

DOL 31 Speed Controller

Technical Info



PRODUCT DESCRIPTION

DOL 31 is a single-phase triac speed controller for e.g. regulation of fans, stand-alone heating units or light. DOL 31 can with advantage be used in applications where a complete climate controller is not required.

DOL 31 can be set to three different modes of operation:

- Automatic - Master mode in which the DOL 31 output is controlled on the basis of the ambient temperature. One DOL 12 temperature sensor is included with each DOL 31.
- Automatic - Slave mode in which the DOL 31 output is controlled by a 0 - 10 V input signal.
- Manual control in which the DOL 31 output is set manually by means of the keyboard on the front.

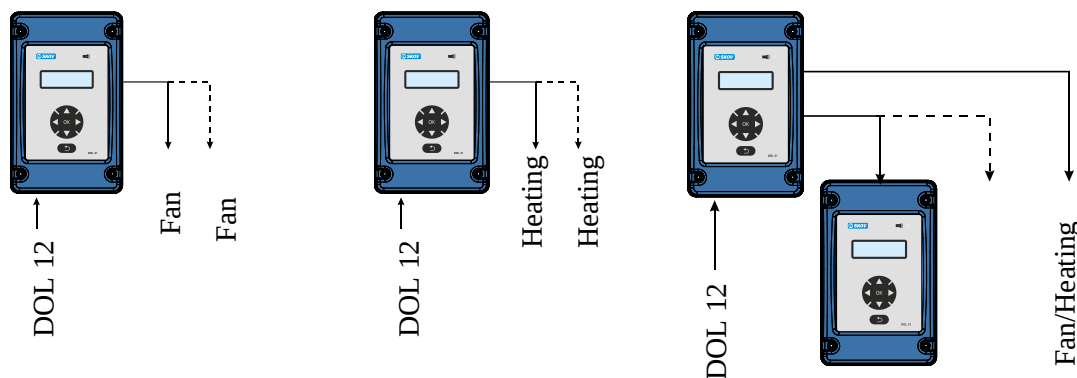
In addition, DOL 31 has an alarm relay (max. 24V, 1 A) plus a control relay (max. 230V, 12 A). The control relay could for instance be used for turning a heat- and cooling source on and off.

DOL 31 speed controller is available in a 6.8 A and a 16 A version.

1 DOL 31 temperature-controlled

1.1 Automatic - Master Mode

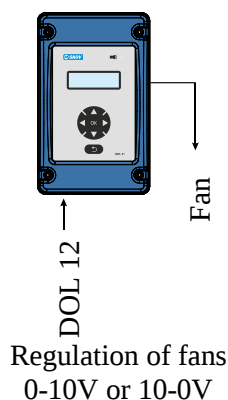
Temperature-controlled by means of a DOL 12 temperature sensor.



Regulation of fans

Regulation of heating

Controls one or several DOL 31,
extended capacity

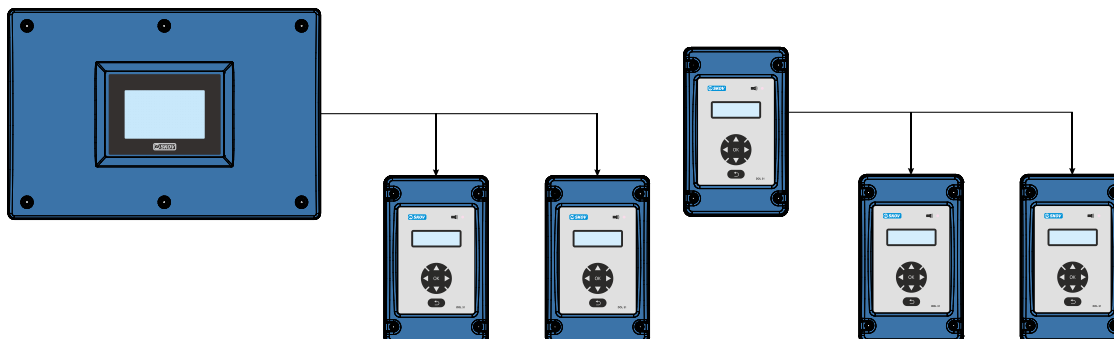


Regulation of fans
0-10V or 10-0V

2 DOL 31 Slave Controller

2.1 Automatic - Slave Mode

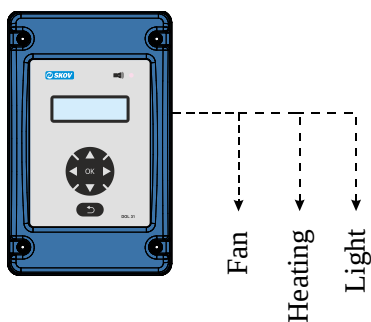
Controlled by a 0 - 10 V input signal.



Controlled by SKOV A/S house computer

Controlled by DOL 31

3 DOL 31 Manual Control



Manually controlled by settings carried on the keyboard. The output can be set to 0-100%.

4 Product Survey

	Description														
DOL 31 Speed Controller															
	130171 DOL 31 Speed Controller 6,8 A Outputs: <table> <tr> <td>Alarm relay 24 V 1 A</td><td>1</td></tr> <tr> <td>Control relay 230 V 12 A</td><td>1</td></tr> <tr> <td>24 V 100 mA</td><td>1</td></tr> <tr> <td>0 –10 V DC</td><td>1</td></tr> <tr> <td>60 – 230 V triac</td><td>1</td></tr> <tr> <td>Min. 150 VA</td><td></td></tr> <tr> <td>Max. 700/1500 VA</td><td></td></tr> </table> Inputs: 0 - 10 V DC or DOL 12 Supplied with one DOL 12 temperature sensor, three plastic glands M25 and three plastic nuts M25. Language in the display: Danish, English, German, Finnish, Swedish, Polish, Russian and Estonian.	Alarm relay 24 V 1 A	1	Control relay 230 V 12 A	1	24 V 100 mA	1	0 –10 V DC	1	60 – 230 V triac	1	Min. 150 VA		Max. 700/1500 VA	
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5 Technical Data

DOL 31

Electrical Setup

Mains supply [V]	110/230 $\pm$ 10%
Net frequency [Hz]	50/60
Motor load max. [VA]	6.8 A version: 700/1500 16 A version: 1700/3600
Motor load min. [VA]	150
Inputs	0-10 V or DOL 12
Outputs	Analog 0-10 V 24 V 100 mA 24 V 1 A alarm relay 230 V 12 A control relay 60 – 230 V triac output

Mechanics

Cable knock-out pieces	Seven Ø25.5 mm for M25 screwed cable joint
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Environment

Ambient temperature, operation	(0 to +40°C, +14 to 113°F)
Ambient temperature, storage	(-25 to +60°C, -13 to +140°F)
Ambient humidity, operation	10-90% RH
Protection class **	Splash proof IP54

****It is assumed that the base is level, i.e. ≤ 1.5 mm difference of height and that the screws of the cover are tightened with min. 200 Ncm.**

Shipment

Dimensions	H $\times$ W $\times$ D: 120 $\times$ 162 $\times$ 261 mm
Dimensions when packed	H $\times$ W $\times$ D: 165 $\times$ 230 $\times$ 310 mm
Shipping weight	1900 g



SETTINGS

6 Factory Settings

The default settings of DOL 31 are as follows:

Menu item	Minimum	Default settings	Maximum
Daily User Menu			
Temperature	0°C	20°C	40°C
Mode	-	Automatic - Slave	-
Minimum AC output	60 V _{RMS} = 0%	60 V _{RMS} = 26%	150 V _{RMS} = 50%
Maximum AC output	150 V _{RMS} = 50% *	230 V _{RMS} = 100% *	230 V _{RMS} = 100% *
Service menu			
Temperature alarm offset	±1°C	±4°C	±20°C
Control temperature offset	- 10°C	- 10°C	= 10°C
P-band	2°C	4°C	10°C
Minimum DC output	0 V	0 V	10 V
Maximum DC output	0 V	10 V	10 V
Input	-	0 – 10 V	-
Temperature scale	-	Celsius	-
Safe Mode	-	Yes	-
Invert	-	No	-
Language	-	English	-

* Depending on the actual supply voltage

7 Functions in Menu Mode

Function	Automatic Master Mode	Automatic Slave Mode	Manual Mode
DOL 12	✓		
0-10 V input signal		✓	
0-10 V or 10-0 V output signal	✓	✓	✓
Temperature alarm	✓		
Control temperature	✓		
Control relay	✓		
P-band	✓		
Invert	✓	✓	
Safe mode		✓	
Turn off limit		✓	
Minimum AC output	✓	✓	✓
Maximum AC output	✓	✓	
Alarm relay	✓	✓	✓

8 Table relating to DOL 12 Temperature Sensor Checkup

Temp.		DOL 12	Volt
°C	°F	kOhm	V
-10	14.0	44.02	7.12
-9	15.8	42.80	7.06
-8	17.6	41.61	7.00
-7	19.4	40.43	6.94
-6	21.2	39.28	6.88
-5	23.0	38.15	6.82
-4	24.8	37.05	6.75
-3	26.6	35.96	6.69
-2	28.4	34.91	6.62
-1	30.2	33.87	6.56
0	32.0	32.86	6.49
1	33.8	31.88	6.42
2	35.6	30.92	6.35
3	37.4	29.99	6.28
4	39.2	29.08	6.20
5	41.0	28.20	6.13
6	42.8	27.34	6.06

Temp.		DOL 12	Volt
°C	°F	kOhm	V
7	44.6	26.51	5.98
8	46.4	25.70	5.91
9	48.2	24.91	5.83
10	50.0	24.15	5.76
11	51.8	23.42	5.68
12	53.6	22.70	5.61
13	55.4	22.01	5.53
14	57.2	21.35	5.45
15	59.0	20.70	5.38
16	60.8	20.08	5.30
17	62.6	19.47	5.22
18	64.4	18.89	5.15
19	66.2	18.33	5.07
20	68.0	17.78	5.00
21	69.8	17.26	4.92
22	71.6	16.75	4.85
23	73.4	16.26	4.77

Temp.		DOL 12	Volt
°C	°F	kOhm	V
24	75.2	15.79	4.70
25	77.0	15.34	4.63
26	78.8	14.90	4.56
27	80.6	14.48	4.49
28	82.4	14.07	4.41
29	84.2	13.68	4.35
30	86.0	13.30	4.28
31	87.8	12.94	4.21
32	89.6	12.58	4.14
33	91.4	12.25	4.08
34	93.2	11.92	4.01
35	95.0	11.61	3.95
36	96.8	11.31	3.88
37	98.6	11.01	3.82
38	100.4	10.73	3.76
39	102.2	10.46	3.70
40	104.0	10.21	3.64

