FDU HOTRUNNER

MCS® Hot Runner Controller

Precise and Convenient Process Control

Uncompromisingly simple and intuitive

www.fdu-hotrunner.com

Long-lasting and reliable

Tiltable display

The tiltable display ensures an optimum reading angle and thus reduces incorrect entries. Even when the display is tilted, the display electronics are 100% protected against accidental contact.

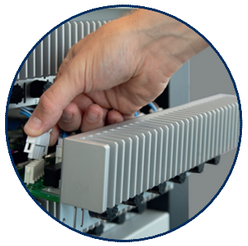
3-sided LED light band

A 3-sided LED light band indicates the operating status, which can be seen from a distance. Green means that everything is ok. Yellow signals non-critical deviations from normal operation, while red indicates errors or critical deviations.

Service friendly design

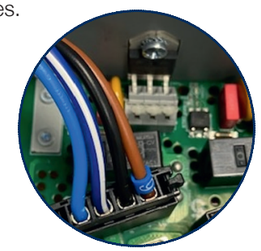
The power cards are easily replaceable without opening the device.

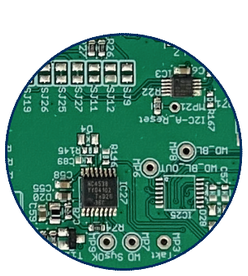
The fuses are accessible from the outside and can be quickly replaced if necessary.



Power wiring 2,5 mm²

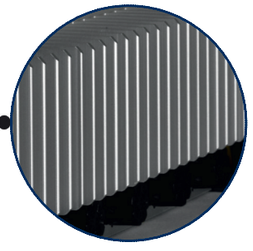
The maximum heating current of 16A is guaranteed even at increased temperature inside the device. This is ensured by the robust power wiring with 2.5mm² wire cross-section. In addition, only plug contacts are used that are designed for 16A even at elevated temperatures.





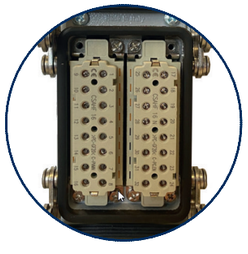
Short circuit proof outputs

The intelligent electronics detect short circuits when switching on and thus prevent the affected components from becoming defective due to excessive currents.



External heat sink

The external heat sinks ensure continuous heat dissipation. This maximizes the service life of the electronics.



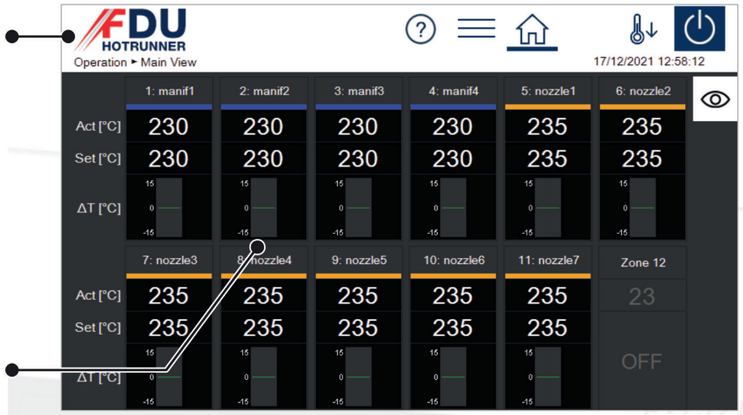
16A outputs

Each individual output of the hot runner controllers is capable of supplying up to 16A. A special assignment of the outputs for nozzles or manifolds is not necessary.

Uncompromisingly simple and intuitive

Clear screen layout with intuitive design

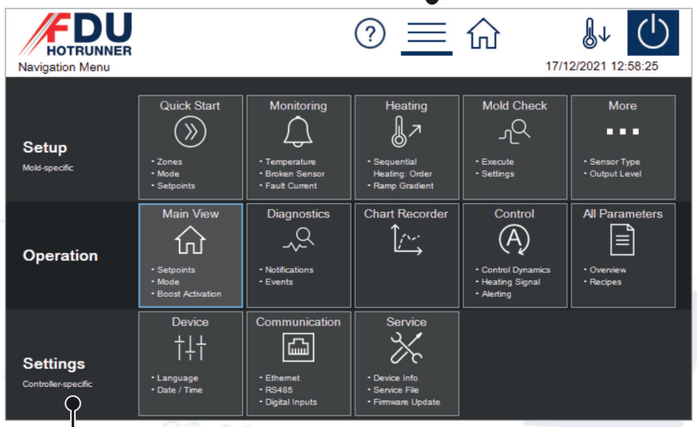
The menu bar is always visible and allows access at any time to the main functions such as navigation ☰, main view ⌂ and switching outputs on and off ⏻ as well as activating standby 🌡↓.



In the main view ⌂ all zones are displayed with the relevant process values. Via the menu icon ☰ you can access all functions and settings of the controller.

A clear and well-arranged structure of the user interface with icons and clearly visible touch fields (white) ensure intuitive and self-explanatory operation. A blue background means that a function is selected.

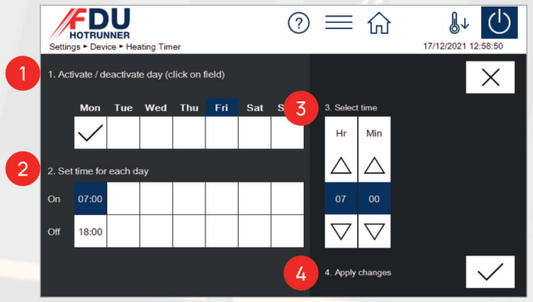
Smart navigation



All functions are clearly displayed in the navigation menu and can be called up by one click. The navigation menu can be accessed via the menu icon ☰ .

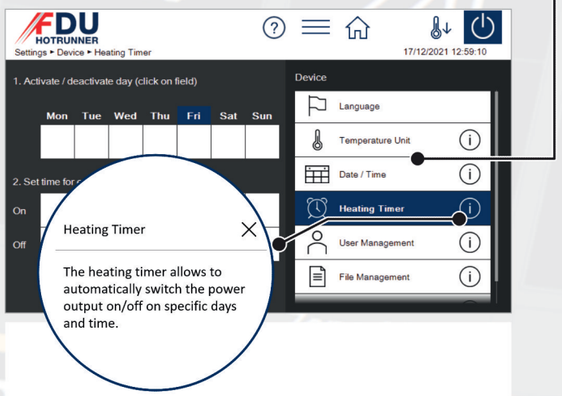
The functions are divided into the areas of mold-specific setup, operation and controller-specific settings in a user-oriented manner.

Operator guidance



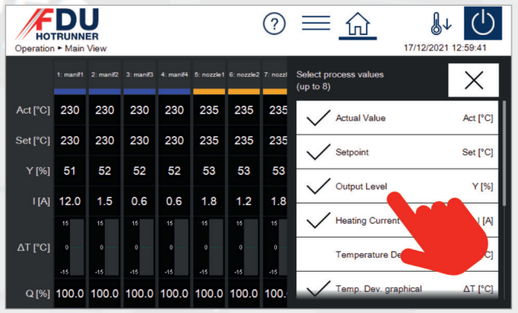
For each input, the operator is instructed in plain text which action is to be performed. This allows the controller to be operated even without prior knowledge.

Explanation at the touch of a button



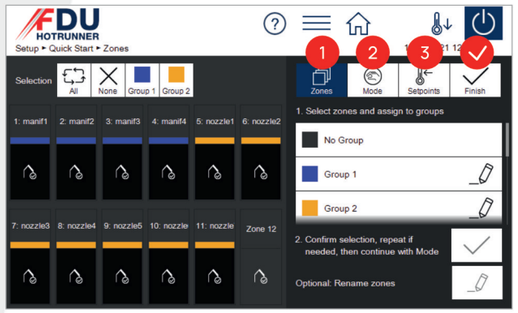
A brief description of each function can be called up by touching the icon ⓘ. This avoids tedious searching in the manual.

Individual zone display



The operator can determine from numerous process values those that are to be shown in the zone display. Up to 8 values can be displayed per zone.

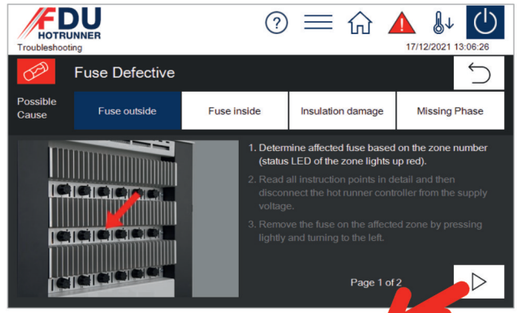
Quick start

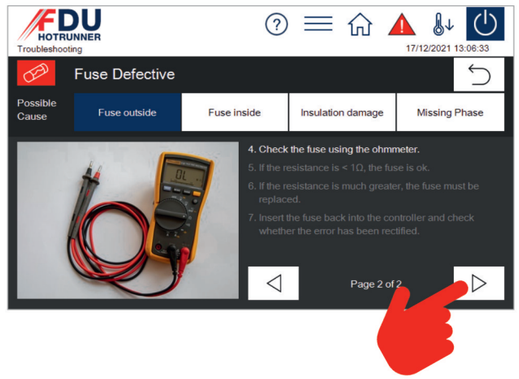


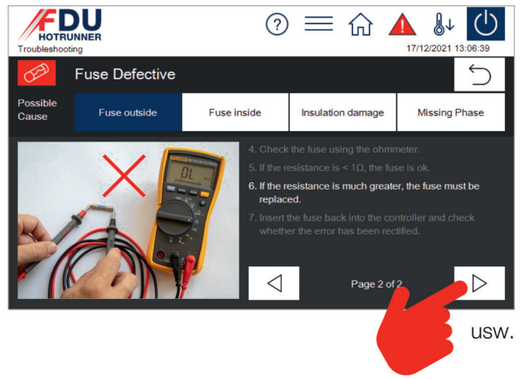
The quick start guides you trough the essential settings (groups, operating mode and setpoints) to put the controller into operation quickly and safely when changing molds.

Integrated Service & Support

Troubleshooting made easy







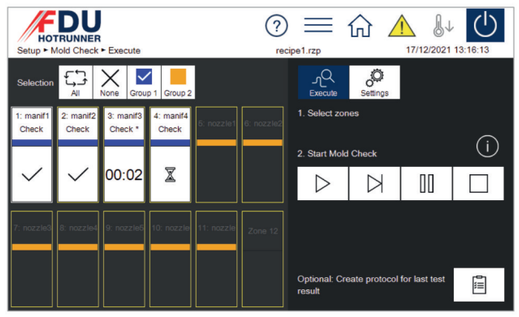
usw.

When a malfunction occurs, the user receives precise instructions in words and pictures on how to proceed with troubleshooting. By clicking on the arrow buttons ◁ ▷ the instructions can be displayed step by step.

This allows troubleshooting to be carried out extremely efficiently, thus keeping downtimes to a minimum.

In the example, the fault "Fuse Defective" is present.

Mold check



The mold check tests the wiring of sensors and heaters and is particularly useful when setting up a new mold.

The mold check detects swapped sensors, heaters or connectors, reversed sensor polarity and sensor short circuit.

The result can be saved in a protocol.

Chart recorder

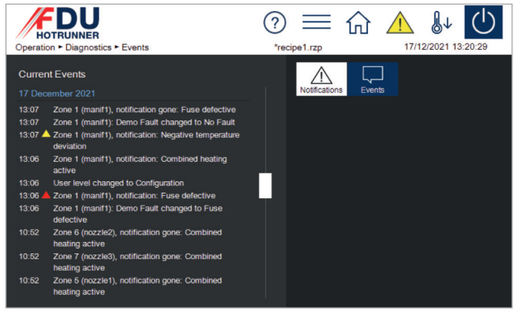
The chart recorder is used to analyze the control behavior of zones by displaying the time course of the process values setpoint, actual value and output level in a curve diagram.

The diagram can be saved as a screenshot for further analysis.

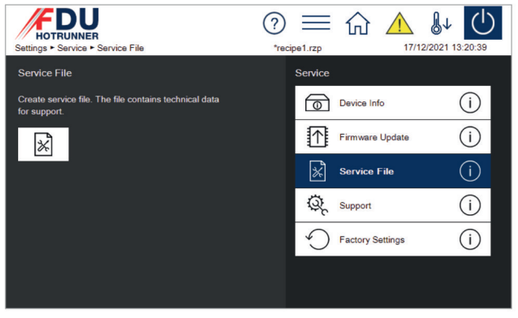
Event list

All state changes of the controller, whether faults or changes of settings, are recorded chronologically in an event list.

With this complete documentation, processes can be optimized and errors can be tracked.



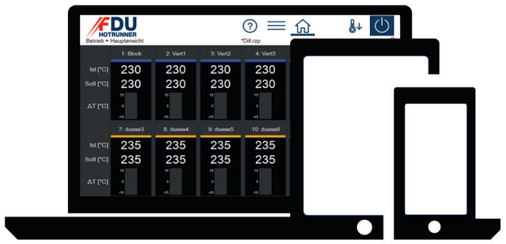
Service file



The service file contains technical data that provides valuable information for error analysis. It is helpful when a malfunction cannot be solved right away and therefore technical support has to be called in. Generated with one click, the file can then be forwarded by e-mail to Technical Support, who can perform an in-depth analysis based on the data.

Controller operation Industry 4.0

Operation with notebook / tablet etc.



The ***MCS***® hot runner controllers have a VNC (Virtual Network Computing, VNC for short) server. This technology enables the controller's screen content to be displayed on a remote computer. In this way, the ***MCS***® hot runner controllers can also be operated via mobile devices such as notebooks, tablets or smartphones.

All that needs to be installed on the mobile device is a VNC viewer (available for free on the internet).

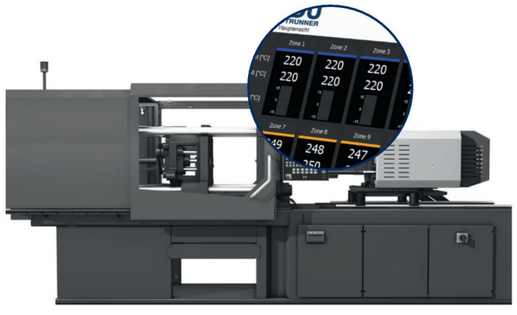
1. WiFi

2. ETHERNET

Operation via touch monitor

Both tabletop and large units on rollers can be operated via a 15" or 19" touch monitor. The maximum cable length is 10 m.

Operation via injection molding machine



With the VNC technology described above, the ***MCS***® hot runner controllers can also be controlled remotely via an injection molding machine, provided it has a VNC client.

The controller can be operated from the injection molding machine in exactly the same way as via the integrated touch display. Operation on the controller is still possible without any restrictions.

OPC UA is a cross-industry communication standard. It is the basis of Euromap 82.2, which defines the parameterization of any hot runner controller with this standard by the injection molding machine.

As one of the first hot runner controller manufacturers, we have fully implemented the standard in our controllers.

Control signals

The injection molding machine can activate certain functions via digital control signals on the hot runner controller without the user having to take manual action.

The following functions can be activated under machine control:

- Boost
- Switching outputs on and off
- Enable the output signals
- Standby
- Switching additional heaters on and off

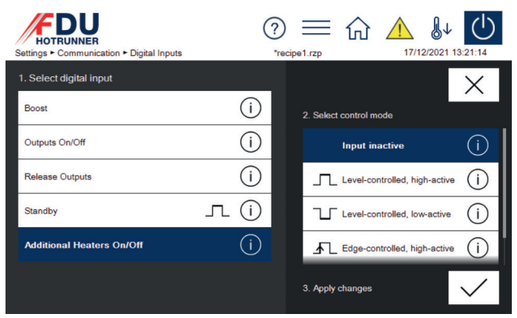
Flexibility for your process

Control up to 360 zones in a device network

The device network allows several **MCS®** hot runner controllers connected via Ethernet to be used as one device. All settings can then be made centrally from one controller. This allows applications with up to 360 zones to be implemented

Setting the controller network is very simple. The user is guided through the settings step by step. In this way, the service philosophy of the **MCS®** hot runner controllers is also strictly followed here. Even untrained personnel can operate the controller safely.

Function additional heaters



The function "additional heaters" supports, for example, the preheating of molded parts in a 2-step production process before they are fed into the actual injection molding process.

Selected heaters of the preheating station can be switched on and off separately via a digital input on the controller.

More Functions

- Recipe management
- User levels with password protection
- Boost, Standby
- Further heating in case of sensor break - Heating can be continued with a freely selectable output level, with the medium output level or with the output level of a reference zone.
- Comprehensive monitoring functions for: Sensor break, reversed sensor polarity, sensor voltage, heater current, load short-circuit, heater interruption, temperature deviations, output level, fault current, fuse, triac, relay
- Timer - switch outputs on and off automatically at specific days and times
- Combined heating, sequential heating or combination of both functions
- Star/delta switching
- Languages: German, English, Spanish, French, Italian, Czech, Polish, Russian, Japanese, Chinese
- Gentle heating (Softstart)

MCS® Trolley

The **MCS®** trolley allows convenient placement and operation of the **MCS®** tabletop units.

The trolley is very stable and high quality construction and has a large storage compartment for cables. Furthermore, a shelf for storing documents is welded in. The smooth-running swivel castors ensure safe transport. With wheel locks, the trolley can be securely fixed.

Functions at a glance

	MCS®
Operation / Display	
Operation tabletop devices	7“ Touch-Display
optional	15“ Touch-Monitor
Operation large devices	10“ Touch-Display integrateor oder 19“ Touch-Monitor
User interface	
Self-explanatory user interface	✓
Quick start	✓
Operator guidance in plain text	✓
Explanation of functions and settings at the touch of a button	✓
Index	✓
Individual zone display	✓
Graphical display of temperature deviation	✓
1-Touch setpoint change	✓
Status display of the zones	✓
Clear fault display	✓
Funktionality	
LED light band to indicate the operating status	3-sided
Multi languages (10 languages as of 12/2021)	✓
Group zones	✓
Mold check	✓
Gentle heating	✓
Sequential heatiing	✓
Boost	✓
Standby	✓
Combined heating	✓
Controller network up to 360 zones	✓

	MCS®
Overvoltage protection for sensors	✓
Star/Delta switching	✓
User levels with password protection	✓
Timer	✓
Chart recorder	✓
Individual shut down of zones	✓
Step-by-step troubleshooting guide	✓
Event list	✓
Service file	✓
Short circuit detection at power up	✓
Recipe management	✓
Additional heaters on/off	✓
Maintenance without opening device	✓
Extensive monitoring functions	
Temperature alarms	✓
Heating current	✓
Heating circuit interruption	✓
Fuse failure	✓
Sensor break	✓
Reversed sensor polarity	✓
Fault current	✓
Outout Level	✓
Triac defective	✓
Relay defective	✓
Data interfaces / protocols	
Ethernet interface	✓
RS485	✓
USB	✓
OPC UA according to Euromap 82.2	✓
External control signals	
Outputs On / Off	✓
Output enable	✓
Standby	✓
Boost	✓
Notification contacts	2

Technical Data

Operation and display	7“ Touchdisplay, resisitve Optional: external 15“ or 19“ Touch Monitor
Housing	
Housing material	Galvanised steel
Protection type	IP 20
Environmental conditions	
Operation temperature	0…50°C
Humidity	0…90% rel. humidity, no condensation
Storage temperature	-25…+75 °C
Mains supply	
Supply voltage	3x 400 V AC, N, PE
Switchable to	3x 230 V AC, PE
Tolerance	+10% / -15%
Power consumption when idle	7 W + 5 W per power board
Control voltage	
Internal control voltage	+24VDC
Protection	1 x 2A medium delay (5 x 20mm)
Thermocouple inputs	
Thermocouple	FeCuNi (TYPE J) 0..830° switchable to: NiCr-Ni (TYPE K) 0..830°
Cold junction compensation	Integrated
Resolution	0,1 K
Accuracy	+/- 0,25K
Load outputs	Bistable, electrically insulated
per zone	1x heating, 230V AC switching
Control time (phase angle /pulse package	10 ms at 50 Hz – 8,3 ms at 60 Hz
Current per zone	max. 16 A with 80% switch-on duration per zone
Caution: observe the total load capacity of the electrical connection cable	
Minimum load	100 W
Signal shape	Pulse operation/phase control (automatic or manual selection)
Protection	2-pole; 6.3 x 32 mm Internal: SIBA TYPE 16A T Extern: SIBA TYPE 16A GRL only use this fuse
Alarm notification outputs	
3x relay contact	Potential-free for max. 250 VAC
Maximum current	4 A for cos = 1; 2A for cos = 0,5
Digital inputs	
Insulated, potential-free	16 – 30 V DC
Data interfaces	
Ethernet	CAT 5
RS485	D-SUB 9-pole
USB	USB 3.0 Standard

Dimensions

MCS®	W x H x D mm
Tabletop device 6 / 12 zone	386 x 215 x 515 mm • Depth: incl. plug on the rear wall • Height: incl. unit feet
Tabletop device 12 / 24 zone	386 x 295 x 515 mm • Depth: incl. plug on rear wall • Height: incl. unit feet
Tabletop device 30 / 36 zone	386 x 375 x 515 mm • Depth: incl. plug on rear wall • Height: incl. unit feet
Tower device on rollers 42 to 120 zones	506 x 1160 x 630 mm • Depth: incl. plug on rear wall • Height: incl. rollers

FDU HOTRUNNER

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