Hot Runner Controller

profiTEMP

Control Unit Rack pT-CUR

- Unit for operation of profiTEMP hot runner controllers up to maximal 250 zones
- For use in machine-integrated pT-Rack
- Coordination and monitoring of subordinate profiTEMP controller cards HCC
- Communication by data interfaces
  - RS485
  - CAN1 (internal)
  - CAN2 (external, controller overall)
  - Ethernet (service interface, VISU)
  - VARAN
  - USB (data ex-/-import)
- 4 Digital In- /4 Digital Outputs
- 8 digital inputs for Hot Runner mold identification
- Re-addressing of HCC cards by key

Figure pT-CUR

Ordering designations	Order number
profiTEMP pT-CUR 250 /-/HUB/-/IOF/USB	025 343
profiTEMP pT-CUR 250 /VARAN/HUB/WKZ/IOK/USB	025 344-02
profiTEMP pT-CUR 250 /-/HUB/WKZ/IOK/USB	025 344-03
profiTEMP pT-CUR 250 /VARAN/HUB/-/IOK/USB	025 344-04
profiTEMP pT-CUR 250 /-/HUB/-/IOK/USB	025 344-05

Details on ordering designations	Function	Plug
VARAN/-	VARAN	X10 & X11 / -
HUB/-	X1 Service interface X2 Ethernet VISU	X1 & X2 / X2
WKZ/-	Hot Runner mold identification	X12 / -
IOF/ IOK	Digital in- / - outputs by	X4 Flat cable X5 terminals
USB/-	Data export-/-import	X3 / -

Different types on request

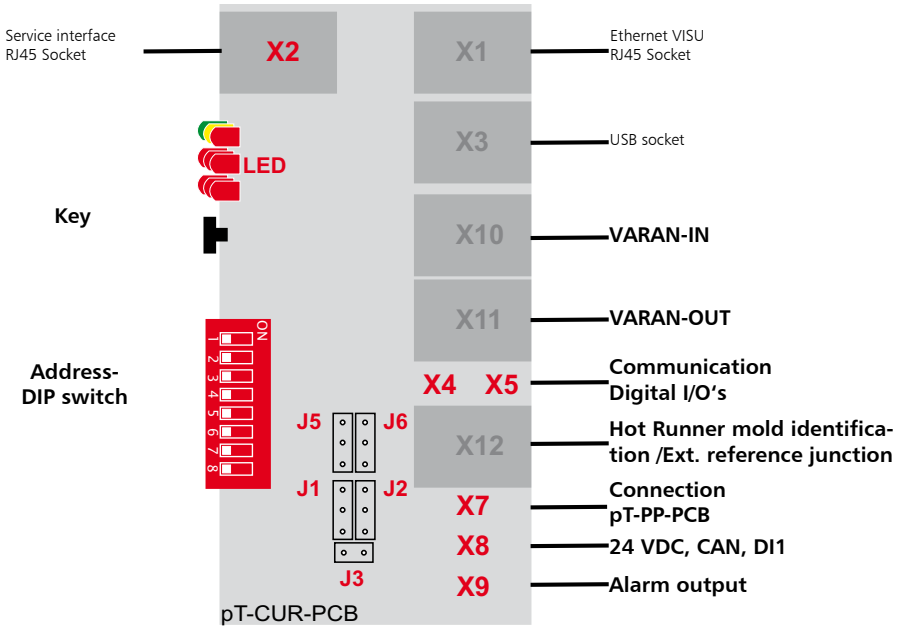
We reserve the right to make technical changes

PSG Plastic Service GmbH • P.O. Box 42 01 62 • 68280 Mannheim • Germany
Phone +49 621 7162-0 • Fax +49 621 7162-162 • www.psg-online.de • info@psg-online.de

Technical Data
pT-CUR

Number of zones	Maximum 250 zones	
In-/outputs	By spring-force terminal	
Measurement input X12	Number: 2 (external reference junction resistance thermometer Pt100 3-wire) Measurement range -10 ... +70 °C Internal resolution 0.1 K	
Digital input X4 and/or X5	Number: 4 0...30 VDC, Low level 0...1 VDC, High level 4...30 VDC, I_{MAX}=12 mA at 30 VDC	
Digital inputs for Hot Runner mold identification X12	Number: 8 0...30 VDC, Low level 0...1 VDC, High level 4...30 VDC, I_{MAX}=12 mA at 30 VDC	
Alarm output X9	Number: 1 Potential-free relay contact (2-pole spring-force terminal) 250 VAC / 1 A	
Digital output X4 and/or X5	Number: 4 10...30 VDC, 100 mA at Ta=25 °C	
Data interfaces		
CAN network X8 (CAN2)	Connection of control system with superior PLC or control; Spring-force terminal	
	Address range	Address range 1...127
	Transfer rate	78.8, 100, 125, [250], 500, 800, 1000 KByte configurable by flexotempMANAGER
	Max. tolerable bus length (m)	600, 500, 450, 250, 100, 50, 30
	Device internal terminating resistor	Can be activated by jumper
RS232/RS422 configuration interface X4 and/or X5	Indirect coupled, RS232/RS422 4-wire separately outputs. Available operation as RS422 (4-wire) and/or RS485 (2-wire). Ribbon cable / Spring-force terminal	
	Address range	0...255 (PSGII), 1...255 (Modbus RTU)
	Transfer rate	1200, 2400, 4800, 9600, [19200] Baud
	Stop and parity bit	2 Stop bits, NO parity
	Protocol	Modbus RTU/PSGII
Ethernet	10/100 Base-T, RJ45 connection	
	Address range	1...254
	Available connections	TCP/IP, service interface
Further	VARAN (RJ45 socket); USB Data ex-/-import	
Power supply	18...30VDC	
Current consumption	~ 500 mA	
Ambient temperature limit	Operation: 0 ... 55 °C, transport, storage: -20 ... 70°C	
Atmospheric humidity limit	Operation: 0 ... 90 % relative atmospheric humidity, no condensation; Transport, storage: 0 ... 95 % relative atmospheric humidity, no condensation	
Mounting	Slide-in card in pT-Rack	
Dimensions (H x W x D in mm)	306 x 34 x 120	
Weight	Ca. 0.4 kg	
Electrical security	Complies with EN 61010-1 (VDE 0411-1), protection class I, over voltage category II, degree of pollution 2, operating voltage 500 V	
Protection type	Housing and terminal IP 00	
Electro-Magnetic Compatibility (EMC)	Complies with EN61326-1	
CE marking	The device complies with the European Directives for electromagnetic compatibility.	

Connection overview



X8 Power Supply 24 VDC, (interface CANopen) Digital input 1

6-pole spring-force terminal

Pin	X8	Function and/or signal
1▶	+U	Power supply
2	0V	Ground power supply
3	C-H	CAN-H
4	C-L	CAN-L
5	D1	Digital input 1
6	0VD	Ground digital input

X8.5 same signal as X4.26

X9 Alarm output

2-pole spring-force terminal

Pin	X9	Function and/or signal
1▶	13	
2	14	

Potential-free relay contact

X4 Communication, Digital I/O's internal

26-pole ribbon cable (socket)

Pin	X4	Function and/or signal	Pin	X4	Function and/or signal
1	0Vext	Ground power supply=X8.2	14	RX+	RS485
2	0Vext	Ground power supply=X8.2	15	TX-	RS485
3	$+24V_{ext}$	Power supply =X8.1	16	TX+	RS485
4	ADR_{OUT2}	ADR-OUT2	17	$+24V_{OUT}$	Power supply O*
5	C2-L	CAN2-L	18	O4	Digital output 4
6	C2-H	CAN2-H	19	O3	Digital output 3
7	ADR_{OUT1}	ADR-OUT1	20	O2	Digital output 2
8	C1-L	CAN1-L	21	O1	Digital output 1
9	C1-H	CAN1-H	22	0VIN	Ground power supply I* =X8.6
10	0VSIO	RS232	23	I4	Digital input 4
11	RXD	RS232	24	I3	Digital input 3
12	TXD	RS232	25	I2	Digital input 2
13	RX-	RS485	26	I1	Digital input 1

X5 Communication, Digital I/O's

2*12-pole spring-force terminal

Pin	X5	Function and/or signal	Pin	X5	Function and/or signal
1▶	C1-H	CAN1-H	13	U1	Power supply=X8.1
2	C1-L	CAN1-L	14	U2	Power supply O*
3	C2-H	CAN2-H	15	0V1	Ground power supply=X8.2
4	C2-L	CAN2-L	16	0V2	Ground power supply I* =X8.6
5	TX+	RS485	17	I1	Digital input 1
6	TX-	RS485	18	I2	Digital input 2
7	RX+	RS485	19	I3	Digital input 3
8	RX-	RS485	20	I4	Digital input 4
9	TXD	RS232	21	O1	Digital output 1
10	RXD	RS232	22	O2	Digital output 2
11	0VSIO	RS232	23	O3	Digital output 3
12		n.a.	24	O4	Digital output 4

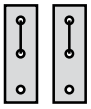
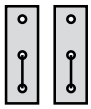
X12 Hot Runner mold identification, External reference junction

2*8-pole spring-force terminal

Pin	X12	Function and/or signal	Pin	X12	Function and/or signal
1	I5	Digital input 5	9	+U	Power supply
2	I6	Digital input 6	10	0V	Ground power supply
3	I7	Digital input 7	11	1+	External reference junction 1
4	I8	Digital input 8	12	1-	
5	I9	Digital input 9	13	1	
6	I10	Digital input 10	14	2+	External reference junction 2
7	I11	Digital input 11	15	2-	
8	I12	Digital input 12	16	2	

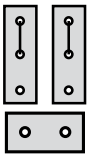
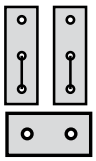
J5/J6 Hot Runner mold identification X12 Power supply

Power supply (power supply X12.9, ground power supply X12.10) used for hot Runner mold identification is specified by jumper J5/J6.

Pin	J5/J6	Function and/or signal
1▶ 2 3		Power supply J5 = X4.17 Ground power supply J6 = X8.6
1▶ 2 3		Power supply J5 = X8.1 Ground power supply J6 = X8.2 (Standard setting)

J1/J2 CAN pin assignment X8

Jumper

Pin	J1/J2	Function and/or signal
1▶ 2 3		Output signal CAN1 (internal bus) on X8|3|4 (Standard setting)
1▶ 2 3		Output signal CAN2 (external controller overall bus) on X8|3|4

CAN-Term J3	Termination of CAN bus
For signal CAN2 the internal terminating resistor for the CAN-Bus can be activated by jumper J3. (For signal CAN1 the internal terminating resistor 120 Ohm operates)	
	CAN2-Bus terminated on last component
Caution! J3 only for CAN2.	

X1, X2 TCP/IP (interface Ethernet)

Standard assignment, automatic Cross-over

Setting of address/NodeID/IP

The resulting address/NodeID/IP is a combination of the interface depending base part and the device ID. The base part is configured, the device ID is set by DIP switch.
Settings valid, when interface is available.

Interface	Resulting address/NodeID/IP		Base part of Address/NodeID/IP		
Serial PSGII	Software address (0...255)	=	Software Base Address	+	Device ID
Serial Modbus RTU	Modbus address (1...255)		Modbus Base Address	+	Device ID
CAN	NodeID (1...127)	=	Base NodeID	+	Device ID
Ethernet	IP [4.octet of IP (1...254)]	=	Basis IP (1. - 4.octet)	+	Device-ID (4. octet)

The device ID, that can be set by DIP switch ID, is binary coded and can be set between 0-127$_{dec.}$
A setup on the Controller Unit by key CFG reads the addresses set for the HCC cards.

Status display of LED's

LED	Function and/or signal	Flashing 4 Hz	Continuous light	Blink code 2	Flashing 2 Hz
OK		In monitor mode	Project setup OK / All Slaves OK / Project setup running	Project setup stopped	Slave missing / slave does not respond
SIO	Communication (CAN / SIO)				
CONFIG	Flashing during address scan				

Explanation blink code

Highest priority

Blink code 1 — LED switch-on 1 time, thereafter pause; repeat

Blink code 2 — LED switch-on 2 times, thereafter pause; repeat

Decreasing priority etc.

		Blink code 1	Blink code 2	Blink code 3	Blink code 4	Blink code 5
ERR1	Error in project setup/slaves	Time out error / slave does not respond	Time out Node-Guarding	Incorrect slave type in project setup		
ERR2	Error heating	Phase- / fuse-error	Leakage current error	Current overload (Heater with too high power / short circuit in heating circuit)	Thyristor alarm	Total breakdown of heater / heater not connected
ERR3	Sensor error	Potential error	Sensor break	Sensor incorrect polarity	Short circuit in sensor circuit	
ERR4	Data fault	Channel data error pT-CUR	Channel data error slave	System data error pT-Cur	System data error slave	
ERR5	Other errors	Heat sink temperature too high				
ERR6	Actuator deactivated	pt-CUR on „OUT“	Actuator deactivated			

Details on trouble shooting see start-up manual.