



## DESCRIPTION

Electronic **Δp-two-step controller** with 2 relay outputs and 3 analogue outputs **0 -10 V, 0 -20 mA** and **4 -20 mA**. **Universal power supply** for 230-240 VAC and 110-120 VAC and 24 VDC in one unit.

**Examples:** air conditioning and ventilation systems, clean room technology, filter control, level control, flow control, industry, etc.

At the pressure connection pieces, the differential pressure (+ and -), the positive pressure (+) or the negative pressure (-) are measured and displayed, when the selective switch is in neutral position. The output of the actual **Δp-value** takes permanently place independent of the position of the selective switch. The types with a  $\pm$  mbar pressure range make measurements with a reverse in the pressure direction possible. Example: if a positive pressure is applied to the positive pressure connection piece (+), the digital display shows positive pressure values. If a negative pressure is applied to the positive pressure connection piece, the display shows negative pressure values. The **set points** for the controller are adjusted via the potentiometers **REGLER MIN** and **REGLER MAX**. They are indicated by the display, when the selective switch is in the corresponding position. Two further set points, adjustable at the potentiometers **ALARM MIN** and **ALARM MAX**, serve to give an alarm, when the actual pressure value exceeds the maximum permissible value. This is signaled by the LED ALARM. By turning the the potentiometer ALARM into left-hand position, the lower set point is deactivated. The LED REGLER emits light signals, when set point REGLER MAX is reached and is only deactivated again, after set point REGLER MIN has been reached and exceeded. The integrated adjustable electronic **Δp-damping** of the switching point (set point) and the display represents an important functional advantage for all ranges of application with permanent air turbulences. A short circuit-safe analogue output that can be either **0-10 V, 0 - 20 mA** or **4 - 20 mA**, transmits an output signal that is proportional to the pressure and can be used for further process controls.

## FEATURES

- Universal electric power supply for 230-240 VAC and 110-120 VAC and 24 VDC in one unit
- Pressure sensor overload-safe and temperature compensated
- Adjustable Δp-damping 1s - 30s
- Extreme range of ambient temperature - 20°C to +60°C
- Reliable function even during extreme mains fluctuations
- Two-step controller, fail safe relay outputs
- 3 short circuit safe analogue outputs 0-10 V, 0-20 mA and 4-20 mA
- Housing protection class IP65
- High reliability due to "burn in-function"

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# TECHNISCHE DATEN / TECHNICAL DATA

<b>Messbereiche</b>	$\Delta p$ :	0,5, 1, 2, 3, 4, 5, 6, 7, 8, 9, mbar.....	<b>ORDER-INDEX: -mbar-</b>
Pressure ranges	$\Delta p$	$\pm 0,5$ $\pm 1$ , $\pm 2$ , $\pm 5$ , Nullpunkt mittig / z. point in t. middle mbar.....	<b>ORDER-INDEX: <math>\pm</math> mbar-</b>
		$\pm 10$ , $\pm 20$ , $\pm 30$ , $\pm 40$ , $\pm 50$ , $\pm 60$ , $\pm 70$ , $\pm 80$ , $\pm 90$ mbar.....	<b>ORDER-INDEX: <math>\pm</math> mbar-</b>
		10, 20, 30, 40, 50, 60, 70, 80, 90, mbar.....	<b>ORDER-INDEX: -mbar-</b>
		100, 200, 300, 400, 500, 600, 700, 800, 900, mbar.....	<b>ORDER-INDEX: -mbar-</b>
		1b	<b>ORDER-INDEX: -bar-</b>

**Anzeige, Display** : Digital 3-stellig, 7-Segment-LED rot, 14 mm hoch. Digital 3 - digit, 7-segment - LED (red), 14 mm high  
 **$\Delta p$ -Dämpfung, Damping** : Elektronisch, stufenlos einstellbar : 1 - 30 s. Electronic, adjustable : 1 - 30 s

<b>Überlastbarkeit</b>	:	<b>Statischer Gleichdruck einseitig / Static balanced pressure on one side:</b>
Overload capacity	:	Messbereich / range, bis / up to: 0,5 - 10 mbar, $\pm 0,25$ - $\pm 5$ mbar : pmax = 250 mbar
	:	Messbereich / range, bis / up to: 20 - 100 mbar, $\pm 10$ - $\pm 50$ mbar : pmax = 0,75 bar
	:	Messbereich / range, bis / up to: 200 - 900 mbar, $\pm 100$ - $\pm 450$ mbar : pmax = 2 bar
	:	Messbereich / range, bis / up to: 1 - 2 bar, $\pm 0,5$ - $\pm 1$ bar : pmax = 4 bar
	:	Messbereich / range, bis / up to: 3 - 7 bar, $\pm 1,5$ - $\pm 3,5$ bar : pmax = 10 bar
	:	Messbereich / range, bis / up to: 8 - 10 bar, $\pm 4$ - $\pm 5$ bar : pmax = 16 bar

	:	<b>Statischer Gleichdruck beidseitig / Static balanced pressure on two sides:</b>
	:	Messbereich / range, bis / up to: 0,5 - 10 mbar, $\pm 0,25$ - $\pm 5$ mbar : pmax = 0,6 bar
	:	Messbereich / range, bis / up to: 20 - 100 mbar, $\pm 10$ - $\pm 50$ mbar : pmax = 5 bar
	:	Messbereich / range, bis / up to: 200 - 900 mbar, $\pm 100$ - $\pm 450$ mbar : pmax = 5 bar
	:	Messbereich / range, bis / up to: 1 - 2 bar, $\pm 0,5$ - $\pm 1$ bar : pmax = 7 bar
	:	Messbereich / range, bis / up to: 3 - 7 bar, $\pm 1,5$ - $\pm 3,5$ bar : pmax = 10 bar
	:	Messbereich / range, bis / up to: 8 - 10 bar, $\pm 4$ - $\pm 5$ bar : pmax = 16 bar

**Gesamtfehler** : Linearität + Hysterese + Reproduzierbarkeit :  $\pm$  2% F.S. bis / up to  $\leq$  2 mbar Messbereich / range  
 Total error : Linearity + hysteresis + reproducibility  $\pm$  1% F.S. ab / from  $\geq$  3 mbar Messbereich / range

**Langzeitstabilität** : 0,1 % F.S. / Jahr (F.S. = vom Messbereich / Full Scale)  
 Long term stability : 0,1 % F.S. / year

**Temperaturfehler** : +10°C bis +50°C : 0,025 % F.S. / K (K = Kelvin)  
 Temperature error : +50°F to +122°F : 0,025 % F.S. / K

**Betriebstemperatur** : -20°C bis +60°C  
 Operating temperature : -4°F to +140°F

**Druckmedium** : Nicht aggressive und nicht brennbare, trockene (0-95 % r.F., nicht kondensierend) Gase, Luft.  
 Pressure media : Not aggressive and not flammable, dry (0-95 % r.H., non condensing) gases, air.

**Signalausgänge** : **Digital:**  
 Signal outputs : REGLER- und ALARM-Kontakte, 2x potentialfreie Wechsler : 2 A cos phi = 1, 24 - 255 V, 50 - 60 Hz,  $\geq$ 24 VDC.  
 REGLER- and ALARM-contact, 2x change-over switches : 2 A cos phi = 1, 24 - 255 V, 50 - 60 Hz,  $\geq$ 24 VDC.  
 Leuchtdiode für REGLER / LED REGLER. Leuchtdiode für ALARM / LED ALARM.

**Signalausgänge** : **Analog(ue), linear, universell:**  
 Signal outputs : 0 - 10 V, Bürde / load =  $\geq$  10 k $\Omega$   
 0 - 20 mA, Bürde / load =  $\leq$  500  $\Omega$   
 4 - 20 mA, Bürde / load =  $\leq$  500  $\Omega$   
 Der  **$\Delta p$ -Istwert** wird unabhängig von der Dreh-Wahlschalterstellung **ständig ausgegeben**.  
 The output of the actual  **$\Delta p$ -value** takes permanently place independent of the position of the selective switch.

**Regler-Funktion** : Zweipunkt-Regler / two-step controller  
 Controller function

**Stromversorgung** : **Universell: 230 - 240 V $\approx$ , 50 - 60 Hz** umschaltbar auf / changable to: **110 - 120 V $\approx$ , 50 - 60 Hz**  
 Power supply : und / and **24 VDC** in einem Gerät realisiert / in one unit realised.  
 24 V $\approx$ , 50 - 60 Hz changeable to : 12 V $\approx$ , 50 - 60 Hz:.....**ORDER-INDEX: -VAC-**

**Nennleistung** : 5 VA; 3,3 W  
 Nominal power

**Elektr. Anschluss** : Schraubklemmen, max. Drahtquerschnitt 2,5 mm<sup>2</sup>  
 Electric connection : Screw terminal, max cross section of wire AWG 14

**Druckanschluss** : 2x Schlauchverschraubungen mit Überwurfmutter / 2x tube connector with connector nut:  
 Pressure connection : Schlauchgrößen: Da/OD = 6 mm, Di/ID = 4 mm :.....**ORDER-INDEX: -64-**  
 size of tube Da/OD = 8 mm, Di/ID = 6 mm :.....**ORDER-INDEX: -86-**  
 2x Schlauchtüllen / 2x tube connector without connector nut:  
 Schlauchgrößen: Di / ID = 6 mm - 7 mm :.....**ORDER-INDEX: -T6-**  
 size of tube Di / ID = 8 mm - 10 mm :.....**ORDER-INDEX: -T8-**

**Gehäuse** : Abmessungen / dimensions : 140 x 220 x 120 mm, B x H x T  
 Housing : Material / material : **ABS**. Farbe / color: grau / grey. Gewicht / weight : 1000 g  
 Schutzart / protection class : IP 65:.....**ORDER-INDEX: -AB-**

**Option für Gehäuse** : Gehäuse auf Normschienenhalter montiert / Housing mounted at a holder for normrail  
 Option for housing : Material / material : **ABS**. Farbe / colour: grün / green.....**ORDER-INDEX: -TS35-**

**Vorschriften / Rules** : EN 60 204-1, EN 61010, EN 61326-1, EN 61326-2-3, DGUV Vorschrift 3 / Regulation 3.

Bestell-Nr. : DDU-3- Messbereich - Regler - Anzeige - Volt - AC - Anschluss - Gehäuse - Halter f. - CE  
 mbar / bar Funktion - Volt - DC - Normschiene

**ORDER-INDEX** : DDU-3- Pressure range - Controller - Display - Volt - AC - Connection - Housing -normrail - CE

**Beispiel 1 / example 1** : **DDU-3- 30 - 2 - D - 24DC- 240AC - 86 - AB - CE**

**Beispiel 2 / example 2** : **DDU-3-  $\pm 10$  - 2 - D - 24DC- 240AC - 64 - AB - TS35 - CE**

Änderungen vorbehalten / subject to change Z0124001\_013\_DDU3\_GB

**jumes** Made in Germany