EWIKON

Controller for valve gate systems
with pneumatic or hydraulic drive unit

motion **CONTROL** *PD*

Operating manual

Valid for item numbers:

68152.504
68152.508

software version 1.01.0
and higher

EWIKON 06/2022

Inhalt

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 ***motion CONTROL PD*** controllers.

1.2 Manufacturer

EWIKON Heißkanalsysteme GmbH
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35066 Frankenberg

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1.3 Formal information on this operating manual

Person in charge of documentation:	Horst Balzer
Version:	1.0, 11/07/2022
Language:	German (original operating manual); English

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 operating manual:

Abbreviation	Meaning
PPE	Personal protective equipment
PE	Protective earth conductor
EU	European Union

Chart 1: Terms and abbreviations

2. Safety instructions

The ***motion CONTROL PD*** controller complies with the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU and has been designed, manufactured and tested for safety in accordance with the currently applicable safety regulations and laws and the state of the art. If the ***motion CONTROL PD*** controller is used in a manner not specified by EWIKON, the function of the protective devices of the device may be impaired.

The ***motion CONTROL PD*** controller is delivered in perfect technical condition.

However, hazards can arise from ***motion CONTROL PD*** controllers if they are:

- operated by personnel who have not been properly trained.
- used improperly or not as intended.
- not in perfect condition from a safety point of view.

2.1 Safety instructions and symbols used

The safety instructions are introduced with signal words and are marked by symbols. They draw attention to dangerous situations that may arise during installation, operation and maintenance work. Safety instructions must be observed to avoid accidents, personal injury and damage to material.

Warnings

- protect against possible personal injury and damage to material if observed.
- classify the extent of the hazard by means of the signal word.
- indicate the danger of personal injury by means of the hazard sign.
- indicate the type and source of the hazard.
- indicate the risk and the possible consequences.
- indicate measures to avoid hazards and prohibit certain types of behaviour.

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) 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 designed exclusively for the intended use described here.

Any other use contrary to the intended use is excluded and may lead to personal injury and damage to material. In this case, the warranty expires.

The ***motion CONTROL PD*** controller is to be used exclusively for controlling the valve pin movement of EWIKON valve gate hot and cold runner systems installed in a closed injection mould.

Intended use requires that all notes and information in these operating manual are read, understood and observed.

To ensure safe operation of the ***motion CONTROL PD*** controller, the specified maintenance and inspection intervals must be observed.

Use of the *motion CONTROL PD* controller

Only use the ***motion CONTROL PD*** controller for its intended purpose and in perfect condition in terms of safety! This is the only way to ensure the operational safety of the ***motion CONTROL PD*** controller.

2.3 Improper use

Any use not specified under or going beyond the intended use is considered improper use.

2.4 Qualification of staff

The staff must have the appropriate qualifications for assembly, maintenance and repair.
Any lack of knowledge on the part of the staff must be eliminated through training and instruction.

2.4.1 Requirements on specialised staff

Improper use of EWIKON controllers can lead to personal injury and damage to material. All work must be carried out by specialised staff only.

Only trained specialised staff is allowed to connect and operate EWIKON controllers. Specialised staff has technical training, proven knowledge and experience in handling e.g. injection moulding equipment or electrical systems, as well as knowledge of the relevant safety regulations and is able to independently recognise possible dangers and avoid them by taking suitable protective measures.

2.5 Personal Protective Equipment (PPE)

Wear the necessary protective equipment when working on or near the machine. Special instructions for personal protective equipment in the working area must 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 Hazards and safety measures in connection with hot runner systems

In principle, the operator of the system is subject to the legal obligations for occupational safety. In addition to the safety instructions in this manual, the safety, accident prevention and environmental protection regulations applicable to the system‘s area of use must be observed. The operator must clearly define responsibilities and ensure that all staff operating the system has read and understood these instructions. Information about hazards must be provided regularly. Protective equipment must be provided for the staff. Maintenance intervals must be observed.

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 ***motion CONTROL PD*** controller with faulty or inoperable electrical connections. In case of energy supply disruptions immediately switch off the ***motion CONTROL PD*** 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**.

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

We reserve the right to make technical changes within the scope of improving the properties of use and further development.

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 60204-1:2018 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
- EN61010-1: 2020-03 Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1: General requirements
- EN61010-2-201: 2019-04 (draft standard) Safety requirements for electrical equipment for (draft standard) measurement, control and laboratory use - part 2-201: Particular requirements for control equipment

3. Technical Data

3.1 Mechanical data

3.1.1 Main dimensions / Dimensions of the *motion CONTROL PD* controller

Size	Description	Qty. / size (approx.)	Unit
4-zone controller Item no. 68152.504	Dimensions (H x B x T)	190 x 355 x 400	mm
	Weight	7,8	kg
8-zone controller Item no. 68152.508	Dimensions (H x B x T)	190 x 355 x 400	mm
	Chart 2: Weight	8	kg

Chart 3: Main dimensions / Dimensions of the ***motion CONTROL PD*** controller

3.2 Electrical data

3.2.1 Connections / Connector pin assignment

Description	Qty. / size (approx.)	Unit
Voltage AC (+10 % / -15 %)	230	V
Frequency	50/60	Hz
Power	max. 250	W
Protection class	IP20	

Chart 4: Electrical data

3.3 Operating parameters of the valve cluster (accessory, optional)

3.3.1 Pneumatic

Description	Qty. / size (approx.)	Unit
Operating pressure	0 - 16	bar
Control pressure (use pressure limiter if necessary)	0 - 10	bar
Flow rate	0 - 1010	l / min.

Chart 5: Operating parameters pneumatic

3.3.2 Hydraulic

Description	Qty. / size (approx.)	Unit
Operating pressure	0 - 350	bar
Flow rate	0 - 80	l / min.

Chart 6: Operating parameters hydraulic

3.4 Operating conditions

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

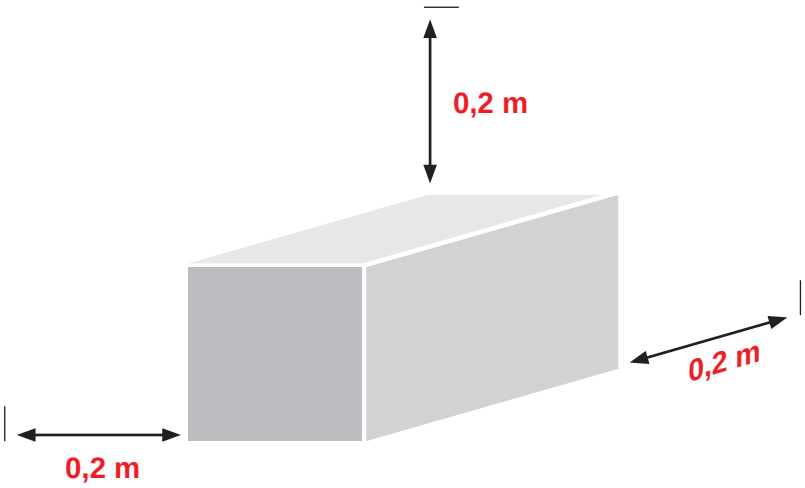
Chart 7: Operating conditions

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 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 *motion CONTROL PD* controller

4.1 Versions of the *motion CONTROL PD* controller

Picture 1: 4- or 8-zone controller (Item no. 68152.504/508)

4.2 Required accessories (connection cables)

Qty	Item no.	Description	Remark
1	60070.050-V06	Signal cable M23, 17-pin, Pin, 6 m	1 pc per controller
1	60070.037-V05 / -V10	Valve connection cable VDC 8-pin, 5 m (10 m)	1 pc per controller
Option	60070.019 (-V06)	Signal cable, 3 m (6 m)	1 pc each for sensors OPEN and CLOSE

Chart 8: Connecting cables required for the ***motion CONTROL PD*** controller (not included in delivery!)

4.3 Function

The ***motion CONTROL PD*** controller enables precise control of the opening and closing times for hydraulic or pneumatic valve gate drives, especially for sequential gating. Up to eight drives can be controlled with one ***motion CONTROL PD*** control unit. Only valves as listed in chapter 5.2.1 or with a rated coil power of max. 30 W at 24 VDC can be used.

Application range of the ***motion CONTROL PD*** controller

This control system from EWIKON can be used to operate pneumatically or hydraulically operated valve gate systems from EWIKON Heißkanalsysteme GmbH in dry rooms in the industrial sector.

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 ***motion CONTROL PD*** 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 connected drives 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

To ensure that the system cannot be operated in a cold state or with the safety door open, an input signal for „release“ from the injection moulding machine or the hot runner controller is required. For movement control, at least one trigger signal from the injection moulding machine is required to control the valves. It triggers the stroke movement of the drive units via the controller. To open the valve pins, the signal „start injection“ is preferably used, alternatively also „clamping force build-up“ or „close mould“.

When the signal is present (+24 V), the valve pins open using the valves and remain in this position; when the signal drops (0 V), the pistons move the valve pins back to the „CLOSED“ position. If the trigger signal is not provided by the injection moulding machine control in the form described, an adjustment must be made. Further digital or analogue signals (optional) can be used to control the valve pin movement, e.g. to realise complex movement profiles.

The ***motion CONTROL PD*** controllers are only designed for the valves listed below.

Pneumatic		
Item no.	**Description**	**Selection**
60040.200	Valve cluster VDC with 4 valves	VLV 80 valve
60040.201	Valve cluster VDC with 8 valves	

Hydraulic		
Item no.	**Description**	**Selection**
22787	Hydraulic valve cluster with 2 valves	VLV 80 valve
22788	Hydraulic valve cluster with 3 valves	
22789	Hydraulic valve cluster with 4 valves	
22790	Hydraulic valve cluster with 5 valves	
22791	Hydraulic valve cluster with 6 valves	
22792	Hydraulic valve cluster with 7 valves	
22793	Hydraulic valve cluster with 8 valves	

Chart 9: Drives that can be operated with the motion CONTROL PD 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 ***motion CONTROL PD*** controller. Additionally, the assembly staff has to have the knowledge required to connect a ***motion CONTROL PD*** 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

- Wear your PPE and take care.

Control of live components before installation

Physical injuries such as an electric shock.

- The electrical equipment of the ***motion CONTROL PD*** 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 ***motion CONTROL PD*** controller and all connected components have to be disconnected from the voltage source during installation.

6.2 Checks before installation

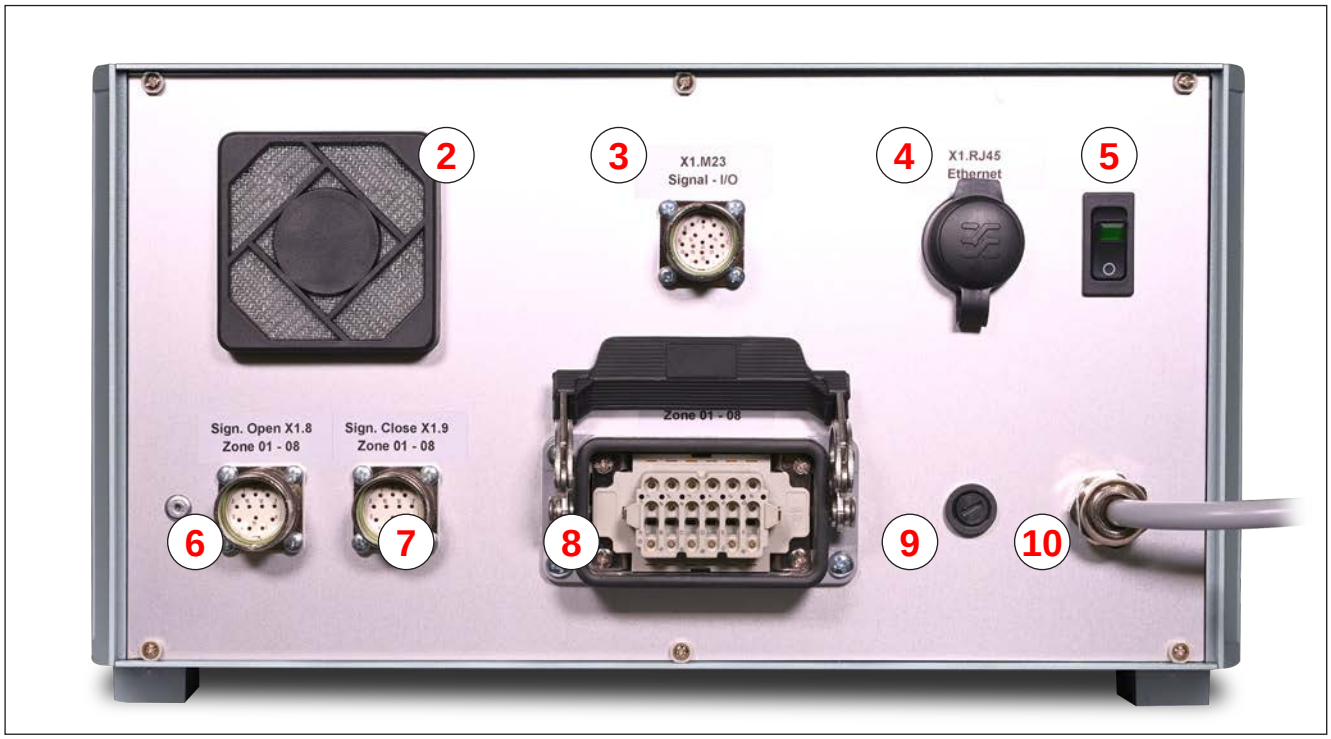
The ***motion CONTROL PD*** controller is subject to comprehensive testing by the manufacturer before delivery. For safety reasons (transport or storage damage or damage to the device when preparing installation) we recommend that you check the ***motion CONTROL PD*** controller for damage just before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

6.3 Installation

6.3.1 Connections and connector assignment of a 4- and 8-zone controller

Depending on the model, the available connections may differ from the illustration.

Picture 2: Connections on the front side of the ***motion CONTROL PD*** controller



Picture 3: Connections on the rear side of the ***motion CONTROL PD*** 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	Signal I/O	Digital signal input/output +24 V DC (17-pin)
4	RJ 45	Ethernet connection for PC monitoring, diagnostics or OPC UA connection
5	Mains switch	Switch for power supply
6	Signal input "OPEN"	Sensor inputs for position query "open valve pin"
7	Signal input "CLOSE"	Sensor inputs for position query "close valve pin"
8	Valve connection	Connector plug for connecting the valve cluster (8 drives)
9	Fuse	Device input fuse F6.3 A, 6.3 x 32 mm
10	Mains connection	Mains cable, operating voltage 230 V +10/-15%, 50-60 Hz

Chart 10: Connections of the ***motion CONTROL PD*** controller

6.3.2 Connecting the *motion CONTROL PD* 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

To provide the trigger signals, a connection to the machine‘s control system is established using the signal cable (item no. 60070.050-V06, must be ordered separately). Two different versions are possible here:

1. Injection moulding machine provides output signal 24 V DC:
   The output signal (+24 V DC) is connected to contact 1 (wire 1), the machine ground (GND) is connected to contact 10 (wire 10).
2. Injection moulding machine provides potential-free normally open contacts:
   A potential-free normally open contact of the injection moulding machine control is connected to contact 9 (wire 9) and contact 1 (wire 1) of the valve gate controller.

In any case, the signal „enable movement“ must be connected to the seventh signal input, as the servo motors will only move if the signal is present. This prevents damage to the valve pins in case of an improperly warmed up hotrunner system or movement when the safety gate is open. The signal must be provided by the injection moulding machine in combination with the hot runner temperature controller.

Analogue input 1 and 2 (option AI)

If an analogue input is used for control, in order to use information about screw position, screw volume or cavity pressure for valve pin control, there is the following possibility for connection.

- Connect a signal where the analogue value is in linear relation to the screw position directly to the input (contact / wire 15), 0-10 V and ground (contact / wire 16).

The input must be adapted in the control to the conditions of the injection moulding machine (see chapter „7.2.5.4 Analog IN“).

Digital output

It is highly recommended to connect the digital signal output of the controller to the injection moulding machine to detect when the control is „ready“ for the next cycle or when there is an error. Each signal output provides +24 V DC and can be loaded with 0.1 A.

The connection of the other signals is described in „Chart 11: Contact assignment of the 17-pin trigger connection (5)“.

General overview of the trigger connection

Some applications require more than the standard signal, e.g. if the mould is equipped with pressure or temperature sensors or complex movement profiles have to be run.

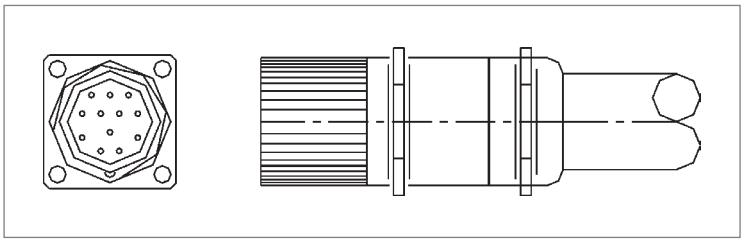
If, in addition to the „READY“ signal, confirmation for the „OPEN“ position of at least one valve pin or all valve pins is required for controlling the filling sequences, these are also provided via the trigger line.

The complete assignment of the trigger line with the standard settings for use can be found in the following table:

Contact	Description	Use
1 / black 1	S 1 (+24 V)	Signal 1 input, start cycle
2 / black 2	S 2 (+24 V)	Signal 2 input
3 / black 3	S 3 (+24 V)	Signal 3 input
4 / black 4	S 4 (+24 V)	Signal 4 input
5 / black 5	S 5 (+24 V)	Signal 5 input
6 / black 6	S 6 (+24 V)	Signal 6 input
7 / black 7	S 7 (+24 V)	Signal 7 input, enable movement
8 / black 8	S 8 (+24 V)	Signal 8 input, enable process
9 / black 9	+24 V DC	Operating voltage +24 V
10 / black 10	GND	Ground
11 / black 11	Out 1(+24 V)	„Alarm“ output
12 / black 12	Out 2(+24 V)	„Ready for cycle“ output
13 / black 13	Out 3(+24 V)	„all OPEN“ output
14 / black 14	Out 4(+24 V)	„min. 1 OPEN“ output
15 / black 15	ANA 1	Analogue input (0-10 V) (Opt.AI)
16 / black 16	ANA 1 GND	Ground Analogue input (Opt.AI)
17 / black 17	EX. 24 V DC	External feed option

Signal inputs 7 + 8 are not selectable for trigger signals, but are reserved for movement enabling and process enabling.

Chart 11: Contact assignment of the 17-pin trigger connection (5)



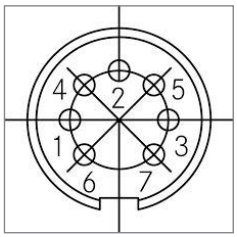
Picture 4: 17-pin trigger connector (5)

Analogue input 2 (Option AI)

Connect a signal for which the analogue value is in linear relation to the measured value directly to the input (contact 2), 0-10 V and ground (contact 3).

Contact	Use
1	free
2	Analogue input 2 (0-10 V)
3	Ground Analogue input 2
4	free
5	free
6	+24 V DC
7	GND DC

Chart 12: Contact assignment Analogue In 2



Picture 5:
Analogue input 2

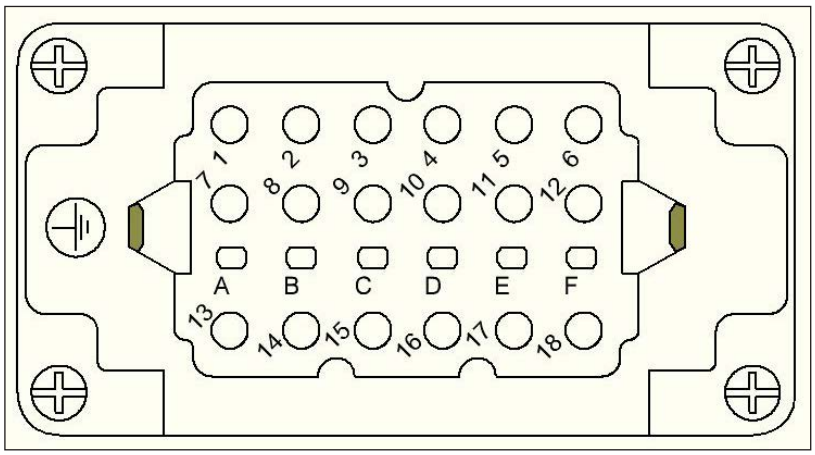
If further options are to be used, please contact EWIKON.

6.3.3 Connection of the motion CONTROL PD controller to the solenoid valves / valve cluster

If a valve cluster is not used, the solenoid valves must be connected individually to the ***motion CONTROL PD*** controller.

The connection of the ***motion CONTROL PD*** controller to the valve cluster is made via the valve connection cable (Item no. 60070.037-V05 (5 m) or 60070.037-V10 (10 m)), other lengths are available on request.
The valve connection cable is ready to plug in at both ends and is designed for the connection of a valve cluster with a maximum of 8 valves. An additional adapter is required for hydraulic valve clusters.

If you are not using a valve connection cable from EWIKON, you can find the pin assignment of the connector on the ***motion CONTROL PD controller*** in the picture and the table.



Picture 6: Valve connecting cable assignment of the ***motion CONTROL PD*** controller

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 13: Contact assignment of the valve connecting plug (2)

An overview of the valve clusters recommended by EWIKON for use can be found in chapter „5.2.1 Technical requirements“. For details on connecting the valve cluster, please refer to the instructions enclosed with the valve cluster.

If the valve gate system is not to be operated with a valve cluster but with individual solenoid valves, these must be connected individually to the supply lines of the drive units.

For this purpose, cables for the electrical connection are available, which can be purchased from EWIKON if required:

- 18298 Sensor/actuator cable 3-pin L=1,5m
- 18299 Sensor/actuator cable 3-pin L=3,0m

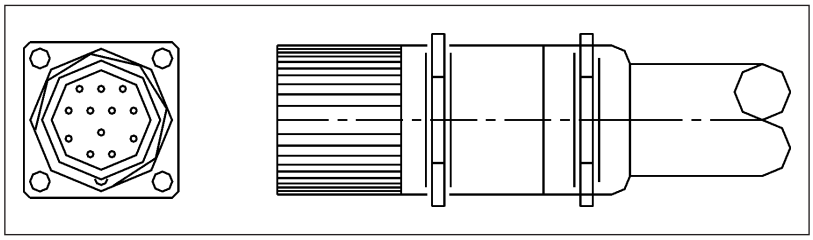
6.4.1 Connection of the optional sensor feedback to the *motion CONTROL PD* controller

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) or 60070.019-V06 (6 m)) are required to use the sensor feedback for „OPEN“ or „CLOSE“ or for both commands.

Kontakt	Verwendung
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

Chart 14: Contact assignment of signal inputs (7) / (8)



Picture 7: Signal input „OPEN“ (7) / „CLOSE“ (8)

CAUTION!

Only plug in currentless

Damage to the output modules may occur.

- Connection or disconnection of the valve cluster may only be carried out when the controller is switched off. The valve cluster is also supplied with power when it is at a standstill in order to keep the pistons in position.

Only switch on when the mould is heated up

Non-observance may result in damage to the tool.

- The controller may only be switched on when the hot runner has reached its set temperature and the plastic has completely melted. Before plugging in the mains plug or connecting the mains cable, it is essential to ensure that the supply voltage matches the data given on the type plate of the controller. Failure to observe this may result in damage to the unit.

6.4 Checks after assembly

- Check all connections for tight fit and correct assignment.
- Please use the „I/O Test“ menu to check whether the injection moulding machine is sending the required trigger signals.

7. Start up

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 drives 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

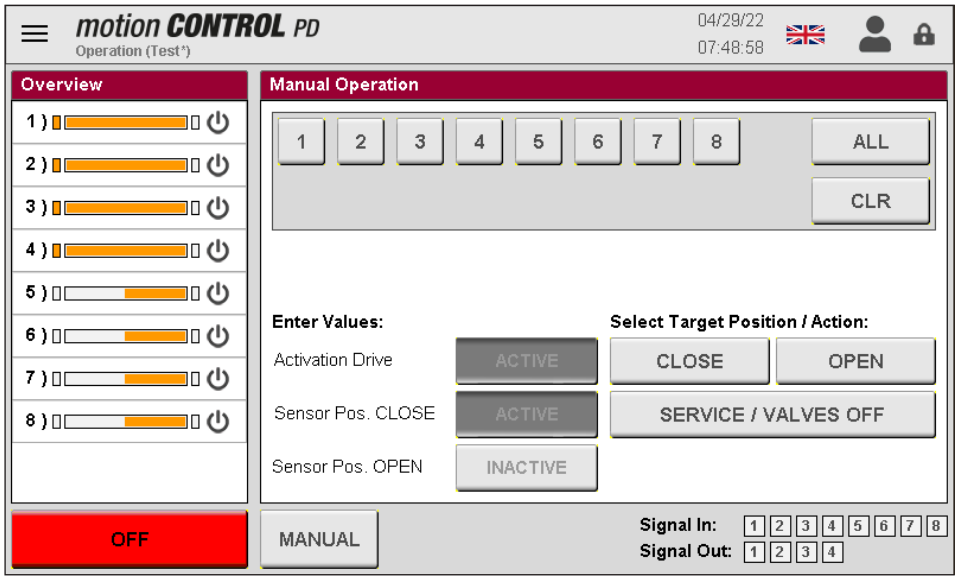
Picture 8: Front view of the ***motion CONTROL PD*** controller

The ***motion CONTROL PD*** controller for operating pneumatically or hydraulically operated valve gate systems by means of control valves / valve clusters is equipped with a colour touch-screen display via which all settings can be made..

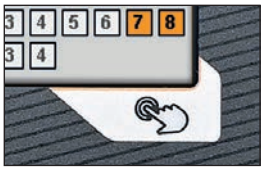
After starting the system, the start page is displayed in manual mode, which provides access to operation via various icons. All other setting options can be reached via the menu button ☰ .

7.2 Description of the menus

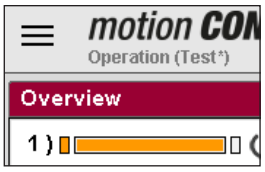
7.2.1 Start page



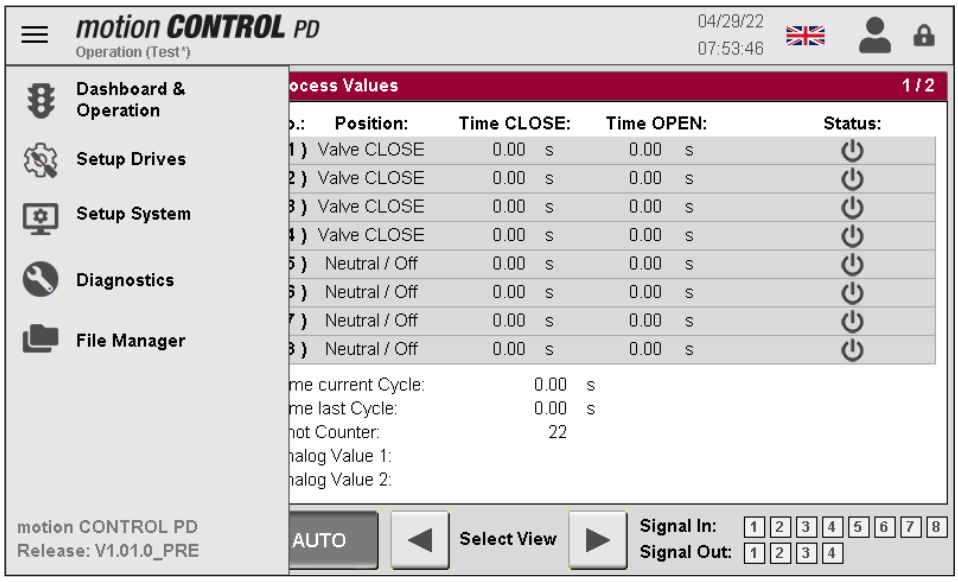
Picture 9: Start page of the ***motion CONTROL PD*** controller



The button in the lower right corner outside the screen (picture above) calls up the „I/O test“ function (see chapter „7.2.6.3 I/O-Test“).



The menu selection is made via the hamburger menu at the top left.



Picture 10: Process values with menu open

Menu selection:

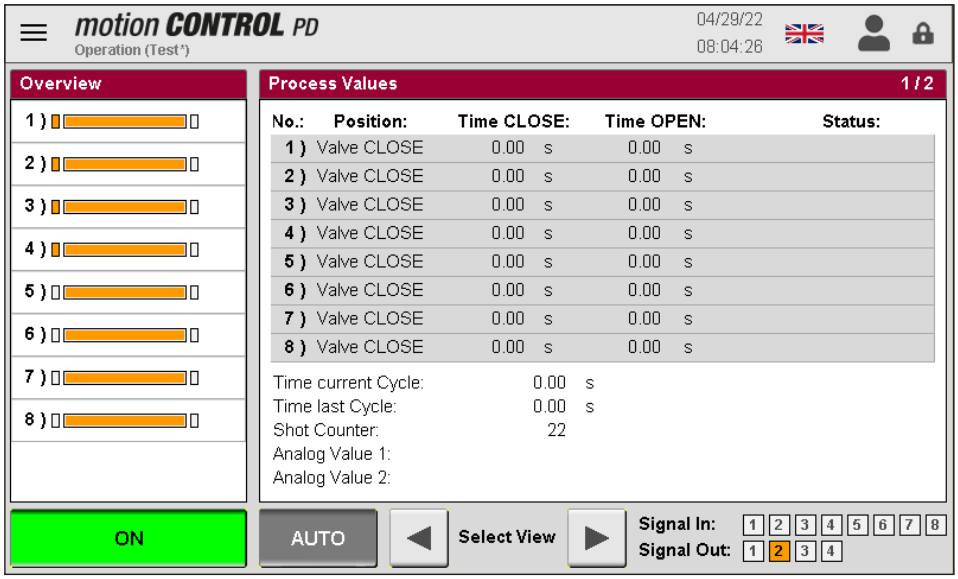
- Dashboard & Operation
- Setup Drives
- Setup System
- Diagnostics
- File Manager

The menu options are opened by touching the corresponding symbol on the screen.

The unit can also be operated remotely via a separate operating terminal (PC, laptop or tablet with VNC client).

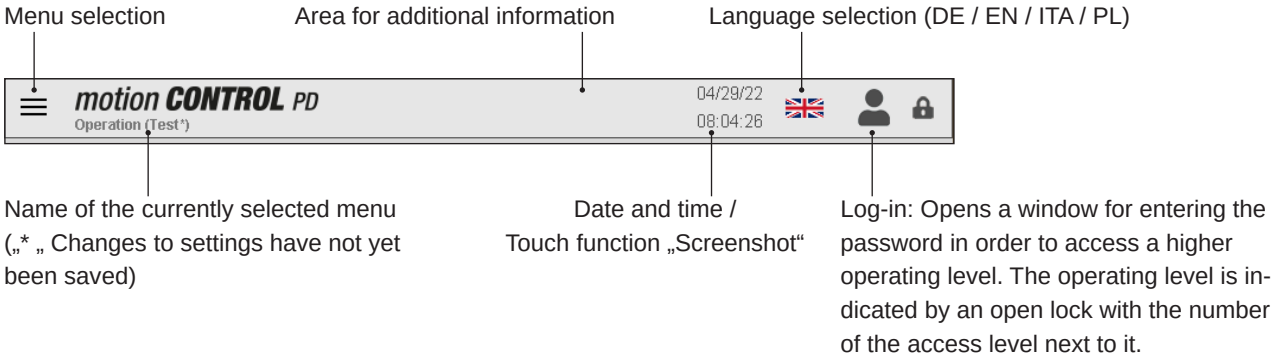
The individual menus are described on the following pages.

7.2.2 Screen layout



Picture 11: Screen layout of the ***motion CONTROL PD*** controller

Title bar

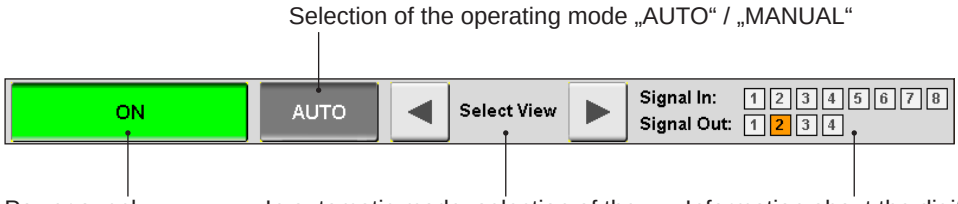


Possible additional information in the title bar

	Process/temperature enable is not available.
	Process release for manual operation only.
	Process/temperature release is provided.
	Release signal is no longer present, the elapsing timer signals the time until the process release is reset.
	Ongoing output of requested data.
	Ongoing storage process on the internal drive or an available USB stick.

	The screen symbol flashes when a screenshot is taken and saved. The current display is saved as a file on the internal drive and an available USB stick.
	A USB stick is available and has been correctly recognised.
	There is a warning or malfunction.

Selection bar (in the „Dashboard & Operation“ menu)



Power supply drives „ON“ / „OFF“

In automatic mode, selection of the view by using the arrow keys

- Process values in a table
- Diagram with comparative values of up to 8 drives plus optional analogue signals

Information about the digital input and output status

Signal inputs (Signal In):

- Input 1 is the main trigger for starting a cycle.
- Inputs 2-6 can be used freely to trigger various events.
- Inputs 7 and 8 cannot be selected for triggering, but are reserved for movement and process release.

Signal outputs (Signal Out):

- Output 1 indicates an alarm in the ***motion CONTROL PD*** system to the injection moulding machine.
- Output 2 is configurable in the menu „Setup System & Device; General“ if required (by default to „READY for next Cycle“) and is usually used to enable the machine.
- Output 3 is configurable in the menu „Setup System & Device; General“ if required (by default set to „All valve pins OPEN“).
- Output 4 is configurable in the menu „Setup System & Device; General“ if required (by default set to „One valve pin OPEN“).

Active input or output signals are indicated by an orange flash of the square assigned to them.

In the other menus, the display of the selection bar changes; here, the desired submenu for display or input is called up via the adapted buttons.

7.2.3 Operation

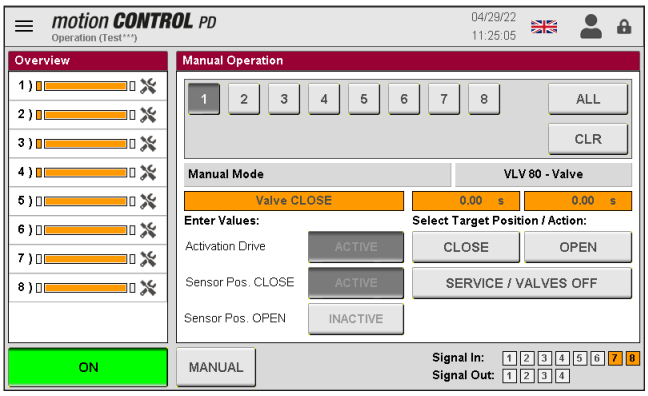
In the „Overview“ window, orange bars indicate the position of each drive unit.

- Bar on the right = valve pin in rear position (OPEN)
- Bar on the left = valve pin in forward position (CLOSED)

Symbols used in the process display and their meaning:

1) OFF	= Drive inactive (switched off)	1)	= Drive in manual operation
1)	= Drive on standby	1)	= Drive has a warning
1)	= Regular operation	1)	= Error

7.2.3.1 Manual operation



Picture 12: View „Manual Operation“

If no drive is selected,
the above window appears

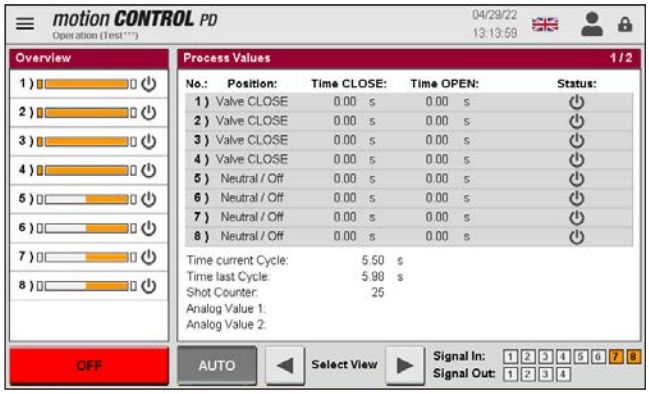
View when the „Manual“ operating mode is selected. The desired drive is selected via the numbered buttons in the input and display window. Alternatively, all drives can be selected („ALL“) or the selection can be deleted („CLR“).

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

Further information and buttons:

Valve status display	Valve either open or closed
Closing time	Time between "Close" command and sensor feedback
Opening time	Time between „Open“ command and sensor feedback
CLOSE button	The selected drive closes
OPEN button	The selected drive opens
Maintenance / Valves off button	The selected drive moves to the "MAINTENANCE" position.

7.2.3.2 Automatic operation



Picture 13: View „Process Values“

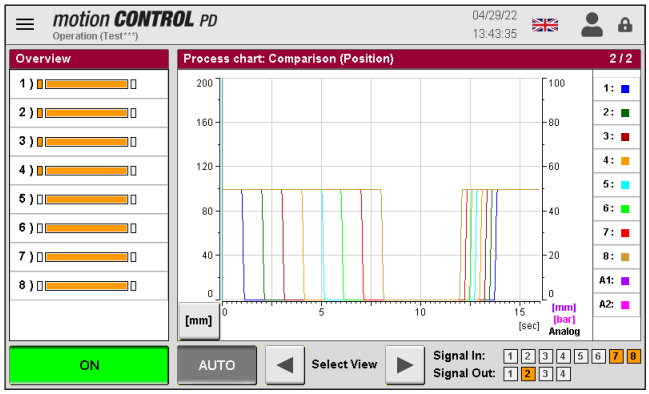
View when the operating mode „AUTO“ is selected. In the „Process Values“ window, the most important values of the drives are displayed in a table:

- Position
- Time CLOSE (display only if sensor is present)
- Time OPEN (display only with sensor present)
- Status of the drive

The opening times of the current cycle (time since the trigger signal „Start cycle“ was detected), the previous cycle, the cycle counter and the values of the two analogue signals (when analogue inputs are used) are displayed under the table.

Process diagrams:

By using the arrow keys in the selection bar, one can switch between the views „Process values“ and „Process chart: Comparison (position)“. The measured value at the analogue inputs of the ***motion CONTROL PD*** controller is also displayed. The scaling of the 3 axes (2x analogue, position and time) can be adjusted by tapping the upper / lower end of the scale (hidden buttons). Furthermore, curves can be hidden for the next recording for a better overview.



Picture 14: View „Process Chart: Comparison (Position)“

In the view „Process chart: Comparison (Position)“, the values of the drives are displayed in different colours.

The toggle button simultaneously displays the unit of the physical quantity in the bottom left corner.

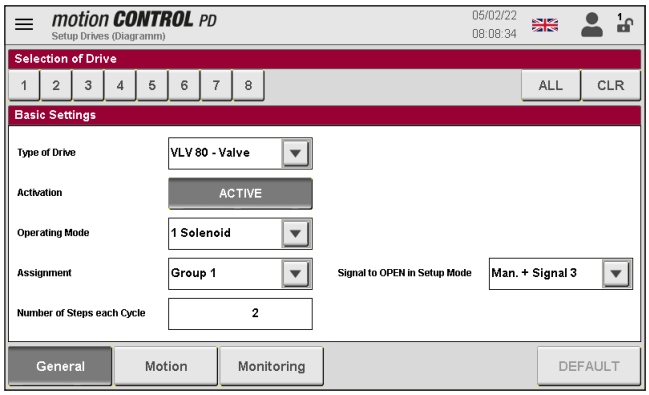
The recording starts automatically with each cycle start (signal 1 = 24 V) of the ***motion CONTROL PD*** controller and ends when the end of the time scale is reached.

7.2.4 Configuration of drives

In the selection bar it is possible to navigate through the settings.

Changes to most settings are only possible after entering a higher access level (see chapter „7.2.5.2 Display & View“).

7.2.4.1 General (basic settings)



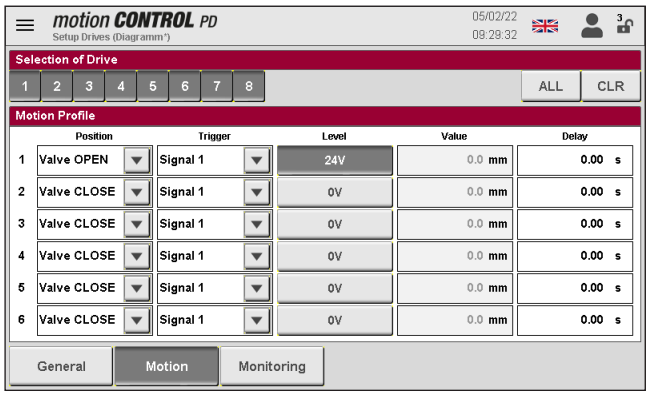
ATTENTION:

The settings for „Type of Drive“, „Operating Mode“, „ Assignment“, and „Number of Steps each Cycle“ can only be made when the drives are switched off.

Picture 15: View „Configuration of drives – Basic Settings“

Basic Settings	In the „Selection of drives“ bar, all drives whose settings are to be changed are selected. „All“ is also possible. In this case, changes made are applied to all drives.
Type of Drive	The drive to be controlled is selected here using the item number (see cChart 9 auf Seite 19)
Activation	Specifies whether the drive should participate in the movement profile or not
Operating Mode	Selection of the valve‘s operating mode, depending on the selected drive type
Assignment	Here, for hotrunner systems with 2 components, each drive can be assigned to one of the two groups
Signal to OPEN in Manual mode	Determines whether in manual operation the valve pins are actuated only via the button or also via signals from the injection moulding machine

7.2.4.2 Motion (Motion profile setting)



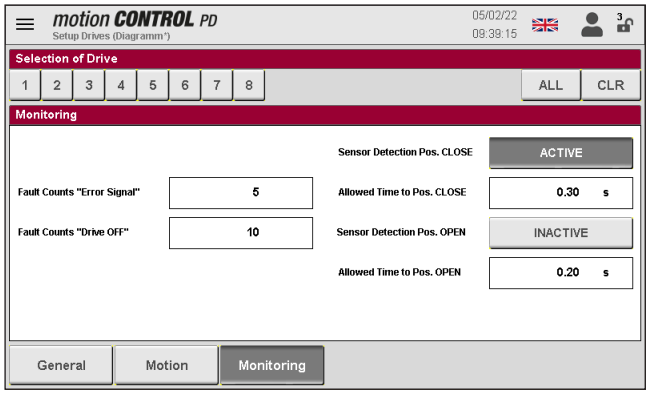
Picture 16: View „Configuration of drives – Motion Profile“

The settings for the trigger events can be entered here.

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

- The „OPEN“ or „CLOSE“ position
- The trigger source for this step, digital or an optional analogue signal
- Depending on the selected trigger source, either the signal level „24 V“ , „0 V“ or the comparison value applies
- A delay time can be added to each trigger event, which results in a time-delayed reaction of the valves

7.2.4.3 Monitoring



Picture 17: View „Configuration of drives – Monitoring“

Attention! All settings on this page are only possible when the drives are switched off!

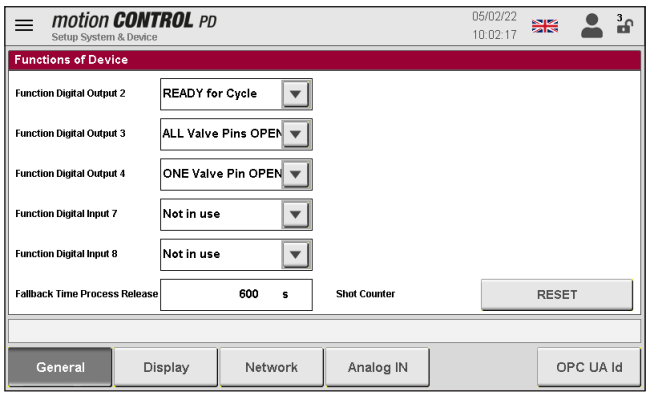
Fault Counts „Error Signal“	Number of position errors in a row after which an error is reported to the injection moulding machine (only when sensor monitoring is active)
Fault Counts „Drive OFF“	Number of position errors in a row after which a drive is switched off to avoid damage (only when sensor monitoring is active)
Sensor detection pos. CLOSED	Selection „ACTIVE“ or „INACTIVE“ for connected sensor for end position monitoring (option)
Allowed time for position CLOSE	Time specification in seconds (range: 0.01 - 5.00 s) in which the movement of the drive must have taken place (only when sensor monitoring is active)
Sensor detection Pos. OPEN	Selection „ACTIVE“ or „INACTIVE“ for connected sensor for end position monitoring (option)
Allowed time for position OPEN	Time specification in seconds (range: 0.01 - 5.00 s) in which the movement of the drive must have taken place (only when sensor monitoring is active)

7.2.5 Setup System & Device

In the selection bar it is possible to navigate through the settings.

Changes to most settings are only possible after entering a higher access level (see chapter „7.2.5.2 Display & View“).

7.2.5.1 General



Picture 18: View „Setup System & Device – Functions of Device“

Function Digital Output 2, 3 and 4

Selection of the function of the digital outputs for adaptation to the process:

- **„Ready for Cycle“ condition:** Unit is in automatic mode, all active valve pins are closed and there is no error
- **„All Valve Pins OPEN“ condition:** all active valve pins open
- **„min. 1 Valve Pin OPEN“ condition:** at least 1 valve pin open
- **„Group 1/2 OPEN“ condition:** all active valve pins of the selected group open

Function Digital Input 7

- **„No use“.** The input is not used by the controller, the enable for the movement of the drives is always set
- **„Enable movement“.** Movement of the drives is only possible if a +24 V DC signal is present at input 7. Without the enable, e.g. safety door closed and hot runner at temperature, the drives can no longer be operated. Any movements that are still active are completed to prevent undefined intermediate positions. After that, any further movement is blocked

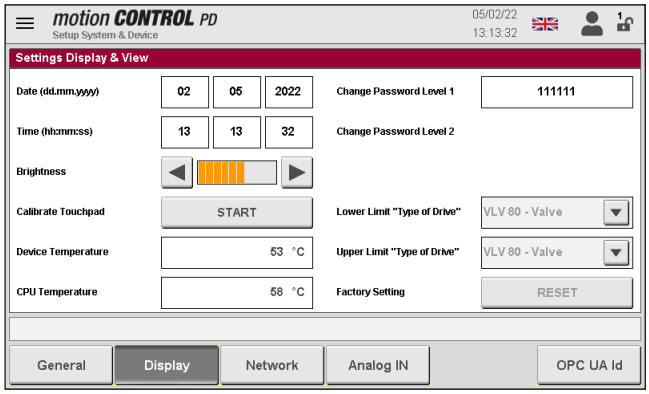
Function Digital Input 8

- **„No use“.** The input is not used by the controller, the release for the production process is always set.
- **„Enable process“.** The input is used here to indicate to the controller the readiness of the system, e.g. „Heating ON“ or „Temperature reached“, for the production process. If there is no process enable, the movement of the drives can only be enabled for manual operation. At least access level 1 is required for this. After resetting the access level (5 minutes without entry on the display), the drive enable for manual operation is also reset. If enable is present (+24 V DC at input 8), the operator must still manually confirm readiness for production, after which the controller is enabled for all operating modes (automatic / manual). If the process enable is reset during operation, the set fallback time still remains during which the drives can continue to be moved. If the enable signal is set again during this time, production can continue without interruption. Otherwise, the drives are moved to the SERVICE or CLOSED position after the time has elapsed (depending on the setting for „Drives OFF function“) and further operation is blocked.

Fallback Time Process Release Input in seconds for disengaging time

Shot Counter Pressing the „reset“ button resets the shot counter to zero

7.2.5.2 Display & View



Picture 19: View „Setup System & Device – Display & View“

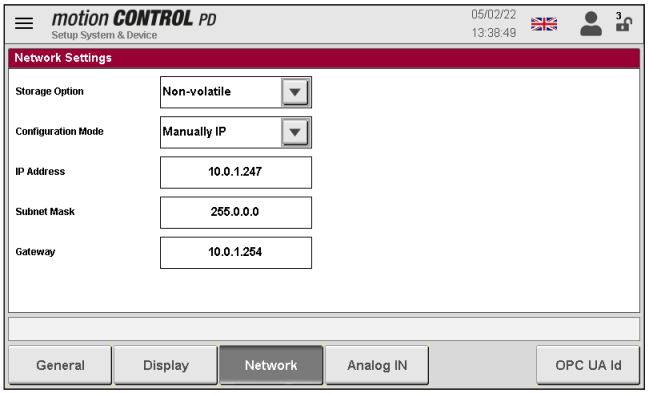
In diesem Menü können folgende Einstellungen vorgenommen werden:

Date	Setting the date
Time	Setting the time
Brightness	Setting the display brightness
Calibrate Touchpad	If the touch screen no longer responds correctly to inputs, there is the possibility of calibration
Device Temperature	Display of the device temperature
CPU Temperature	Display of the CPU temperature
Change Keyword	Change of passwords for level 1+2. They are always activated in the corresponding level.
Lower Limit „Type of Drive“	For the selection list „Type of Drive“ in the menu „Configuration of Drives - General“, a lower limit can be set here to limit the selection
Upper Limit „Type of Drive“	Sets the upper limit for the „Type of Drive“ selection list.
Factory Setting	Pressing the „RESET“ button resets the control unit to the delivery status at the next start, saved recipes are not lost.

All settings remain saved in the device even after it is switched off.

The date and time continue to run via a gold foil capacitor. However, this can be completely discharged after a longer standstill of the controller. In this case, the date and time must be reset.

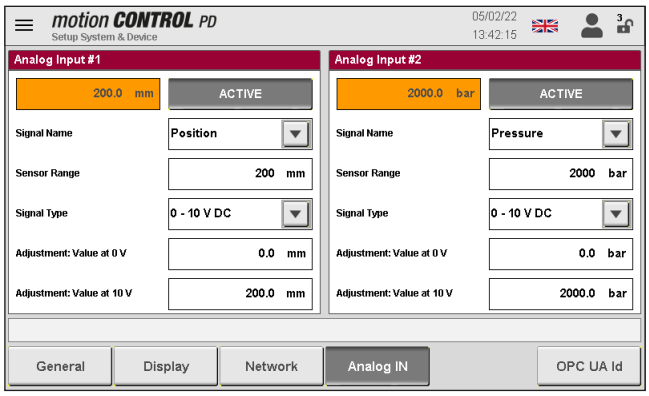
7.2.5.3 Network



Picture 20: View „Setup System & Device – Network“

If the device is to be integrated into a network, the necessary network settings can be made here, for example for access via OPC UA or remote control of the device via VNC.

7.2.5.4 Analog IN



Picture 21: View „Setup System & Device – Analog IN“

Adjustment of analogue inputs 1 and 2 (optionally available) to the application. Each input must be switched „active“ for use:

Signal name (changes the unit of the analogue value)

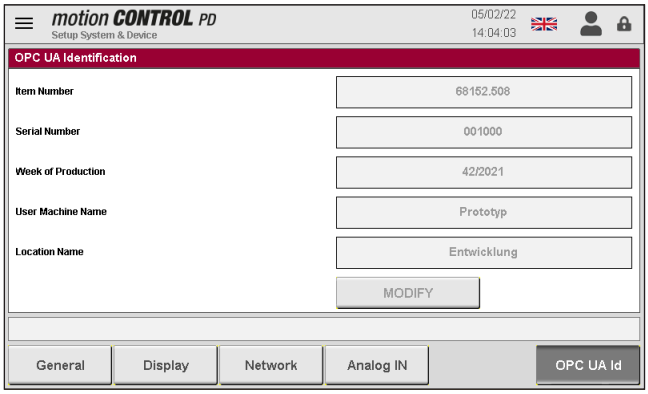
- „Position“ [mm]
- „Volume“ [ccm]
- „Pressure“ [bar]
- „Force“ [N]
- „Voltage“ [V]

Sensor range The measuring range of the sensors is entered as a numerical value

Signal type (type of sensor): Signal 0-10 V DC

Adjustment The settings may require an adjustment of the sensor. If necessary, the measured values of the controller can be scaled to the machine values. For this purpose, an adjustment is carried out at the beginning and end of the selected sensor measuring range. (Access level 2 required)

7.2.5.5 OPC UA Id

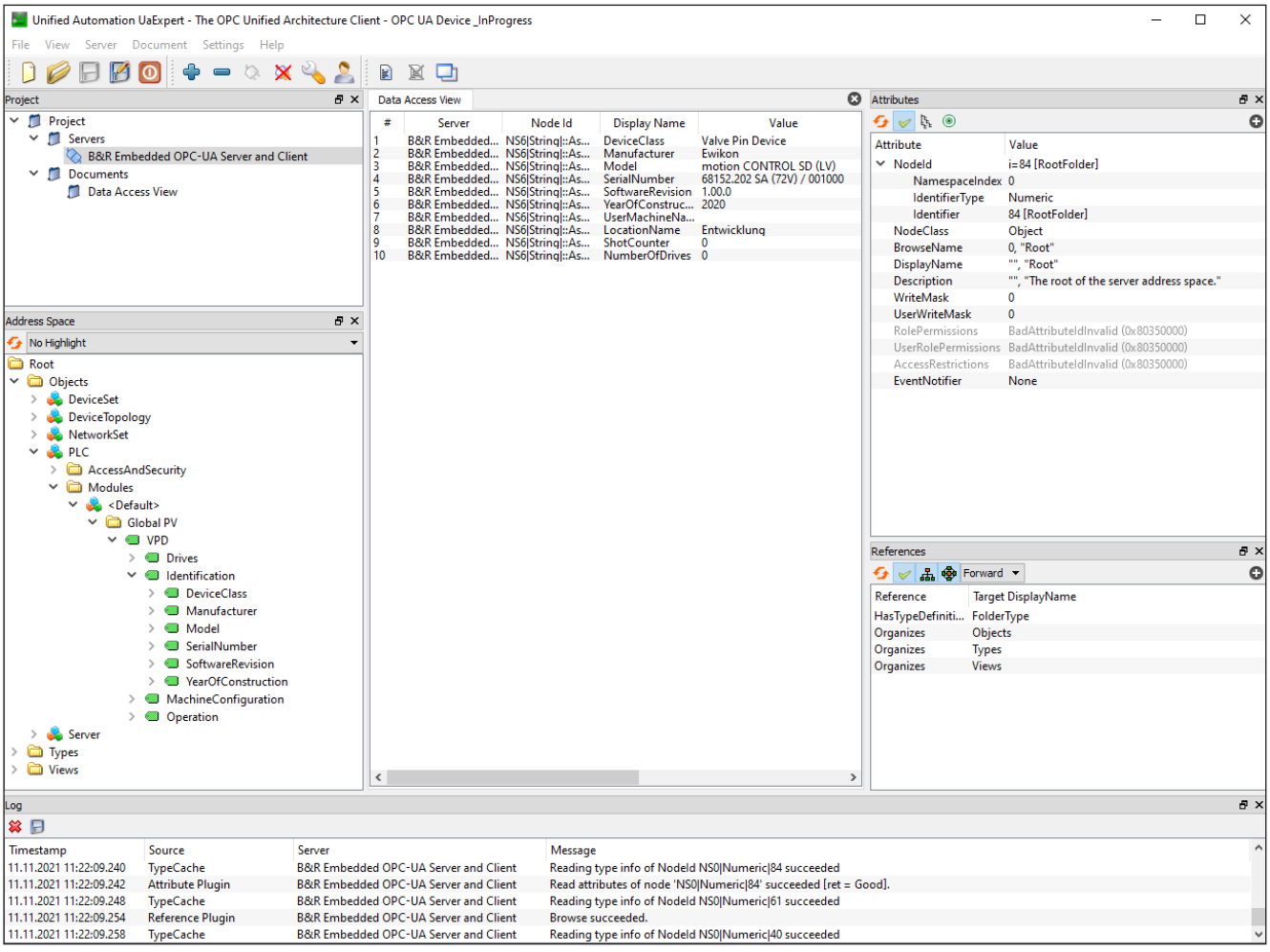


Picture 22: View „Setup System & Device – OPC UA Id“

The settings for item no., serial no. and week of production can only be made by EWIKON and are set during production.

The device designation and the place of use can also be set by the customer via OPC UA access, e.g. via UA-Expert.

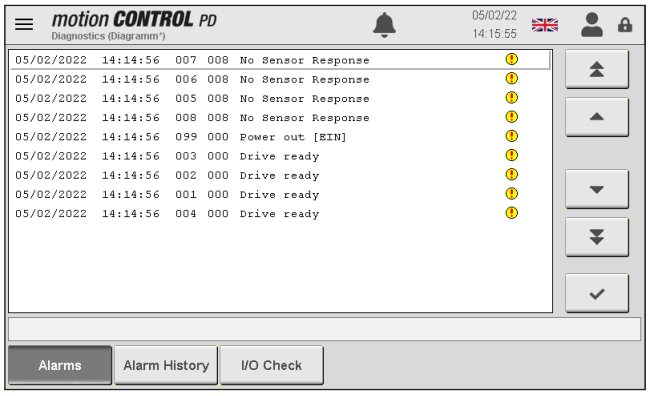
This information is used to identify the device when it is accessed via OPC UA. The data structure is shown in the following figure:



Picture 23: OPC UA data structure

7.2.6 Diagnosis and troubleshooting

7.2.6.1 Alarms



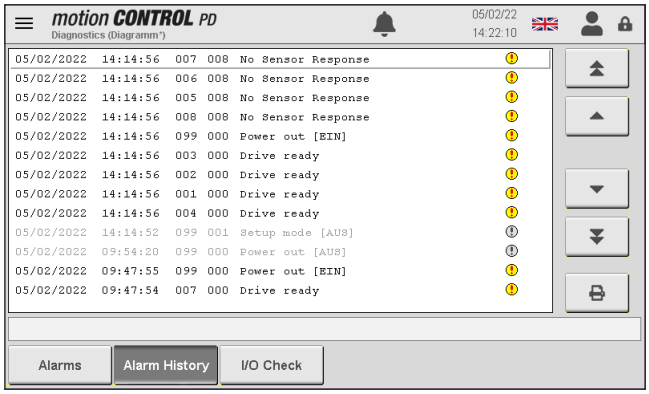
Picture 24: View „Diagnosis and troubleshooting – Alarms“

Detailed view of the current alarms with date, time, output, alarm type and alarm text for more detailed analysis.

The arrow keys on the right edge can be used to scroll through the view.

Acknowledgement of an error is done via the confirmation button (grey tick).

7.2.6.2 Alarm history



Picture 25: View „Diagnosis and troubleshooting – Alarm history“

Output of the last 250 events of the alarm history.

Saving the list on the device:

Press the printer symbol to the right of the list. It appears:

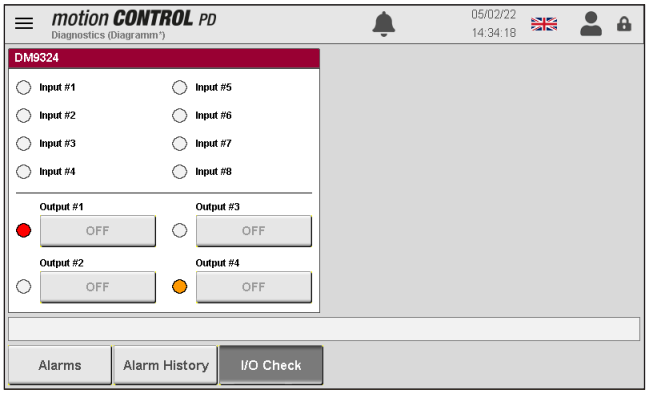
- Read alarm history of the application...
- Save to internal drive...
- Done!

This process may take some time depending on the length of the list.

The file „Alarmlist.csv“ is created under (F:)/Alarms and can be evaluated with a chart programme.

If a USB stick is connected, the alarm list is also copied to the stick in the corresponding directory (see also chapter „7.2.7 File management“).

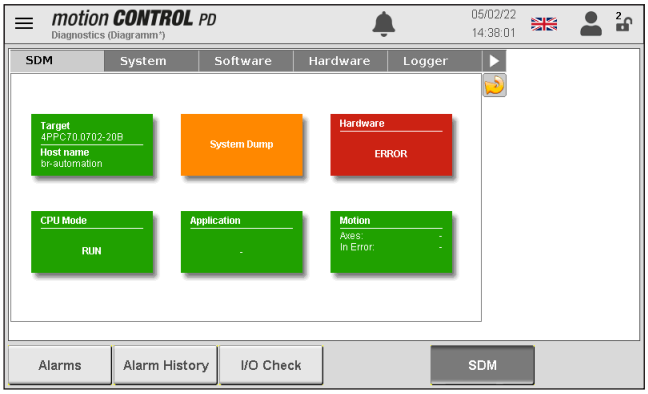
7.2.6.3 I/O-Test



Picture 26: View „Diagnosis and troubleshooting – I/O-Test“

This menu allows to test the signal communication of the controller with the machine. Access level 2 is required to set the outputs.

7.2.6.4 System Diagnostics Manager (SDM)

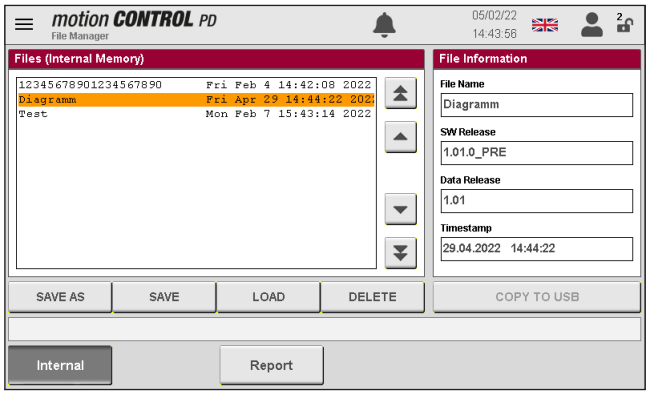


Picture 27: View „Diagnosis and troubleshooting – System Diagnostics Manager“

This menu is used by EWIKON for internal analyses during troubleshooting and is only released from access level 2.

7.2.7 File management

7.2.8 Internal



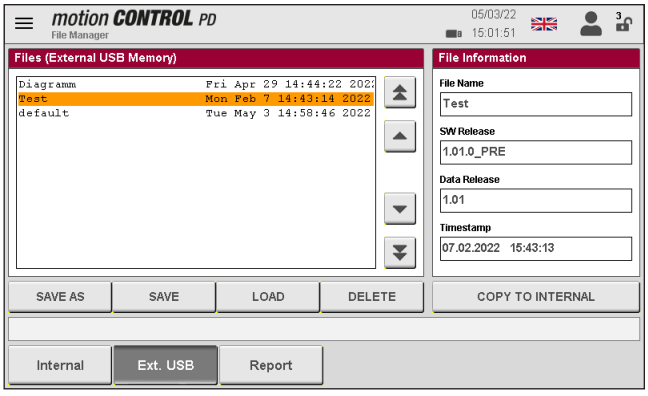
Picture 28: View „File management – Internal Memory“

This menu allows the settings for up to 50 different tools to be saved in the internal memory or loaded from there (drive (F:) in the device memory). The folder „Backup“ as well as alarm lists, screenshots and record files can be present on this drive.

SAVE AS	Saves new mould settings after entering the file name
SAVE	Applies changes by overwriting the selected old file
LOAD	Loads the settings of the selected file into memory for execution
DELETE	Deletes the selected recipe file
SAVE / LOAD / DELETE	To save, load or delete (access level 1) saved settings, a file must be selected using the arrow keys (it appears with an orange background). The selected operation must be confirmed by acknowledging a confirmation prompt.
COPY TO USB	Copies the selected file to the external memory when a USB stick is connected (see chapter „7.2.8.1 External USB“).

Created mould files are stored in the folder „Backup“, at the same time a „filename.html“ is stored in the subfolder „Print“. This file makes it possible to view and print the saved values with a web browser if required. Successful saving is displayed in the info line.

7.2.8.1 External USB

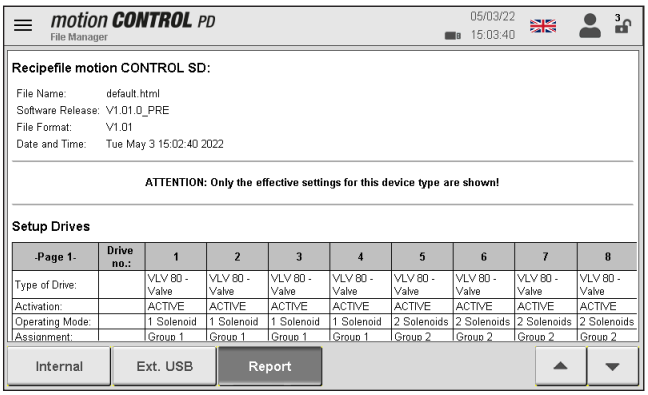


Picture 29: View „File management – External USB“

This menu enables data exchange with an external USB stick. It can only be selected when a stick has been connected to the device and the symbol in the title bar indicates availability.

When copying a file to the USB stick for the first time, the device creates the folder „Backup“ in the directory „motion CONTROL PD“ on the USB stick and saves the selected file there. The html file mentioned above under „Internal memory“ is also copied to the „Print“ subfolder.

7.2.8.2 Report



Picture 30: View „File management – Report“

The currently effective settings in the device are displayed here in an overview. Use the arrow keys to scroll through the menu.

To display saved recipes, the corresponding recipe file must be loaded.

Attention, the current settings will be lost, they must be saved beforehand!

Access to the system memory is also possible with an FTP client programme via the RJ45 connection in conjunction with an Ethernet cable on a computer network (please ask EWIKON for terminal settings and access data).

7.3 Help in case of malfunctions

7.3.1 Troubleshooting

Malfunction	Measure
Display remains dark / device cannot be switched on	• Check mains voltage and device fuse in the device • Check 24 V DC power supply in the device
No sensor feedback	• Check all connections for correct connection • Check all settings for values suitable to the application • Check whether the drives reach the end position and the sensor is actuated

Chart 15: Malfunctions / Measures

7.3.2 Spare parts list

Item no.	Description
18173	Switching power supply 24 V / 240 W
18300	Display PPC70
18217	Fan
18218	Fan cover
18233	Filter mat 60 x 60 mm (fan cover)
18346	Filter mat 4 / 8-zone (base)
18121	Fuse 6.3 A (F) 6.3 x 32 mm (unit fuse)
10516	Fuse 6.3 A (M) 5 x 20 mm (in module X20PD2113)

Chart 16: Spare parts list

7.3.3 EWIKON service departments

For service enquiries, please always have the article number and the current software version of the present device (OPC UA Id) as well as the order number (also that of the hot runner system) ready!

- **Service Control Technology / Electronics**
  Phone: (+49) 6451 501-0
  Fax: (+49) 6451 501-693
  E-mail: elektro@ewikon.com

8. Quick Start Guide

CAUTION!

Incorrect settings can lead to incorrect function or even damage to the mould or the drives!

The operation of the ***motion CONTROL PD*** controller is divided into several access levels.

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

To make settings, select the menu „Setup Drives“.

Use  to log in as a fitter.

Procedure for setting up a new system for the first time:

Make all necessary connections between the controller, the mould and the injection moulding machine according to these operating manual. Then switch on the controller and set it up according to the following list.

Setup Drives		
General	Basic settings	• Select type of drive • Select mode of operation • Set steps per cycle • Activate all drives used in the mould
Motion	Motion profile	• Set positions • Set trigger signals according to application • Set deceleration if required
Setup System		
Analog IN	Input #1:	• Configure analog input if necessary
File Management		• If necessary, save the settings as a recipe

1. Switch on the hot runner and heat it up to the set temperature (also in advance).
2. Test the signal outputs of the machine for correct connection and function.
3. Switch on the power for the drives.
4. System is ready for operation, observe the AUTO/MANUAL setting of the device!

NOTE!

Further operation of the controller, setting up the valve pin movements for the application and adapting the functions to the injection moulding machine controller is carried out in accordance with the previous chapters 5-7. Before using the valve pin controller for the first time, it is therefore recommended to read the operating manual completely in order to achieve optimum functionality.

9. Service and maintenance

9.1 Maintenance instructions

NOTE!

Omitted, incomplete and incorrectly performed maintenance and servicing work increases the wear of individual components of the ***motion CONTROL PD*** controllers.

- Maintenance and servicing work must be carried out completely and at the specified intervals in accordance with the maintenance schedule.
- Maintenance and servicing work on the units may only be carried out by qualified personnel with electrical engineering knowledge.

In order to ensure a long service life and trouble-free operation of the ***motion CONTROL PD*** controllers, proper care and maintenance are required in addition to correct operation. In addition to inspection and repair, maintenance is a preventive measure for the upkeep of the ***motion CONTROL PD*** controllers.

It is recommended that the maintenance work carried out is documented in writing.

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 ***motion CONTROL PD*** 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

This is located on the underside of the ***motion CONTROL PD*** controller and must be checked at regular intervals and replaced if necessary, but at least once a year.

9.3.2 Cleaning the *motion CONTROL PD* controller

CAUTION!

Unintentional activation of buttons

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

- Cleaning of the ***motion CONTROL PD*** 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 and fan grille

The fan and the fan grille (on the rear side) must be checked at regular intervals and cleaned or replaced if necessary, but at least once a year.

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 *motion CONTROL PD* controller when not in use.

10. Decommissioning

10.1 Returning the *motion CONTROL PD* 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 ***motion CONTROL PD*** 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 disassambly 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 ***motion CONTROL PD*** controller must be adhered to

EC - Declaration of Conformity

EWIKON

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:

***motion CONTROL PD* solenoid valve control**
for the operation of hydraulic or pneumatic cylinders in hot runner valve gate systems

Type:

68152.504 ; ***motion CONTROL PD*** controller, 4-zone

68152.508 ; ***motion CONTROL PD*** controller, 8-zone

Applied harmonised standards:

DIN EN 61010-1: 2020-03	“Safety requirements for electrical equipment for measurement, control, and laboratory use” - part 1: General requirements
DIN EN 61010-2-201: 2019-05	“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, 11/07/2022

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