



**Oden Control AB**



## **ODEN BASIS WEIGHT CONTROL ACTUATORS**



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## Oden V-BW basis Weight Control Actuators with Oden Remote Control Box (option)

Oden V-BV control actuators from Oden Control are developed for basis weight control with high accuracy. All components and mechanical parts in these actuators are calibrated and measured to give best result in your process.

### FEATURES

Oden V-BW actuators runs with high quality step motors and control electronics with high resolution  
Easy installation and startup.  
Resolution is 5000 steps at 90°, when 3-point control setpoint source is selected.  
Resolution is 1500 steps/90° when 4-20mA setpoint source is selected.  
Stepless speed adjustment from 0,10°/sec to 22°/sec. Depending actuator type.  
BW Actuator torques from 30 Nm to 400Nm.  
Operating temperature -40 to +80°C (depending ambient temperature)  
Sealing IP67  
Closing and control torques can be adjusted separately.  
No potentiometers that can be worn.  
Can be controlled by 4-20mA, Modbus, 3-points or 0-10V (or 2-10V).  
ISO assembly flanges for easier connection to valves.  
Easy programming by Oden OVP software.  
Low weight and little size.  
High accuracy.  
Backlash free construction.           Energy efficient.  
Duty cycle up to 100%  
Adjustable acceleration  
All actuators are multiturn           Up to 15000 turns.  
Can be delivered with external gears.  
Stepless adjustable closing torque, control torque and holding torque.  
Low power consumption .

### Manual operation

Manual operation hexagonal key or real hand wheel ( option)

### External control box (option)

External Oden remote control box that allows manual control locally of the actuator.  
Oden remote control box have display to shows position in %  
Remote box have even 240V AC / 24 or 48V DC (3 -13 A) power supply for the actuator.

### Position indication

Actuator can be delivered by indicator pins placed near actuator assembly flange.  
"mechanical" position display.

## Oden V-BW actuator

Oden actuators have only few parts. There is stepper motor, gear, control board. Actuator house, assembly flange, top cover and connection board. It is very easy to make maintenance. It takes 30 min to replace all parts and make required adjustments for best function.

### Technical description

Turning	V30	V65	V180	V250	V400	Actuator type)
Torque	6-30	10-60	30-120	60-300	60-400	(Nm)
Speed	25*	22*	20*	18*	18*	Degrees/second)
Precision	± 0.5	± 0.1	± 0.1	± 0.1	± 0.1	

Available speed depends on selected torque.\*

If questions, take contact with Oden Control AB or your local supplier.

When running actuators with 48V DC, it is possible to get approx. 50-100 % higher-speed with V models V30, V65 and V180 models!

Adjustable torque.

### Electrical data

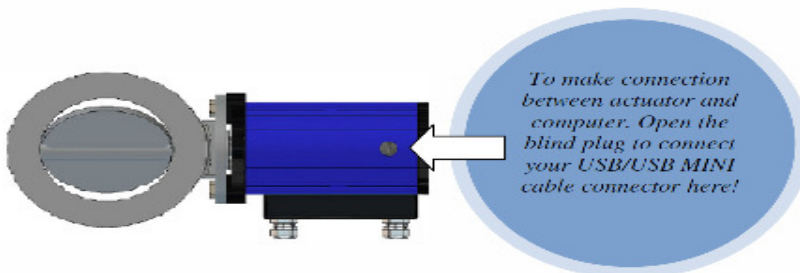
Actuator:	V30	V65	V180	V250	V400	(type)
Voltage	24 / 48	24 / 48	24 / 48	24 / 48	24 / 48	(V DC)
Current	5*	5*	7*	10*	13*	(Peak)
Analogue	4-20	4-20	4-20	4-20	4-20	Contropl signal.
0-10V	Yes	Yes	Yes	Yes	Yes	(or 2-10V)
Modbus	Yes	Yes	Yes	Yes	Yes	(Modbus 485)
3-point	Yes	Yes	Yes	Yes	Yes	3-point control)

\* Current rating (A) when maximum torque for specific actuator is selected.

Control signals are galvanic isolated

Galvanic isolated feedback signal 4-20mA (active)

Low volt for safe handling.



## Assembly adapters to valve shaft

Type	A max (mm)	A min (mm)	B max shaft Size (mm)
V30	37	15	16
V65	52	20	25
V180 and V250	79	30	30
V400	114	50	50



Check that the spindle length above the valve flange adapter is within A max and A min, see table above..

Check also that thickness of valve shaft is suitable for turning module. B max shaft size ( if possible to have standard parallel key and keyway )

*Ask for information for tapered clamping sleeves, for assembly without keyway.*

## General

The Oden V-series module system consists of:

- Basic unit
- Turning module
- Valve adapter
- Connection board



## Confirmation of delivered items

Please check that the delivery is complete according to the delivery specification:

- Basic Unit (V30, V65, V180, V250 or V400 )
- Turning module
- Product certificate
- Manual
- CD including software OVP (Oden Valve Program+ manual)

## Options

Computer cable USB/ USB MINI to make connection between actuator / computer.

Oden Remote Control Box

Real hand wheel: actuator is delivered normally as standard with- manual ride with hexagonal key!

Power supply to actuator: 230V AC/ 24V DC or 48V DC power supply.

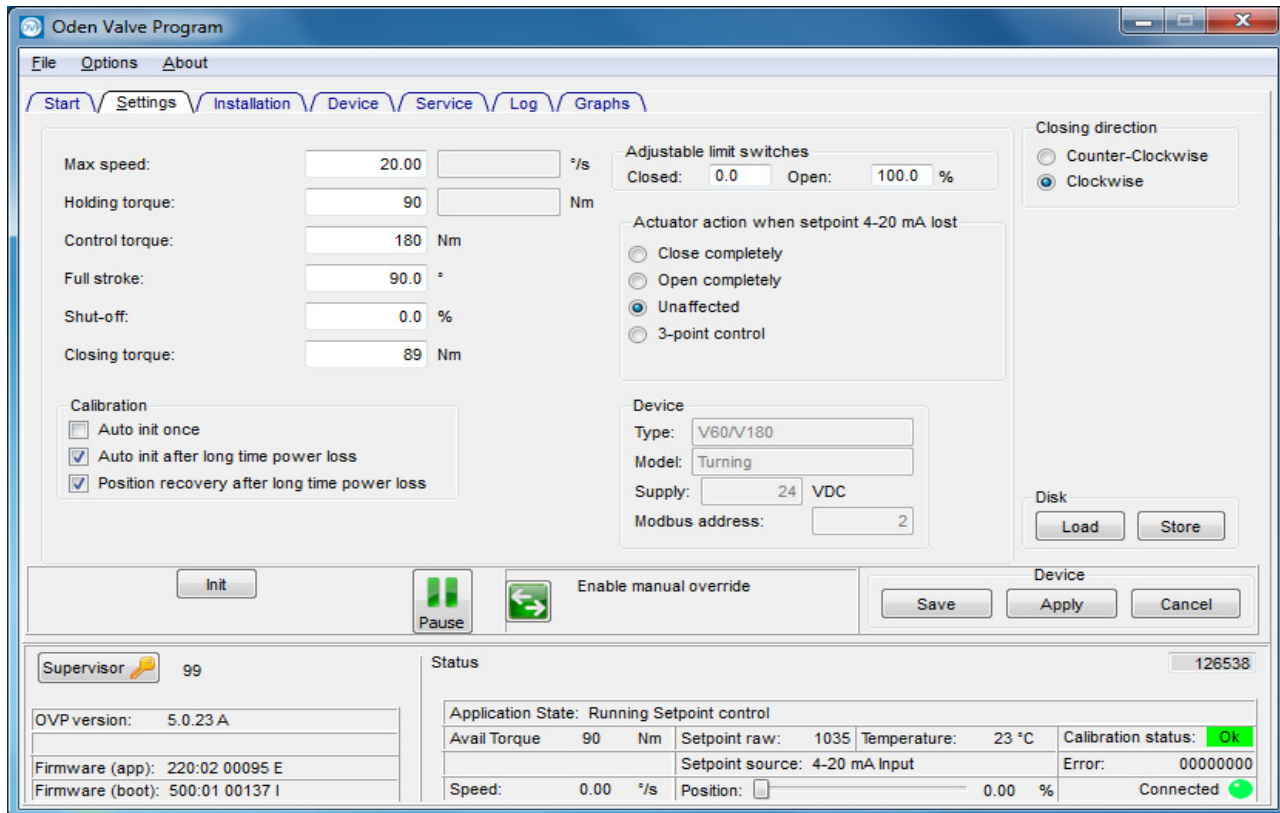
Ask for inquiry for suitable 24V DC or 48V DC power supply to your actuator.

## Technical description.

You can control these actuators by 4-20mA or digitally (works like 3-point control) These actuators are not standard V-series actuators. Type is Oden V XX\*BW (\*XX depending actuator type). We are using the best gears in these actuators with extra accuracy. Control boards are specially adjusted and tested for basis weight use Assembly kits and shaft couplings are specially made for play-free function. Connections 4 and 5 (increase and decrease) on connection board are for 3-point controlling and digital control 24 V DC control. If the actuator could be driven by pulses, each pulse would be able to move the actuator 0.018 degrees / pulse. But our actuators work as a 3-point control. Customers usually adjust time settings in their own control system.

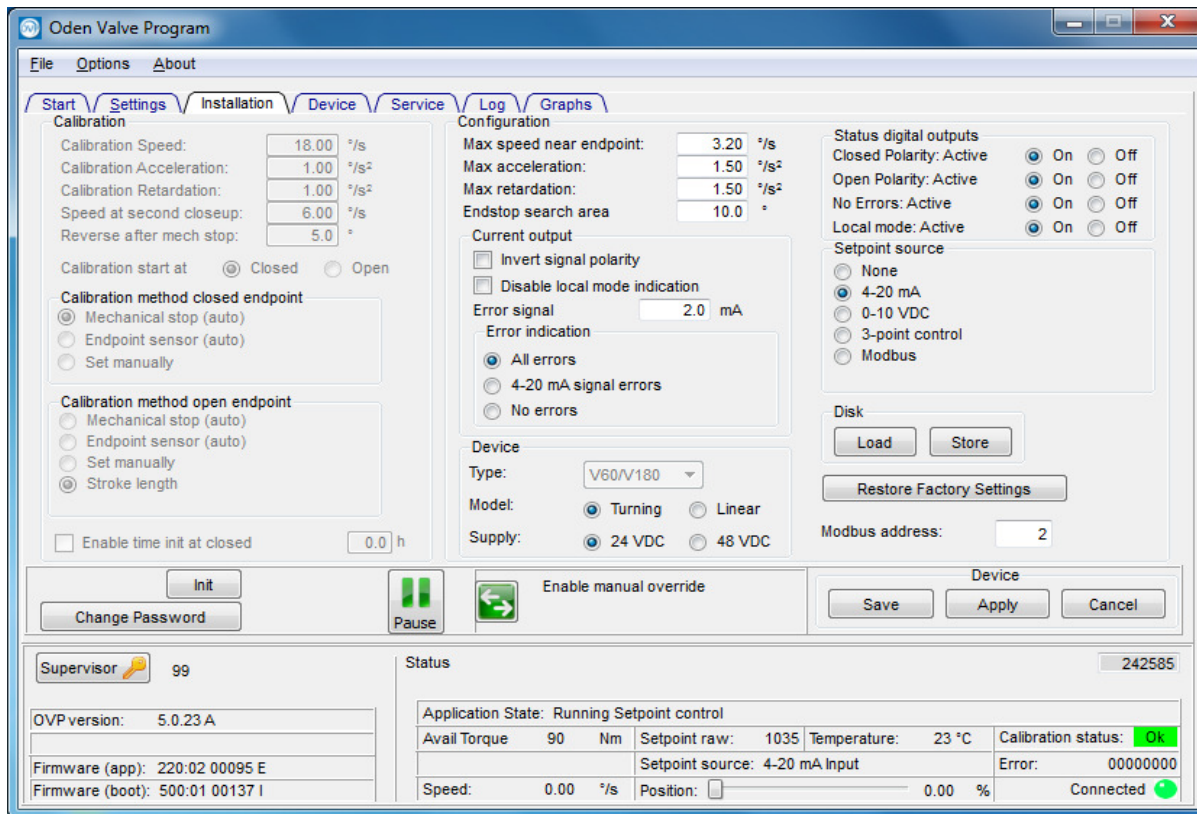
The digital inputs (Inc, Dec) is not pulsed without the engine running as long as they are activated.

It is read every millisecond, there is a filter function that removes noise and it means that the signal needs to be stable at ~ 35 mS to be detected



Here is settings menu from OVP valve program. Here you can change settings and store settings also in your computer. You can even load your settings from computer to actuator.

OVP valve program is free of charge and follows every delivered actuator. Can be downloaded from Oden Control webpage.



This is INSTALLATION menu here you can select: SETPOINT SOURCE, CLIBRATION METHODS, ERROR INDICATIONS, TURNING or LINEAR mode and selckect power supply and many more settings.

Information about input and output limitations: see separate manual -

Information about electrical connections and descriptions: Oden BW manual.

## How to change settings in Oden BW actuator

Make a installation of Oden OVP.23A program in to your computer.

Open the blind plug in a upper part of actuator house.

You can see USB Mini contact inside.

Put in your USB MINI connector and then the other end of USB in to your computer usb port.

Start the OVP program by clicking the **OVP** icon.

Click: **CONNECT** Go to **SETTINGS** menu:

IF you have 24 V DC power supply ON to your actuator  
you should see green **PAUSE** push button on OVP window.

Click : **PAUSE**

Now you can change needed settings like speed force and so on.

Click **APPLY** and then **SAVE** to save settings

Click green **RUN** push button to come to normal mode

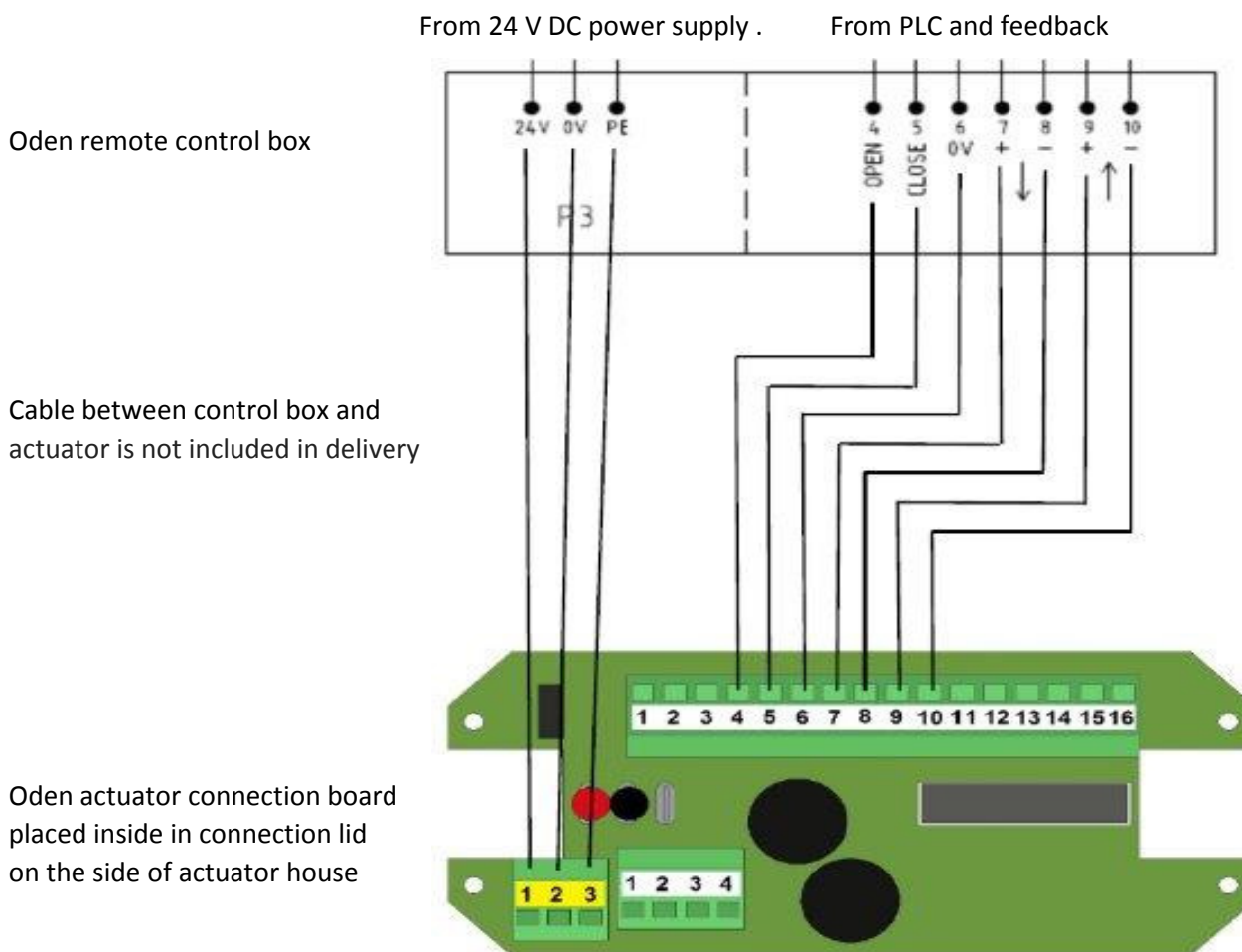
Green PAUSE push button must be visible when you exit the OVP program.

External control signal is not in use when RUN push button is visible.

## Electrical connections for Oden Local Control Box (Option)

Connections between Oden Local Control box and Oden actuator.

If 4-20mA control signal is in use!



Explanations for in and outputs in the Oden Remote Control Box:

24 VDC, 0V and PE are from 24 VDC power supply in to in remote control box

**4:** OPEN ( you open your valve with push button in remote control box)

**5:** CLOSE ( you close your valve with push button in remote control box)

**6:** 0V

**7:** 4-20mA control signal +IN

**8:** 4-20mA control signal -IN

**9:** 4-20mA analog feedback signal from actuator + OUT Active

**10:** 4-20mA analog feedback signal from actuator - OUT Active

Cable between remote control box and actuator can be bought by customer.

See local requirements on specific site!

Multi-conductor cable can be used

NOTE! Recommend cable length is max. 10m between local Control Box and actuator!

NOTE! When Oden Local Control Box is not selected, all connections from power supply and PLC system must be connected direct to Oden connection board (under connection board li

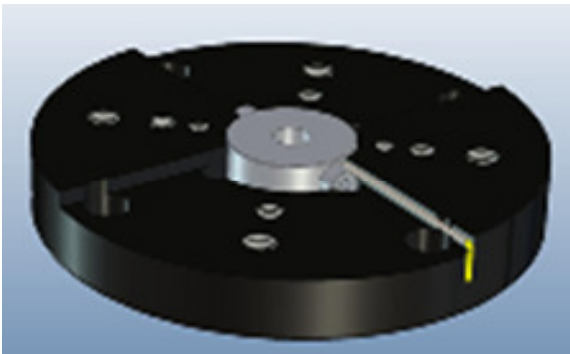


## Choice of cable

Cable for power supply should have conductors with each 1,5 mm<sup>2</sup> cross-sec. Actuator types V400, V65Q and V65QL should conductors be with each 1,5- up to 2,5 mm<sup>2</sup> cross-sec, max cable length between power supply and actuator is 5 m, twisted cable when 13A current . Our connection board inlets can take max conductors with each 2,5 mm<sup>2</sup> . Ask your actuator supplier for more info.

## Lubricant recommendations for Oden V-Series actuators.

At the service of the electric actuators, the recommended fat products should be used for the best function. For **Oden actuator gear parts**, **KLÜBER, ISOFLEX TOPAS NB 52** grease should be used. **KLÜBER, ISOFLEX TOPAS NB 52** is grease with a wide service temperature range for smooth and roller bearings. It consists of synthetic hydrocarbon oil and barium composite soap. It is resistant to water, surrounding media, oxidation aging and it reliably protects against corrosion. Isoflex Topas NB 52 grease is designed for long-term lubrication of coal and roller bearings and sliding bearings. Isoflex Topas NB 52 has a wide service temperature range, resists water, pollution, oxidation and corrosion. Temperature range -50 / +150 C Dropping point 240C

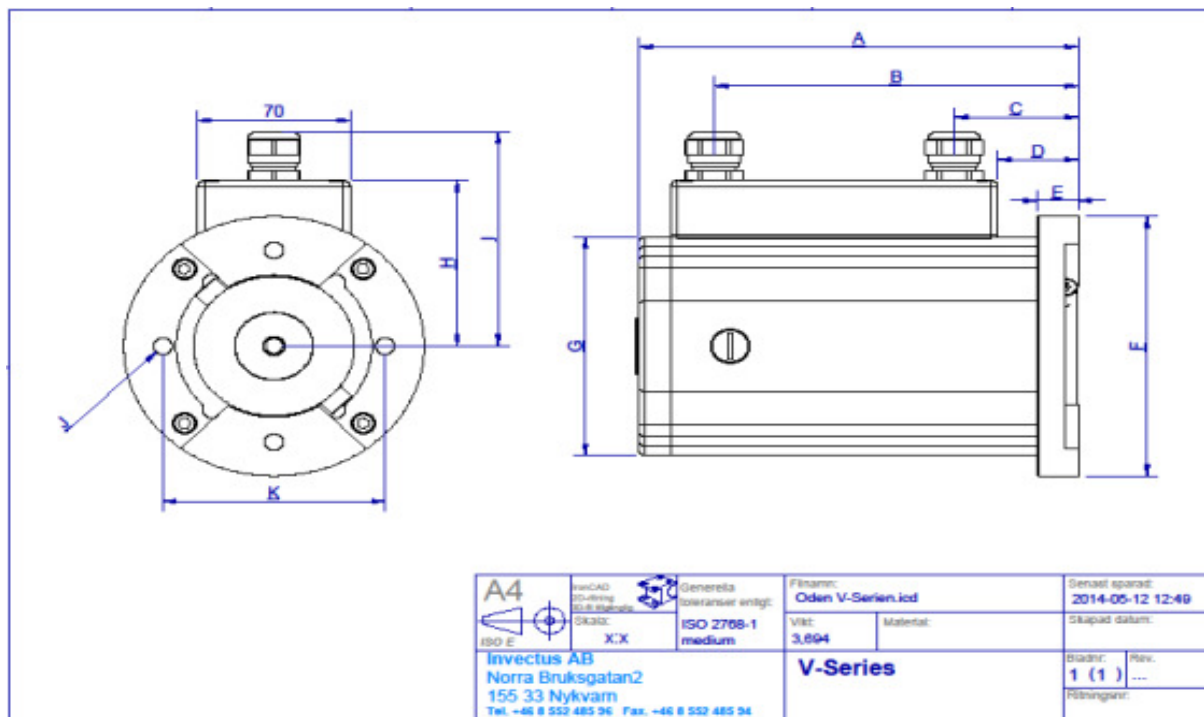


Actuators can be delivered with position indicator pins which are visible outside of actuator. (Option)

## Actuator sizes

Actuator Step	Sizes:								
	A	B	C	D	E	F	G	H	I
V30	185	150	40	20	20	∅138	116	93	119
V65	202	167	57	37	19	∅138	116	93	119
V180	273	238	128	108	28	∅138	116	93	119
V250	307	272	162	142	28	∅175	152	111	137
V400	331	296	186	166	50	∅175	152	111	137

Actuator Step	Connection		Weight: (kg)
	J	K	
V30	M6 (2x), M8 (4x), M10 (4x)	50 (iso F5), 70 (iso F7), 102 (iso F10)	4,4
V65	M10 (4x)	102 (iso F10)	5,1
V180	M10 (4x)	102 (iso F10)	7,7
V250	M10 (4x), M12 (4x)	102 (iso F10), 125 (iso F12)	13,3
V400	M12 (2x), M16 (2x)	125 (iso F12), 140 (iso F14)	17



## DECLARATION OF CONFORMITY

***Herewith declares that the product(s):***

Oden Control AB: V30, V65, V180, V250, V400, V30Q, V65Q, V30QL and V65QL electric actuators

***are CE-marked 2018 under full technical responsibility of:***

Oden Control AB  
Norra Bruksgatan 2  
155 33 Nykvarn  
Sweden

***and in conformity with the provisions of the following EU directive(s):***

- Electromagnetic Compatibility (EMC) Directive: 2014/30/EU
- Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) 2011/65/EU

***and conforming to the EMC standard(s):***

- EN 61000-6-2:2005 + AC:2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments IEC 61000-6-2:2005
- EN 61000-6-3:2007 + EN 61000-6-3:2007/A1:2011+AC:2012 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments IEC 61000-6-3:2006

***and RoHS standard:***

- EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

***Is hereby declared under our sole responsibility:***

Nykvarn, Sweden 2018-07-16

*Place and date of authorization*

  
\_\_\_\_\_  
Harri Porttila  
Managing Director  
Oden Control AB

## Warranty

Oden V-series actuators has IP67 sealing. Therefore, it is important that the condition of the seals is checked and replaced if necessary, during maintenance of the actuator. All screws must be tightened properly. The actuator contains sensitive electronics, which can be damaged if water or other liquids enter the actuator.

Cable glands for junction box have IP68 sealing. For the warranty terms to apply, the customer, dealer and electrician who will mount the cables to the actuator, must comply with the rules to ensure that the encapsulation is safe and meets at least IP67 requirements.

If the cables used are thinner than the rubber seals on the cable gland allow, the rubber seals must be replaced with suitable. Kabel glands or cable gland must be replaced by a cable gland that ensures the tightness of the selected cable. Contact your actuator supplier or contact Oden Control AB.

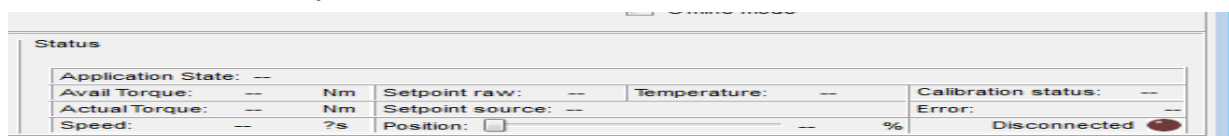
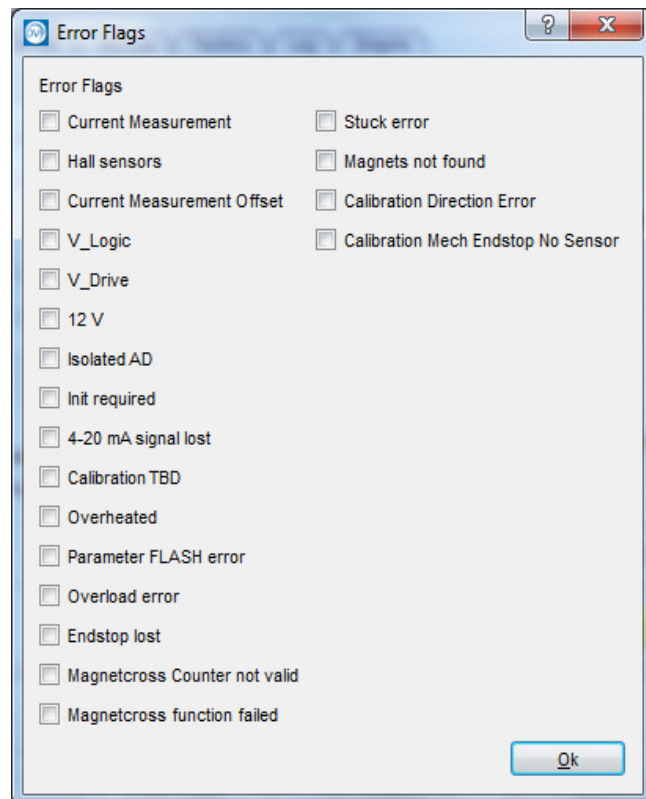
If the customer changes cable glands to a model, which does not guarantee at least IP67 encapsulation or tries to seal, for example, the cable gland with different types of sealing compounds for this type of cable gland, the warranty does not apply. If original parts are replaced to non-original, you must talk about the warranty terms with the supplier or Oden Control AB

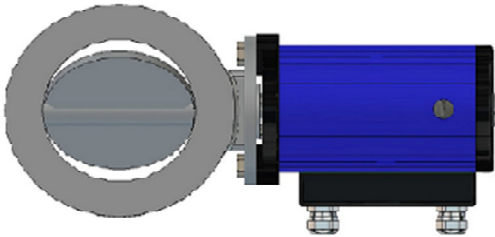
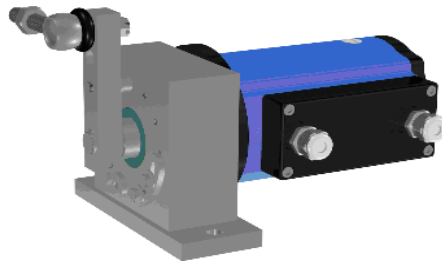
If only one or the other cable gland is used, the unused cable opening must be sealed with the supplied rubber stopper and tightened tightly.

Cable glands can also be supplied with the model and size required by the customer, provided that at least IP67 encapsulation class is maintained and that the cable gland also meets the requirements in terms of heat resistance. In some cases, such an option may increase the price of the actuator. Talk to your actuator supplier or contact Oden Control AB, for support. The actuator must not be opened if there is a risk of water entering the actuator. On the side of the actuator there are hole for USB cable for programming. The hole is sealed with a metal blind plug with O-ring. This blind plug has IP68 sealing. Blind plug must be tightened properly after use.

Error explanations. Right mouse click STATUS field in OVP program to see errors written.

- 1 Current Measurement
- 2 Hall sensors
- 4 Current Measurement Offset
- 8 V\_Logic
- 10 V\_Drive
- 20 12 V
- 40 Isolated AD
- 80 init required
- 100 4-20 mA signal lost
- 200 Calibration TBD
- 400 Overheated
- 800 Parameter FLASH error
- 1000 Overload error
- 2000 Endstop lost
- 4000 Magnetcross Counter not valid
- 8000 Magnetcross function failed
- 10000 Stuck error
- 20000 Magnets not found
- 40000 Calibration Direction Error
- 80000 Calibration Mech Endstop No Sensor





Oden Control AB  
Norra Bruksgatan 2  
15533 Nykvarn

Sweden

Phone: (+46) 8 767 76 57

Fax: (+46) 8 767 04 17

E-mail: [oden@odencontrol.se](mailto:oden@odencontrol.se)

Web: [www.odencontrol.com](http://www.odencontrol.com)



