Control Unit DGC 1

ENG

Operating instructions

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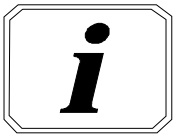
MFZ OVITOR

1. CONTENTS

2. KEY TO SYMBOLS

Danger of personal injury!
The safety instructions must be observed!

Warning! Danger to property
The safety instructions must be observed!



Information
- *Special information*
- *Reference to other sources of*

3. GENERAL SAFETY INSTRUCTIONS

Product liability

The function and safety of the equipment is only guaranteed if the warning and safety instructions included in these operating instructions are adhered to.
Ovitor Oy is not liable for any personal injury or damage to property that occurs as a result of the warning and safety instructions being disregarded.

Using the equipment for its intended purpose

The DGC 1 controls are designed only for controlling gates and doors.

Target group

Only qualified and trained electricians may connect, programme and service the controls. Qualified and skilled electricians must:

- Have knowledge of the general and specific and accident prevention regulations.
- Have knowledge of the relevant electrical regulations.
- Be trained in the use and care of appropriate safety equipment and clothing.
- Be capable of recognising the dangers associated with electricity.

Instructions for installation and connection

- Before commencing electrical works, the system must be disconnected from the electricity supply. Measures must be taken that the electricity supply remains disconnected for the duration of the works.
- Local safety regulations must be observed.
- Mains cables must be laid separately from control cables.

Regulations and bases for testing

For connecting, programming and servicing, the following regulations must be observed (the list is not exhaustive).

Construction product standards

- EN 13241-1 (Products without fire resistance or smoke control characteristics)
- EN 12445 (Safety in use of power operated doors -Test methods)
- EN 12453 (Safety in use of power operated doors - Requirements)
- EN 12978 (Safety devices for power operated doors and gates - Requirements and test methods)

Electromagnetic compatibility

- EN 55014-1 (Radio disturbance, household appliances)
- EN 61000-3-2 (Disturbances in supply systems -harmonic currents)
- EN 61000-3-3 (Disturbances in supply systems -voltage fluctuations)
- EN 61000-6-2 (Electromagnetic compatibility (EMC) -Part 6-2: Generic standards - Immunity for industrial environments)
- EN 61000-6-3 (Electromagnetic compatibility (EMC) -Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments)

Machinery guidelines

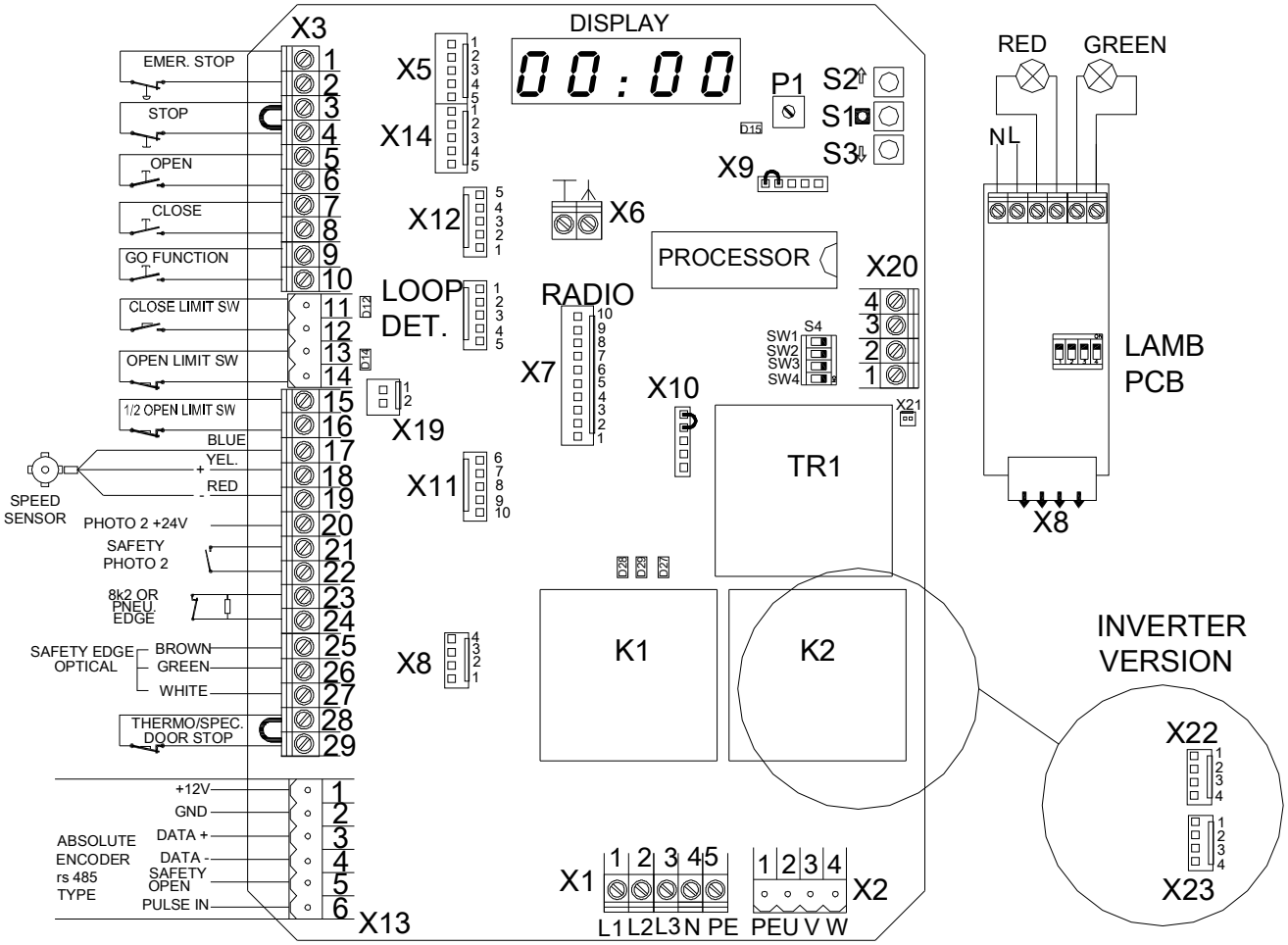
- EN 60204-1 (Safety of machinery, electrical equipment of machines, part 1: general requirements)
- EN 12100-1 (Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology)

Low voltage

- EN 60335-1 (Household and similar electrical appliances -Safety)
- EN 60335-2-103 (Particular requirements for drives for gates, doors and windows)

4. OVERVIEW OF PRODUCTS

4.1. CONTROL UNIT DGC 1 PCB



Key:

X1	Terminals for mains connection
X2	Terminals for motor connection
X3	Terminals for command and safety devices
X5	Terminal for push buttons in the lid
X7	Terminal for radio receiver
X8	Terminal for lamp PCB
X12	Terminal for Safety photo 1
X13	Terminal for absolute encoder
X14	Terminal for LED pad in the lid
X20	Extra terminals for safety device
X22	Terminals for inverter version
X23	Terminals for inverter version

D10	LED: STOP
D12	LED: OPEN limit
D14	LED: CLOSE limit
D15	LED: Error indication
D27	LED: Creep
D28	LED: OPEN
D29	LED: CLOSE

S1	STOP-button
S2	OPEN-button
S3	CLOSE-button

P1	Potentiometer for Force controls manual settings

5. INSTALLATION

5.1. GENERAL INFORMATION

Warning!
To guarantee that the equipment functions properly, the following points must be ensured:

- *The gate or door is installed and operational.*
- *The MFZOvitor drive motor is installed and ready for operation.*
- *The command and safety devices are installed and ready for operation.*
- *The control unit DGC 1 is installed*

Information
For the installation of the gate/door, the MFZ drive motor and the command and safety devices, the relevant manufacturer's instructions are to be adhered .

5.2. MAINS CONNECTION

Danger!
To guarantee that the controls function properly, the following points must be ensured:

- *The mains voltage must correspond to the voltage stated on the type plate.*
- *The mains voltage must be the same as the voltage of the drive.*
- *For a three-phase current, a clockwise rotating field is required.*
- *For a permanent connection, an all-pole main switch must be used.*
- *For a three-phase connection, only 3-way automatic circuit breakers (10A) may be used.*

Warning!
Before switching on the controls for the first time, a check must be carried out after completing the wiring to ensure that all the motor connections at the motor and at the controls are securely fixed. All control voltage inputs are galvanically isolated from the supply.

☞ Connect mains to terminal X1

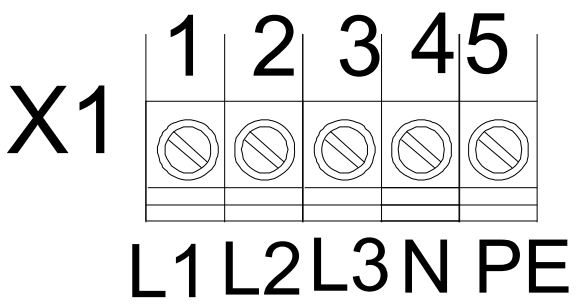


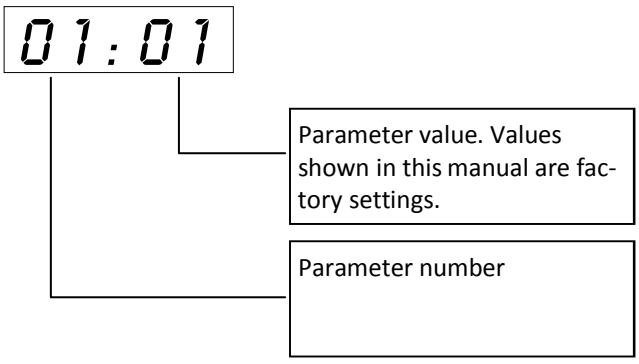
Fig. 1. Terminals for mains connection

5.3. PROGRAMMING THE DEVICE

- *The door will always run in a deadman mode when programming*
- *Make sure that no emergency stop or other stop is activated before entering programming mode*

☞ Program the control by open enclosure. (Without lid)
☞ Find OPEN - CLOSE - STOP push-buttons and a 4 pole DIP switch on the PCB.

1. To select programming mode, change (**S4**) DIP switch no. 1 to **ON position**.
2. Navigation in programming mode is done by STOP pushbutton (**S1**). STOP pushbutton is used to toggle between **parameter number** and **parameter value**.
3. **OPEN** (**S2**) and **CLOSE** (**S3**) push-buttons are used to select parameter number or change the parameter value. If display shows *RUN* these buttons run the door up and down in a deadman mode.
4. Parameter explanation:



5. INSTALLATION

DIP switches (S4):

SW1 Programming mode (chapter 5.3.)

SW2 Display status (Chapter 13)

SW3

SW4 Reset to factory settings (chapter 5.4.)

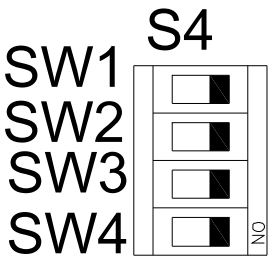


Fig. 2. DIP switches S4

5.4. RESET TO FACTORY SETTINGS

Reset to factory settings by changing S4 DIP switch SW4 to ON position and activate STOP and OPEN push-buttons for 2 s. The display will flash with "FAC" and program version number will be shown.

- *Remember to change DIP switch back to OFF position*

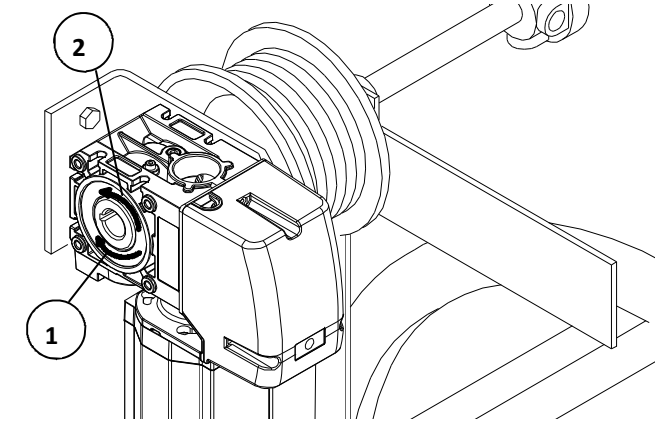
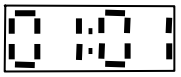


Fig. 2. Opening rotation direction, when door operator mounted as shown in the picture.

5.5. OPERATION MODE



Parameter number **01**

Parameter value:

01: Hold-to-run (deadman) **OPEN**
Hold-to-run (deadman) **CLOSE**

02: Impulse **OPEN**
Hold-to-run (deadman) **CLOSE**

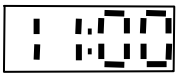
03: Impulse **OPEN**
Impulse **CLOSE**

04: Impulse **OPEN** *
Impulse **CLOSE**

*0,5 s reverse by stop on force control in opening direction

- *The door will always run in a deadman mode in programming mode*
- *Value shown after heading is the factory setting*

5.6. LIMIT TYPE



Parameter number: **11**

Parameter value:

00: Mechanical limits (micro switches)

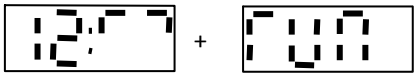
01-04: Not in use with Ovitors control units

05: Electronic limits - rotation direction 1
(check fig. 2)

06: Electronic limits - rotation direction 2

- *After changing to electronic limits, a new power up is needed to start communication.*

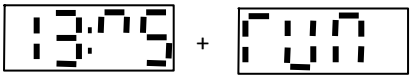
5.7. ELECTRONIC OPEN LIMIT ADJUSTMENT



- Learning **OPEN** limit
  - Press **STOP** push-button until the display flashes ”RUN”
  - Run the door to open position.
  -Press **STOP** push-button to confirm new **OPEN** limit.
  (The display will indicate **OPEN** limit symbol for about 2 s and the display will automatic ally switch back to active parameter number)

- *1/2 OPEN limit cannot be active during programming (parameter 16).*
- *Photo in the door frame (parameter 31) cannot be active during learning of limits.*
- *When relearning limits, parameter 41 and 51 will be reset to factory settings.*

Electronic open limit fine tuning



- Fine tune **OPEN** limit:

  more open → values 6-9
  less open → values 1-4
  Press OPEN or CLOSE push-button to change the value.

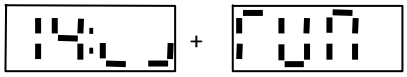
- If the value is changed: Press STOP push-button (Display shows ”RUN”)

- Try the fine tuning by running the door up and down.

- Press the **STOP** push-button to save and return to parameter value. (adjustment range is max. ± 0,8 % of the door run range)

- Pressing STOP without value change → return to parameter number.

5.8. ELECTRONIC CLOSE LIMIT ADJUSTMENT



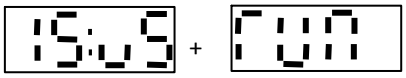
- Learn **CLOSE** limit (electronic limits)
  - Press **STOP** push button until the display flashes “RUN”

  - Run the door to closed position (normally 5 cm from the floor)

  -Press the STOP push-button to confirm new CLOSE limit.
  (The display will indicate close limit symbol for about 2 s and the display will automatically switch back to active number.)

- *1/2 OPEN limit cannot be active during programming limits (parameter 16)*
- *Photo in the door frame (parameter 31) cannot be active during learning of limits*
- *When relearning limits parameter 41 (force control) and 51 (run time control) will be reset to factory settings*
- *Safety edge is disabled in programming mode!!*

Electronic close limit fine tuning



- Fine tune **CLOSE** limit:

  more closed → values 6-9
  less closed → values 1-4
  Press OPEN or CLOSE push-button to change the value.

- If the value is changed: Press STOP push-button (Display shows ”RUN”)

- Try the fine tuning by running the door up and down.

- Press the **STOP** push-button to save and return to parameter value. (adjustment range is max. ± 0,8 % of the door run range)

- Pressing STOP without value change → return to parameter number.

5. INSTALLATION

5.9. 1/2 OPEN FEATURE

Parameter number **16**

Parameter values:

00: 1/2 OPEN limit not in use

01: Mechanical limit switches (value 00 in parameter 11) 1/2 OPEN limit switch connected to X3 terminals 15 and 16. Short circuit terminals 15 and 16, if not in use.

Electronic limits (parameter 11 values 5 and 6)

OPEN commands to 1/2 OPEN position, if X3 terminals 15 and 16 connected (ON/OFF) selector switch is ON:

02: 1/2 OPEN position = 4/8 open

03: 1/2 OPEN position = 5/8 open

04: 1/2 OPEN position = 6/8 open

05: 1/2 OPEN position = 7/8 open

1/2 OPEN command by a push-button connected in X3 terminals 15 and 16.

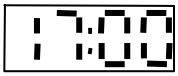
06: 1/2 OPEN position = 4/8 open

07: 1/2 OPEN position = 5/8 open

08: 1/2 OPEN position = 6/8 open

09: 1/2 OPEN position = 7/8 open

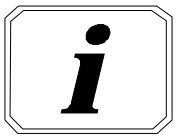
1/2 open auto close



00 = No auto close from 1/2 open position

01 = Auto close from 1/2 open position
(Auto close must be activated in parameter 32)

6. SAFETY EDGE



- *Safety edge must be connected but not activated before this setup*
- *If the controller has observed a wrong type of edge select, the display will show "ERR"*

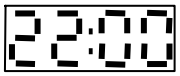
01 = PNE edge

02 = 8k2 electrical edge

03 = Optical edge

04 = Not in use with Ovitor's control units

6.1. AFTER RUN

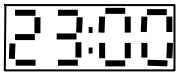


00 = No after run

>00 = After run active - after run time 0,01 - 0,3 s

Safety edge monitoring will bypass the CLOSE limit and wait for a test impulse from the safety edge. If the impulse is not received within time selected with parameter 22 , door will be stopped and the control notifies a safety edge failure.

6.2. EXTRA SAFETY EDGE



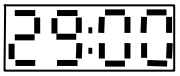
00 = No extra safety edge

01 = Extra safety edge parallel to the primary safety edge

02 = Extra safety edge - **STOP** in the opening direction

NOTE! Extra safety edge has to be PNE or 8k2 Ω and the same type as primary safety edge.

6.3. WIRE TIGHTEN



Wire tighten parameter set the time that door will reverse after safety edge hits the floor.

00 = No wire tighten function

01 = Wire tighten 5 ms

02 = Wire tighten 10 ms

03 = Wire tighten 20 ms

04 = Wire tighten 30 ms

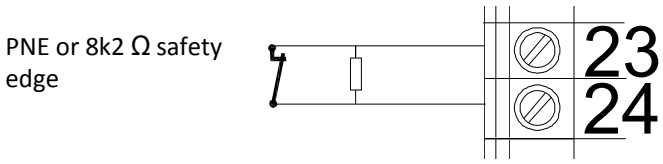


Fig 3. Pneumatic or electrical safety edge is connected to X3 terminals 23 and 24

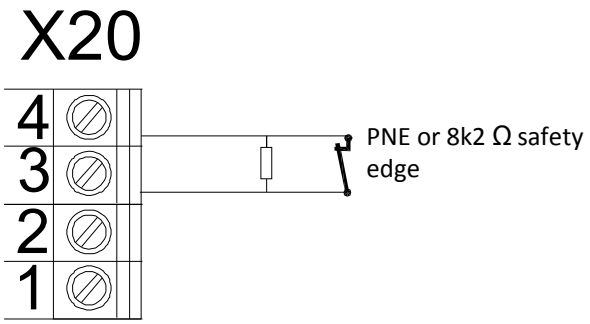


Fig. 4. Safety edge chosen with parameter 23 is connected to X20 terminals 3 and 4

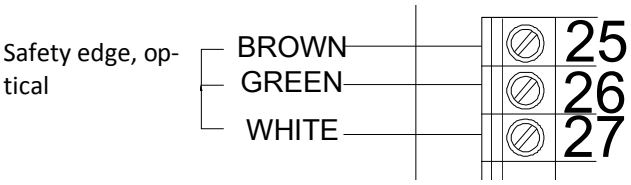


Fig. 5. Optical safety edge is connected to X3 terminals 25,26 and 27

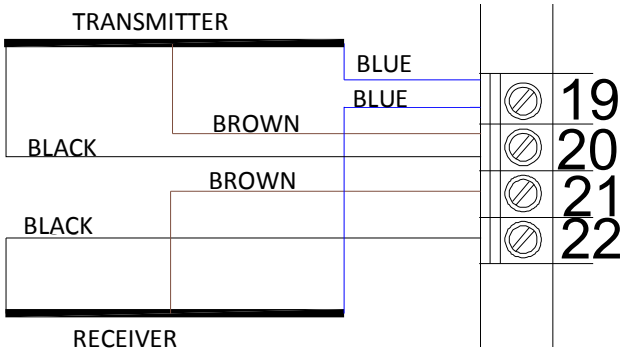


Fig. 6. Transmitter-receiver-type photocell is connected to X3 terminals 19, 20, 21 and 22. Parameter 31 value 02.

7. ADVANCED SETTINGS

7.1. PHOTOCELL FUNCTIONS

Photocell 1: Plug in module to terminal X12
Photocell 2: External photocell, connect to X3 terminals 20,21 and 22.

00 = No photocell

01 = Photocell 1 connected

02 = Photocell 2 connected

03 = Photocells 1 and 2 connected

Parameter value 04—07: Only possible with electronic limits.

04 = Photocell 1 connected and mounted in the door frame.*

05 = Photocell 2 connected and mounted in the door frame.*

06 = Photocells 1 and 2 connected and photo 1 mounted in the door frame.*

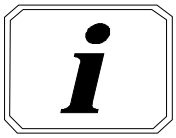
07 = Photocells 1 and 2 connected and photo 2 mounted in the door frame.*

*"*RUN*" mode is now available by pressing **STOP**. Location of photo will now be learned by running from close to open position. The door will stop when the photo is no longer blocked and the control unit will change back to parameter number automatically.

7.2. AUTO CLOSING

00 = No auto closing

xx = seconds 1 - 990 (after 99 the value is flashing quickly indicating x10 multiplier for auto close time -
e.g 18 (flashing) = 180 seconds
18 (no flashing) = 18 seconds)



- *If stop or emergency stop is activated more than 5 s with door in open position, the auto close will be interlocked to prevent closing. Reset of interlock by CLOSE push-button or "GO FUNCTION" close.*

7. ADVANCED SETTINGS

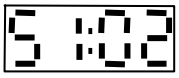
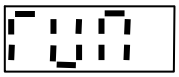
7.3. CAR WASH FUNCTION

NOTE! Available when auto closing is selected by parameter 32.

00 = No car wash function

xx = Photo active time in 0,1 s (e.g. 15 = 1,5 s) adjustable 1-30 units = 0,1 - 3 s
Count down of auto closing time starts only if photo has been activated more than "photo active time".
Door shall be complete closed before start of a new cycle.

7.4. RUN TIME CONTROL

 + 

Both limits must be set before selecting adaptive run time!

00 = No run time control

01 = Run time 20 s

02 = Run time 40 s

03 = Adaptive run time. "RUN" position is now available by pressing STOP.
Run the door from closed to open position without any stop. (keep press OPEN)
When run time is learned (by open limit) the "RUN" will stop flashing and the display will automatically switch back to active parameter number.
Adaptive run time is learned time + 12,5 %. Below 10 s learned time, fixed 1 s is added.

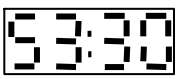
7.5. REVERSE TIME

Safety edge

xx = Reverse time of safety edge in 1/100 s, adjustable 0,004 - 0,99 s.

E.g. 00 = 0,004 s
05 = 0,05 s

Photo

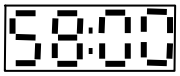


xx = Reverse time of safety edge in 1/100 s, adjustable 0,05 - 0,99 s.

E.g. 30 = 0,3 s

NOTE! This reverse time is also used as speed reversing time and reverse by OPEN push-button, when the door is closing.

7.6. SERVICE COUNTER



00 = No service countdown

01 = 15 open cycles before service (**for test only)**

02 = 5000 open cycles before service

03 = 10000 open cycles before service

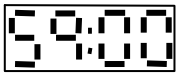
04 = 20000 open cycles before service

Reset for new countdown or selecting value:

Press STOP to select parameter value. Press OPEN or CLOSE to select value.

Press STOP again min. 2 s. "CLR" is shown for 2 s in display to confirm new countdown.

Service count reaction

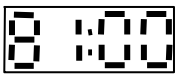


00 = Display shows E:04

01 = Switch to hold-to-run (a deadman) control and display E:04

If LED pad is mounted: Service LED will light when service countdown reach to 0.

7.7. ENCODER POSITIONING FAILURE



Only available with electronic limits. The reaction time for missing positions (E:09)

00 = 1 s

01 = 2 s

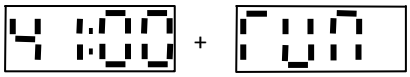
02 = 4 s
(failure reset by hold-to-run operation to find both limits or limit learning again)

03 = 4 s
(failure is shown shortly, resetting automatically)

NOTE! No limit monitoring by selecting value 03!

8. FORCE CONTROL

8.1. FORCE CONTROL



- *All mechanical spring adjustments and door limits must be adjusted before selecting force control.*

00 = No force control

01 = Force control manual adjustment (1300 - 1750 rpm)

02 = Force control manual adjustment (2600 - 3500 rpm)

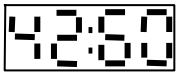
Force control adaptive learning

03 = Force control by adaptive learning (Ovitor PNP-encoder, connected to speed input X3 terminal 17)

04 = Force control by adaptive learning (singleturn encoder)

- ”RUN” mode is now available by pressing STOP .
- Run the door 2 complete door cycles from closed position without any stop. (keep pressing OPEN or CLOSE).
- When learning is finished the ”RUN” will stop flashing in 2 s and the display will automatically switch back to active parameter number
- If new adaptive learning is wanted, press stop 2 times until “RUN” is flashing again.

8.2. MANUAL FORCE CONTROL, OPEN

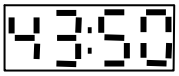


Parameter 41 values 01 or 02.

1. Press STOP push-button until the parameter value is active (flashing).
2. If this is the first adjustment, turn potentiometer P1 clock-wise to max position.
3. Press CLOSE to reset for new value and run the door to closed position.
4. Press OPEN continuously and turn slowly P1 until the door is stopped. Turn a little back. The display shows approximately P1 percent value .
5. Check that the door can complete full OPEN cycle without stops.
6. By pressing STOP the value is saved and display switch to parameter number. The value must be saved before switching away from programming mode.

NOTE! If no OPEN or CLOSE has been pressed, no new value is changed

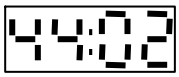
8.3. MANUAL FORCE CONTROL, CLOSE



Parameter 41 values 01 or 02.

1. Press STOP push-button until the parameter value is active (flashing).
2. If this is the first adjustment, turn potentiometer P1 clock-wise to max position.
3. Press OPEN to reset for new value and run the door to open position.
4. Press CLOSE continuously and turn slowly P1 until the door is stopped. Turn a little back. The display shows approximately P1 percent value.
5. Check that the door can complete full CLOSE cycle without stops.
6. By pressing STOP the value is saved and display switch to parameter number. The value must be saved before switching away from programming mode.

8.4. FORCE CONTROL ADAPTIVE SETTINGS



Parameter 41 = 3

00 =	Force control delay	0,8 s
	Stopped by low speed	-0,5 %
	Wear limit (from initial values)	-5 %
01 =	Force control delay	0,8 s
	Stopped by low speed	-1,0 %
	Wear limit (from initial values)	-5 %
02 =	Force control delay	0,8 s
	Stopped by low speed	-1,5 %
	Wear limit (from initial values)	-5 %
03 =	Force control delay	0,8 s
	Stopped by low speed	-2,0 %
	Wear limit (from initial values)	-5 %
04 =	Force control delay	0,8 s
	Stopped by low speed	-2,5 %
	Wear limit (from initial values)	-6 %
05 =	Force control delay	0,8 s
	Stopped by low speed	-3,0 %
	Wear limit (from initial values)	-7 %

Update of set point 0,3 % / 10 door cycles

9. INVERTER

Single turn force control

Parameter 41 = 4

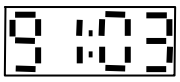
02 =	Force control delay	0,4 s
	Stopped by low speed	-3,5 %
	Wear limit (from initial values)	-7 %
01 =	Force control delay	0,4 s
	Stopped by low speed	-7,0 %
	Wear limit (from initial values)	-14 %

Update of set point 0,9 % / 10 door cycles
Reaction time for low speed observing about 2,4 s

- *The motive force needed to move the door may increase over time due to wear and tear, changes in balancing and similar reasons*
- *Once the force needed to move the door has increased to an extent that the motor revolving speed has changed as much as determined by the value "wear limit", the control notifies with an error code E:08*

NOTE! This function is only for special variant of DGC 1 connected with extern inverter and with electronic limits!

Opening low speed set point



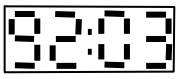
00 = 10 % before open limit

01 = 20 % before open limit

02 = 30 % before open limit

03 = 40 % before open limit

Closing low speed set point



00 = 10 % before close limit

01 = 20 % before close limit

02 = 30 % before close limit

03 = 40 % before close limit

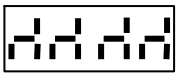
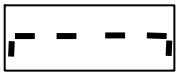
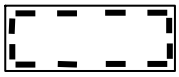
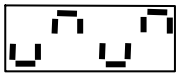
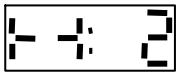
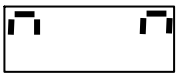
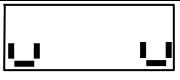
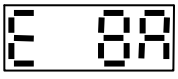
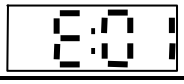
10. LED ERROR CODES (D15)

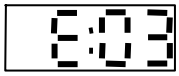
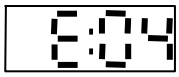
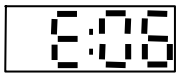
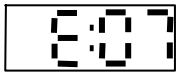
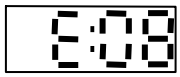
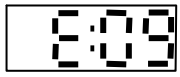
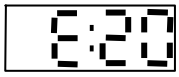
Used when electronic limits are selected

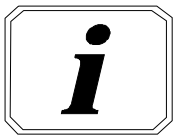
Flashes on error LED	Error explanation	Solving error
1	No answer from encoder	• Check connections • RS 485 A and B may have interchanged
2	Limits not learned	• Learn limits
3	Not in use	
4	Calculation error	• Check that parameter 11 value is correctly selected. (Rotation direction 1&2) • Possible user error . Both limits are the same • Encoder error
5	Not in use	
6	Not in use	
7	Mechanical failure	Change the encoder
8	Encoder - Failure operating voltage	• Check connection and supply voltage • Change the encoder

11. DISPLAY IN ”RUN” MODE

The display will show the status of limits, some inputs and error codes in ”RUN” mode.
During power up, the software version is showed shortly

Parameter	Description
	• Nothing active (4 chairs symbol) • Door is stopped between limits and no errors are found
	• Open limit active • Normal symbol to help adjustment and fault finding
	• Close limit active • Normal symbol to help adjustment and fault finding
	• 1/2 OPEN limit active • Normal symbol to help adjustment and fault finding
	• STOP active • Normal symbol to help adjustment and fault finding
	• OPEN push-button active • Normal symbol to help adjustment and fault finding
	• CLOSE push-button active • Normal symbol to help adjustment and fault finding
	• GO FUNCTION active • Normal symbol to help adjustment and fault finding
	• Photocell 1 active • Normal symbol to help adjustment and fault finding
	• Photocell 2 active • Normal symbol to help adjustment and fault finding
	• Safety edge active • Normal symbol to help adjustment and fault finding
	• Normal symbol indicating door running up
	• Normal symbol indicating door running down
	• Not in use
	• Error code • Monitoring failure of safety edge if this function is activated
	• Error code • Door is stopped by force control when this function is active. • Symbol is also shown if the adaptive force control is not learned, when returning to run mode

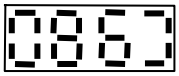
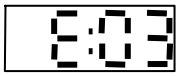
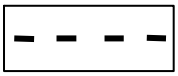
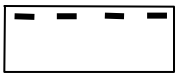
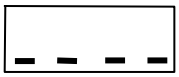
Parameter	Description
	• Error code • Door is stopped by run time control
	• Service counter decremented to 0 • Service the door and reset for new countdown. See parameter 58.
	• Error in the safety edge circuit • Test cycle before close fails
	• Tacho failure when force control is active
	• Speed wear failure • Motive force needed to move the door has increased over the wear limit. • Check the mechanical condition and balancing of the door. Relearn force control.
	• Encoder failure. Door started, but the position is not changing. • Door is stopped after raction time (parameter 81) and error E:09 is displayed • Limits must be relearned.
	• EEPROM counter failure or position failure



- *The door cannot be closed after error on photo or safety edge*
- *By a special code the door can close one time in hold-to-run mode. Press and hold STOP while pressing 22111 (2=CLOSE push-button; 1=OPEN push-button)*

12. DISPLAY STATUS (IN ”RUN” MODE)

- To select DISPLAY STATUS → close the door and switch S4 DIP SW 2 to ON position
- The door cannot be moved when display status is active

Parameter	Description
 and 	• Electronic counter status • The display is flashing between least significant digits and the most significant digits • E.g.(362 and 086) = 362*1000 + 086 = 362086 door openings • Press STOP to select next status available
	• Last 10 errors • Press OPEN to select newer error • Press CLOSE to select older error • If there are no errors the display will show:  • By the end of the 10 registered errors the display will show:   Upper end Lower end • Switch S4 DIP SW2 to OFF position to exit the DISPLAY STATUS

13. FUNCTIONS OF THE LAMP PCB

The function of red/green traffic light can be chosen according to the following table.

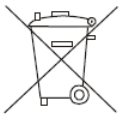
0 = OFF
1 = ON

Name	SW1	SW2	SW3	SW4	Functional description
L1	0	0	0	0	• Red light when door is not open • Green light when door is open
L1G	1	0	0	0	• Red light when door is not open • Green light is blinking when door is open
L1R	0	1	0	0	• Red light is blinking when door is not open • Green light when door is open
L1RG	1	1	0	0	• Red light is blinking when door is not open • Green light is blinking when door is open
L2	0	0	1	0	• Red light when the door is opening or closing • Green light when the door is open • No light when the door is closed
L2G	1	0	1	0	• Red light when the door is opening or closing • Green light is blinking when the door is open • No light when the door is closed
L2R	0	1	1	0	• Red light is blinking when the door is opening or closing • Green light when the door is open • No light when the door is closed
L2RG	1	1	1	0	• Red light is blinking when the door is opening or closing • Green light is blinking when the door is open • No light when the door is closed
L3	0	0	0	1	• Red light when the door is not open or closed • Green light when the door is open • Warning when closing from open limit switches. Red light appears before closing.
L3G	1	0	0	1	• Red light when the door is not open or closed • Green light is blinking when the door is open • Warning when closing from open limit switches. Red light appears before closing.
L3R	0	1	0	1	• Red light is blinking when the door is not open or closed • Green light when the door is open • Warning when closing from open limit switches. Red light starts blinking before closing.
L3RG	1	1	0	1	• Red light is blinking when the door is not open or closed • Green light is blinking when the door is open • Warning when closing from open limit switches. Red light starts blinking before closing.

14. TECHNICAL DATA

Dimensions:	190 x 300 x 110
Assembling height:	vertically at the wall, min. at a height of 100 mm.
Power supply via L1, L2, L3, PE:	400V, 50/60Hz, power inp. max 5,5kW 8 A; duty cycle 60% for a max running time of 120 s.
Protections:	10A K –characteristic
Consumptions Of the control:	max. 250 mA
Control voltage:	24 VDC, max. 250 mA, protected by self-resetting safety for external sensors
Control inputs:	24 VDC, all inputs are to be connected free of potential, min. signal time for incoming control command > 100 ms
Control outputs:	24 VDC, max. 250 mA
RS 485 A and B:	Only for electronic final switch RS 485 level
Safety chain:	All input connections must be potential-free; if safety circuit is interrupted, no further electrically powered movement of the drive is possible
Input safety edge:	For electrical safety edge 8,2 kΩ , pneumatic safety edge tai optical safety edge
Relays output:	If inductive loads are switched to (e.g. relays or breaks), they must be equipped with corresponding interference measures (recovery diode, varistores, RC modules). Operating contact free of potential, min. 10 mA; max 230 VAC / 4A Contacts used once for power switch are not able to switch mini power anymore
Operation temp:	-10 °C … +45 °C
Storage temp:	-25 °C … +70 °C
Air humidity:	to 80 % non condensing
Vibrations:	Assembling works with less vibration, e.g. at a masonry wall
Type of protection:	IP 65 solid installation
Weight:	about 1.8 kg

Disposal



Waste electrical products and batteries should not be disposed of with household waste!

Disposal should be carried out according to DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment and DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators.

15. DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

Ovitor Oy
Sienitie 24
00760 Helsinki
Finland

Description and identification of the partly completed machinery:
Control unit DGC 1

The essential requirements of EC Machinery Directive 2006/42/EC have been applied and fulfilled for the above mentioned machinery to be used with industrial doors, gates and barriers.

The relevant technical documentation has been compiled in accordance with Annex VII, Part B of EC Machinery Directive 2006/42/EC.

In addition the partly completed machinery is in conformity with the EC 2006/95/EC
Low Voltage Directive LVD, 2004/108/EC Electromagnetic Compatibility EMC and 2002/95/EC the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment RoHS.

The above listed products are delivered according to the following standards to the extent to which they may be applicable:

EN ISO 12100-1, EN ISO 12100-2, EN 60204-1+A1, EN 60335-1, EN-55014-1, EN 61000-3-2, EN 61000-3-3, EN61000-6-2, EN61000-6-3, EN 60439-1+A1, EN 60439-3+A1+A2, EN 60529, EN 13241-1, EN 60355-1, EN 60335-2-103, EN 13241, EN 12453, EN 12445, EN 12978

SFS-Inspecta Sertifiointi OY has issued a certificate ascertaining that the manufacturer's quality system meets the requirements of standard SFS-EN ISO 9001:2008 and the general guidelines ABC 200, certificate 1229-04.

We undertake, in response to a reasoned request, to supply it *in electronic form* to the market surveillance authorities within a reasonable period.
The party authorized to compile the technical documentation is:

Ovitor Oy / Engineering Manager
Sienitie 24
00760 Helsinki
Finland

The devices are not intended to function independently but as part of an electrically operated machine.
As regards the installation, settings and servicing of the of the machinery, the instructions issued by us for the type of installation in question must be observed.

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive.

Helsinki, 16th of June 2010

_____
Hannu Pyrhönen
Managing Director
Ovitor Oy

ISO 9001