PRIVARSA

FELLER ENGINEERING GmbH

Multichannel - Temperature - Controller Series MCS

1. General

Based on several years of close co-operation with the plastics industry the established series **MCS** introduces new features in a new design at an attractive price-performance ratio as ever before. The more compact hot-runner controllers combine technology state-of-the-art with high level operation comfort and increased service capability. A three-side illuminated LED-strip in standard **MCS** signalizes three different operation states widely visible.

The **MCS** series is available:

a) in standard **MCS** version with key-display or LCD-display operation, optional operable via **MCScontrol** touch screen

b) in reduced **MCSr** version, without key-button / LED-displays in the front, only operable via MCScontrol touch screen.

The overall functions and control features are identical for both versions and will be consecutively described.

2. Short description

a) Housing / design

- Steel housing IP20 by 2 variations
- Construction for different heights
- Ambient temperature max. 60°C / 140°F
- Designed for 2 to 128 control- zones, 256 or more zones with operation monitor **MCScontrol**
- From 36 control-zones with 3 service-friendly doors
- From 68 control-zones standard with feed rolls

b) Performance and features

- Alarm-outputs (isolated) via multi-pin plug
- Data interface RS485, CAN-Bus, (optional Bluetooth,
- Ethernet, USB, RS232)
- Parallel heater-current supervision
- Power per zone 230 VAC / 16 A, 80% SF
- NSS (fused sensor-inputs against net-voltage > 10 V)
- Power supply via CEE-connector, cable length 3 m
- Safety power OFF, main relay 400 V/50/60Hz
- Output fuses 16 A ff
- Digital control inputs 24 VDC
- Multi-pin connectors, according to customer's demand or standard sensor and heater separated

c) Control electronics

- Temperature detection each 250 ms up to 128 zones
- Alarms for Low-temperature, High-temperature, broken sensor, shorted sensor, changed polarity, system fault,current deviation, output rate supervision
- Individual alarm delay
- Internal resolution 1/10 K
- Outputs pulsed or phase angle controlled, automatic or manually selectable
- Diagnosis program to detect external wiring mistakes
- Leakage current supervision with intelligent dry-out routine
- Controlled by micro-processor for up to 128 control loops in one unit
- Parameter level locked by password
- Control range up to 700°C / 999°F
- Robust self optimising control
- Soft-start-function with automatic dryout at 100°C / 212°F, if required
- Setpoint programs, 6 individual including all para-meters
- Manual mode in case of broken sensor, manually or automatic, following mean values or reference-zones
- Thermocouple inputs Fe-CuNi; in option Pt100/2w
- Groups for multiple operation
- Sequential heating-up of groups

- Boost-function to enable
- Monitor zones for additional temperature supervision
- Selection °C / °F
- Supervision of output rate against nominal values
- Combined heating
- Power supervision

d) Operation (except MCSr)

- Easy operation, two variations of display available, Foil-keys or multi-line LC-display with data wheel
- Separate indication with comparison setpoint/ actual value for operation
- Selection of up to 6 individual groups of zones
- Single indicators for all zones including control mode and group-selection, selectable for setpoints, actual values, deviations, output rates and current values
- Illuminated LED- strip for 3 different states
- Failure protocol via display

3. Functional operation

Easy and comfortable operation, the stable control structure and the practise oriented design are the features of the new series of **MCS** controllers. Three different control modes are visible from far distances by the illuminated LED- strip.

GREEN=OK YELLOW=Warning RED=Alarm

The units are fit with 3 doors for comfortable service with optical indications for the state of fuses and triacs by green and red LEDs.

The quality of each controlled zone may be indicated by %. A constant accurate control at the setpoint is calculated by 100%, deviations reduce the result.

Separate to the operation panel all control loops are indicated by single displays and enable a complete overview of temperatures, current-values, output rates, control quality and fault messages of all zones. Broken, reversed wired or shorted sensor, over / under temperature, leakage current, system supervision, output rate supervision, fuse triac a.s.o. will be indicated for each zone separately.

An additional 7-pin female connector at the rear side of the unit provides warnings and alarms for external enable. After the power is switched on, the **MCS** controller drives towards the chosen set point recognising the demand to dry out the heaters at 100°C (212°F). The combined heating routine avoids unequal heating of the different components to reach the set point nearly simultaneously. This is also available for sequential heating-up, to heat groups one after an other.

MCS controllers may run in manual mode. In case of broken sensor the controller may switch automatically to manual mode. Depending on the configuration the controller will use the mean output rate. The respective zone(s) can also be linked with a similar zone to synchronise the heating.

There are 6 programs available, including all parameters for quick changes of product or process. Using different groups of individual selected zones nozzles or manifolds may be collected or separated. The selection of groups allows to operate great parts of the hotrunner system. The functions Boost and Standby are available by hard-keys in front of each display version.

Comfort - adaptation to individual demands by special basic settings, e.g. Auto-Power in case of broken sensor, selection of groups and help-menu.

Safety - by supervision and reaction in case of deviation of temperature, heater current, output rate, broken sensor, leakage current and all single displays.

Efficiency - by optimised dry-out routine, classification with the start, hardware interface for MM and service comfort.

FELLER ENGINEERING offers the customised connection cables and systems on an upper level for external operation, measuring and **MCS**-process data recording.

MCScontrol, the touch screen operation for great systems up to 256 or more zones, enables a PC-controlled MMI for the **MCS** units. This software may even be installed on an existing notebook. The controllers for 36 zones and more include a notebook case under the lockable cover on top.

Further detailed information referring the complete series of **MCS** is available up on request.

MCS controllers, which will only be operated by a monitor **MCScontrol,** may be delivered with reduced fittings. Operation display and total display are not available at **MCSr.** The control features are equal to the complete **MCS.**

4. Price / Quantity

The detaoled prices are to find in the price list of **MCS** temperature controllers.

5. Delivery

3 weeks after receipt of order. Custom version about 4 weeks.

6. Order specifications

- Territory of use, number of zones, plug specification
- Total power or power per zone
- Type of interface for PC-connection
- Additional equipment

7. Dimensions W x D x H (mm)

MCS 2 -8	240 x 370 x 210
MCS10 - 16	400 x 370 x 210
MCS20 - 32	445 x 430 x 280
MCS36 - 128	500 x 500 x 800/1000/1200
MCSr36 - 128	
without control	550 x 550 x 675/935/1145
with control	550 x 550 x 990/1250/1160

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