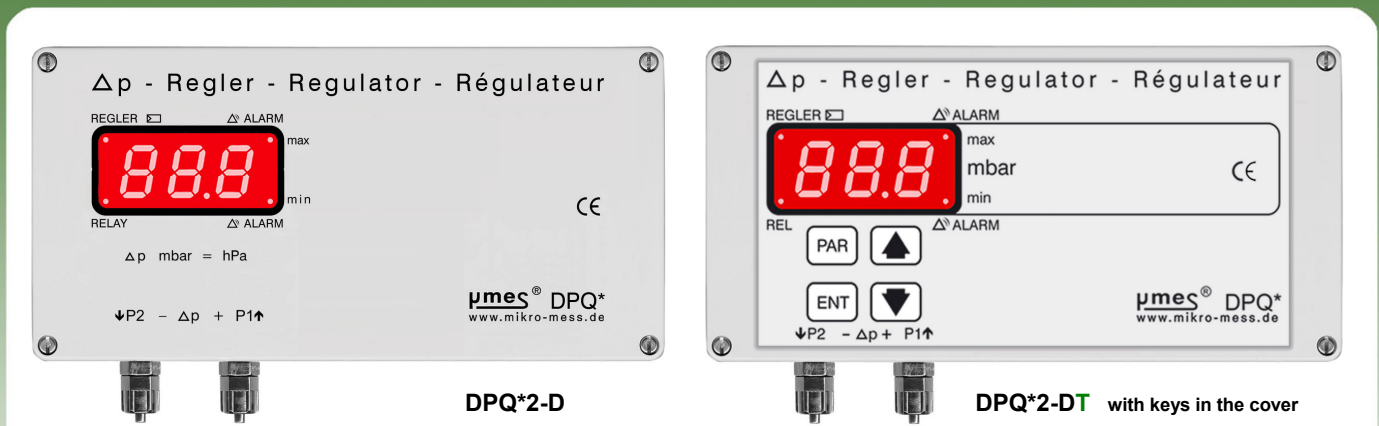


µmes® Δp-Regler-Regulator-Régulateur Type: DPQ*2-D(T)

Valid as of device no.: 10102965

Differential pressure, relative pressure (positive or negative pressure), programmable Δp measuring range



DESCRIPTION

Universal electronic Δp – two-point regulator with programmable Δp measuring range, which the user can programme as required within the stated measuring span of a group. With up to 4 relay outputs and up to 6 adjustable Δp switching points: With 2x REGULATORS, 1x max. limiting value and 1x min, 1x subsequent cleaning t-REGULATOR, 1x RELAY and 10 linear analogue outputs, which are directly or inversely programmable. **Universal on supply voltages:** Can be connected to 110-120 VAC, 230-240 VAC and 24 VDC. Small IP65 housing in shapely design.

Examples: Ventilation and air-conditioning units, clean room technology, filter control, fill level control and regulation, flow detection system, etc.

The differential pressure (+ P1↑ und P2↓ -), the positive pressure (+ P1↑) or the negative pressure (P2↓ -) is measured via the gauge connections and displayed on the bright red display. The target values can also be displayed and thus set precisely.

The two Δp switching points for the regulator, CtL (REGULATOR min) and CtH (REGULATOR max) as well as the Δp switching points ALx (ALARM min) and AHx (ALARM max) are set via the keys. The ALARM switching points are for signalling an alarm in the case of a shortfall or excess on pressure of the Δp values in the control range. After switching on the power supply, the switching points can be suppressed for an adjustable time, in order to prevent a false alarm.

A further switching point Δp -ICC can, for filter units for example, activate a programmable subsequent cleaning time rCA for one of the relays (adjustable) in the case of deactivated process gas. If the current differential pressure falls short of the switching point ICC, the set relay is activated for a programmable duration of 0-240 min and a subsequent cleaning via a filter control, for example from our device series TRANS-FILTER-SCANNER TFS*, is made possible. The relay output RELAY can, in combination with a filter control, be active for the duration of the subsequent cleaning or even longer for a so-called overrun period and e.g. control discharge organs or e.g. be used as another ALARM limiting value. For all Δp switching points, a time period of between 3 s and 999 s can be programmed for which the corresponding relay then maintains the reported condition after activation. This time function enables, for example, the direct controlling of actuating elements with longer transfer times or, for example, also the acoustic signal for the period of a set time. A further variation comprises the programming of a response delay period for all relay outputs. With this, only short limits exceeded or shortfalls can be suppressed. All switching conditions are signalled optically via the LEDs, see the picture above. All relays can be manually controlled via a test programme for test purposes.

For air-related applications with the ever-present turbulences, a programmable Δp damping of the switching points and the display is a necessary, functional advantage. 10 linear short circuit protected analogue outputs 0-5 V, 0-10 V, 2-10 V, 0-20 mA, 4-20 mA or inversely: 5-0 V, 10-0 V, 10-2 V, 20-0 mA and 20-4 mA are programmable and are available for pressure-proportional output signal for further process controls.

CHARACTERISTICS

- Universal electrical connection for 230-240 VAC and 110-120 VAC and 24 VDC in one device
- Pressure sensor highly overloadable and temperature compensated with manual zero-point calibration, with ZPC* also automatic
- 9 device groups with user-programmable Δp measuring range within the measuring span of one group:
 - Group 1: 0 - 0.4 mbar to 0 - 2 mbar
 - Group 2: 0 - 1 mbar to 0 - 5 mbar
 - Group 3: 0 - 2 mbar to 0 - 10 mbar
 - Group 4: 0 - 10 mbar to 0 - 50 mbar
 - Group 5: 0 - 20 mbar to 0 - 100 mbar
 - Group 6: 0 - 100 mbar to 0 - 500 mbar
 - Group 7: 0 - 200 mbar to 0 - 1000 mbar
 - Group 8: 0 - 1 bar to 0 - 5 bar
 - Group 9: 0 - 2 bar to 0 - 10 bar
- Short circuit protected analogue output 0-5 V, 0-10 V, 2-10 V, 0-20 mA, 4-20 mA programmable, also inversely e.g. 20-4 mA
- Programmable Δp damping: Approx. 1 s to 240 s
- Relay output 1, as two-point regulator or limiting value contact, e.g. alarm, programmable
- Relay output 2, as two-point regulator or limiting value contact, e.g. alarm, programmable
- Relay output 3, as two-point regulator or limiting value contact, e.g. alarm, programmable
- OPTION: Relay output 4, as two-point regulator or limiting value contact, e.g. alarm, programmable
- All relay outputs with switch-over contacts, potential-free, switchable for manual tests
- Sample and hold function by means of which the Δp measuring value can be held
- Extreme ambient temperature range -20°C to +60°C
- Housing protection type IP 65. Housing also with membrane keypad in the lid and can be supplied for Ex areas according to ATEX
- Universal device for the lowest need for storage space, with meaningful functions required in practice
- Machinery directive 98/37/EC, low voltage directive 73/23/EEC and EMC directive 89/336/EEC are fulfilled
- High reliability via "burn in"

The translation of this document is from the original German document and is for informative purposes only. Errors / omissions not excluded. Solely the original German document is binding.

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TECHNISCHE DATEN / TECHNICAL DATA

Gruppe - max. Messbereich: / Group - max. range:

Messbereiche Δp	:	0-0.4	-	0-2	Messspanne / measuring range	mbar.....	1 - 2	ORDER-INDEX: mbar-
Gruppe 1-9		0-1	-	0-5	Messspanne / measuring range	mbar.....	2 - 5	ORDER-INDEX: mbar-
Pressure ranges Δp		0-2	-	0-10	Messspanne / measuring range	mbar.....	3 - 10	ORDER-INDEX: mbar-
Group 1-9		0-10	-	0-50	Messspanne / measuring range	mbar.....	4 - 50	ORDER-INDEX: mbar-
		0-20	-	0-100	Messspanne / measuring range	mbar.....	5 - 100	ORDER-INDEX: mbar-
		0-100	-	0-500	Messspanne / measuring range	mbar.....	6 - 500	ORDER-INDEX: mbar-
		0-200	-	0-1000	Messspanne / measuring range	mbar.....	7 - 1000	ORDER-INDEX: mbar-
		0-1b	-	0-5b	Messspanne / measuring range	bar.....	8 - 5b	ORDER-INDEX: bar -
		0-2b	-	0-10b	Messspanne / measuring range	bar.....	9 - 10b	ORDER-INDEX: bar -

**Wählen Sie eine Gruppe aus für die Messbereiche, die im Gerät verfügbar sein sollen.
Please choose out of one group for the ranges, which should be integrated in the unit.**

Anzeige, Display	:	Digital, 3-stellig, 7-Segment- LED rot, 14 mm hoch, ohne Tasten im Deckel	ORDER-INDEX: -D-
Tasten, buttons	:	Digital, 3-digit, 7-segment - LED (red), 14 mm high, without buttons.		
	:	Digital, 3-stellig, 7-Segment- LED rot, 14 mm hoch, mit Tasten im Deckel	ORDER-INDEX: -DT-
	:	Digital, 3-digit, 7-segment - LED (red), 14 mm high, with buttons into the cover.		

Δp-Dämpfung, Damping	:	Programmierbar / programmable: ca. 1 s bis / to 240 s
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Überlastbarkeit : Statischer Gleichdruck einseitig / Static balanced pressure on one side:

Overload capacity	:	Messbereich / range, bis / up to: 0.4	-	10	mbar: pmax	=	250 mbar
	:	Messbereich / range, bis / up to: 10	-	100	mbar: pmax	=	750 mbar
	:	Messbereich / range, bis / up to: 100	-	1000	mbar: pmax	=	4 bar
	:	Messbereich / range, bis / up to: 1b	-	10b	bar: pmax	=	20 bar

Statischer Gleichdruck beidseitig / Static balanced pressure on two sides:

Messbereich / range, bis / up to: 0.4	-	10	mbar: pmax	=	0,6 bar
Messbereich / range, bis / up to: 10	-	100	mbar: pmax	=	5 bar
Messbereich / range, bis / up to: 100	-	1000	mbar: pmax	=	10 bar
Messbereich / range, bis / up to: 1b	-	10b	bar: pmax	=	20 bar

Gesamtfehler	:	Linearität + Hysterese + Reproduzierbarkeit	:	\pm 1% F.S. ab / from \geq 3 mbar	Messbereich / range
Total error	:	Linearity + hysteresis + reproducibility	:	\pm 2% F.S. bis / to \leq 2 mbar	Messbereich / range
Langzeitstabilität	:	0,1 % F.S. / Jahr ab / from \geq 3 mbar	Messbereich / range (F.S. = vom Messbereich / Full Scale)		
Long term stability	:	0,25 % F.S. / Jahr bis / to \leq 2 mbar	Messbereich / range		
Temperaturfehler	:	+10°C bis + 50°C : 0,025 % F.S. / K (K = Kelvin)			
Temperature error	:	+50°F up to +122°F : 0.025 % F.S. / K			
Betriebstemperatur	:	-20°C bis + 60°C.			
Operating temperature	:	- 4°F to +140°F.			

Druckmedium : Nicht brennbare Gase, Luft, die Polyamid, Polyetherimide, POM, PVC, Silizium, Silicon, Edelstahl, Messing, Aluminium und Gold nicht angreifen.

Pressure media : Not flammable gases, air, not corroding polyamide, polyetherimide, POM, PVC, silicon, silicone, stainless steel, brass, aluminium and gold.
If you require special materials, for other medias too, f.eg. water, oil a.s.o. do not hesitate to ask us!

Signalansgänge : **1: Digital:** Relais / relay, 1x potentialfreier Wechsler: min 10 mA, max 2 A cos phi = 1, 24-255 V, 50-60 Hz, \geq 24 VDC.
Signal outputs : Leuchtdiode für RELAY1 / LED RELAY1

2: Digital: Relais / relay, 1x potentialfreier Wechsler: min 10 mA, max 2 A cos phi = 1, 24-255 V, 50-60 Hz, \geq 24 VDC.
Leuchtdiode für RELAY2 / LED RELAY2

3: Digital: Relais / relay 1x potentialfreier Wechsler: min 10 mA, max 2 A cos phi = 1, 24-255 V, 50-60 Hz, \geq 24 VDC.
Leuchtdiode für RELAY3 / LED RELAY3

Signalansgänge OPTION : **4: Digital:** Relais / relay, 1x potentialfreier Wechsler: min 10 mA, max 2 A cos phi = 1, 24-255 V, 50-60 Hz, \geq 24 VDC.
Signal outputs option : Leuchtdiode für RELAY4 / LED RELAY4.....**ORDER-INDEX: -4-**

All relay contacts 1x change-over switch : min 10 mA, max 2 A cos phi = 1, 24-255 V, 50-60 Hz, \geq 24 VDC.

Signalansgänge : **Analogausgang, linear, programmierbar / Analogue output, linear, programmable:**

Signal outputs	:	0-5 V, 5-0 V, Bürde / load = min. 5 k Ω .
	:	0-10 V, 10-0 V, Bürde / load = min. 10 k Ω , 0-20 mA, 20-0mA, Bürde / load = max. 500 Ω .
	:	2-10 V, 10-2 V, Bürde / load = min. 10 k Ω , 4-20 mA, 20-4 mA, Bürde / load = max. 500 Ω .

Signaleingänge : **Digital:** Sample and Hold Funktion durch externen, potentialfreien Kontakt, der 5 mA bei 5 VDC, zuverlässig schalten kann oder durch eine externe Spannung 24 VDC, 10 mA.

Signal inputs : **Digital:** Sample and hold function with external, potentialfree relay contact, which can switch 5 mA, 5 VDC, dependable or with external voltage 24 VDC, 10 mA.

Regler-Funktion : Zweipunkt-Regler programmierbar.

Controller function : Two point regulator programmable.....**ORDER-INDEX: -2-**

Stromversorgung : **Universell: 230 - 240 V \approx , 50 - 60 Hz** umschaltbar auf / changeable to: **110 - 120 V \approx , 50 - 60 Hz**

Power supply : und / and **24 VDC** in einem Gerät realisiert / in one unit realised.

Bei M12-Steckeranschluß nur in 24 VDC lieferbar. Only available for main power 24 VDC with M12-plugs.

Nominal power: 5 VA; 3,3 W

Nennleistung : Schraubklemmen, max. Drahtquerschnitt 2,5 mm²

Elektr. Anschluss : Screw terminal, max cross section of wire AWG 14

Druckanschluss : 2x POM-Kunststoff-Schlauchverschraubungen mit Überwurfmutter / 2x POM-plastic-tube connectors with connector nut:

Pressure connection : Schlauchgrößen / size of tube: Da/OD = 6 mm, Di/ID = 4 mm.....**ORDER-INDEX: -64POM-**

Zubehör : Andere Schlauchgrößen können über **Adapter** angeschlossen werden. Bitte bestellen Sie separat für: **Adapter Typ:**

Druckanschluss : Schlauchgrößen Da = 8 mm, Di = 6 mm, Kunststoff-Schlauchverschraubung und Überwurfmutter: **AD-G1/8I-86-POM**

Schlauchgrößen Di = 6 - 7 mm, Kunststoff-Schlauchfülle Da = 6 mm:.....**AD-G1/8I-T6-POM**

Schlauchgrößen Di = 8-10 mm, Kunststoff-Schlauchfülle Da = 8 mm:.....**AD-G1/8I-T8-POM**

Accessories : Other size of tubes are connectable with additional **adapters**. Please order separately for: **Adapter type:**

size of tube OD = 8 mm, ID = 6 mm and plastic-tube connectors with connector nut:.....**AD-G1/8I-86-POM**

size of tube ID = 6 - 7 mm, plastic-tube connector OD = 6 mm, without connector nut:.....**AD-G1/8I-T6-POM**

size of tube ID = 8 - 10 mm, plastic-tube connector OD = 8 mm, without connector nut:.....**AD-G1/8I-T8-POM**

Gehäuse 1 : Abmessungen / dimensions : 80 x 160 x 55 mm, Drei Kabeleinführungen, blind, M16x1,5 / Three cable inputs M16x1,5

Housing 1 : Material / material : ABS. Farbe / colour: grau / grey. Gewicht / weight : 500 g

Schutzart / protection class : IP 65.....**ORDER-INDEX: -AB-**

Gehäuse 2 : Abmessungen wie Gehäuse 1. Der elektrische Anschluss erfolgt über zwei außen angebaute M12-Stecker.

Housing 2 : Dimensions like case 1. For the electrical connection the unit has two M-12 plugs mounted outside.

Available only for main power 24 VDC.

Schutzart / protection class : IP 65.....**ORDER-INDEX: -ABM12P-**

Vorschriften / Rules : EN 60 204.1. EN 55011. EN 50 014:2000, EN 50281-1-1:1999, EN 50021. EN 61000-4-ff. EN 61010. IEC 60079-15. BGV A2.

Bestell-Nr. : DPQ Gruppe-Messb. - Regler - Anzeige - Volt-AC - **Option** - Anschluss -Gehäuse - CE
mbar / bar - Funktion - - - 4.Relais - - -

ORDER-INDEX : DPQ Group - range - Controller - Display - Volt-DC - 4th relay - Connection - Case - CE

Beispiel 1 / example 1 : **DPQ 1 - 2 - 2 - D - 24DC- - 4 - 64POM - ABM12P-CE**

Beispiel 2 / example 2 : **DPQ 5 - 100 - 2 - DT - 24DC-240AC - 0 - 64POM - AB - CE**

Änderungen vorbehalten / subject to change Z 0855001_011_DPQ_2_D(T)_GB jmes-Made in Europe