

DOL 31 Speed Controller

Technical Info



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1 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:

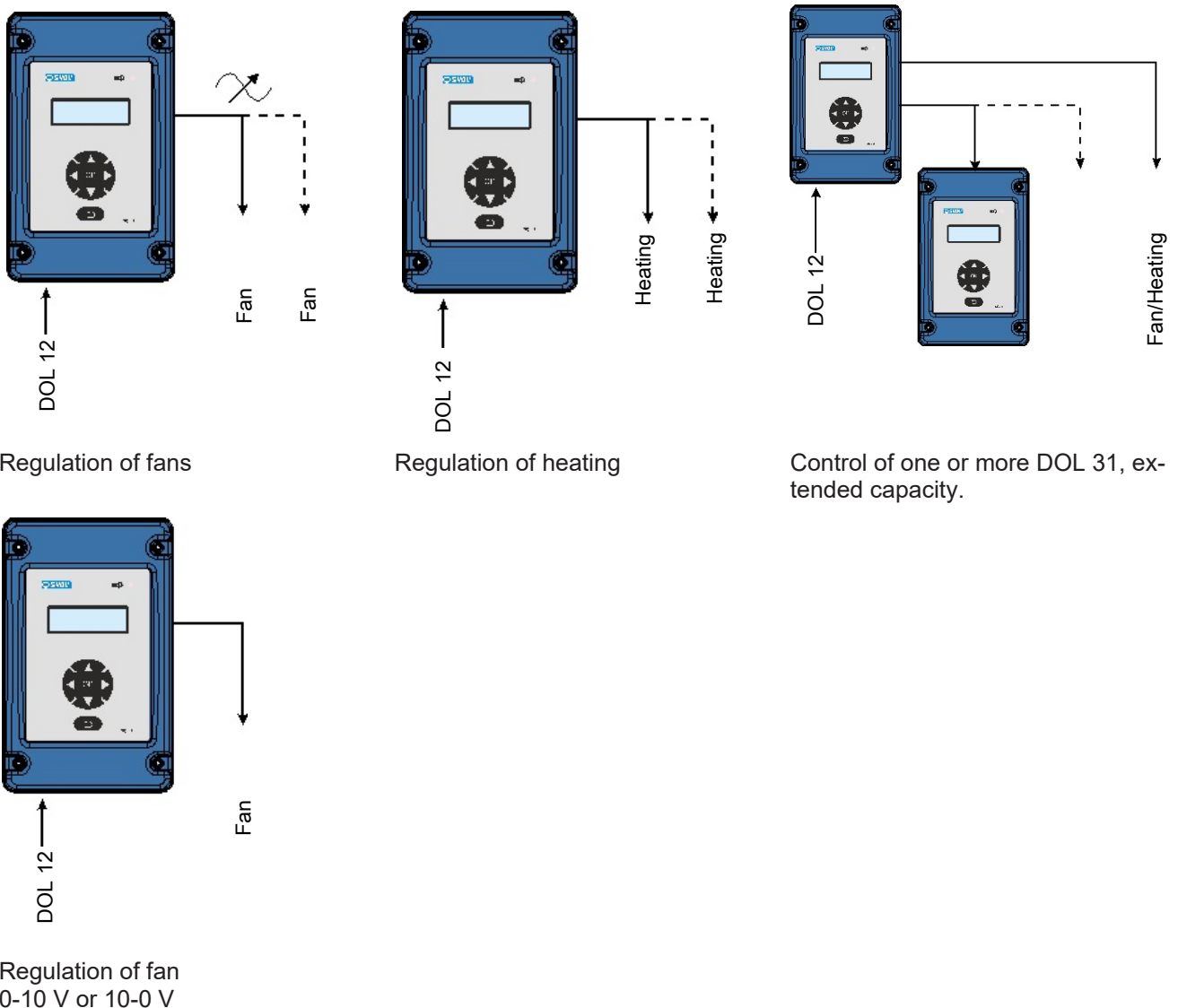
- Automatic - Master mode in which the DOL 31 output is controlled on the basis of the ambient temperature. Each DOL 31 is supplied with one DOL 12 temperature sensor.
- Automatic - Slave mode in which the DOL 31 output is controlled by a 0-10 V input signal.
- Manual control in which the DOL 31 output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

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

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

1.1 DOL 31 Automatic – Master mode

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



1.2 Functions in menu mode

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

2 Product survey



130171 DOL 31 speed controller 6.8 A

- 0-10 V input or DOL 12 input (1)
- 0-10 V output (1)
- 60-230 V output (1)
- 24 V output (1)
- 24 V alarm relay (1)
- 230 V control relay (1)

Supplied with:

1 DOL 12 temperature sensor, 3 plastic glands M25 and 3 plastic nuts M25.



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- 0-10 V input or DOL 12 input (1)
- 0-10 V output (1)
- 60-230 V output (1)
- 24 V output (1)
- 24 V alarm relay (1)
- 230 V control relay (1)

Supplied with:

1 DOL 12 temperature sensor, 3 plastic glands M25 and 3 plastic nuts M25.

3 Technical data

| Electrical | | |
|---------------------------------|---------|---|
| Rated voltage | V AC | 110/230 ±10% |
| Frequency | Hz | 50/60 |
| Motor load max. | VA | 6.8 A version: 700/1500 |
| | | 16 A version 1700/3600 |
| Motor load, min. | VA | 150 |
| Input | | 0-10 V or DOL 12 |
| Output | | 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 |
| Mechanical | | |
| Cable knock-out punches | | 7 pcs. ø25.5 mm for M25 cable glands |
| Environment | | |
| Operating temperature | °C (°F) | -10 to +40 (+14 to 113) |
| Temperature, storage | °C (°F) | -25 to +60 (-13 to +140) |
| Ambient humidity, operation | % RH | 10-90 |
| Protection class | IP | 54 (splashproof) It is assumed that the base surface is level, i.e. ≤ 1.5 mm height difference, and the front panel screws are tightened to a minimum of 1.5 Nm. |
| Shipment | | |
| Dimensions H x W x D | mm | 120x162x261 |
| Packing dimensions H x W x D | mm | 165x230x310 |
| Shipping weight | g | 1900 |

3.1 Factory settings

DOL 31 has following default setup.

| Menu item | Minimum | Default settings | Maximum |
|----------------------------|-------------------|--------------------|--------------------|
| Daily User Menu | | | |
| Temperature | -20 °C | 20 °C | 40 °C |
| Mode | - | Automatic - Slave | - |
| Minimum AC output | 0 VRMS = 0 % | 60 VRMS = 26 % | 150 VRMS = 50 % |
| Maximum AC output | 150 VRMS = 50 % * | 230 VRMS = 100 % * | 230 VRMS = 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 | 30 °C |
| Minimum DC output | 0 V | 0 V | 10 V |

| Menu item | Minimum | Default settings | Maximum |
|-------------------|---------|------------------|---------|
| Maximum DC output | 0 V | 10 V | 10 V |
| Input | - | 0-10 V | - |
| Temperature scale | - | Celsius | - |
| Safety mode | - | Yes | - |
| Invert | - | No | - |
| Language | - | English | - |

*Depending on the actual supply voltage.

3.2 Table relating to DOL 12 temperature sensor control

| °C | kΩ* | V | °C | kΩ* | V | °C | kΩ* | V |
|-----|-------|------|----|-------|------|-----|-------|------|
| -40 | 82.50 | 8.08 | 15 | 20.71 | 5.29 | 38 | 10.72 | 3.73 |
| -35 | 76.84 | 7.96 | 16 | 20.09 | 5.22 | 39 | 10.45 | 3.67 |
| -30 | 70.60 | 7.83 | 17 | 19.48 | 5.15 | 40 | 10.19 | 3.61 |
| -25 | 63.97 | 7.68 | 18 | 18.90 | 5.07 | 41 | 9.94 | 3.55 |
| -20 | 57.18 | 7.49 | 19 | 18.33 | 5.00 | 42 | 9.70 | 3.50 |
| -15 | 50.50 | 7.26 | 20 | 17.79 | 4.93 | 43 | 9.47 | 3.44 |
| -10 | 44.12 | 7.00 | 21 | 17.26 | 4.85 | 44 | 9.24 | 3.39 |
| -5 | 38.22 | 6.70 | 22 | 16.76 | 4.78 | 45 | 9.03 | 3.34 |
| 0 | 32.91 | 6.37 | 23 | 16.27 | 4.71 | 46 | 8.82 | 3.29 |
| 1 | 31.92 | 6.30 | 24 | 15.79 | 4.64 | 47 | 8.62 | 3.24 |
| 2 | 30.96 | 6.23 | 25 | 15.34 | 4.57 | 48 | 8.43 | 3.19 |
| 3 | 30.02 | 6.16 | 26 | 14.90 | 4.50 | 49 | 8.24 | 3.14 |
| 4 | 29.11 | 6.09 | 27 | 14.48 | 4.43 | 50 | 8.06 | 3.09 |
| 5 | 28.23 | 6.02 | 28 | 14.07 | 4.36 | 55 | 7.26 | 2.87 |
| 6 | 27.37 | 5.95 | 29 | 13.68 | 4.30 | 60 | 6.59 | 2.68 |
| 7 | 26.53 | 5.88 | 30 | 13.30 | 4.23 | 65 | 6.04 | 2.51 |
| 8 | 25.72 | 5.81 | 31 | 12.93 | 4.16 | 70 | 5.57 | 2.36 |
| 9 | 24.94 | 5.73 | 32 | 12.58 | 4.10 | 75 | 5.18 | 2.23 |
| 10 | 24.17 | 5.66 | 33 | 12.24 | 4.03 | 80 | 4.86 | 2.11 |
| 11 | 23.44 | 5.59 | 34 | 11.91 | 3.97 | 85 | 4.58 | 2.02 |
| 12 | 22.72 | 5.51 | 35 | 11.60 | 3.91 | 90 | 4.35 | 1.95 |
| 13 | 22.03 | 5.44 | 36 | 11.30 | 3.85 | 95 | 4.15 | 1.91 |
| 14 | 21.36 | 5.37 | 37 | 11.01 | 3.79 | 100 | 3.99 | 1.90 |

*Zero power measurement

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