

Limit Alarm Unit DG 35200



Read these instructions before using the product and retain for future information.

DG 35200

► Before Startup



When operating the device, certain parts can carry dangerous voltage! Ignoring the warnings can lead to serious injury and/or cause damage!

The device should only be installed and put into operation by qualified staff. The staff must have studied the warnings in these operating instructions thoroughly.

The device may not be put into operation if the housing is open.

In applications with high operating voltages sufficient distance and isolation as well as shock protection must be ensured.

Safe and trouble-free operation of this device can only be guaranteed if transport, storage and installation are carried out correctly and operation an maintenance are carried out with care.



Appropriate safety measures against electrostatic discharge (ESD) should be taken during range selection and assembly on the device.

► Short description

The configurable Limit Alarm Switch DG 35200 is used for limit monitoring and processing of unipolar and bipolar standard signals. A SPST relay or optionally an isolated, passive transistor switch (Open-Collector) is available at the output.

The Limit Alarm Unit monitors standardized current and voltage signals, and transmits the signal to the switching output. A transmitter power supply is provided for the operation of 2-wire and 3-wire transmitters.

The configuration is carried out via DIP switch or front interface (needs DZU 1201, see accessories). The switch point can be taught-in and corrected during operation with the front-side Teach-In buttons. The alarm Unit has an adjustable switch-on delay, switch-off delay and a wiper function. Further settings such as memory function and window function can be programmed via front interface.

The input is protected against polarity reversal and short circuit. The power supply can be provided via the connection terminal blocks or via the optional In-Rail-Bus (see accessories). The switch status and the device status are indicated by LEDs on front panel. If the device is operated via the In-Rail-Bus, a common fault message is available.

► Configuration and startup

Configuring with DIP switch

Use the DIP switches to configure the device, according to table. A limited number of functions are available via DIP switch. The complete functionality of the device can be configured with the software configuration tool DRAGOset.

Configuring with software DRAGOset

In the PC mode, you can use the DRAGOset software and the DZU 1201 programming interface (see accessories) to configure the device with or without an external power supply. DIP switches S1-1 to S1-4 must be in the OFF position. The DZU 1201 is used to connect the PC with the programming socket on the front panel.

DRAGOset is available at: www.drago-automation.de

Fine adjustment of the switching point

The switching point can be readjusted at any time. To increase the switching point, the upper function key must be pressed briefly. To decrease the switching point, the lower function key must be pressed briefly. Each press of the button is indicated by a short flash of the corresponding blue LED and changes the switching point by 0.5 %. If the original programmed switching point was changed in this way, the corresponding blue LED glows.

Teach-in function

The switching point can be taught-in during operation using the function keys behind the front cover (operated using a screwdriver). The teach-in function can be activated via the DIP switches or via DRAGOset in PC mode. There are two options for the teach-in function:

- **One switching point (hysteresis according to configuration)**
 1. Perform configuration via DIP switch or DRAGOset and supply the device with auxiliary power.
 2. Connect a signal source with desired limit values on input
 3. Press one of the function keys for approx. 3 s until the blue LEDs light up → switching point is saved. The hysteresis remains unchanged as defined by DIP switch or DRAGOset.

- **Sett ON and OFF switch points individually**

1. Perform configuration via DIP switch or DRAGOset and supply the device with auxiliary power.
 2. Connect a signal source with desired upper limit values on input.
 3. Press the upper function key for approx. 3 s until the blue LED lights up → Switch-on point is saved.
 4. The lower blue LED flashes → Connect a signal source with desired lower limit values on input.
 5. Press the lower function key for approx. 3 s until the blue LED lights up → Switch-off point is saved.
- The DIP switches S2-1...S2-3 (hysteresis) have no effect.

Teach-in error

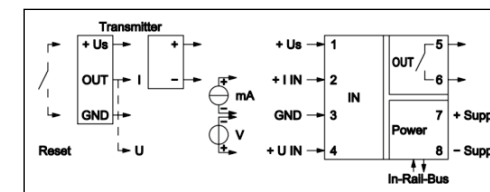
If the span between switch-on and switch-off point is too low, the red LED flashes after saving (configuration error). In case of a fault, the teach-in function must be performed again completely.

► Technical Data

Input	Voltage	Current
Input signal ¹⁾	± 10 V ± 5 V	± 20 mA ± 10 mA
(calibrated switchable)	0 ... 10 V 0 ... 5 V 2 ... 10 V 1 ... 5 V ABS (± 10 V)	0 ... 20 mA 0 ... 10 mA 4 ... 20 mA 2 ... 10 mA ABS (± 20 mA) 4 ... 20 mA NE43
Input resistance	≥ 1 MΩ	≤ 20 Ω
Overload	< 30 V	< 50 mA
Transmitter supply (Us)	16 V (open circuit/short circuit < 22 V/35 mA)	
Fault signal	Sensor- / wire break, error signal programmable	
Output		
DG 35200	250 V AC / 30 V DC / 2 A	
Relais (SPST)	Recommended minimum load 300 mW / 5 V / 5 mA	
DG 35280	36 V DC / 50 mA, Residual voltage < 1.5 V ated, not current limited	
Transistor (Open-Collector)		
Switching functions	Make / break contact, ON delay, OFF delay or wiper: OFF, 0.5 s, 1 s, 5 s, 10 s	
Response time	≤ 20 ms	
Switch state indicator	Yellow LED on front	
Common fault message	Signal at In-Rail-Connector E (supply circuit) at device failure, cable break und short circuit	
General data		
Switching error	< 0.1 % full scale	
Temperature coefficient ²⁾	< 100 ppm/K	
Measurement rate	4 / s	
Response time T99	250 ms	
Test voltage	3 kV, 50 Hz, 1 min. Input against output against power supply	
Working voltage ³⁾	600 V AC/DC for overvoltage category II and contamination class 2 acc. to EN 61010-1	
Protection against dangerous body currents ³⁾	Protective Separation by reinforced insulation acc. to EN 61010-1 up to 300 V AC/DC for overvoltage category II and contamination class 2 between input and output and power supply.	
Ambient temperature	Operation -25 °C to +70 °C (-13 to +158 °F) Transport and storage -40 °C to +85 °C (-40 to +185 °F)	
Power supply	24 V DC 16.8 V ... 31.2 V, approx. 1.0 W	
EMV ⁴⁾	EN 61326-1	
Construction	6.2 mm (0.244") housing, protection type: IP 20 mounting on 35 mm DIN rail acc. to EN 60715	
Connection terminals	- Screw terminals (plus-minus clamp screws) (see order information) - Cage clamp terminals (Push-In)	
Weight	Approx. 70 g	

- 1) Factory setting: 0...20 mA, switching point = 50 %, hysteresis 0.2 %, MAX-alarm, normally open contact, time functions off
- 2) Average TC in specified operating temperature range
- 3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipment's. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.
- 4) Minor deviations possible during interference

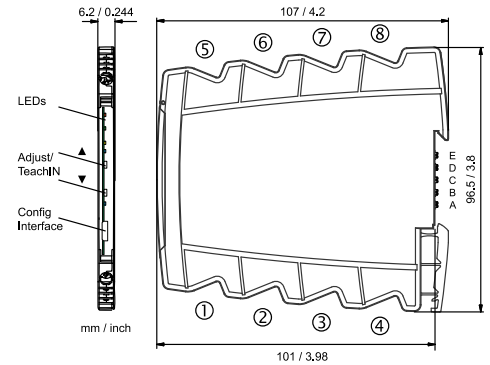
► Block Diagram



► Mounting, Electrical Connection

The transmitter is mounted on standard 35 mm DIN rail

► Dimensions



► Connection data

Connection	Screw terminals	Push-In terminals
Wire cross-section stranded ferruled	0.5 mm ² - 2.5 mm ² AWG 20 - 14	0.5 mm ² - 1.5 mm ² AWG 20 - 16
Wire cross-section solid wire	0.5 mm ² - 2.5 mm ² AWG 20 - 14	0.5 mm ² - 2.5 mm ² AWG 20 - 14
Stripped length	8 mm / 0.3 in	8 mm / 0.3 in
Screw terminal torque	0.6 Nm / 5 lbf in	-

► Order Information

Limit Alarm Unit	Order.-Nr.	Relay	Transistor
Screw terminals	DG 35200 S	DG 35200 S	DG 35280 S
Screw terminals, In-Rail-Bus	DG 35200 B	DG 35200 B	DG 35280 B
Push-In terminals	DG 35200 S	DG 35200 S	DG 35280 S
Push-In terminals, In-Rail-Bus	DG 35200 B	DG 35200 B	DG 35280 B

LIMITED WARRANTY

DRAGO Automation GmbH hereby warrants that the Product will be free from defects in materials or workmanship for a period of **five (5) years** from the date of delivery ("Limited Warranty"). This Limited Warranty is limited to repair or replacement at DRAGO's option and is effective only for the first end-user of the Product. This Limited Warranty applies only if the Product:

1. is installed according to the instructions furnished by DRAGO;
2. is connected to a proper power supply;
3. is not misused or abused; and
4. there is no evidence of tampering, mishandling, neglect, accidental damage, modification or repair without the approval of DRAGO or damage done to the Product by anyone other than DRAGO.

Delivery conditions are based upon the „GENERAL CONDITIONS FOR THE SUPPLY OF PRODUCTS AND SERVICES OF THE ELECTRICAL AND ELECTRONICS INDUSTRY“ recommended by the Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI) e.V. .

Subject to change!

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Set the input and output ranges with DIP switches as indicated in the following table (● = ON, Factory settings: all switches in position OFF):

DIP S1				Input
1	2	3	4	
				PC-Mode
●				0 ... 20 mA
	●			4 ... 20 mA
●	●			± 20 mA
				ABS (± 20 mA)
●		●		0 ... 10 mA
●	●			2 ... 10 mA
●	●	●		± 10 mA
		●		4 ... 20 mA / NE43
		●		Relay inactive at < 3.6 mA / > 22 mA
●		●		0 ... 10 V
	●	●		2 ... 10 V
●	●	●		± 10 V
		●	●	ABS (± 10 V)
●	●	●		0 ... 5 V
	●	●	●	1 ... 5 V
●	●	●	●	± 5 V

DIP S1										Output
5	6	7	8	9	10					
						MIN alarm				
●						MAX alarm				
						normally open, N.O.				
●						normally closed, N.C.				
time function										
						Off				
				●		On delay				
			●			Off delay				
		●	●			Single shot / wiper				
					●	0.5 s				
					●	1 s				
					●	5 s				
					●	10 s				

DIP S2			Hysteresis
1	2	3	
			0.2 %
		●	0.5 %
	●		1 %
	●	●	2 %
●			5 %
●	●		10 %
●	●	●	20 %
●	●	●	30 %

DIP S2										Switching point										Unipolar				Bipolar																													
4	5	6	7	8	9	10				4	5	6	7	8	9	10				4	5	6	7	8	9	10				4	5	6	7	8	9	10				Unipolar	Bipolar	Live Zero	Range monitoring										
							●																																	< 0 %	< -100 %	< 0 %	Measuring range										
						●																																		> 100 %	> +100 %	> 100 %											
							●																																	< 0 %	< -102.5 %	< -1,3 %	Extended measuring range										
																																								> 102.5 %	> +102.5 %	> +103.1 %	3.8 / 20.5 mA at 4 ... 20 mA										
							●																																											< -2,5 %			NE43 error limits
																																																		> +106.2 %			3.6 / 21 mA at 4 ... 20 mA
																														Teach-in																							
																														Teach-In, one switching point																							
																														Teach-In, ON/OFF → two switching points																							

LED-indication

The Alarm Unit has a green, a red, a yellow and two blue LEDs on front panel.

Signaling	green	red	yellow	blue
off	No power supply	Device function ok	Alarm not triggered	Configured switching point was not changed by fine adjustment
on	Power supply is connected	Device error replacement necessary	Alarm triggered	Key acknowledgement (keystroke > 3 s)
blinking		Maintenance short-circuit transmitter supply, NE43 error, configuration error	Delay time active	Waiting for teach-in for OFF switching point
flashing		Alarm has been triggered and is being held → Waiting for confirmation / reset		Key acknowledgement (keystroke ≤ 1 s) switching point changed by 0.5 % through fine correction
glowing				Configured switching point was changed by fine correction ▲▼