

valid for item numbers:

68151.301
68151.302

software version 1.00.0
and higher



Controller for electric valve gate systems
with servo linear drive unit

SDC-PRO

Servo Drive Control

Professional

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 SDC-PRO Servo Drive Control Professional controllers (in the following referred to as "SDC-PRO controller").

1.2 Manufacturer

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1.3 Formal information on this operating manual

Person in charge of documentation: Horst Balzer

Version: 1.0; date: 19/12/2018

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 SDC-PRO controller manual:

Abbreviation	Meaning
PPE	Personal protective equipment
SDC-PRO	Servo Drive Control Professional, controller for electric valve gate systems
PE	Protective earth conductor
EU	European Union
Acopos	Drive unit of servo controller

Chart 1: Terms and abbreviations

2. Safety instructions

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

The SDC-PRO controller is delivered in perfect working order.

SDC-PRO controllers may pose risks, if they are:

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

2.1 Safety instructions and symbols used

Signal words introduce the safety instructions and are 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 will be 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 in order 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! Risk of hand and cut injuries
	Caution! Systems under pressure		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 SDC-PRO controller is only to be used to control EWIKON valve gate hot runner systems which are installed in a closed 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 SDC-PRO controller the given maintenance & inspection schedule has to be adhered to.



Use of the SDC-PRO Servo Drive Control Professional controller

Use the SDC-PRO 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 SDC-PRO 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.



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



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



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



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



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 physical injuries by high pressure or unexpected material leakage

- Unexpected material leakage may result in burns. There is a risk of serious injuries or death and/or damage to the hot runner.
- There is also a risk of burns, if water gets onto or into the hot runner. If the water reaches dangerously high temperatures, the metal housing may burst and cause serious injuries due to emerging water vapour or melting resins.

Safety measures

- Make sure the hot runner system heats up evenly. Particularly for large manifolds it may be necessary to switch on nozzle and sprue bush heaters at the same time, but later than the manifold heaters.
- Make sure the nozzle tips and/or the gates are not blocked by solidified resin that has a higher melting point and that there is no humidity on the hot runner system, e.g. caused by a leaky temperature control circuit.

**Risk of burns**

- Hot surfaces
Many components of the hot runner systems get very hot and may cause severe skin burns when being touched.
- Hot material (plastic melt)
Never touch material leaking from the nozzle/the mould/the hot runner or the material inlet. Even material that seems to be cooled down already may still be hot inside the core and cause burns.

Safety measures

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

**Risk of electric shocks**

- Danger to life by electric shock.
Touching live surfaces may result in severe or even lethal injuries.
- Always keep water away from live components and the hot runner. There is a 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 in compliance with the applicable local regulations. Injection moulding machine and hot runner systems have to be grounded.

**Risk of physical injuries by suspended/heavy load**

- Only trained staff is authorised to operate lifting devices and forklift trucks. Proceed slowly and with care. Prevent uncontrolled swinging of the load (e. g. the manifold).

Safety measures

- Lifting devices and forklift trucks have to be designed in such a way that they bear the weight and the size of the hot runner system/manifold. Make sure YOU use the marked lifting points.

**Risk of physical injuries by pressurized connecting lines (compressed air, hydraulic oil, water etc.)**

- All supply lines to the hot runner and/or the hot runner 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 because this will create the risk of a spontaneous leakage of pressurized process media (pressurised air, hydraulic oil, water).

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 physical injury by crushing of extremities**

- There is risk of injury when lifting heavy loads during assembly. Your hands or other parts of the body may be crushed.

Safety measures

- Make sure you wear protective gloves to prevent injuries while working close to heavy loads.
- Keep all parts of your body away from danger areas while setting down heavy loads during assembly.

2.7 Electrical equipment

**HAZARD!****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 SDC-PRO controller with faulty or inoperable electrical connections. In case of energy supply disruptions immediately switch off the SDC-PRO 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 EWI KON 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. 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 hot runner systems and components please refer to the terms and conditions of EWIKON.

2.11 Standards and directives

EWIKON hot runner 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 2014/35/EU
- EMC Directive 2014/30/EU

3. Technical data

3.1 Mechanical data

3.1.1 Main dimensions/Dimensions of the SDC-PRO controller

Size	Description	Qty./size (approx.)	Unit
1-zone controller item no. 68151.301	Dimensions (H x W x D))	460 x 220 x 550	mm
	Weight	17	kg
2-zone controller item no. 68151.302	Dimensions (H x W x D)	460 x 220 x 550	mm
	Weight	21	kg

Chart 2: Main dimensions/Dimensions of the SDC-PRO controller

3.2 Electrical data

3.2.1 Connections/Connector pin assignment

Description	Qty./size (approx.)	Unit
Voltage AC (+5 % / -15 %)	230/400	V
Frequency	50/60	Hz
Power (item no. 68151.301 / 68151.302)	max. 3600 / 7200	W
Protection class	IP32	

Chart 3: Electrical data

3.3 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 (up to 31 °C)	max. 80 (linearly decreasing to max. 50 % at 40 °C)	%
Pollution degree	2	

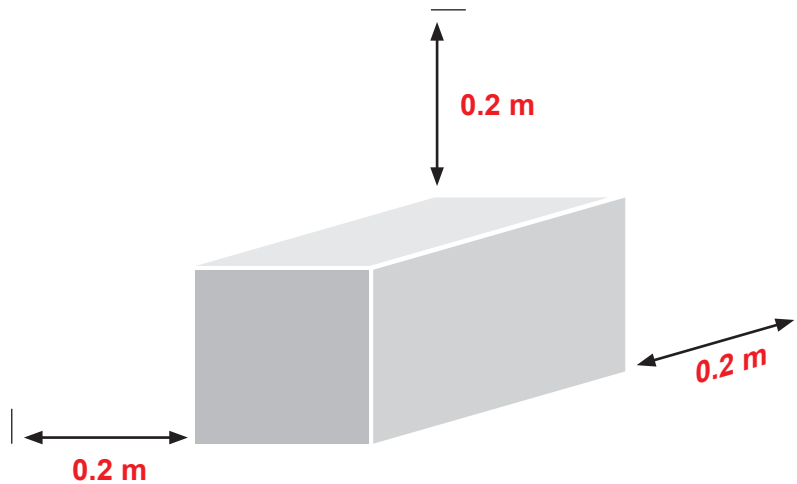
Chart 4: Operating conditions

3.4 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 rear side as well as ventilation slots on the underside, protected by a filter. Make sure that the air flow through these openings is not obstructed.

Keep a minimum distance of 0.2 m in all directions around the device to other equipment and parts of buildings.



4. Functional description of the SDC-PRO controller

4.1 SDC-PRO controller versions



Picture 1: 1- or 2-zone device (item no. 68151.301/302)

4.2 Required accessories (connecting cables)

Qty	item no.	description	remark
1	60070.043	Signal cable 3 m, 6-pin, electric valve gate	1 pc per controller
1	63050.110-V03/V06	Motor connection cable M23 servo drive unit 3/6 m	1 pc per drive unit
1	63050.120-V03/V06	Resolver cable M23 servo drive unit 3/6 m	1 pc per drive unit
1	60070.031	Fault registration cable 6 m, electric valve gate	Recommended
1	60070.038-V03/V06	Signal cable, analogue, 3/6 m, electric valve gate	Optional

Chart 5: connecting cables required for the SDC-PRO controller and connecting plugs required for the mould (not included in delivery!)

4.3 Function

The SDC-PRO controller enables precise control of the opening and closing movement of electric valve gate systems with synchronous plate technology. One or two drive units can be connected to an SDC-PRO controller - depending on the device version. Only linear actuators (servo motors with integrated spindle) qualified by EWI-KON can be used as drives.



Application range of the SDC-PRO controller

This EWI-KON control system can be used to operate electrically operated valve gate systems with synchronous plate technology of EWI-KON 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 SDC-PRO controller
- Set the power switch to OFF and disconnect the mains plug
- Wait for 5 minutes until the condensers for the DC link voltage are discharged.
- Connection, repair and maintenance work may only be carried out by qualified specialised staff!



Checks and protective measures before startup

The connected drive units and hot runner components can get hot

There is crush hazard due to moving parts (e. g. pistons, cylinders)

- The installation must be checked in accordance with EN 60204-1 or recognised standards of good practice before starting up the valve gate system.
 - Appropriate precautions must be taken for startup and operation.
-

5.2 Operating requirements

5.2.1 Technical requirements

An input signal for "release" sent from the injection moulding machine or the hotrunner controller is necessary to prevent the system from being operated when it is cold or when the safety door is open.

At least one trigger signal from the injection moulding machine is required to control the drive unit(s). It triggers the stroke movement of the drive unit via the control unit. The "start injection" signal 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 (+24 V), the drive unit moves and causes the valve pins to open and to remain in this position. When the signal is cancelled (0 V), the valve pins close again. If the trigger signal is not made available by the controls of the injection moulding machine as described, an adjustment will have to be made. Further digital or analogue signals can be used to obtain e. g. complex motion profiles.

The SDC-PRO controllers are exclusively designed for the drive units mentioned below.

Item no.	Description
13812	Linear actuator GSM20-0301-IFA-ER1-238XM
13813	Linear actuator GSM30-0302-IFA-ER1-238XM
13814	Linear actuator GSM40-0602-IFA-ER1-138XM
18255	Linear actuator MA406G-0R0R-1320-0E0
18253	Linear actuator MA506G-0R0R-1320-0E0
18266	Linear actuator MG633I-0R0R-0320-0E0

Chart 6: Drive units that can be used with the SDC-PRO controller



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 he applies any electric voltage.
- Before switching on a drive system it has to be made sure that the housing is properly connected to ground potential (PE bar). The earth connections must be installed, even if the drive system is connected only for testing purposes or for a short period!

6. Assembly

The purpose of the following notes is to support the assembly staff during the assembly of the SDC-PRO controller. Additionally, the assembly staff has to have the knowledge required to connect a EDC-PRO controller.

6.1 Safety instructions



WARNING!

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

- Wear your PPE and take care.

Control of live components before installation

Physical injuries such as an electric shock.

- The electrical equipment of the SDC-PRO controller should be checked, especially those areas which will no longer be accessible after installation.
- Please check if cables are kinked or squeezed and if cable insulations are undamaged.

Connected voltage supply during assembly

Risk of electric shock due to live parts

- The SDC-PRO controller and all connected components have to be disconnected from the voltage source during installation.

PPE



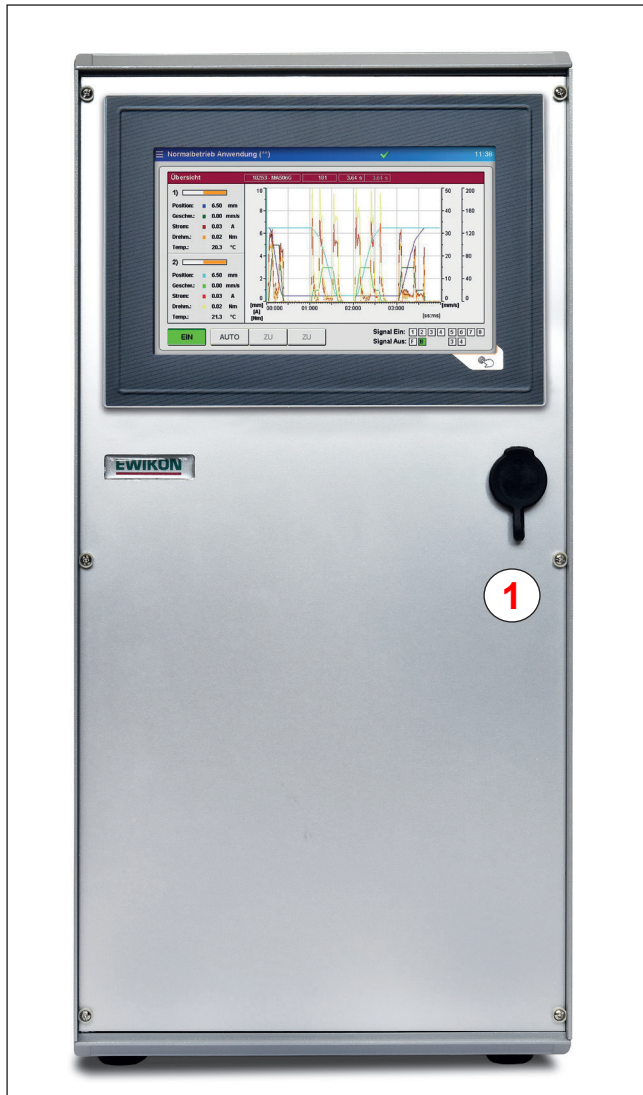
6.2 Checks before installation

The SDC-PRO controller is subject to comprehensive testing by the manufacturer before delivery. For safety reasons (transport or storage damage or damage to the device when preparing installation) we recommend that you check the SDC-PRO controller for damage just before installing it.

6.3 Installation

6.3.1 Connections and connector assignment of a 2-zone controller

Depending on the model not all connections are available.



Picture 2: Connections on the front side of the SDC-PRO controller



Picture 3: Connections on the rear side of the SDC-PRO controller

No.	Description	Function
1	USB socket	USB socket to connect a USB memory stick for data exchange
2	Device fan	Cooling of the internal electronic modules
3	Mains switch	Switch for power supply
4	Analogue In	Analogue signal input e.g. for use of the screw position
5	Trigger	Digital signal input from the injection moulding machine +24 V DC (6-pin or 12-pin)
6	Digital Out	Digital signal output to the control unit of the injection moulding machine (24 V DC)(5-pin or 8-pin)
7	RJ 45	RJ45 socket, Ethernet for PC monitoring or diagnosis
8	USB socket 2	Second USB connector (optional)
9	Resolver 1	Connecting socket for the resolver of the first drive unit
10	Resolver 2	Connecting socket for the resolver of the second drive unit
11	Motor 1	Connecting socket for the motor cable of the first drive unit
12	Motor 2	Connecting socket for the motor cable of the second drive unit
13	Mains connection	Mains cable, operating voltage 230V +5/-10%, 50-60 Hz
14	Protective earth connection	Connection to earth potential (PE bar)

Chart 7: Connections of the SDC-PRO controller

6.3.2 Connecting the SDC-PRO controller to the injection moulding machine



CAUTION!

Insulation of unused cores

Failure to do so may result in damage to the device.

- All unused cores have to be insulated.

Standard connections

Digital input

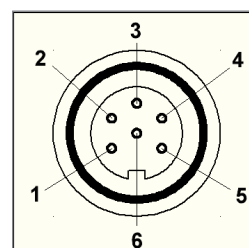
The enclosed signal cable (item no. 60070.043, please order separately) is used to make a connection to the control of the machine to provide the trigger signal. Two different versions are possible:

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:
A 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.

The "release" signal has to be connected to the fourth signal input, as the servo motor only moves when the signal is applied. This is to prevent movements with open safety door or damage to the valve pins in case the hotrunner system is not heated up properly. The signal has to be provided by the hot runner controller or the injection moulding machine.

The connection of the other signals is described below in "Chart 8: Pin assignment of the standard trigger connection (5)".

Contact / core	Description	Use
1 / white	+24 V DC	Operating voltage +24 V (signal input supply)
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	Ground (operating voltage 0 V)
6 / pink	S4 (+24 V)	Input signal 4, release



Picture 4: Trigger connection (5)

Chart 8: Pin assignment of the standard trigger connection (5)

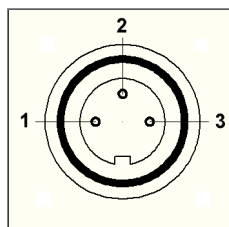
Analogue input 1

When using the analogue input of the control unit to use information about screw position, screw volume or cavity pressure for the valve pin control there are two options:

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.

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

Chart 9: Analogue In pin assignment (4)



Picture 5: 3-pin connection (4)

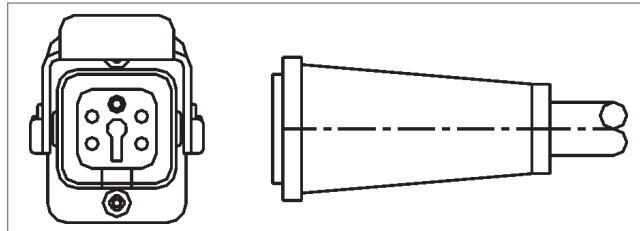
The input needs to be adjusted to the injection moulding machine in the control unit (see chapter „7.2.4 Setup application“ Analogue IN).

Digital output

We recommend that you connect the digital signal output of the SDC-PRO controllers 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. EWIKON offers the fault registration cable, item no. 60070.031.

Contact	Description	Use
1 / black 1	+24 V DC	Operating voltage +24 V
2 / black 2	Out 1 (+24 V)	"Error"
3 / black 3	Out 2 (+24 V)	"Ready"
4 / black 4	GND	GND (operating voltage 0 V)
PE / gr / ge	PE	Protective earth conductor

Chart 10: Digital Out pin assignment (6)



Picture 6: Digital Out signal output (6)

Extended connections of the controllers (option -V01)

Some applications will require more than the 3 standard signals, e.g. if the mould is equipped with pressure or temperature sensors or complex motion profiles have to be realised.

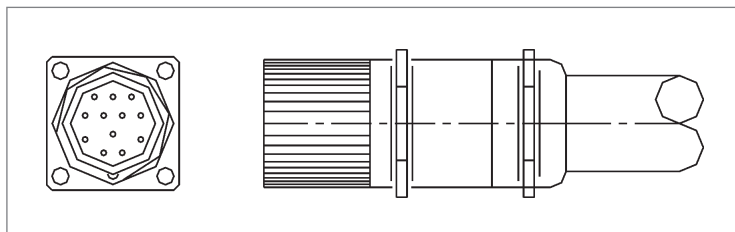
If apart from the "READY" signal a confirmation of the "OPEN" position of at least one valve pin or all valve pins regarding the control of the filling sequences is required, a controller version (-V01) will be equipped with additional 4 digital inputs, 2 digital outputs and 1 analogue input.

The inputs are connected to the injection moulding machine via the signal cable (item no. 60070.019) according to "Chart 11: Pin assignment of the 12-pin trigger connection (5)"

Contact	Description	Use
1 / black 1	S1 (+24 V)	Signal 1 input, start cycle
2 / black 2	S2 (+24 V)	Signal 2 input
3 / black 3	S3 (+24 V)	Signal 3 input
4 / black 4	S4 (+24 V)	Signal 4 input, release
5 / black 5	S5 (+24 V)	Signal 5 input
6 / black 6	S6 (+24 V)	Signal 6 input
7 / black 7	S7 (+24 V)	Signal 7 input
8 / black 8	S8 (+24 V)	Signal 8 input
9 / black 9	+24 V DC	Operating voltage +24 V
10 / black 10	GND	Ground (operating voltage 0 V)
11 / black 11	free	Not used
12 / gr / ge	PE	Protective conductor

Signal 4 input cannot be chosen in the software but is used for process release / movement release.

Chart 11: Pin assignment of the 12-pin trigger connection (5)

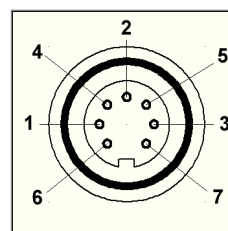


Picture 7: 12-pin trigger connection (5)

Analogue input 2 (option -V01)

1. Make a direct connection of a signal whose analogue value is linearly related to the measured value 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 analogue current output feeds the potentiometer and the measured voltage is in relation to the position.

Contact	Use
1	Analogue current output, 0-2.5 mA
2	Analogue voltage input, 0-10 V
3	Ground (reference voltage 0 V)
4	Analogue voltage output, 0-10 V
5	Analogue current input, 0-20 mA
6	Operating voltage +24 V DC
7	GND (operating voltage 0 V)



Picture 8: 7-pin connection

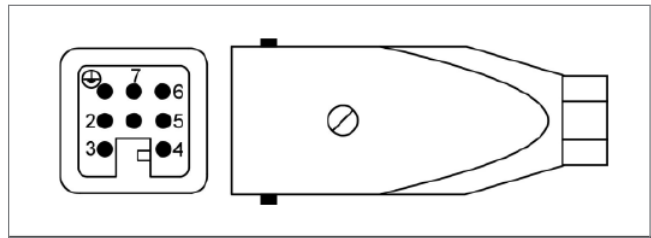
Chart 12: Analogue In 2-pin assignment

Please contact EWIKON, if you want to use further options.

Digital output (option -V01)

„Picture 9: Digital Out signal output 8-pin (6)“ and „Chart 13: Digital Out pin assignment 8-pin (6)“ show the plug for 4 digital outputs. The fault registration cable, item no. 60070.031-V01, is required.

Contact	Description	Use
1 / black 1	+24 V DC	Operating voltage +24 V
2 / black 2	Out 1 (+24 V)	Output "ERROR"
3 / black 3	Out 2 (+24 V)	Output "READY"
4 / black 4	Out 3 (+24 V)	Output "ALL OPEN"
5 / black 5	Out 4 (+24 V)	Output "min. 1 OPEN"
6 / black 6	free	Not used
7 / black 7	GND	Ground
PE / gr / ge	PE	Protective conductor



Picture 9: Digital Out signal output 8-pin (6)

Chart 13: Digital Out pin assignment 8-pin (6)

6.3.3 Connecting the SDC-PRO controller to the mould



CAUTION!

Switch power off before connecting or disconnecting

The output modules may be damaged.

- Please make sure you have switched off the control units when connecting or disconnecting the drive units. The drive units are supplied with electricity even when they are stopped to generate the necessary retention forces.

Do not switch on valve gate control until mould has reached set temperature

Failure to do so may result in damage to the device.

- The valve gate control should not be switched on until the hot runner has reached its set temperature and the resin has melted completely. Before inserting the mains connector or connecting the mains connection cable make sure that the supply voltage corresponds with the data given on the type plate.

The SDC-PRO controller is connected to the mould via the orange coloured motor connecting cable, item no. 63050.110-V03 (3m) or item no. 63050.110-V06 (6m). The ready-to-use shielded cable is especially designed to suit this application.

The position detection of the drive unit has to be connected to the SDC-PRO controller via the green resolver cable. Please use the cables 63050.120-V03 (3m) or 63050.120-V06 (6m) for this purpose.

6.4 Checks after assembly

- Check that all connectors are firmly seated and properly assigned
- Please check whether the injection moulding machine is sending the required trigger signals

7. Startup



WARNING!

Insufficient protective conductor connection, Risk of injury due to moving parts

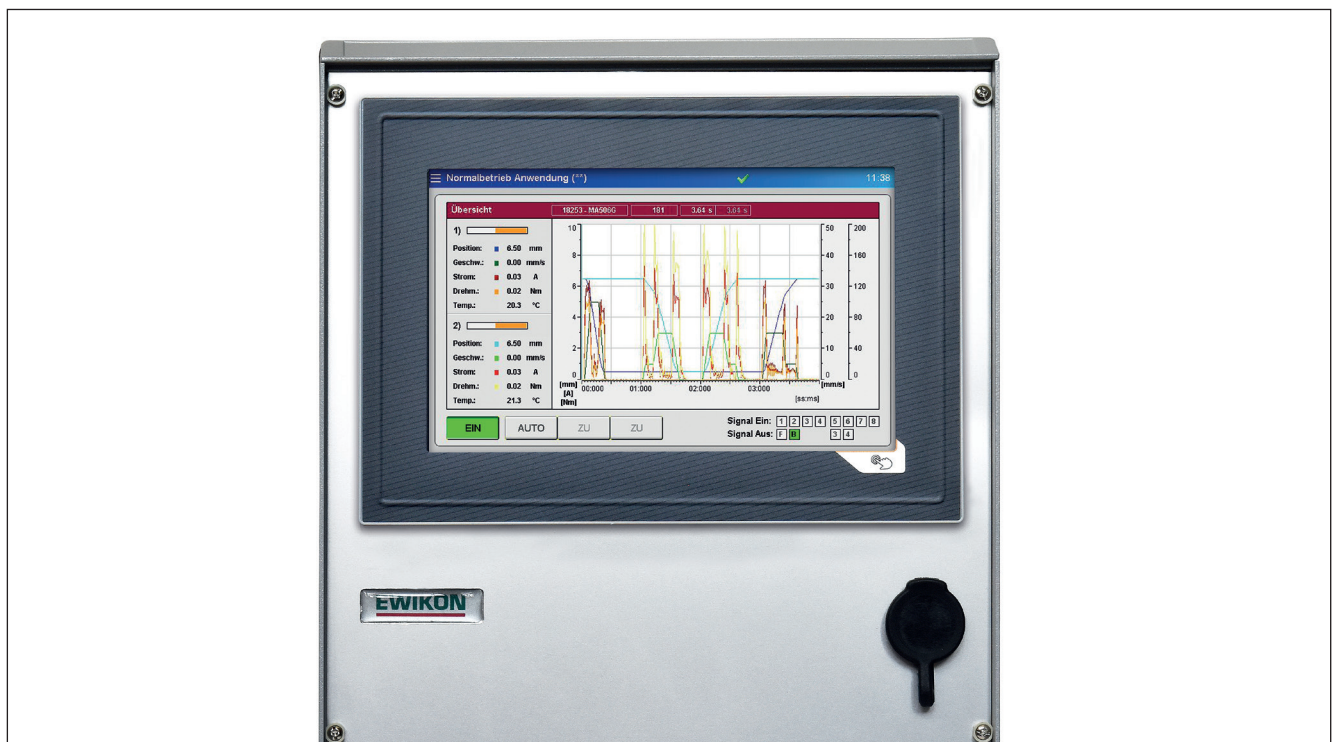
Risk of electric shock due to live parts

- 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.

Risk of severe injuries due to moving parts


- Keep hands away from the operating area of the drive units during operation, otherwise cut injuries, bone fractures or crushing injuries of fingers and hands are possible. To prevent injuries disconnect the controller from the power supply (disconnect mains plug!) before carrying out any necessary work.

7.1 Basic settings and operation



Picture 10: Front view of the SDC-PRO controller

The SDC-PRO controller for electrically operated valve gate systems with servo actuator has got a coloured touch screen display via which all settings can be performed.

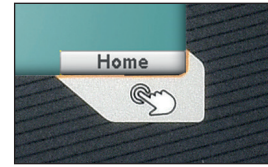
After system startup the start page appears: Use the different submenu icons which are displayed there to operate and set the system. By touching the button in the bottom right corner outside the display area you will return to the start page from all menus. ().

7.2 Description of the menus

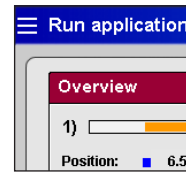
7.2.1 Start page



Picture 11: Start page of the SDC-PRO controller



The button in the bottom right corner (picture above) opens the start page. The screen (see picture 11) appears.



If the device is operated remotely via VNC, the three stripes top left ("hamburger button") will open the start page.

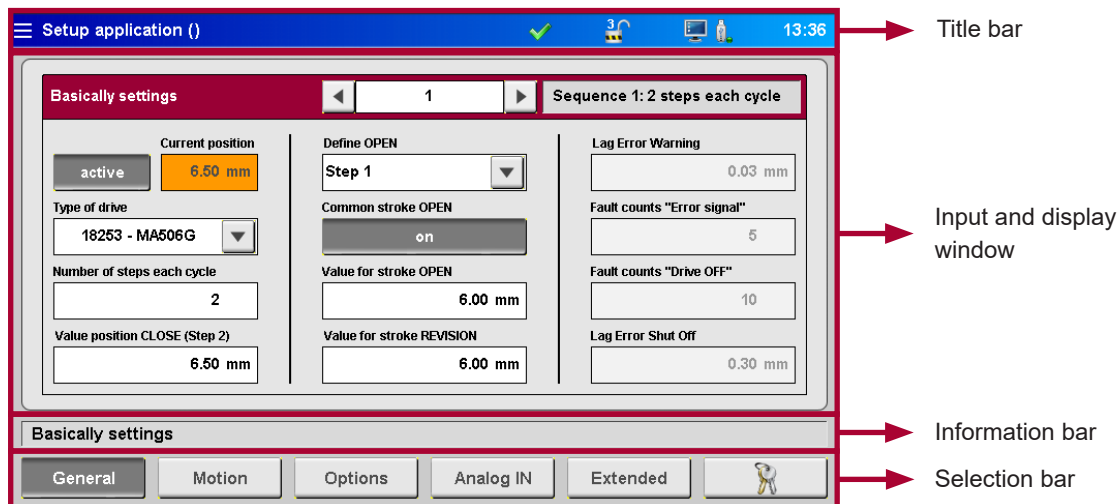
Menu selection:

- Run application
- Setup application
- Diagnostics and troubleshooting
- Setup display and keyword
- File manager

Touch the icons on the screen to open the menu items.

The menus are described as follows.

7.2.2 Screen layout



Picture 12: Screen layout of the SDC-PRO controller

The **title bar** includes the 3 stripes on the left which guides the user back to the start page. Next to them the name of the menu and the stored settings („*” indicates changed settings that have not been stored yet) are displayed. Time is displayed on the right side.

The following additional information is shown by icons:



1
White cross on red octagon:
Process/temperature has not been released yet.



Gear:
Process release only for manual operation.



Green checkmark:
Process/temperature has been released.



Alarm clock:
Release signal no longer available, elapsing timer signals how much time is left until the process release is reset.



Note pad:
The HTML file of the recipe file is being generated.



Access level:
Opened keylock and figure indicate the currently open access level.



Data output:
A printer symbol is shown when requested data are output.



Floppy disc:
A disc icon indicates a saving process on the internal drive or an available USB stick.



Screenshot:
Screen symbol flashes when a screen shot is generated and saved. In some menus a button with this symbol triggers the described feature. The current display is saved as a file on the internal drive and an available USB stick.



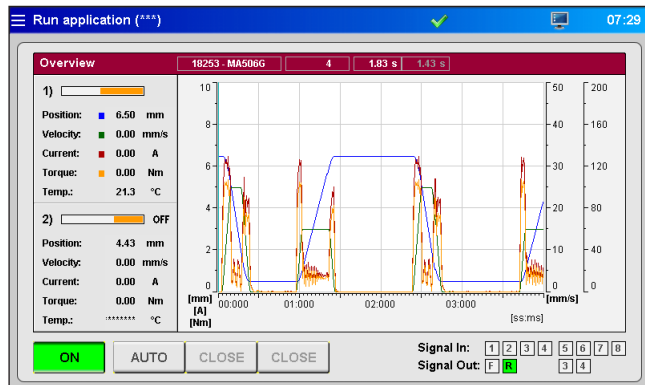
USB stick:
This icon indicates that a USB stick is available and recognised correctly.



Warning:
A warning or malfunction is indicated.

7.2.3 Run application

Chart view



Picture 13: Diagram view of normal operation of application

The **red overview bar** shows the following values:

- Item number of the selected drive unit type
- Shot number
- Opening time of the current cycle (time since the trigger signal "start cycle" has been identified)
- Opening time of the previous cycle
- When analogue input 1+2 is used: Current screw position, screw volume or cavity pressure

Process chart:

The process chart displays position history, velocity, current, torque for each activated drive unit and measured value at the analogue inputs of the SDC-PRO controller. Scaling of the 4 axes (2 x analogue, position/current/torque and time) can be adapted by clicking on the top/bottom end of the scale (hidden buttons). For a better overview it is possible to hide the curves by clicking on the unit (hidden button) of the curves to be hidden. Another click on the respective unit unhides the curves, a change of the menu hides them automatically.

Recording automatically starts with every start of cycle (signal 1 = 24 V) of the SDC-PRO controller and ends after the end of the time scale has been reached.

Orange bars in the left column of the overview show the actual position of each drive unit. The bars are scaled to the maximum stroke of the selected drive unit.

- Bar on the right = Valve pin in rear position (open)
- Bar on the left = Valve pin in front position (closed)

Position, velocity, current, torque and temperature of the associated drive unit are shown as current numerical values and corresponding coloured curve in the chart.

Symbols shown on the process display and their meaning:

- | | |
|--|---|
| | = Drive unit switched off |
| | = Drive unit on standby |
| | = Setup mode activated |
| | = Homing or adjusting position "CLOSE" |
| | = Position warning |
| | = Position error or drive unit (Acopos) error |

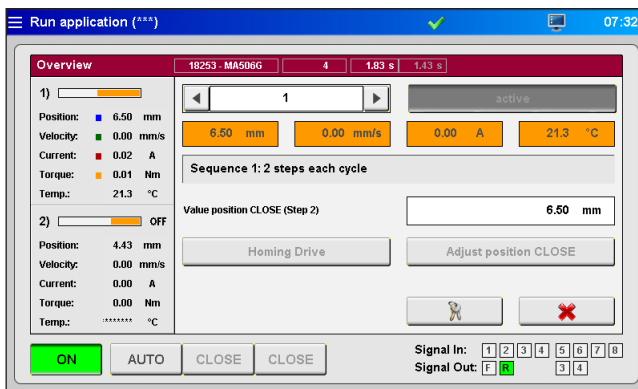
Buttons positioned below the overview:

- Switch power supply of the valve pins on or off
- Select operating modes "AUTO" or "SETUP"
("SETUP" operating mode: Use the key <CLOSE/OPEN> or <CLOSE/REV.> to open or close the valve pins manually or to move them to revision position. The keys are interlocked.)

Right side of the control bar: shows information about the digital input and output:

- The input "signal 1" (S1) is the main trigger to start a cycle.
- The other inputs are for free use to trigger different events. Exception: "signal 4 (S4)" cannot be used for triggering but is reserved for process release.
- Pending signals: allocated square flashes orange.
Up to 8 input signals are possible (extended controller version -V01).
- Digital output 1 sends a signal to the injection moulding machine that there is an error in the SDC-PRO system.
- Output 2 can be configured in menu "General system settings", if necessary (default setting: "READY for next cycle") and is normally used to release the machine.

Individual view



= Access level can be entered here

Picture 14: Individual view of normal operation of application

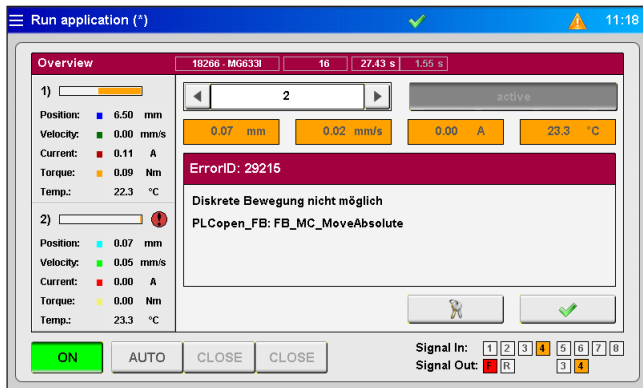
Select the requested drive unit to access this view (by clicking on the info panel).

All drive units can be switched **<active>** or **<inactive>**. The current values of the drive unit are shown in the orange fields when the system is switched on.

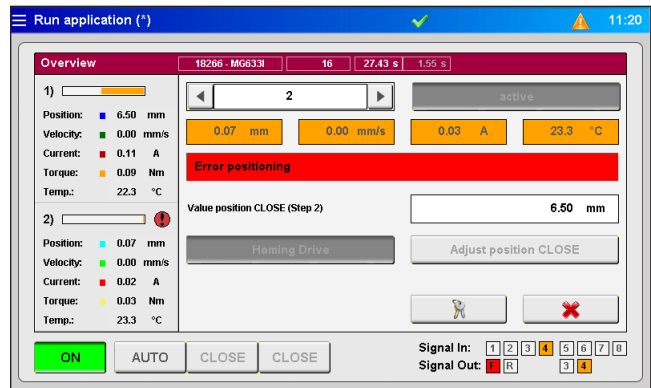
Further information and buttons:

- Selected sequence and status for each drive unit
- Value position CLOSE
- Perform homing procedure in setup mode
- Adjusting CLOSE position in setup mode
- Entering access code
- "X" = back to chart view

Error message displayed for malfunctions in the Acopos (servo controller)



Picture 15: normal operation of application



Picture 16: normal operation of application

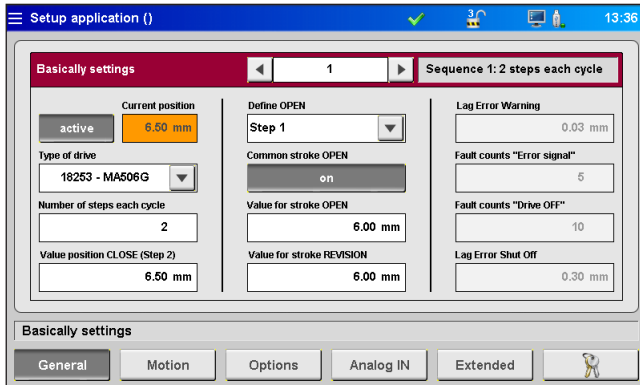
Error messages of the servo controller are also displayed in the individual view with error ID and description. The errors have to be acknowledged when the drive unit is switched on (button with green check mark), generally 3 connected error messages appear. After this step the drive unit can be switched inactive and reactivated after the cause of the malfunction has been eliminated. The necessary referencing is carried out automatically..

7.2.4 Setup application

You can navigate through the settings in the selection bar.

Changes to most settings are only possible after having entered a higher access level (compare chapter „7.2.6 Setup Display and Keyword“)

General (basic settings)



Picture 17: "Basic settings"

Basically settings

- Use **<** + **>** in the main bar to choose the drive unit the settings of which are to be changed. "All" is possible as well, the changes realised are transferred to all drive units. Some options can only be set if a separate drive is selected, others are only selectable for all drives. (grey field = not available).
- The display field on the right side of the main bar shows the current status of the drive unit in written form.
- **active** / **inactive** determines whether the drive unit is to follow the motion profile or not.

Current position

Displays the actual position of the drive unit (hidden when "all" is selected).

Type of drive

The drive unit to be controlled is selected by the item no. This number can be found on the type plate of the hot half.

Please note: If the drive unit type is changed, all drive units will be switched off and the setpoint values set to default for all zones.

Number of steps each cycle

The number of movements per cycle (2–6).

Please note: If the steps are changed, the drive units will be switched off.

Value position CLOSE (assignment of steps)

Determination of CLOSED position [mm].

Define OPEN

Necessary to determine the position which is to be approached in setup mode.

Common stroke OPEN

Uniform stroke for "All" <on / off>.

Value for stroke OPEN

Determination of the path in the event of a joint stroke for "All" [mm].

Value for stroke REVISION

is necessary to determine the revision position.

* Lag Error Warning

Max. size of deviation from ACTUAL/NOMINAL until a warning is output.

* Fault counts "Error signal"

Number of position errors in a row after which an error is reported to the injection moulding machine.

* Fault counts "Drive OFF"

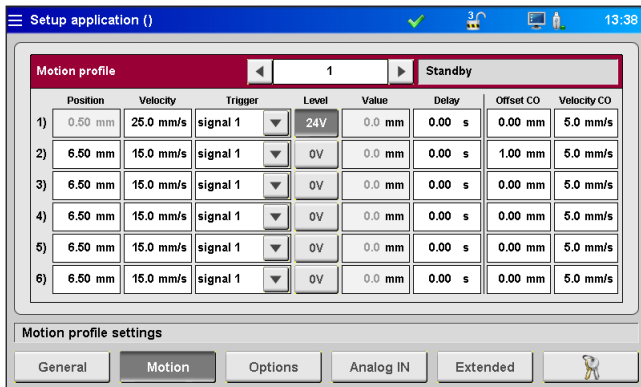
Number of position errors in a row after which a drive unit is switched off to prevent damage.

* Lag Error Shut Off

Max. size of deviation from ACTUAL/NOMINAL causing the drive unit to switch off immediately.

* These features can only be changed when the drive units are switched off.

Motion (setting motion profile)



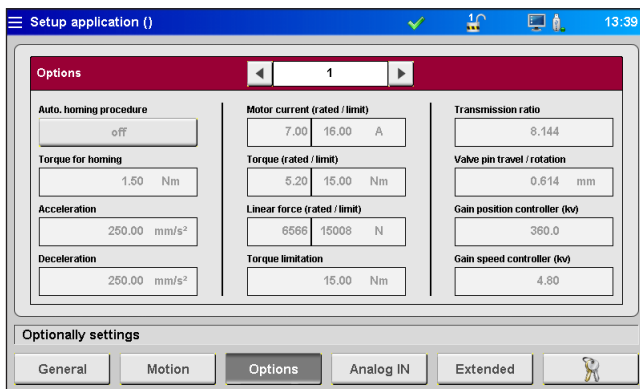
Picture 18: "Motion profile settings"

The settings for the trigger events can be entered here.

The following parameters can be set and selected for each step:

- The position as numerical value in mm. Position OPEN (here: step 1) cannot be set as the value is calculated via the common stroke (compare chapter 7.2.4, section "General (basic settings)").
- The speed set to reach the position
- The trigger source from one of the digital signals or the analogue signal
- Depending on the selected trigger source either the signal level, "24 V", "0V" or the comparative value applies.
- A delay time can be added to each trigger event to cause a time-shifted reaction of the drives.
- Additionally, a switchover point can be defined from which the speed is reduced to the set value. This may help to reduce e.g. abrasion by fast valve pin movement in the gate area. (level 2 necessary)

Options (optional settings)



Picture 19: "Optional settings" view

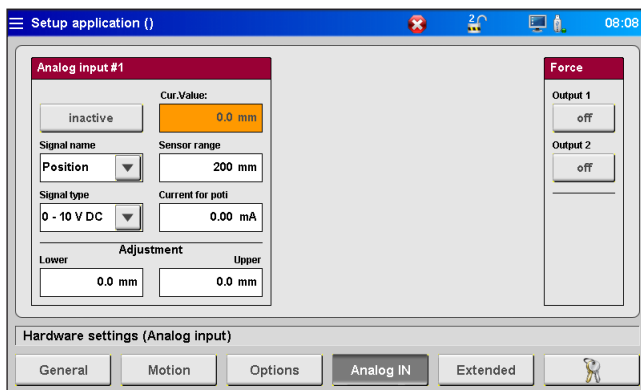
Please note: All settings described on this page can only be configured / set when the drive units are switched off.

Automatic homing procedure	Determines whether the drives do a homing procedure every time the device is switched on (material shrinkage when cooling down) <on / off>
Torque for homing	Value that has to be exceeded to recognise the mechanical rear limit stop.
Acceleration	Value at which the drive unit reaches its setpoint speed [in mm/s²]
Deceleration	Value at which the drive stops [in mm/s²]. These values depend on the selected drive unit.
Motor current (rated / limit)	Nominal and maximum value of the motor current according to data sheet.
Torque (rated / limit)	Nominal and maximum value of the motor torque according to data sheet.
Linear force (rated / limit)	Nominal and maximum value of the linear force of the motor according to data sheet.
Torque limitation	Switch-off limit for the motor torque (level 3).

The following values can only be changed by EWIKON.

Transmission ratio	The transmission ratio between motor path and valve pin path caused by the synchronous plate technology can be adapted by EWIKON.
Valve pin travel/rotation	One motor revolution corresponds to this valve pin path. The spindle pitch is taken into consideration.
Gain position controller (kv)	Gain factor of servo controller for position control.
Gain speed controller (kv)	Gain factor of servo controller for speed control.

Analogue IN (hardware settings (analogue input))



Picture 20: "Hardware settings (analogue input)" view

On this side the analogue inputs 1 + 2 (if present) are adapted to the application.

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

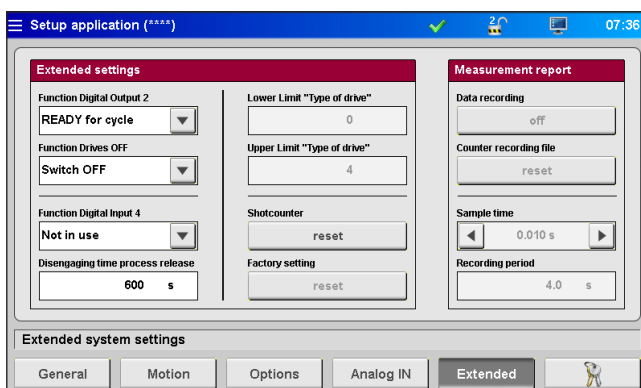
- "Position" [mm]
- "Volume" [ccm]
- "Pressure" [bar]
- "Force" [N]
- "Voltage" [V]

Signal type (sensor type):

- Signal 0-10 V DC
- Linear encoder (R = 5 kΩ)
- The measurement range of the sensors is entered as a numerical value.
- The measurement current for potentiometers can be set to offset tolerances of the encoder 5 kΩ and to use the entire measurement range of the analogue input.
- The settings may make it necessary to align the sensor. If necessary, the measurement values of the controller can be scaled to the machine values. For this purpose an adjustment is made at the beginning and at the end of the selected sensor measurement range. (access level 2 required)

The digital outputs can be switched on manually for testing purposes (access level 2).

Extended (extended system settings)

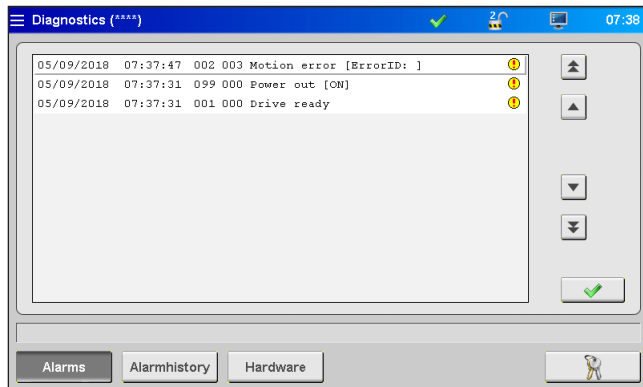


Picture 21: "Extended system settings" view

Function "Digital output 2"	<p>Selection of function of the "Digital output 2" for adaption to the process:</p> <ul style="list-style-type: none"> • "Ready for cycle" condition: Device is in automatic mode, all valve pins are closed and there is no error. • "All valve pins open" condition: all valve pins are open • "At least 1 valve pin open" condition: at least 1 valve pin is open
Function "Drives OFF"	<p>In some cases it is appropriate to have the drives approach the revision position. This function can be selected here.</p>
Function "Digital input 4"	<p>The following functions for digital input 4 are available:</p> <ul style="list-style-type: none"> • "Not in use" The SDC-PRO controller does not evaluate the input, the movement of the drive units and the production process are always released. • "Enable Motion" The drive units can only be moved when the signal +24V DC is applied at input 4. The motors do no longer work without the release, e.g. if a safety door is open. Active movements are finished to avoid non-defined intermediate positions. After that any further movement is blocked. The process can always be released. • "Enable Process" This input is used to indicate the controls that the system is ready for the production process, e.g. "heater ON" or "temperature reached". If there is no process release, the movement of the drives can only be released for manual mode. This requires at least access level 1. After resetting the access level of the SDC-PRO controller (5 min. without input on the touch screen) also the drive release for manual mode is reset. If release has been granted (+24V DC at input 4), the operator will have to confirm manually that the device is ready for production. After that, the controller is released for all operating modes (automatic / manual). If the production release is reset during operation, the set disengaging time during which the drive units can still be moved will remain. If the release signal is set again during this time, production can continue without interruption. Otherwise the drive units move to the REVISION or CLOSE position and any further operation is blocked. The actual movement of the drive units is always released according to the selection made.
Disengaging time of process release	<p>Input in seconds for disengaging time.</p>
Lower limit "Type of drive"	<p>A lower limit for the "drive unit type" select list in the "General" menu can be determined here to limit the selection options.</p>
Upper limit "Type of drive"	<p>Determines the upper limit for the "drive type" select list</p>
Shot counter	<p>Pressing the "reset" button resets the counter to zero</p>
Factory setting	<p>Pressing the "reset" button resets the control to delivery status after a restart; stored recipes will not be lost.</p>
Data recording	<p>Please contact EWIKON if this function is required.</p>

7.2.5 Diagnostics and Troubleshooting

Alarms



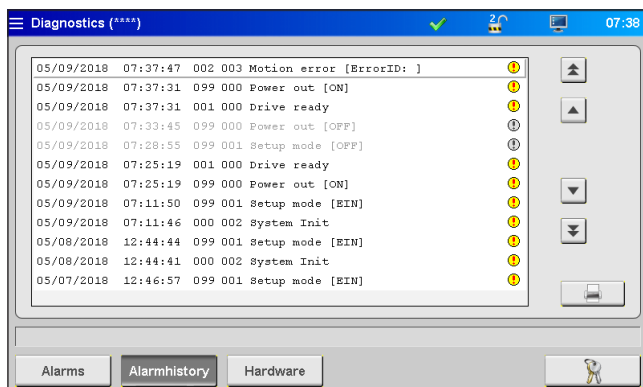
Picture 22: "Alarms" view

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

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

The green check mark is used to acknowledge an error, if necessary.

Alarm history



Picture 23: "Alarm history" view

Alarm history (the last 200 events).

How to save the list on the device:

Press printer icon on the right side of the list. The following instructions appear:

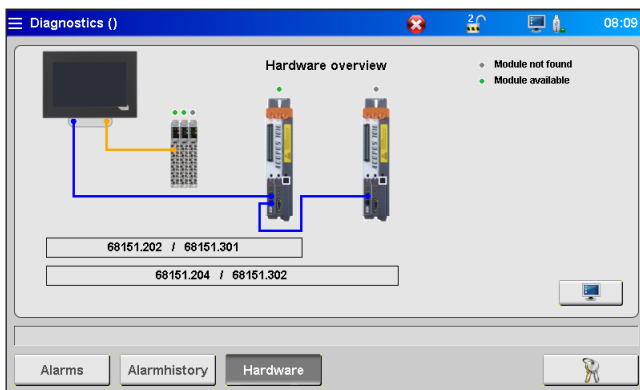
- Read alarm history of the application...
- Save on internal drive...
- Completed!

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 "7.2.7 Filemanager").

Hardware



Picture 24: "Hardware overview"

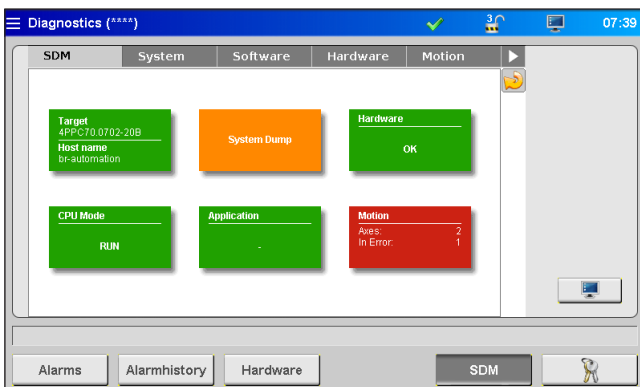
On this page all device modules which can be used are shown.

Green dot: active, perfectly working module.

Grey dot: module not available (defective or not existing).

The type and/or the number of drive units for which the system is designed determine which modules are installed in the device.

System Diagnostics Manager (SDM)

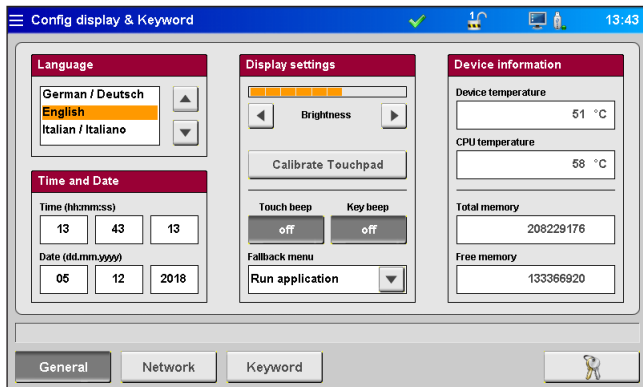


Picture 25: "System Diagnostics Manager" view

When troubleshooting EWIKON uses this menu for internal analyses. A higher access level is required to release this menu.

7.2.6 Setup Display and Keyword

General



Picture 26: "Configuring display - General"

In this menu the following settings can be made:

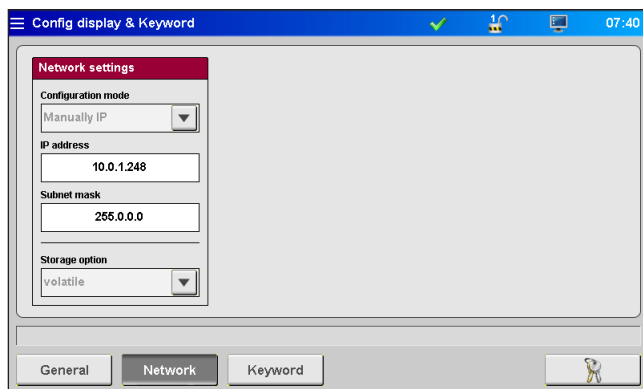
- Display language
- Time and date
- Display brightness
- Beep Touch
- Beep key "start menu"
- Menu after switch-on:
Determine whether the device is to start with the context menu or with the normal operation display.

All settings remain saved even after the device has been switched off.

The touch screen can be recalibrated here if it does no longer react properly to your entries.

The "device information" field displays values of the internal processing unit.

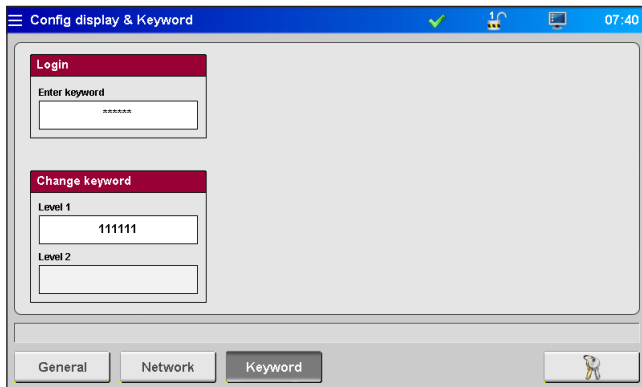
Network



Picture 27: "Configuring display - Network"

If the device is to be incorporated into a network or connected to a PC, the necessary network settings can be made here (also see chapter "7.2.7 Filemanager").

Keyword



In menus showing this symbol you can enter the password directly by choosing the field.

Picture 28: "Configuring display - Keyword"

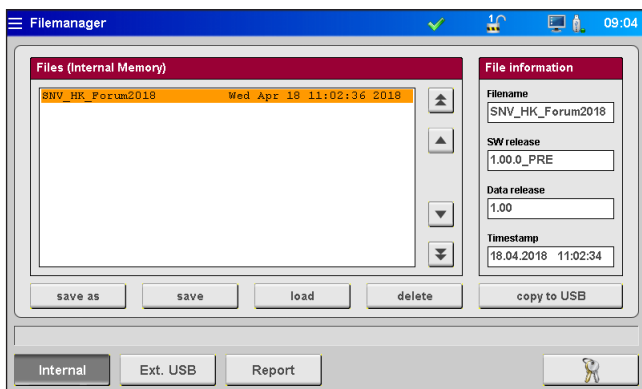
Some settings can only be made in higher access levels.

Depending on the menu locked fields will be released or further pages will be added, if the access level is increased. A higher access level includes all setting options of the lower ones.

The password for the levels 1 and 2 can be changed, if the respective level is released.

7.2.7 Filemanager

Internal memory



Picture 29: "File management - internal memory" view

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 folder "Backup" as well as alarm lists, screen shots and record files.

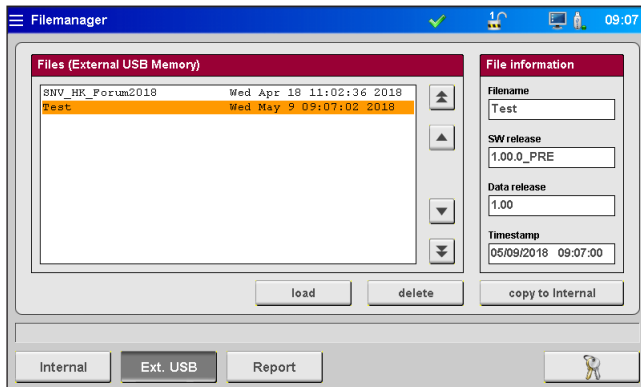
- **save as** saves new mould settings after the file name has been entered.
- **save** incorporates changes by overwriting the selected old file.

Use the arrow keys to select a file (file shaded in orange appears) in order to **save**, **load** or **delete** saved settings (access level 1). You have to confirm the selected process by responding to a prompt message.

The **copy to USB** function copies the selected file to a connected USB stick.

Created mould files are stored in the "Backup" folder, a file "file name.html" is stored in the subfolder "Print". If necessary, the saved values can be viewed and printed using a web browser. A successful saving process is shown in the information bar.

External USB memory



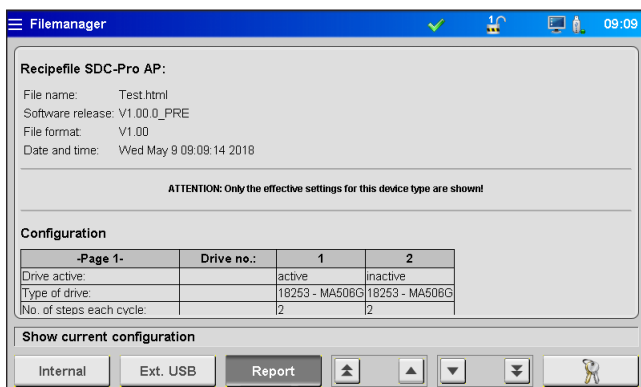
Picture 30: "File management - External USB memory" view

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 the icon in the title bar displays the availability.

When you copy a file to a USB stick for the first time the system creates the folder "Backup" in the " SDC_Pro_MCC" directory on the USB stick and saves the selected file there. The html file mentioned above under "Internal memory" is copied to the subfolder "Print" as well.

The buttons "load", "delete" und "copy to internal" work in the same way as the comparable buttons for the internal memory do.

Report



Picture 31: "File management - display" view

This overview displays currently effective settings in the device. Use the arrow keys to scroll through the document.

The respective stored file has to be loaded to display saved settings.

The current settings will get lost during this process, so please make sure to save them beforehand!

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 and login details).

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"> • Check mains voltage and device fuse of the device • Check mains adaptor 24V DC of the device
Drive unit error (Acopos)	<ul style="list-style-type: none"> • Check if all connections are properly connected • Check all settings (torque, speed, acceleration...) for values which suit the application
Positioning error	<ul style="list-style-type: none"> • Check if valve pin can move freely

Chart 14: Faults/Measures to be taken

7.3.2 Spare parts list

Item no.	Description
18301	Acopos P3 drive module, addressed
18343	Acopos P3 plug-in module, resolver interface
18300	Display PPC70
10668	Fan
18342	Mains filter

Chart 15: Spare parts list

7.3.3 EWIKON service departments

Please have the item no. and the current software version of your controller (main menu) as well as the order no. (even the one of your hot runner 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!

The operation of the SDC-PRO controllers is subdivided into several access levels.

- **Level 0 Operator** (start level)
- **Level 1 Fitter** (PIN: 111111)
- **Level 2 EWIKON** (for PIN see envelope on the back cover of this manual))

Select menu "Configuring application" to make settings.

Use  to log in as a fitter.

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

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

General	Basic settings:	<ul style="list-style-type: none"> • Select drive unit type • Select steps per cycle • Set value of CLOSED position and stroke • Activate all drive units used in the mould
Movement	Movement settings:	<ul style="list-style-type: none"> • Set positions and speeds • Set trigger signals according to the application • Set delay and switch over points, if necessary
Analogue IN	Input #1:	<ul style="list-style-type: none"> • Configure analogue input, if necessary
File management		<ul style="list-style-type: none"> • Store settings as recipe

1. Switch on hot runner and heat up to set temperature (even beforehand)
2. Check signal outputs of the machine for correct connection and function
3. Switch on motor power, the motors are now doing their homing procedure
4. 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. Service and maintenance

9.1 Maintenance instructions



NOTE!

Incomplete or improper maintenance or failure to carry out maintenance will increase abrasion of individual components of the SDC-PRO 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 SDC-PRO 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 SDC-PRO 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 SDC-PRO 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 SDC-PRO controller; it has to be checked at regular intervals and replaced, if necessary.

9.3.2 Cleaning the SDC-PRO controller



CAUTION!

Unintentional activation of buttons

When touching the touch screen or pushing buttons controller functions may be activated unintentionally.

- Cleaning of the SDC-PRO controller must only be carried out when the power is switched off.

Only use water with suitable additives. Clean the housing with a soft, humid cloth. Clean the inside with compressed air (low pressure) and a brush only.

Clean the touch screen with rinsing agents, a screen cleaner or alcohol (ethanol). Do not spray the cleaner directly onto the touch screen but onto the cloth and then wipe the screen.



NOTE!

Never use easily flammable or combusting substances, aggressive solvents, chemicals, scouring agents or steam cleaners.

9.3.3 Checking fan or fan grille with filter

Fan and fan grille with filter (on the rear side) 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 (see Chapter „7.3.2 Spare parts list“).



NOTE!

LCD- or TFT-type screens are sensible to the so-called burn-in effect which may occur, if static patterns are displayed over a longer period of time. These static patterns cause parasitic capacitances inside the LCD components preventing the liquid crystal molecules from returning to their original state.

To reduce this effect we recommend that you switch off the SDC-PRO controller when not in use.

10. Decommissioning

10.1 Returning the SDC-PRO 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 or severe injuries caused by live components

- Please make sure that you have disconnected the SDC-PRO controller from the voltage supply before dismantling it. At first remove the power cable to prevent any connection to the power supply, then 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 SDC-PRO 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 / EDC-PRO E-Drive-Control step motor control**
for the operation of linear actuators in hot runner valve gate systems
SDC / SDC-PRO Servo-Drive-Control servomotor control
for the operation of linear drive units in hot runner valve gate systems
VDC Valve-Drive-Control solenoid valve control
for the operation of hydraulic or pneumatic cylinders in hot runner valve gate systems

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

68151.301 ; SDC-PRO controller, 1-zone	68151.302 ; SDC-PRO controller, 2-zone
68051.004 ; EDC controller, 4-zone	68051.104 ; EDC controller, 4-zone
68051.008 ; EDC controller, 8-zone	68051.108 ; EDC controller, 8-zone
68051.018 ; EDC controller, 8-zone	68051.118 ; EDC controller, 8-zone
68151.004 ; EDC-PRO controller, 4-zone	68151.104 ; EDC-PRO controller, 4-zone
68151.008 ; EDC-PRO controller, 8-zone	68151.108 ; EDC-PRO controller, 8-zone
68151.018 ; EDC-PRO controller, 8-zone	68151.118 ; EDC-PRO controller, 8-zone
68051.504 ; VDC controller, 4-zone	68051.508 ; VDC controller, 8-zone

Applied harmonised 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, 19/12/2018


Dr. Stefan Ermeke, Managing Director

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