

valid for item numbers:

68051.504

68051.508

software version 1.00.0  
and higher



Controller for valve gate systems  
with pneumatic or hydraulic drive unit

## **VDC Valve Drive Control**

### **Operating manual**



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## 1. General information



### NOTE!

Improper operation of the device may result in severe personal injury and considerable material damage! You must carefully read this operating manual and familiarise yourself with the safety installations before installing, commissioning or maintaining the device. Do not operate the device without having received appropriate training.

### 1.1 Information on this operating manual

This operating manual has been created in accordance with the directive 2006/42/EC to enable the safe and efficient operation of the VDC Valve Drive Control controllers (in the following referred to as "VDC controller").

### 1.2 Manufacturer

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### 1.3 Formal information on this operating manual

Person in charge of documentation: Horst Balzer  
Item no: 13996E  
Version: 1.0; date: 15-09-2015  
Language: German (original operating manual); English

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## 1.4 Conventions

### 1.4.1 Instructions and system responses

Operating steps that have to be carried out by the operator are displayed as a numbered list. The sequence of the steps has to be adhered to.

Example:

1. Operating step 1
2. Operating step 2

### 1.4.2 Enumerations

Enumerations without mandatory sequence are displayed as a list with bullet points.

Example:

- Point 1
- Point 2

### 1.4.3 Abbreviations

The following terms and abbreviations are used in the VDC controller manual:

Abbreviation	Meaning
PPE	Personal protective equipment
VDC	Valve Drive Control, controller for valve gate systems
PE	Protective earth conductor

Chart 1: Terms and abbreviations

## 2. Safety instructions

The VDC controller conforms to the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU and has been designed, manufactured and checked for safety according to the applicable safety rules and legislation and the state of the art. If the VDC controller is used in any way not specified by EWIKON, the function of the device's protective equipment may be affected.

Das VDC controller is delivered in perfect working order.

VDC controllers may pose risks, if they are:

- not operated by professionally trained staff
- used improperly or not used as intended
- not in perfect order regarding safety

### 2.1 Safety instructions and symbols used

Signal words introduce the safety instructions marked by symbols. They draw the user's attention to possible hazardous situations that may occur during installation, operation and maintenance. Safety instructions must be followed to prevent accidents, personal injury or material damage.

#### Warnings

- protect against possible personal injury and material damage when followed
- classify the extent of hazard by the signal word
- indicate the risk of personal injury by hazard signs
- indicate the type and source of hazard
- indicate the risk and possible consequences
- show measures to prevent hazards and prohibit certain behaviours



**WARNING!** = Signal word

#### Source of hazard

Possible consequences, if ignored

- Measures/prohibitions

The hazard sign marks warnings which warn against personal injuries.

#### Source of hazard

The source of hazard indicates the cause of hazard.

#### Possible consequences, if ignored

If the warnings are ignored, possible consequences are e. g. crushing, burnings or other severe injuries.

#### Measures/Prohibitions

"Measures/Prohibitions" lists actions that are to be carried out to prevent a hazard (e. g. stop a drive unit) or that are prohibited to prevent a hazard.



2.1.1 Signal words for hazard classification



**HAZARD!**

indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING!**

indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.



**CAUTION!**









indicates a potentially hazardous situation which, if not avoided, will result in minor injury or material damage.



**NOTE!**

indicates useful additional information and tips to promote trouble-free operation and to prevent material damage.

2.1.2 Explanation of pictograms

	Read operating manual		Caution! Risk of electrocution
	Caution! Hot surface		Caution! Oxidising agents
	Caution! Suspended load		Caution! Risk of hand injuries / crushing
	Caution! Explosive atmosphere		Caution! Moving forklift traffic hazard

## 2.2 Intended use

EWIKON controllers are exclusively designed for the intended use described in this manual.

Any different and unintended use is excluded and may result in personal injuries and material damage. Warranty expires in this case.

The VDC controller is only to be used to control EWIKON valve gate hotrunner systems which are installed in an enclosed injection moulding machine.

In order to use the device as intended it is essential that all tips and information given in this operating manual are read, understood and followed.

To ensure safe operation of the VDC controller the given maintenance & inspection schedule has to be adhered to.



### Use of the VDC Valve Drive Control controller

Use the VDC controller exclusively for its intended use and in perfect condition as regards safety!  
This is the only way to guarantee a reliable operation of the VDC controller.

## 2.3 Improper use

Any use deviating from the use defined under "Intended use" or that goes beyond that use is considered improper use.

## 2.4 Qualification of staff

The staff has to prove that it is qualified to perform assembly, maintenance and repair. Any lack of knowledge has to be eliminated by training and briefing the staff.

### 2.4.1 Demands on specialised staff

Improper use of EWIKON controllers may result in personal injuries or material damage. Only specialised staff is allowed to carry out any work.

Only specialised staff is allowed to connect and operate EWIKON controllers. Specialised staff is trained, has proven knowledge and experience in operating e. g. injection moulding units or electrical machines and devices as well as knowledge of the relevant regulations and is able to independently identify possible hazards and prevent them by taking protective measures.

## 2.5 Personal Protective Equipment (PPE)

Wear the necessary protective equipment when working on or near the machine. Special information on the personal protective equipment in the work area has to be observed.

### 2.5.1 Symbols of the personal protective equipment

Always wear the following when carrying out any work:



**Protective clothes:** To protect your body wear tight-fitting clothes with low resistance to tearing, without protruding parts and with long sleeves and long trousers. Do not wear rings, chains or any other jewelry.



**Safety shoes:** To protect yourself against electric shocks, melt splashes, heavy, falling objects and slips and falls on slippery surfaces.

Always wear the following when carrying out special work:



**Safety glasses:** To protect your eyes against scattering debris, heat and melt splashes.



**Face mask:** To protect your face against scattering debris, heat and melt splashes.



**Protective gloves (heat resistant):**  
To protect your hands against extreme heat, abrasions, punctures and more severe injuries.



**Ear protection:** To protect your ears against loud ambient noises.



**Protective helmet:** To protect your head against falling objects and sharp edges.



**Heat resistant apron:** To protect your body against extreme heat.

## 2.6 General hazards and safety measures

The company operating the system must comply with the statutory obligations on occupational safety. In addition to the safety instructions of this manual the safety, accident prevention and environment protection provisions applicable for the system's range of use must be adhered to. The operating company must clearly define responsibilities and make sure that all staff operating the system has read and understood this manual. The company also has to inform about hazards at regular intervals. Personal protective equipment has to be made available to the staff. Maintenance intervals have to be respected.

**Risk of burns**

- Hot surfaces.  
Many components of the hotrunner systems get very hot and may cause severe skin burns when being touched.

**Safety measures**

- Please make sure you wear your personal protective equipment (PPE) when working near or on a hotrunner system. Pay special attention to warnings indicating hot surfaces. All components have to be cooled down to ambient temperature before you start working.

**Risk of electric shocks**

- Danger to life by electric shock.  
Touching live surfaces may result in severe or even lethal injuries.
- Water must neither come into contact with live parts nor with the VDC controller. There is risk of short circuits!

**Safety measures**

- Electrical systems have to be disconnected from the mains and secured against being switched on again before any work is carried out. Only authorised electricians are allowed to carry out any work on electrical systems.
- All components have to be connected to a suitable power source according to the wiring diagrams and under consideration of the applicable local regulations. Injection moulding machine and hotrunner systems have to be grounded.

**Risk of physical injuries by pressurized connecting lines (e.g. air, hydraulics, water)**

- All supply lines for the medium supply of the hotrunner and/or the hotrunner system or the hot half have to be long enough to prevent any stress when the mould halves part. They must not be affected by moving parts of the mould or of the machine. Prevent the hoses from rubbing over the edges of the mould as they may be damaged.

**Safety measures**

- Make sure you have depressurized all supply lines before carrying out any work. Only skilled personnel is allowed to carry out work on the supply lines. Please wear your personal protective equipment (PPE).

**Risk of physical injuries by sharp edges and corners**

- Sharp edges and corners pose a risk of injury, possibly resulting in skin abrasions and cut injuries.

**Safety measures**

- Make sure you wear protective gloves when working near sharp edges and corners. Proceed with care.
- Make sure the system is clean and free of burrs.

**Risk of crushing**

- Moving parts, e. g. pistons or cylinders as well as the assembled components pose a risk of injury, possibly resulting in crushing of extremities.

**Safety measures**

- Always wear protective gloves and proceed with care when working near moving parts and assembled components to avoid injuries.

## 2.7 Electrical equipment



### WARNING!

#### Residual voltage after activation

Risk of death by electric shock and severe injuries caused by live components.

- Check for zero potential before performing any work!

Any work on electrical equipment must be carried out by qualified electricians. Always apply the 5 safety rules when working with electrical components:

- Disconnect from the mains
- Secure against reconnection (by activating the repair switch and installing a safety lock at the same time, if necessary)
- Verify that the installation is dead
- Carry out grounding and short circuiting
- Provide protection against adjacent live parts

Maintenance work must be carried out by qualified and trained staff or maintenance staff in accordance with DIN EN 61010-2-201. Never use the VDC controller with faulty or inoperable electrical connections. In case of energy supply disruptions immediately switch off the VDC controller. The maintenance & inspection schedules regarding electrical components given by the manufacturers have to be adhered to. Check for damaged insulation at regular intervals.

## 2.8 Spare and wear parts, auxiliary material

The use of non-OEM spare and wear parts as well as auxiliary material may pose risks. Only use original parts or parts approved by EWIKON Heißkanalsysteme GmbH.

## 2.9 Limitation of liability

All information and instructions given in this manual have been compiled in consideration of the applicable standards and regulations, state of the art as well as our know-how and experience.

EWIKON does not assume liability for any damage caused by:

- Non-observance of this manual
- Improper use
- Use of unskilled staff
- Unauthorised retrofitting or technical modifications
- Use of non-approved spare parts

The technical service provided verbally, in writing or on the basis of tests represents our best knowledge but is not binding and does not release you from carrying out additional tests on the products supplied by us regarding their suitability for the intended use.

The use of the products is beyond our control. Therefore, it is your own responsibility to ensure that the products meet your specific requirements. Nevertheless, should an issue of liability arise, all damage shall be limited to the value of the products supplied by EWIKON and used by you.

We guarantee the perfect quality of our products in accordance with our general terms and conditions of sale and payment as well as the extended warranty conditions.

These are available on our homepage [www.ewikon.com](http://www.ewikon.com). Please select the "Download" section, then go to the "Terms and Conditions" subsection.

The statutory provisions prevailing at the time of conclusion of the contract shall apply.

We reserve the right of technical alterations to develop our products and enhance their performance properties.

## 2.10 Warranty terms

For warranty conditions of hotrunner systems and components please refer to the terms and conditions of EWIKON.

## 2.11 Standards and directives

EWIKON hotrunner systems conform to the following European directives:

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- EN ISO 12100:2010 Safety of machinery -  
General principles for design - Risk assessment and risk reduction
- EN 60204-1:2007-06 Safety of machinery -  
Electrical equipment of machines - Part 1: General requirements

EWIKON controllers conform to the following European directives:

- Low Voltage Directive 014/35/EU
- EMC Directive 2014/30/EU

### 3. Technical data

#### 3.1 Mechanical data

##### 3.1.1 Main dimensions/Dimensions of the VDC controller

Description	Qty./size (approx.)	Unit
Dimensions (H x W x D)	190 x 355 x 400	mm
Weight	7.8	kg

Chart 2: Main dimensions/Dimensions of the VDC controller

#### 3.2 Electrical data

##### 3.2.1 Connections/Connector pin assignment

Description	Qty./size (approx.)	Unit
Voltage AC (+5 % / -15 %)	230	V
Frequency	50/60	Hz
Power	max. 250	W
Protection class	IP32	

Chart 3: Electrical data

#### 3.3 Operating parameters of the valve pack (optional accessories)

Description	Qty./size (approx.)	Unit
Maximum operating pressure when using the valve pack (pneumatic)	16	bar
Control pressure of the valve pack (use pressure relief valve, if necessary)	10	bar

Chart 4: Operating parameters of the valve pack (optional accessories)

#### 3.4 Operating conditions

Operating conditions	Size (approx.)	Unit
Ambient temperature (operation)	+5 to +40	°C
Ambient temperature (storage)	-40 to +70	°C
Relative humidity for operation (bis 31 °C)	max. 80 (linearly decreasing to max. 50 % at 40 °C)	%
Pollution degree	2	

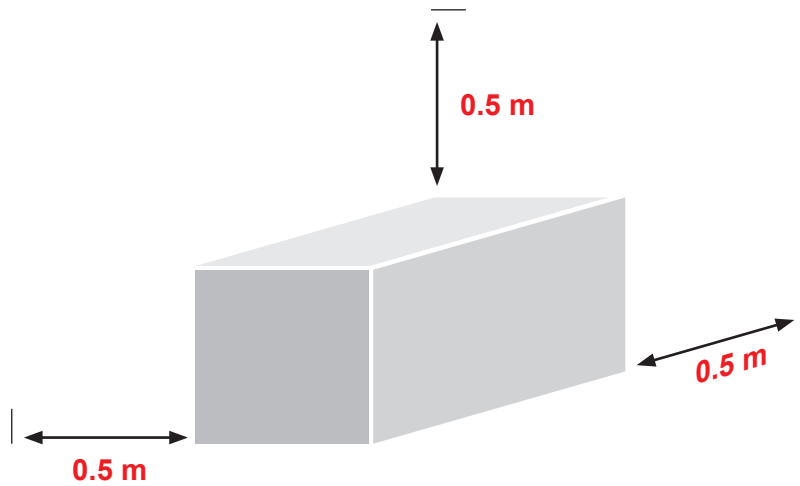
Chart 5: Operating conditions

### 3.5 Placing the controller

Place the controller on a stable, flat, non-combustible working surface. The display should be at eye level with the user to facilitate reading of the display and operation of the device.

The device includes a built-in fan on the front side as well as ventilation slots on the rear side. Make sure that air flow through these openings is not obstructed.

Keep a minimum distance of 0.5 m in all directions around the device to other equipment and parts of buildings.

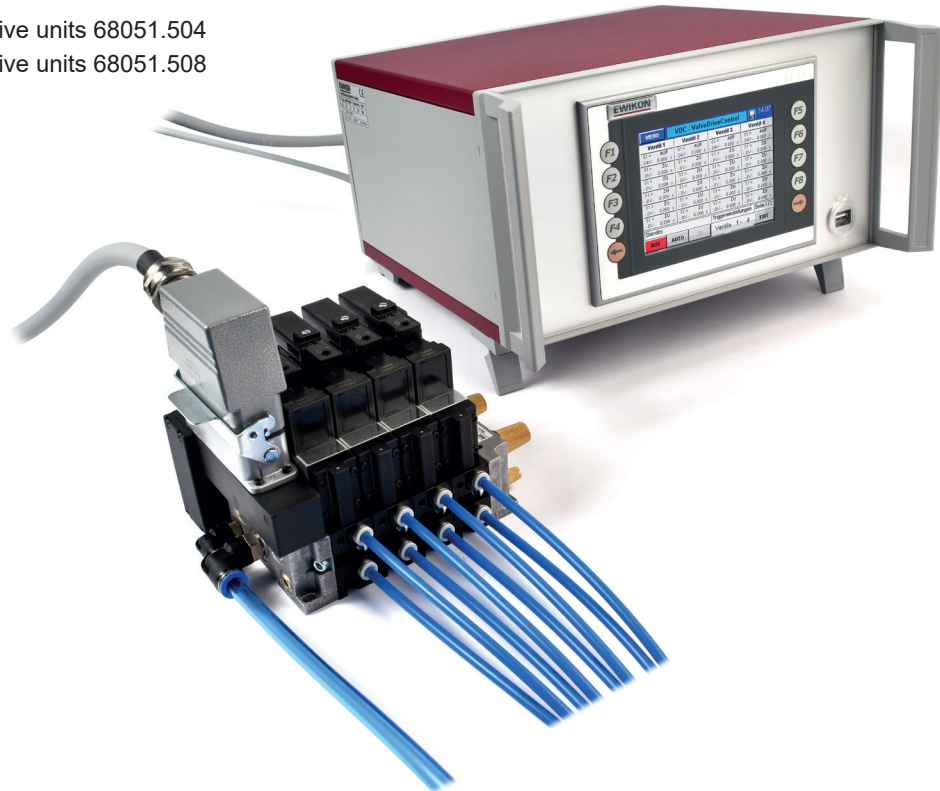




## 4. Functional description of the VDC Valve Drive Control controller

### 4.1 Components of the VDC Valve Drive Control controller

- Controller for 4 drive units 68051.504
- Controller for 8 drive units 68051.508



Picture 4.1: VDC Valve Drive Control controller

### 4.2 Required accessories

Qty	item no.	description	remark
1	60070.023	Signal cable 3 m, valve gate systems	
1	60070.031	Fault registration cable 6 m, valve gate systems	recommended when position monitoring sensors are used
1	60070.037-V05	Valve connection cable 5 m	for up to 8 valves
1	60040.200 / .201	Valve cluster with 4 valves / 8 valves	
1	60070.019	Sensor cable 3 m for end position monitoring	One each for OPEN and CLOSE sensor

Chart 6: Accessories required for operation of the VDC controller (to be ordered separately).

### 4.3 Function

The VDC controller enables the precise control of the opening and closing time of hydraulic or pneumatic valve gate drive units, particularly for sequential gating. Up to eight drive units can be controlled with one VDC controller. An extension is possible (use of several controllers).



#### Application range of the VDC Valve Drive Control controller

This EWIKON control system can be used to operate valve gate systems with pneumatic or hydraulic valve pin drive of EWIKON Heißkanalsysteme GmbH in dry industrial rooms.

## 5. Operating instructions

### 5.1 Safety instructions



#### WARNING!

#### Residual voltage after activation

Risk of electric shock due to live parts and risk of severe injuries due to moving parts



- Ensure zero potential before performing any work on or inside the VDC controller
- Set the power switch to OFF and disconnect the mains plug
- Connection, repair and maintenance work may only be carried out by qualified specialised staff!



#### Checks and protective measures before startup

The installation must be checked in accordance with EN 60204-1 or recognised standards of good practice before startup of the valve gate system.

- The connected valve units and hotrunner components can get hot
- There is crush hazard due to moving parts (e. g. pistons, cylinders)
- Leaking and broken hose systems may result in injuries

Appropriate precautions must be taken for startup and operation.

## 5.2 Operating requirements

### 5.2.1 Technical requirements

At least one trigger signal from the injection moulding machine is required to control the valve pack and the drive units. It triggers the lifting motion of the drive units via the control unit. The signal "start injection" is preferably used to open the valve pins, alternatively the "start build-up of clamping force" or "close mould" signal can be used.

When a signal is applied (+24V), the valves open. This causes the valve pins to open and to remain in this position; when the signal is cancelled (0V), the valves switch over and the valve pins close again. If the trigger signal is not made available by the injection moulding machine's controls, an adjustment will have to be made. Further signals from the machine, e. g. analogue screw stroke signal, are required for a sequential control of the valve pins.

Solenoid valves are required to run the VDC controller. The solenoid valves have to be operable with 24 V (DC) and their current consumption must not exceed 1.5 A.



#### DANGER!

#### Insufficient protective conductor connection to injection moulding machine

Fatal electric shock or serious injuries due to live components.

When starting up the system the operator has to make sure that all electrically operated system components are connected to the protective conductor system of the injection moulding machine or are safeguarded by equivalent safety measures before applying any electric voltage.

## 6. Assembly

The following notes are meant to be used as a support to the assembly staff during the assembly of the VDC controller. Additionally, the assembly staff has to have the knowledge needed to connect a VDC controller.

### 6.1 Safety instructions



#### WARNING!

PPE

#### Cut injuries due to sharp edges and risk of getting jammed

- Cut injuries to body and extremities, mainly to the hands
- Jamming of fingers or hand



#### Control of live components before installation

The electrical equipment of the VDC controller should be checked, especially those areas which will no longer be accessible after installation. Physical injuries such as an electric shock can be prevented that way.

Please check

- if cables are kinked or squeezed
- if cable insulations are undamaged.

#### Connected power supply during assembly

Risk of electric shock due to live parts and risk of severe injuries due to moving parts

- The VDC controller and all connected components have to be disconnected from the voltage source during assembly.

### 6.2 Checks before assembly

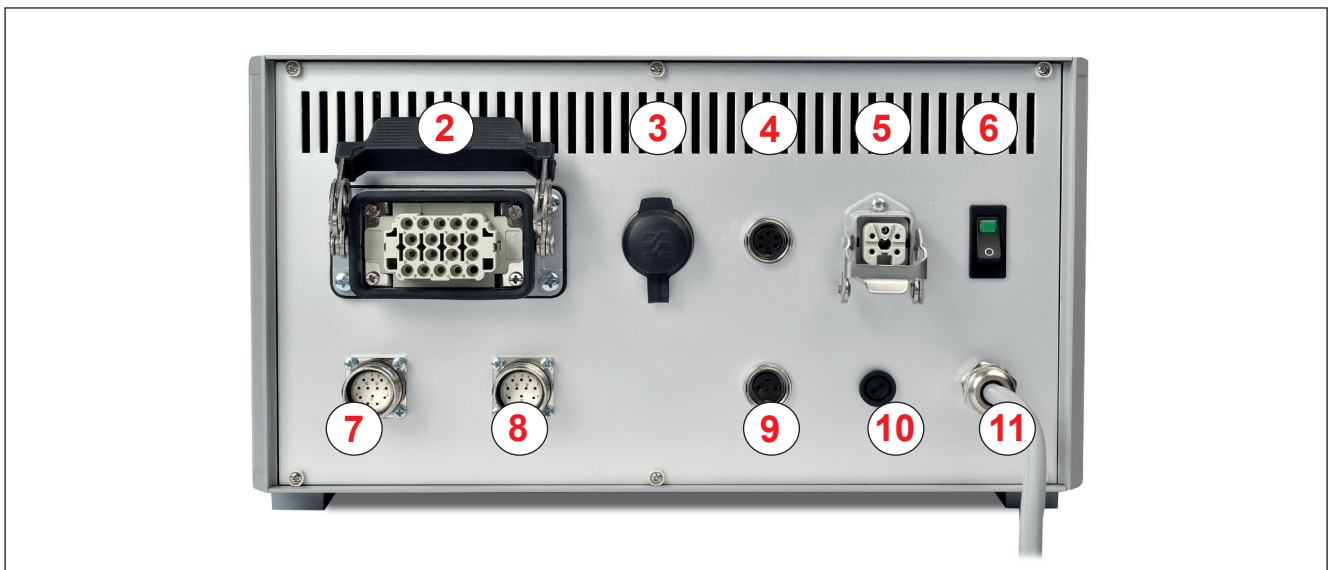
The VDC controller undergoes comprehensive testing by the manufacturer before delivery. For safety reasons (transport or storage damage or damage to the device when preparing assembly) we recommend that you check the VDC controller for damage just before assembly.

### 6.3 Assembly

#### 6.3.1 Connectors and connector pin assignment of the VDC controller



Picture 6.1: Connectors on the front side of the VDC controller



Picture 6.2: Connectors on the rear side of the VDC controller

No.	Description	Function
1	USB socket	USB socket to connect a USB memory stick for data exchange
2	Valve connector	Connector to connect the valve pack to the mould, 8 drives per socket
3	RJ45	RJ45 socket, Ethernet for PC monitoring
4	Trigger	Signal input from the injection moulding machine +24 V (5-pin)
5	Digital Out	Digital signal output to the control unit of the injection moulding machine (24 V DC)
6	Mains switch	Switch for power supply
7	Signal input "OPEN"	Sensor inputs for position query "open valve pin"
8	Signal input "CLOSE"	Sensor inputs for position query "close valve pin"
9	Analogue In	Analogue signal input for use of screw position for sequential gating (3-pin)
10	Fuse	Device fuse protection (F 6.3 A)
11	Mains connection	Mains connection cable, operating voltage 230V +5/-10%, 50-60 Hz

Chart 7: Connectors of the VDC controller

### 6.3.2 Connection of the VDC controller to the injection moulding machine

The enclosed signal cable (item no. 60070.023) is used to make a connection to the control of the machine to provide the trigger signal. Two different versions are possible:

1. The injection moulding machine provides a "+24V DC" output signal:  
The output signal (+ 24V DC) is connected to contact 2 (green core), the machine's ground (GND) is connected to contact 5 (brown core).
2. The injection moulding machine provides a potential-free make contact:  
The potential-free make contact of the injection moulding machine's controls is connected to contact 1 (white core) and contact 2 (green core) of the valve gate control unit.

Contact / core	Description	Use
1 / white	+24 V DC	Operating voltage +24 V
2 / green	S1 (+24 V)	Signal 1 input, start cycle
3 / yellow	S2 (+24 V)	Signal 2 input
4 / grey	S3 (+24 V)	Signal 3 input
5 / brown	GND	

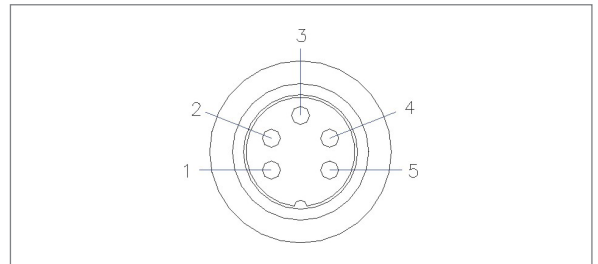


Chart 8: Pin assignment of the trigger connection (4)

Picture 6.3: Trigger connection (4)



## CAUTION!

### Insulation of unused cores

All unused cores have to be insulated. Failure to do so may result in damage to the device.

When using the analogue input of the control unit to use information about screw position or screw volume for sequential moulding there are two options. The input needs to be adjusted in the control unit, menu (F4).

Contact	Use
1	Analogue current output, 0-2.5 mA
2	Analogue current input, 0-10 V
3	Ground

Chart 9: Analogue in pin assignment (9)

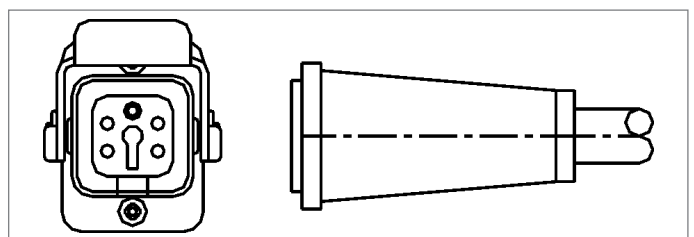
1. Directly connect a signal, the analogue value of which is in linear relation to the screw position, to input (contact 2), 0-10V DC and the ground (contact 3).
2. Connect a linear position transducer with  $R = 5 \text{ k}\Omega$ . The potentiometer is supplied with the analogue current output (contact 1) and the measured voltage (contacts 2 and 3) is in relation to the screw position.

If required, the digital signal output of the VDC controller can be connected to the injection moulding machine to identify when the control is "ready" for the next cycle or when there is an error.

Each signal output delivers +24 V DC; maximum admissible load on the output 0.1 A.

Contact	Use
1	+24 V DC (from the VDC controller)
2	ERROR
3	READY
4	GND
PE	Protective conductor

Chart 10: Digital out pin assignment (5)



Picture 6.4: Digital out signal output (5)

**Option:**

A different VDC controller version with further signal inputs and outputs is available for special applications (item no. 68051.504-V01 and item no. 68051.508-V01).

4 additional signal inputs can be used to actuate the movement of some drive units separately from the others. The connection is also made with the signal cable (item no. 60070.019).

2 additional signal outputs can be used to send further messages to the injection moulding machine.

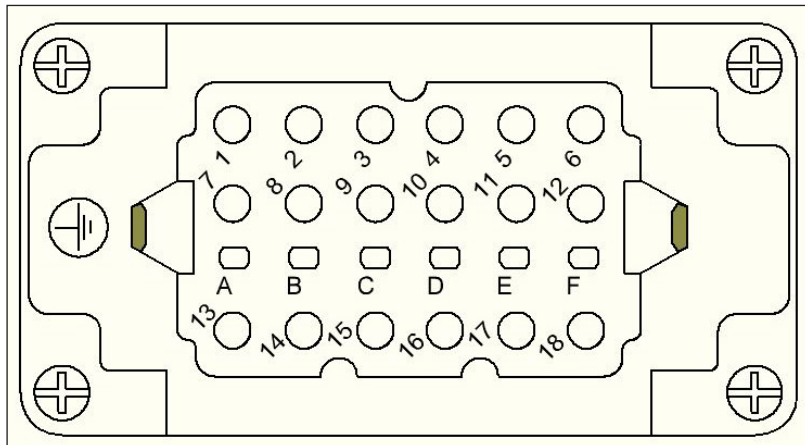
A description of the additional functions is enclosed to the devices.

**6.3.3 Connection of the VDC controller to the valve terminal/solenoid valves**

Connect the solenoid valves individually to the VDC controller when using hydraulically operated valve gate systems or when not using the valve pack.

Connect the VDC controller to the valve pack using the valve connecting cable (item no. 60070.037-V05 (5 m) or –V10 (10 m)). The valve connecting cable is ready to plug on both sides and designed to be connected to a valve pack with max. 8 valves.

If you do not use any EWIKON valve connecting cable, you will find the plug assignment of the VDC controller in the picture and in the chart.



Picture 6.5: Valve connecting cable assignment of the VDC controller (2)

Contact	Use
1	Valve pin 1 open
2	Valve pin 1 closed
3	Valve pin 2 open
4	Valve pin 2 closed
5	Valve pin 3 open
6	Valve pin 3 closed
7	Valve pin 4 open
8	Valve pin 4 closed
9	Valve pin 5 open
10	Valve pin 5 closed
11	Valve pin 6 open
12	Valve pin 6 closed
13	Valve pin 7 open
14	Valve pin 7 closed
15	Valve pin 8 open
16	Valve pin 8 closed
17	Ground
18	not used

Chart 11: Contact assignment of the valve connecting plug (2)

**6.3.4 Connection of the solenoid valves/valve pack to the injection moulding machine**

Connect the solenoid valves individually to the supply lines of the valve pin drives of the injection moulding machine when operating the valve gate system hydraulically or when not using the valve pack (accessories) with pneumatic drive units.

Optionally, the valve pack (accessories, please order separately: item no. 60040.200 (4-pin) or item no. 60040.201 (8-pin)) can be used to trigger the pneumatic valve pin drive units. For details regarding the connection of the valve pack please see the enclosed manual.





**CAUTION!**

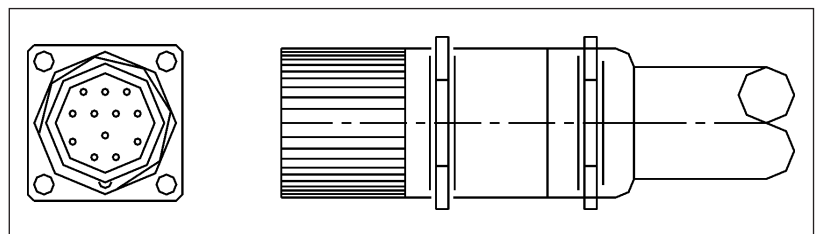
**Switching on the valve gate control and supply voltage**

The valve gate control should not be switched on until the hotrunner has reached its set temperature and the resin has melted completely! Before inserting the mains connector or connecting the mains connection cable ensure that the supply voltage corresponds with the data given on the type plate. Failure to do so may result in damage to the device.

**6.3.5 Connection of the optional sensor feedback to the VDC controller**

The sensor feedback can only be used, if there are sensors which query the opening and closing positions of the valve pins. One or two signal cables (item no. 60070.019 (3 m, further lengths available)) are required to use the sensor feedback for "OPEN" or "CLOSE" or for both commands.

Contact	Use
1	Signal valve pin 1
2	Signal valve pin 2
3	Signal valve pin 3
4	Signal valve pin 4
5	Signal valve pin 5
6	Signal valve pin 6
7	Signal valve pin 7
8	Signal valve pin 8
9	+24 V DC
10	GND
11	-
12	PE

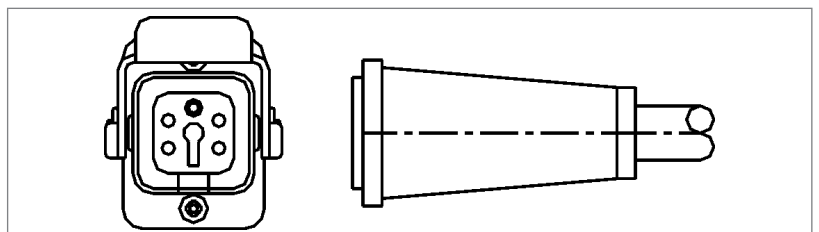


Picture 6.6: Signal input "OPEN" (7) / "CLOSE" (8)

Chart 12: Contact assignment of signal inputs (7) / (8)

If the signal inputs are used for the sensor feedback, we recommend that you connect the digital signal output of the VDC controller to the injection moulding machine to avoid errors. Each signal output delivers +24 V DC; maximum admissible load on the output 0.1 A.

Contact	Use
1	+24 V DC
2	ERROR
3	READY
4	GND
PE	Protective conductor



Picture 6.7: Digital out signal output (5)

Chart 13: Contact assignment digital out (5)

**6.4 Checks after assembly**

- Check the system for leakage (hydraulic or pneumatic)
- Please check whether the injection moulding machine sends a trigger signal

7. Startup



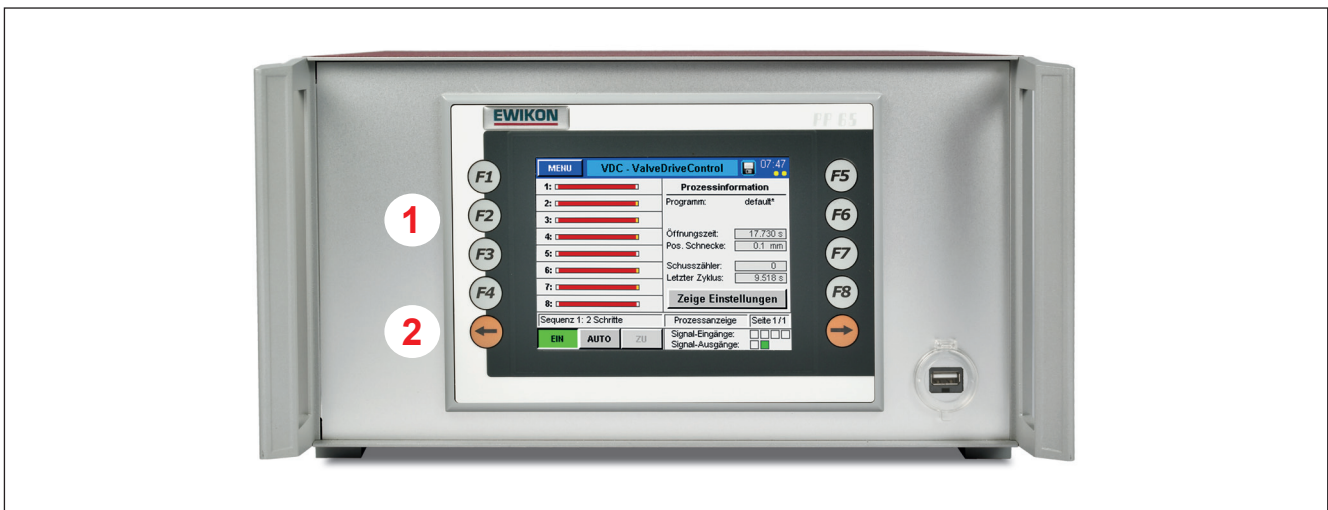
**WARNING!**

**Insufficient protective conductor connection**

Risk of electric shock due to live parts and of severe injuries due to moving parts

- When starting up the system the operator has to make sure that all electrically operated system components are connected to the protective conductor system of the injection moulding machine or are safeguarded by equivalent safety measures before applying any electric voltage. When applying electric voltage to systems or system components beyond their intended use the operator has to make sure that a sufficient protective conductor connection has been made or equivalent protective measures for each component have been taken.

**7.1 Basic settings and operation**



Picture 7.1: Front view of the VDC controller

The VDC controller for pneumatically or hydraulically operated valve gate systems has got a coloured touch screen display through which all settings are made. The standard menu (F1) "**Process display**" giving general information on the process and the position of up to 8 valve pins is displayed after system startup. Use the ◀ **EXIT** ▶ key to return to the standard menu from any other menu. The standard menu is displayed again 3 minutes after a key was last pressed.

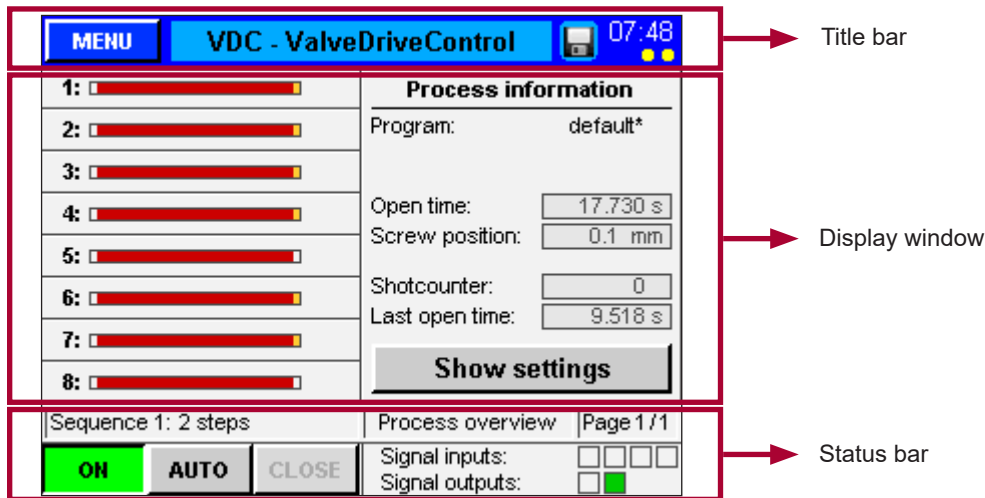
No.	Description	Function
1	F1 - F8	Function keys for direct menu selection
2	Arrow keys ← →	Arrow keys to move forward/back in the menu

Chart 14: Keys on the front side of the VDC controller



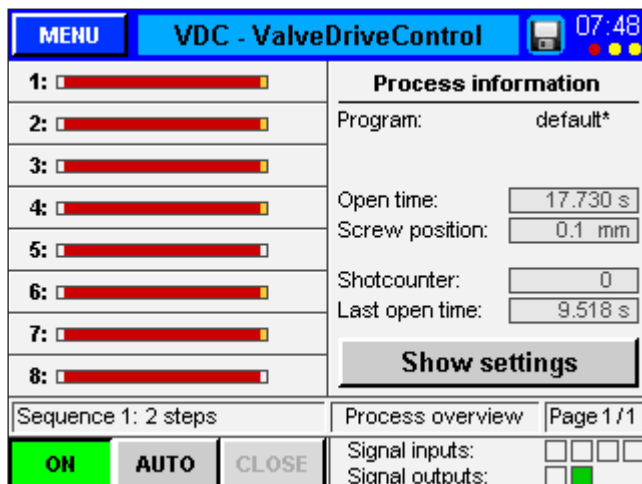
## 7.2 Description of the menus

### 7.2.1 Screen layout



Picture 7.2: Screen layout of the VDC controller

### 7.2.2 Start menu



Picture 7.3: "Start menu"

The **title bar** contains the ◀ **Menu** ▶ button on the left and the time indication on the right. The following additional information is displayed by illuminated dots:

- Connected USB stick:  
red dot below the time value

If sensor feedback is installed (option):

- Sensor feedback OPEN active: yellow dot below the units digit of the minute value
- Sensor feedback CLOSED active: yellow dot below the tens digit of the minute value

By selecting the ◀ **VDC – ValveDriveControl** ▶ field in the title bar a screenshot of the current display is taken. The saving process is displayed by a floppy disc next to the time display.


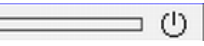




**The left side of the window** shows the position of the valve pins indicated by red / green bars:

- Red bar - "valve pin closed"
- Green bar - "valve pin open"
- If sensor monitoring is active:  
Small orange rectangle flashes on the left (CLOSED) or right (OPEN) side of the drive bar.  
If the opening or closing time has not been achieved, an alarm symbol appears in addition.
- Further different-coloured symbols appear, e. g. for "setup mode" or "OPEN individually"
- Touching the drive unit number opens menu (F2) for setup of drive units

**The right side of the window** shows general process information:

- Name of the programme used ("\*" indicates changes to stored settings)
- Opening time of the running cycle (time since the trigger signal "start cycle" has been identified)
- If analogue input is used: current screw position, screw volume or cavity pressure
- Number of shots
- Opening time of the previous cycle

## Symbols shown on the process display and their meaning:

2: 	= Drive unit off
1: 	= Drive unit on standby
1: 	= Sensor for drive unit deactivated
8: 	= Drive unit in setup mode
5: 	= Valve pin open individually
2: 	= Position error (error description in menu (F7))
1:	= Drive unit error (see information in menu (F7))

The **status bar** of the VDC controller shows the system status or the operating mode, the selected menu and the current page of the pages available in the menu.

### Push buttons in the status bar:

- Switch power supply of the valves on or off
- Select operating mode "AUTO" or "SETUP"  
(operating mode "SETUP": Use the ◀ **OPEN/CLOSE** ▶ button to close or open valve pins manually)

**Right side of the status bar:** Displays information on the digital input and output status:

- Input "signal 1" (S1) is the main trigger to start a cycle
- The other inputs are freely useable to trigger different events (e. g. opening and closing of some valve pins separately from the others).
- Pending signals: allocated square flashes orange

Up to 8 input signals are possible (extended controller version -V01).

- The digital output 1 indicates the injection moulding machine an error in the VDC system
- Output 2 can be configured in menu (F3), if necessary (default setting: "READY for next cycle") and is normally used to release the machine.

Use the orange arrow keys on the left or right side of the display to move back and forward in a menu. The number of pages available per menu is shown in the status bar.

- Either use the buttons (F1) to (F8) surrounding the display
- or the ◀ **Menu** ▶ button in the upper left corner of the title bar (opens the menu overview)

to select a different menu.

MENU		VDC - ValveDriveControl				07:17	
Valve 1		Valve 2		Valve 3		Valve 4	
S1 = OPEN	-24V- 0.000 s	S1 = OPEN	-24V- 0.000 s	S1 = OPEN	-24V- 0.000 s	S1 = OPEN	-24V- 0.000 s
S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s
S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s
S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s
S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s
S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s	S1 = CLOSE	-0V- 0.000 s
Sequence 5: 6 steps				Trigger settings		Page 1 / 2	
ON	AUTO	CLOSE	Valves 1 - 4		EXIT		

Picture 7.4: "Show settings"

**7.2.3 Main menu**

MENU		VDC - ValveDriveControl		07:17
<b>Process overview</b> (F1) Overall view for position and status	<b>Data backup</b> Save and load mould settings		(F5)	
<b>Setup drives</b> (F2) Individual drive settings (active, signals, delay)	<b>Process chart</b> Trend of analog input 1 and all drive positions		(F6)	
<b>System settings</b> (F3) General settings, valid for the whole system.	<b>Alarm overview</b> Information about current alarms and alarm history		(F7)	
<b>Hardware overview</b> (F4) Setup analogue input, status electronic modules.	<b>Display / Language</b> Screen settings for "TouchControl"		(F8)	
Sequence 5: 6 steps		Main menu		Page 1 / 1
ON	AUTO	CLOSE	EXIT	

Picture 7.5: "Main menu"

**7.2.4 Menu (F1): Process display**

MENU		VDC - ValveDriveControl		07:20
1: <input type="checkbox"/>	<input type="checkbox"/>	<b>Process information</b>		
2: <input type="checkbox"/>	OFF	Program: *		
3: <input type="checkbox"/>	OFF			
4: <input type="checkbox"/>		.610 s		
5: <input type="checkbox"/>		.0 mm		
6: <input type="checkbox"/>		0		
7: <input type="checkbox"/>	OFF	.682 s		
8: <input type="checkbox"/>	OFF	<b>Show settings</b>		
Standby		Process overview		Page 1 / 1
ON	AUTO	CLOSE	Signal inputs: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
			Signal outputs: <input type="checkbox"/> <input type="checkbox"/>	

Picture 7.6: "Process display": Confirmation prompt when switching system on or off

Use the ◀ **Show settings** ▶ button on the right side of the display window of the start menu to get a tabular overview of the trigger settings of all drive units (compare menu (F2) ◀ **Setting up drive units** ▶).

Up to 6 steps are displayed depending on the number of steps per cycle:

- Requested position for this step
- Trigger event (signal or screw)
- Trigger level (signal: +24 V or 0 V; screw: position in mm oder ccm, cavity pressure: pressure in bar)
- Delay time for the movement after triggering

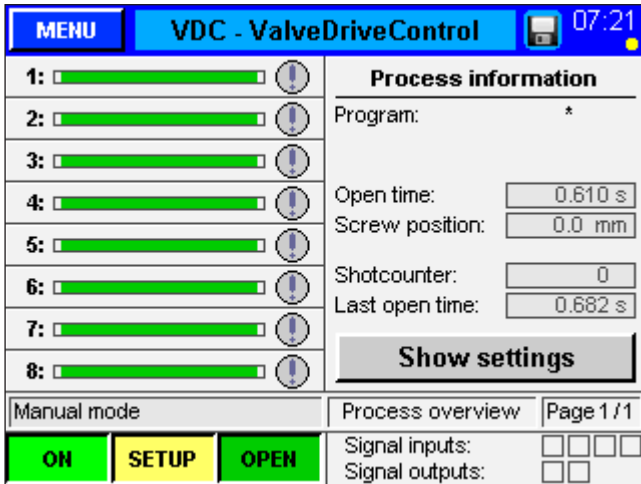
Examples: compare chapter 7.2.12

The ◀ **Menu** ▶ button on the left side of the title bar opens the main menu. A short description of the available menus is shown.

Menu selection:

- Either by touching the screen surface
  - or by using the keys (F1) to (F8) that surround the display.
- These keys can also be used to switch directly between the different menus.

General process overview as described in chapter 7.2.2 "Start menu".



Picture 7.7: "Process display": Setup mode with manually opened valve pins

### 7.2.5 Menu (F2): Setting up drive units

All settings for the trigger can be changed in the ◀ **Setting up drive units** ▶ menu which is opened either by using the key (F2) or by touching a drive bar.

Selection of the drive unit to be changed:

- Use ◀ ▲ ▶ and ◀ ▼ ▶ buttons or enter drive unit number
- Selecting „0“: value changes apply to **all** drive units

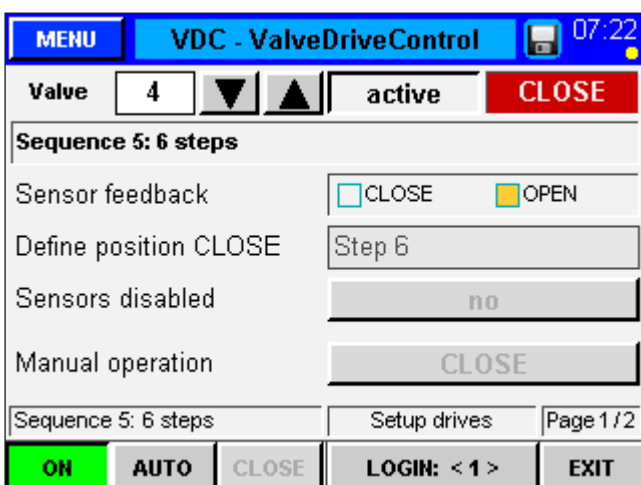
When you touch the button ◀ **LOGIN:<0>** ▶ in the status bar

- an input window opens: by entering a code you will reach a higher access level.



## NOTE!

Settings that partly have serious effects on the operating behaviour of the system can be made in the other access levels. This is why the values should be changed by qualified staff! Codes for higher access levels can be found in chapter 8 "Quick start guide".

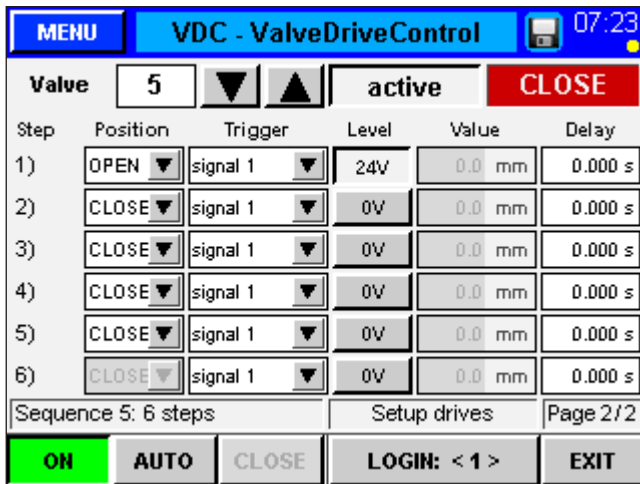


Picture 7.8: "Setting up drive units", page 1

### Page 1

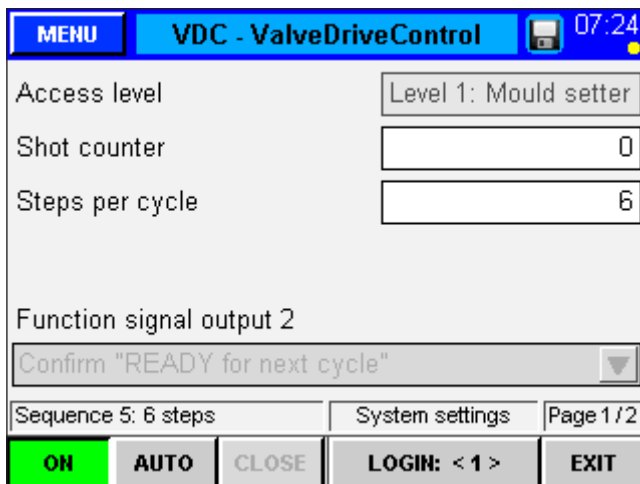
All drive units can be switched ◀ **active** ▶ or ◀ **inactive** ▶. The current position of the valve pin (when system is switched on) is shown in the top right corner of the display window when the system is switched on. Further information:

- Status of each drive unit.
- "Sensor feedback": displays visually whether the associated sensors have switched (orange = pending signal).
- "Determining CLOSED position": Shows the step of the sequence causing the valve pin to close. This is always the last step of a sequence because the valve pin has to be closed at the end of this sequence. This value cannot be changed.
- "Sensors deactivated": The sensor feedback (optional) can be deactivated for this cavity, if e. g. a sensor fails (**LOGIN <2>** required).
- "Setup mode": Valve pin can be opened and closed individually in setup mode.

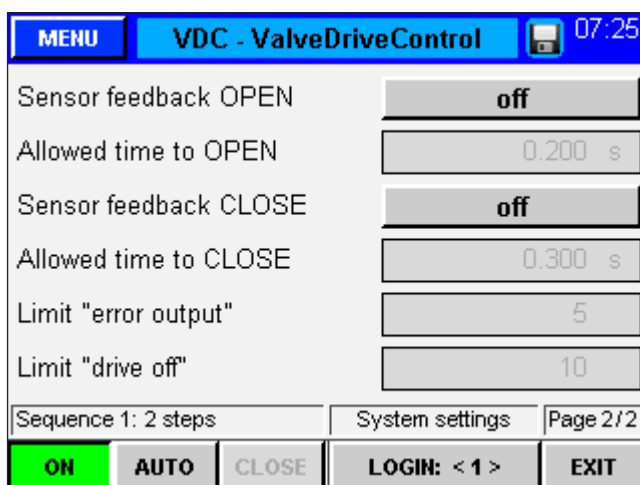


Picture 7.9: "Setting up drive units", page 2

**7.2.6 Menu (F3): System settings**



Picture 7.10: "System settings", page 1



Picture 7.11: "System settings", page 2

**Page 2**

The settings for the trigger events can be entered here. It is possible to:

- select the position and
- select the trigger source from one of the digital signals or the analogue signal for each step.
- Depending on the trigger source either the signal level, "24 V" or "0 V" or the comparative value applies.
- A delay time can be added to each trigger event to cause a time-shifted reaction of the valves.

**Page 1**

The setter can enter all system settings only if he/she is in access level **LOGIN: <1>** or higher. The current access level is shown in the upper part of the display window. Options:

- Reset shot counter
- Determine steps per cycle

Settings that are made here automatically change the number of lines in menu (F2), page 2 (trigger settings).

Function of signal output 2: Three confirmations are selectable to set signal output 2 (READY):

1. Confirmation "READY for next cycle" (meaning: controller in automatic mode, all valve pins are closed and there is no error).
2. Confirmation "all valve pins OPEN"
3. Confirmation "at least 1 valve pin OPEN"

These options are released for **LOGIN <2>** and higher.

**Page 2**

On this page of the menu special functions of the VDC controller are activated and/or parameterised.

- Switch on/off sensor feedback: **LOGIN <1>**
- All other parameters: **LOGIN <2>** (for PIN see envelope on the back cover of this manual).

"Admissible times for opening and closing":

Time within which a sensor feedback has to take place. If there is no feedback: position warning.

"Limit value error message": Quantity of position errors in a row after which an error is reported to the injection moulding machine.

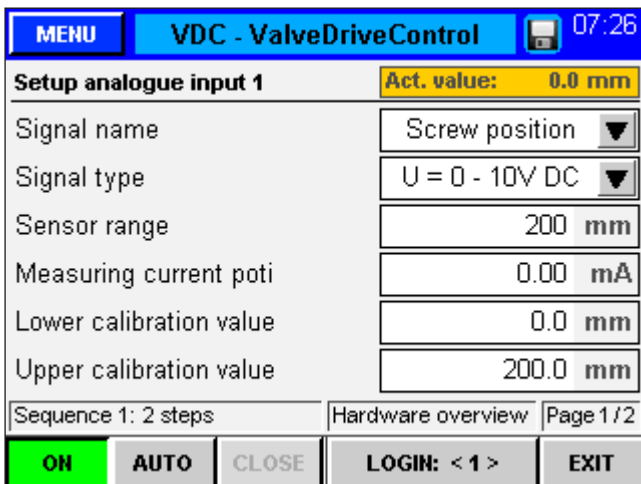
"Limit value drive unit OFF": Quantity of position errors in a row after which the valve concerned is switched off to avoid any damage.



**REMARK!**

When the encoder feedback is used it is strongly recommended that also both outlets of the controller to the injection moulding machine be connected and the data be analysed.

**7.2.7 Menu (F4): Hardware overview**



Picture 7.12: "Hardware overview"; page 1

**Page 1**

On this page the analogue input is adjusted to the application (**LOGIN <1>** required).

Signal name (changes the unit of the analogue value):

- "Screw position" in "mm"
- "Screw volume" in "ccm"
- "Cavity pressure" in "bar"

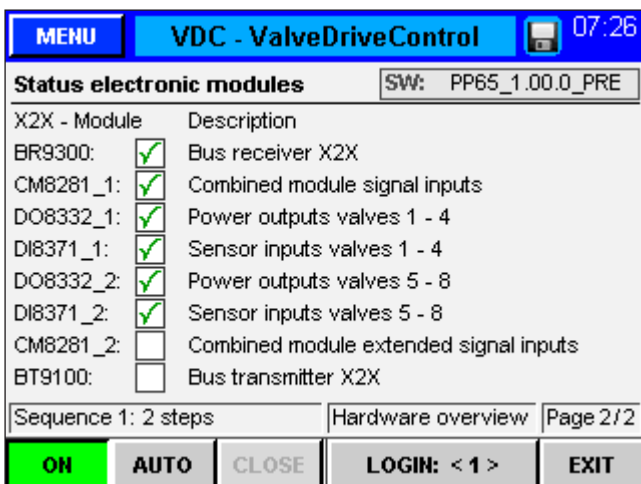
Signal type (type of connected sensor):

- a signal 0-10 V DC
- or a linear position encoder
- or the measuring range of the sensor

The settings may require adjustment of the sensor.

Measurement current for potentiometer: measurement current of signal encoder is adjustable to calibrate tolerances and to use the entire input range.

The measured values of the VDC controller can be scaled to the machine values, if necessary.



Picture 7.13: "Hardware overview", page 2

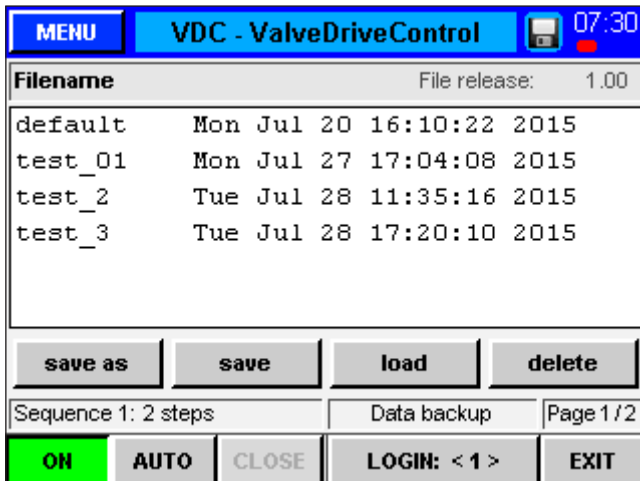
**Page 2**

On this page all device modules which can be incorporated are displayed.

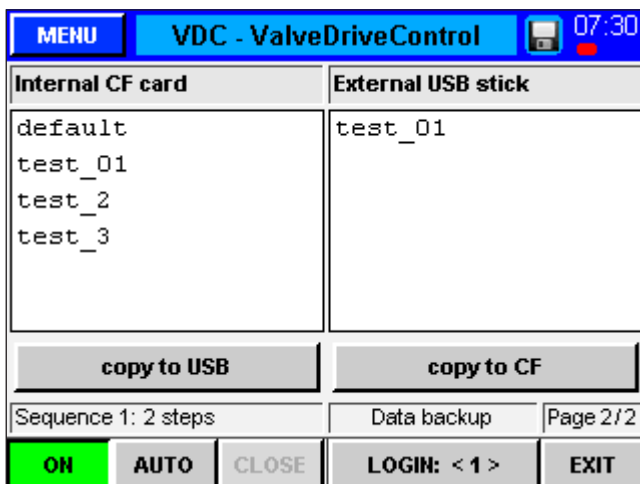
Green check: active module, working properly.

In the upper right corner of the display the current software version of the device is shown. Make sure you have this information ready, if you have any problems and need assistance in solving them.

## 7.2.8 Menu (F5): Data backup



Picture 7.14: "Data backup", page 1



Picture 7.15: "Data backup", page 2

## Page 1

In this menu it is possible to save the settings for up to 50 different moulds in the storage of the display or to upload them from there (drive (F:) on the memory card). This drive can contain the file folders "Alarms", "Backup", "Record" and "ScrShot".

- ◀ **Create** ▶ saves new mould settings after the file name has been entered.
- ◀ **Save** ▶ takes over changes by overwriting the selected old file.

A file has to be selected for loading or deleting saved settings (**LOGIN <1>**) (file shaded in blue appears). You have to confirm the selected process by responding to a prompt message.

Created mould data are stored in the "Backup" folder. A message window confirms a successfully completed storage process.

## Page 2

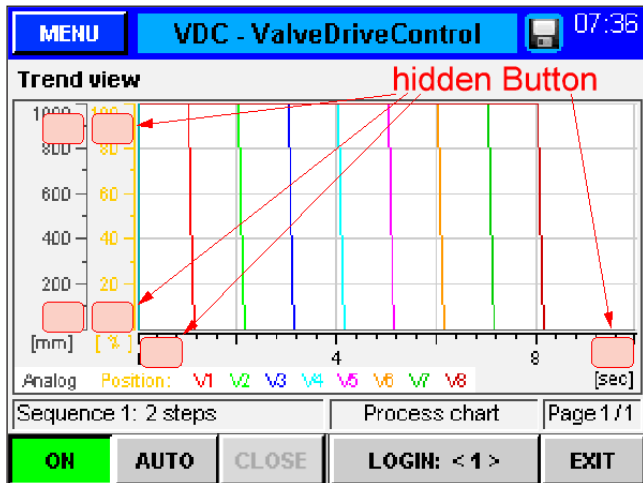
This page deals with the data exchange with an external USB stick. It can only be selected, if a stick has been connected to the device and has been activated.

When you copy a file to a USB stick for the first time the system creates folder "Backup" in the "VDC" directory on the USB stick and saves the selected file there.

With an FTP client programme it is possible to gain access to the system storage in a computer network using the rear RJ45 connection and an Ethernet cable.

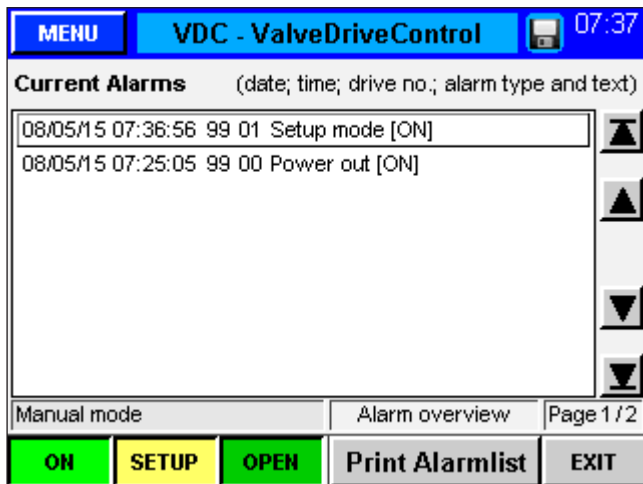
You need a so-called CrossOver Ethernet cable to establish a direct connection. If you want to make use of this option, please ask EWIKON for the terminal settings.

**7.2.9 Menu (F6): Process diagram**

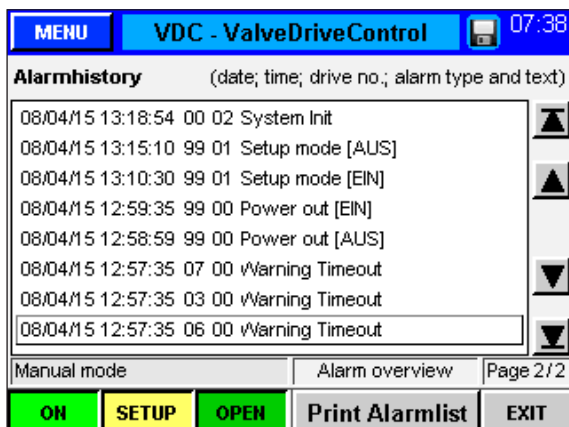


Picture 7.16: "Process diagram"

**7.2.10 Menu (F7): Alarm report**



Picture 7.17: "Alarm report", page 1



Picture 7.18: "Alarm report", page 2

**Page 1**

This menu displays the position profile as well as the measured value for each activated drive unit at the analogue input of the VDC controller in diagrammatical form. Scaling of the three axes (analogue, position and time) can be adjusted by clicking on the upper/lower end of the scales (hidden push buttons).

Recording automatically starts with each start of cycle (signal 1 = 24 V) of the VDC controller and ends when the end of the time scale has been reached.

**Page 1**

Detail view of the alarm with date, time, output, alarm type and alarm text for a more detailed analysis.

Use the arrow keys on the right side to scroll up and down.

**Page 2**

Alarm history (the last 200 events).

How to save the list on the device: Choose button **◀ Printing list ▶** in the status bar. The following messages are displayed:

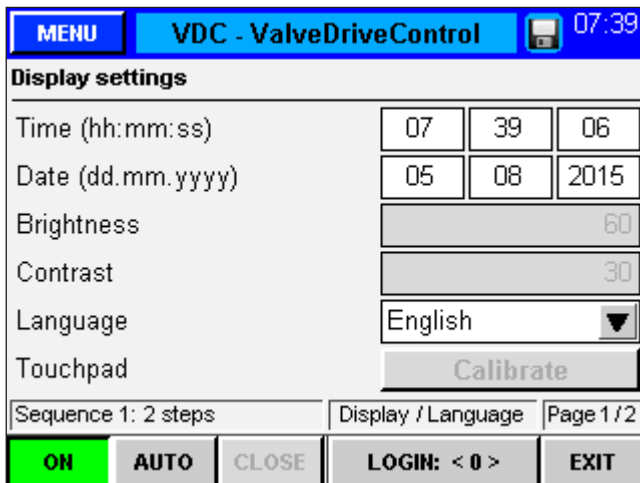
- **◀ Reading data... ▶** then
- **◀ Saving... ▶** and
- **◀ Completed! ▶**.

This procedure may take some time depending on the length of the list. The file "Alarmlist.csv" is created on (F:)/Alarms and can be evaluated using a tabulation programme.

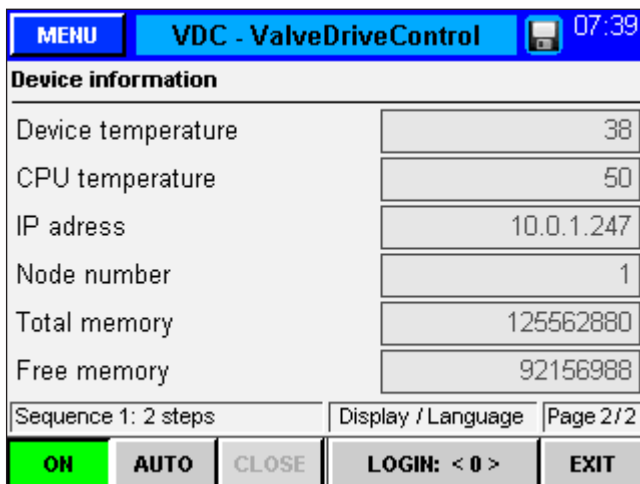
If a USB stick is connected, the alarm list is also copied to the corresponding directory on the stick (also see chapter "data backup").



## 7.2.11 Menu (F8): Display / Language



Picture 7.19: "Display / Language", page 1



Picture 7.20: "Display / Language", page 2

### Page 1

In this menu date, time and display language can be changed.

A lithium coin cell in the control panel will buffer the clock and the set values of the controller, if no voltage is applied.

Should variations in the set values or the clock occur after you have re-applied voltage, please check the alarm list for the entry "battery empty". If so, please replace the battery (EWIKON item no. 13689).

### Page 2

On the second page information about control panel and CPU temperature, IP address and node number as well as the internal storage space is displayed.

**7.2.12 Menu: Show settings**

You can get a tabular overview of the trigger settings (up to 6 steps) of all drive units from the process overview (menu F1) by touching the ◀ **Show settings** ▶ button. Please take your time to study the given examples and get familiar with the possibilities the system offers.

MENU		VDC - ValveDriveControl		07:42	
Valve 1	Valve 2	Valve 3	Valve 4		
S1 = OPEN - 24V- 0.000 s	S1 = OPEN - 24V- 0.000 s	S1 = OPEN - 24V- 0.000 s	S1 = OPEN - 24V- 0.000 s		
S1 = CLOSE - 0V- 0.000 s	S1 = CLOSE - 0V- 0.000 s	S1 = CLOSE - 0V- 0.000 s	S1 = CLOSE - 0V- 0.000 s		
Standby		Trigger settings		Page 1/2	
OFF	AUTO	CLOSE	Valves 1 - 4	EXIT	

Picture 7.21: "Show settings", example 1

**Example 1**

Step 1

all valves move to position **OPEN**  
with event "S1 = 24 V"  
no delay

Step 2

all valves move to position **CLOSED**  
with event "S1 = 0 V"  
no delay

This is the simplest operation, all drive units move together in 2 steps with only one signal from the machine.

MENU		VDC - ValveDriveControl		07:43	
Valve 1	Valve 2	Valve 3	Valve 4		
S1 = OPEN - 24V- 0.000 s	S1 = OPEN - 24V- 0.000 s	S1 = OPEN - 24V- 0.100 s	S1 = OPEN - 24V- 0.100 s		
S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s		
Standby		Trigger settings		Page 1/2	
OFF	AUTO	CLOSE	Valves 1 - 4	EXIT	

Picture 7.22: "Show settings", example 2

**Example 2**

Step 1

Valves 1 to 4 open with event "S1 = 24 V"  
Valves 3 and 4 delayed by 0.10 seconds  
Valves 5 and 6 open with event "S2 = 24 V"  
Valves 7 and 8 open with event "S3 = 24 V"

Step 2

all valves close with event "S1 = 0 V" with a delay of 0.20 seconds

Operation with different signals and delay times required for e.g. sequential moulding.

MENU		VDC - ValveDriveControl		07:44	
Valve 5	Valve 6	Valve 7	Valve 8		
S2 = OPEN - 24V- 0.000 s	S2 = OPEN - 24V- 0.000 s	S3 = OPEN - 24V- 0.000 s	S3 = OPEN - 24V- 0.000 s		
S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s	S1 = CLOSE - 0V- 0.200 s		
Standby		Trigger settings		Page 2/2	
OFF	AUTO	CLOSE	Valves 5 - 8	EXIT	

Picture 7.23: "Show settings", example 2

MENU		VDC - ValveDriveControl				07:44	
Valve 1		Valve 2		Valve 3		Valve 4	
S1 = OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN
-24V- 0.000 s	120 0.000 s	100 0.000 s	80 0.000 s	110 0.000 s	90 0.000 s	70 0.000 s	80 0.000 s
SC. < CLOSE	SC. < CLOSE	SC. < CLOSE	SC. < CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
110 0.000 s	90 0.000 s	70 0.000 s	60 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
60 0.000 s	60 0.000 s	60 0.000 s	60 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
Standby				Trigger settings		Page 1/2	
OFF		AUTO		CLOSE		Valves 1 - 4	
						EXIT	

Picture 7.24: "Show settings", example 3

MENU		VDC - ValveDriveControl				07:44	
Valve 5		Valve 6		Valve 7		Valve 8	
S1 = OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN
-24V- 0.000 s	120 0.000 s	100 0.000 s	80 0.000 s	110 0.000 s	90 0.000 s	70 0.000 s	80 0.000 s
SC. < CLOSE	SC. < CLOSE	SC. < CLOSE	SC. < CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
110 0.000 s	90 0.000 s	70 0.000 s	60 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
SC. < OPEN	SC. < OPEN	SC. < OPEN	SC. < OPEN	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
60 0.000 s	60 0.000 s	60 0.000 s	60 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE	S2 = CLOSE
-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s	-24V- 0.000 s
Standby				Trigger settings		Page 2/2	
OFF		AUTO		CLOSE		Valves 5 - 8	
						EXIT	

Picture 7.25: "Show settings", example 3

**Example 3**

Step 1

Valves 1 + 5 open immediately with "S1 = 24 V"  
 Valves 2 + 6 open, when screw <120 mm  
 Valves 3 + 7 open, when screw <100 mm  
 Valves 4 + 8 open, when screw <80 mm

Step 2

Valves 1 + 5 close, when screw <110 mm  
 Valves 2 + 6 close, when screw <90 mm  
 Valves 3 + 7 close, when screw <70 mm  
 Valves 4 + 8 do not close, as "S2 = 0 V"

Step 3

Valves 1,2,3,5,6 and 7 open again,  
 when screw < 60 mm  
 Valves 4 + 8 are still open

Step 4

Valves 1,2,3,5,6 and 7 close again, with "S2 = 24 V"  
 and valves 4 + 8 close as well (steps 2,3 and 4).

This example shows the full ability of the new VDC controller to process different signals and to enable more than one opening per cycle for selected drive units.

The valve pins open and close alternately, depending on the screw position or volume or any other analogue input signal.

Digital signals may be used to trigger moving steps, furthermore, to add delays or to open or close with the same event at different times.

## 7.3 Help in the event of malfunctions

### 7.3.1 Fault finding

Fault	Measure to be taken
Display remains dark / Controller does not switch on	<ul style="list-style-type: none"> <li>Check mains voltage and device fuse, replace with fuses of the same type (F 6.3 A), if necessary.</li> </ul>
Sensor feedback error	<ul style="list-style-type: none"> <li>Check cylinder/plunger sensors, they may be wrongly assembled or defective</li> <li>Monitoring time too short, set a longer time for feedback for a longer stroke, if necessary</li> </ul>
Error: Output overloaded ( $I > 2 A$ )	<ul style="list-style-type: none"> <li>The connected cables do not correspond to the specification (<math>I &lt; 2 A</math>)</li> <li>Cable to valve crushed</li> </ul>
Sequence does not run properly	<ul style="list-style-type: none"> <li>Incorrect signals from the machine, check cables and connectors as well as wiring</li> <li>Check for plausibility of settings of the VDC controller and the injection moulding machine</li> </ul>

Chart 15: Faults/Measures to be taken

### 7.3.2 Spare parts list

Item no.	Description
13689	Battery 3 V / 950 mAh
18121	Fuse F6.3 A
13671	Air filter 63TE
18207	Front handle, large

Chart 16: Spare parts list

### 7.3.3 EWIKON service departments

Please have the item no. and the current software version of your controller (menu (F4), page 2, see chapter 7.2.7 hardware overview) as well as the order no. (even the one of your hotrunner system) ready, if you have a service request.

- Service control technology/electronic technology**  
phone: (+49) 6451 501-0  
fax: (+49) 6451 501-693  
e-mail: elektro@ewikon.com

## 8. Quick Start Guide

**CAUTION!**

Faulty settings may result in incorrect function or even damage to the system!

Operation of the VDC controller is subdivided into several access levels.

- LOGIN <0> : Operator
- LOGIN <1> : Fitter (PIN:111111)
- LOGIN <2> : EWIKON (for PIN see envelope on the back cover of this manual)

Select menu (F3) "System settings" to make settings.

Log in as a fitter (LOGIN <1>).

**How to proceed when setting a new system for the first time:**

Connect VDC controller, mould and injection moulding machine according to this operating manual. Then switch the VDC controller on and make settings according to the following list.

- Menu (F3)**      Page 1: - Select steps per cycle  
                          Page 2: - Activate sensor feedbacks and set circuit times, if necessary
- Menu (F4)**      Page 1: - Configure analogue input, if necessary
- Menu (F2)**      Page 1: - Activate all necessary valves  
                          Page 2: - Set trigger signals according to the application
- Menu (F5)**      Page 1: - Save settings as program, if necessary

- Switch on hotrunner and heat up to set temperature (also in advance)
- Check signal outputs of the machine for correct connection and function
- Switch on control of the VDC controller, close all valve pins
- System is operational, observe AUTO/SETUP mode of the controller!

**NOTE!**

Further operation of the control, setup of valve pin movements for the application and adjustment of functions to the control of the injection moulding machine are performed according to the previous chapters 5-7. Therefore, we recommend that you read this instruction manual in its entirety prior to using the electrical valve control to achieve best operational performance.

## 9. Maintenance

### 9.1 Maintenance instructions

---



#### NOTE!

Incomplete or improper maintenance or failure to carry out maintenance will increase abrasion of individual components of the VDC controller.

- Maintenance work has to be carried out completely and according to the maintenance schedule within the given time intervals.
  - Only qualified electricians are allowed to maintain the device.
- 

Apart from being operated correctly the VDC controller needs care and maintenance to guarantee a long service life and trouble-free operation. In addition to inspection and overhaul maintenance is a preventive measure to maintain the VDC controller.

We recommend that you document all maintenance work carried out.

### 9.2 Safety instructions for maintenance

---



#### DANGER!

##### Maintenance and repair with activated voltage supply

Risk of death by electric shock and severe injuries caused by live components.

- Disconnect the VDC controller and connected components from mains voltage before performing any work.
-

### 9.3 Maintenance work

Carry out the following maintenance work at regular intervals:

#### 9.3.1 Changing the filter

The filter is positioned on the underside of the VDC controller and has to be checked at regular intervals and replaced, if necessary.

#### 9.3.2 Cleaning the VDC controller

Only use water with suitable additives. Clean the housing with a soft, humid cloth.

You may clean the display with usual washing, rinsing and cleaning agents. Only use compressed air and a brush to clean the inside of the device.



#### NOTE!

- Please do not use acid cleaners or scouring agents.  
NEVER use easily flammable or combustible substances.

#### 9.3.3 Checking the fan and ventilation slots

Fan and ventilation slots (on the underside and on the rear side of the device) have to be checked at regular intervals and cleaned, if necessary.

### 9.4 Service and repair instructions

- Please always use replacement fuses of the same type.
- Only use original spare parts when replacing components.

## 10. Decommissioning

### 10.1 Returning the VDC controller

After end of its service life the device can be returned to the manufacturer for disposal.

### 10.2 Safety instructions for dismantling



#### DANGER!

##### Connected voltage supply

Risk of death by electric shock and severe injuries caused by live components parts

- Please make sure that you have disconnected the VDC controller from the voltage supply before dismantling it.  
In addition, all plug-in connections to mould or machine have to be removed from the device.

### 10.3 Disposal instructions



#### NOTE!

- All operating supplies are to be drained, collected and disposed of according to the local regulations.
- Only trained staff is authorised to perform disassembly.
- Disposed components must not be reused. EWIKON declines all responsibility for personal injury or material damage in connection with the reuse of the components.
- After appropriate disassembly the components are to be recycled:
  - scrap metal material residues,
  - recycle plastic elements and plastic residues,
- Dispose of the other components sorted by material characteristics.
- Electronic scrap and electronic components are subject to hazardous waste treatment; only specialised companies are authorised to dispose of them.
- National regulations on disposal regarding an environmentally appropriate disposal of the disassembled VDC controller must be adhered to.



We hereby confirm that the product described below conforms to the essential protection requirements of the following European Directives

**2014/35/EU "Low Voltage Directive"**

and

**2014/30/EU "EMC Directive"**

with respect to its design type. This requires that the product is used for its intended purpose and that the assembly and operating instructions are observed.

Alterations made to the product will void the declaration of conformity.

**Manufacturer:** EWIKON Heißkanalsysteme GmbH  
Siegener Straße 35  
35066 Frankenberg / Germany  
phone: +49 (0) 6451 / 501-0

**Product:** **EDC E-Drive-Control step motor control**  
for the operation of linear actuators in hotrunner valve gate systems

**SDC Servo-Drive-Control servomotor control**  
for the operation of linear drive units in hotrunner valve gate systems

**VDC Valve-Drive-Control solenoid valve control**  
for the operation of hydraulic or pneumatic cylinders in hotrunner valve gate systems

**Type:** **68050.001** ; SDC controller, 1-zone

<b>68051.004</b> ; EDC controller, 4-zone	<b>68051.104</b> ; EDC controller, 4-zone
<b>68051.008</b> ; EDC-controller, 8-zone	<b>68051.108</b> ; EDC controller, 8-zone
<b>68051.018</b> ; EDC-controller, 8-zone	<b>68051.118</b> ; EDC controller, 8-zone
<b>68051.504</b> ; VDC controller, 4-zone	<b>68051.508</b> ; VDC controller, 8-zone

**Applied standards:** DIN EN 61010-1: 2011-07 "Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1: General requirements"

DIN EN 61010-2-201: 2015-05 (draft standard) "Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-201: Particular requirements for control equipment"

**Note:** It is necessary to use original connecting cables outside the device to meet the requirements!

Frankenberg, 01 September 2015



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