



Operating Instructions

System Configuration & Project Setup

flexotemp



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1 Introduction

This operating instructions introduces the multi loop control system flexotemp® with its components. The system structure and the project planning/configuration is described by practical examples completely. The necessary steps, to work with the system safely and quickly, can easily be derived by these specific applications.

Multi loop temperature control system flexotemp® based on the controller and open loop control units

flexotemp® MCU 128 flexotemp® PCU 128 flexotemp® PCU 48 flexotemp® PCU 24 flexotemp® PCU 128 PNIO flexotemp® PCU 48 PNIO flexotemp® PCU 24 PNIO

allows an optimal adaptation for each requirement.

Consequent modular design of intelligent IOs, the possibility of peripheral configuration in I/O nodes, universal function range are guarantors for this.



The available digital interfaces

- serial data interface COM
- CANopen slave CAN1 for controller internal network and network to superior control
- CANopen master CAN2 (field bus) for external I/O modules
- Profibus DP interface L2-DP
- Ethernet interface TCP/IP

provide easy internal and external connection possibility.

PROFINET IO is available for the controller and open loop unit labeled with the mnemonic PNIO . The interfaces are:

- CANopen master CAN2 (field bus) for external I/O modules
- Ethernet interface TCP/IP
- Ethernet interface PROFINET IO

The ways of communication and the system structure are defined by the project planning and configuration tool flexotempMANAGER.

These directions assist, both in case of the initial installation and operational startup, and in case of changes and adaptations to existing control systems. Status and fault signals are described and remedial actions proposed for their removal.

The protocol descriptions for PSGII, PSGII Ethernet (ASCII), Profibus DP, Modbus, Modbus TCP/IP, Profibus DPEA, CANopen, Send/Receive, PROFINET IO are not a component part of the operating manual. You are provided with these on request or directly as a download from the home page of PSG Plastic Service GmbH (www.meusburger.com).

1.1 Typographical Conventions

Symbols and conventions are used in this manual for faster orientation for you.

Symbols

	Caution	With this symbol, references and information are displayed which are decisive for the operation of the device. In case of non-compliance with or inaccurate compliance there can result damage to the device or injuries to persons.
	Note	The symbol refers to additional information and declarations, which serve for improved understanding.
	Example	With the symbol, a function is explained by means of an example.
	Reference	With this symbol, information in another document is referred to.
?	FAQ	Here FAQ (Frequently Asked Questions) are answered.
7		Cross references are marked with the character f. In the pdf version of the doc- ument the objective of the cross reference is reached via the link.
Equations		Calculation specifications and examples are represented in this way.
<view></view>		Menu points (e.g. view) are represented in this way.
Project		Windows (e.g. project) are represented in this way.
n.a.		Not applicable, not existing

1.2 Additional and continuative documents

Parameters	Information on this topic are in the operating instructions Temperature Control System flexotemp® Parameter zu entnehmen.
Operation	Information on this topic are in the operating instructions Project Planning and Configuration Tool flexotempMANAGER Operation zu entnehmen.
Protocol PSG II	Information on this topic are in the protocol description PSG II and the corresponding object lists.
Protocol PSG II Ethernet (ASCII)	Information on this topic are in the protocol description PSG II Ethernet (ASCII) and the corresponding object lists.
Protocol Profibus DP	Information on this topic are in the protocol description Profibus DP and the corresponding object lists.
Protocol Modbus	Information on this topic are in the protocol description Modbus and the corresponding object lists.
Protocol Modbus/TCP	Information on this topic are in the protocol description Modbus/TCP and the corresponding object lists.
Protocol Profibus DPEA	Information on this topic are in the protocol description Profibus DPEA and the corresponding object lists.
Protocol PROFINET IO	Information on this topic are in the protocol description PROFINET IO and the corresponding object lists.
Protocol CANopen	Information on this topic are in the protocol description CANopen and the corresponding object lists.
Data sheet	The data sheets can be accessed in Internet by www.meusburger.com, and/ or are available under menu bar \rightarrow <extras>\rightarrow<options>\rightarrow<update> in flex- otempMANAGER in the project view below each flexotemp® component (see operating instructions Project Planning and Configuration Tool flexotemp- MANAGER Operation).</update></options></extras>

6

2 Prerequisites

For installation and project setup of flexotemp® components, the following prerequisites must be fulfilled:

the project setup and configuration tool flexotempMANAGER is installed on a PC as standard installation

the flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.

Are other communication concepts employed, one has to answer the following questions -

where is the flexotempMANAGER running? where is the communication server (PSGCommServer) running? how are the controllers connected?

In chapter **Communication concepts of flexotempMANAGER** in the operating instructions **Project setup and configuration tool flexotempMANAGER Operation** (see Additional and continuative documents) is described, which settings must be made in the flexotempMANAGER for PSGCommServer and master components (MCU/ PCU).

2.1 Order of addressing

At project setup of flexotemp® components in flexotempMANAGER, the addresses are assigned like the order of the single planned components, that is

- CAN-NodelD
- Slot number
- PSG bus addresses

flexotempMANAGER addresses are sequential, but allows the operator to make changes.

The CAN components have a CAN NodeID, which has to be adjusted identical by rotary switch on the device.

The PCU components get a consecutive slot number according to their arrangement in the project setup. The PCU components must be installed according to this order. Before writing the project data to the controller, take care, that the slot numbers are addressed without gaps (otherwise operator gets a notice).

The RS485 components get a consecutive slot number according to their arrangement in the project setup. This has to be adjusted identical by rotary/DIP switch for the RS485 components.

At transfer of project into controller, an address scan in the controller checks, that all components respond with the addresses, slot numbers and PSG bus addresses, specified in the project setup. If this is not the case, error messages are displayed and the project setup, as well as the setting of the rotary and/or DIP switch must be checked and corrected.

In case of replacement of defective components, it is absolutely necessary to adopt the setting adjustments of the replaced component.

The project setup has to be adapted, when components are completely removed or newly added.

2.1.1 Activate address scan manually

In case of replacement of defective components, it is absolutely necessary to adopt the setting adjustments of the replaced component. To do so activate address scan manually.

Address scan for controller/master component

An address scan can

- be activated by controller/master component in flexotempMANAGER (see context menu for master component on project level, address scan).
- be activated by code number 700 in flexotempMANAGER (see context menu for master component on project level, code number).
- be activated by rotary switch on the controller. To do so, turn the rotary switch on the controller to "FE", wait 5 seconds, wait for alternate flashing and turn rotary switch to starting position.

Is no flexotempMANAGER in use, the address scan can also be activated by the operation software programs like TEMPSoft1 (see chapter on code number in the related operating instructions) and/or TEMPSoft2 (see chapter service portal, setup in the related operating instructions).

All connected components on the controller/master component are readdressed (from software version flexotemp-MANAGER 1.2.20; before only to CANBC).

Address scan for bus coupler CANBC

An address scan can

- be activated by CANBC in flexotempMANAGER (see context menu for CANBC on project level, address scan).
- be activated by key directly on component CANBC.

Only components connected to the bus coupler CANBC are readdressed.

2.2 CAN bus termination

For flexotemp® components, that are at the begin or the end of the bus, the terminating resistor is activated exworks.

- Peripheral Control Unit flexotemp® PCU48 (controller)
- CAN-Bus Extension Interface flexotemp® CANBE
- Bus Extension Interface flexotemp® BE







Termination internal

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3 Examples

In the following example a project is described, with the target, to realize it with the flexotemp® components and the project setup/configuration in flexotempMANAGER.

Each example is divided by the following points

- **Target**: Description of the project
- Necessary components: List of the required flexotemp® components for the project
- Installation: the configuration and wiring of the flexotemp® components
- Interface connections: establishing of connection between flexotemp® components with flexotempMANAGER serial/per Ethernet
- Project setup and configuration: the settings for the project in flexotempMANAGER, the parameters to configure, inclusive addressing of components

The necessary steps for own applications, to work with the system safely and quickly, can easily be derived by these exemplary configuration and project setup.

3.1 Example_1 - PCU-System

3.1.1 Example1-Target

Project setup of a control system with

- 20 zones (10 Heating, 10 Heating/Cooling)
- 4 zones with measurement inputs resistance thermometer Pt100
- remaining zones with measurement inputs thermocouple TC
- Outputs Heating, SSR, zero-crossing switching
- 2 outputs Cooling, analog outputs for control of servo valves
- remaining outputs Cooling, SSR, zero-crossing switching activation for fan, drive
- 2 analog inputs for recording of process factors (RPM)x
- Heating Current Monitoring

The planned control system should be represented in a table, e.g. in the way shown, to deduce the number of components and the project setup.

Explanation of the table contents

0	Prerequisite	The standard names of flexotempMANAGER are used.
	Z	Number of zone
	M/C	Measurement/Control
	SSR	Solid State Relay
	e.g. 004DIO16_CI.DIO7	flexotemp® component DIO16_CI, 7th DIO
		(004 is an internal consecutive number, which is assigned by the pro- gram, to identify the flexotemp® component)
	S-Type	Sensor Type

Z	M/	Output type	Output type	Output type	Measurement	S-	Measurement input
	С	Switching SSR	Switching SSR	Analog signal	input	Туре	Sensor Type
		Heating *)	Cooling		Analog signal		
1	С	004DIO16_CI.DIO1				PT	002TCPT08.AI1
2	С	004DIO16_CI.DIO2				PT	002TCPT08.AI2
3	С	004DIO16_CI.DIO3				PT	002TCPT08.AI3
4	С	004DIO16_CI.DIO4				PT	002TCPT08.AI4
5	С	004DIO16_CI.DIO5				J	002TCPT08.AI5
6	С	004DIO16_CI.DIO6				J	002TCPT08.AI6
7	С	004DIO16_CI.DIO7				J	002TCPT08.AI7
8	С	004DIO16_CI.DIO8				J	002TCPT08.AI8
9	С	004DIO16_CI.DIO9				J	003TC12.AI1
10	С	004DIO16_CI.DIO10				J	003TC12.AI2
11	С	004DIO16_CI.DIO11	005DIO16_CI.DIO5			J	003TC12.AI3
12	С	004DIO16_CI.DIO12	005DIO16_CI.DIO6			J	003TC12.AI4
13	С	004DIO16_CI.DIO13	005DIO16_CI.DIO7			J	003TC12.AI5
14	С	004DIO16_CI.DIO14	005DIO16_CI.DIO8			J	003TC12.AI6
15	С	004DIO16_CI.DIO15	005DIO16_CI.DIO9			J	003TC12.AI7
16	С	004DIO16_CI.DIO16	005DIO16_CI.DIO10			J	003TC12.AI8
17	С	005DIO16_CI.DIO1	005DIO16_CI.DIO11			J	003TC12.AI9
18	С	005DIO16_CI.DIO2	005DIO16_CI.DIO12			J	003TC12.AI10
19	С	005DIO16_CI.DIO3		006AIO04.AO1		J	003TC12.AI11
20	С	005DIO16_CI.DIO4		006AIO04.AO2		J	003TC12.AI12
21	М				006AIO04.AI1		
22	М				006AIO04.AO2		

*) In the current example, the heating current monitoring is done for all Heating outputs, which are distributed to the both modules DIO 16 CI, so the flexotemp® component DIO16CI is connected each with 3 external current transformers. The PSG current transformer module ESW75 is used. The control outputs Heating are of type <Heating with current measurement>. Further details on heating current monitoring see operating instructions **Temperature Control System flexotemp® Parameter**.

3.1.2 Example1-Necessary components

The following flexotemp® components are required:

- 1 Peripheral Control Unit flexotemp® PCU48 (controller)
- I Thermocouple Interface flexotemp® TCPT08
- 1 Thermocouple Interface flexotemp® TC12
- 2 Digital In-/Output Interface, Current Input flexotemp® DIO16CI
- 6 current transformer modules ESW75
- 1 Analog In-/Output Interface flexotemp® AIO04
- 8 output modules sysTemp® SMS01

3.1.3 Example1-Installation

At all installation work, note the current data sheets for each flexotemp® component.

The data sheets can be accessed in Internet by www.meusburger.com, and/or are available under menu bar \rightarrow <Extras> \rightarrow <Options> \rightarrow <Update> in flexotempMANAGER in the project view below each flexotemp® component (see operating instructions **Project setup and Configuration Tool flexotempMANAGER Operation**, see \neg Additional and continuative documents).

The flexotemp® components are added from the right side, starting from the controller, as shown. The cross connections click into place for automatic parallel bus contact in the housing, that builds a block of flexotemp® components.

Power unit	K K K K K K K K K K K K K K	0444964 55C/1	0000000			алиорен 25501 Хало
Output voltage	* 5 5 0 ×					
24 VDC	PCU 48	UTCPT08	UTC12	UDIO16CI	←DIO16CI	UAIO04
		Ùclick into p	lace			

Rated voltage	1830 VDC	1830 VDC	1830 VDC	1830 VDC	1830 VDC	1830 VDC
Power	6 W	2 W	2 W	2 W	2 W	2 W
consumption		(Electronics)	(Electronics)	(Electronics)	(Electronics)	(Electronics)
6	See current data s	heets				

Starting with the power unit, the flexotemp® components must be connected with the 24 VDC power supply.

Component	PCU 48	TCPT 08	TC12	DIO 16 CI	DIO 16 CI	AIO 04
Terminal	X1	<n.a.></n.a.>	<n.a.></n.a.>	X1	X1	X1
6	See current data	sheets				

The in-/outputs of the flexotemp® components must be wired accordingly.

Component	PCU 48	TCPT 08	TC12	DIO 16 CI	DIO 16 CI	AIO 04
Terminal	<n.a.></n.a.>	X1, X2	X1, X2	X2, X3	X2, X3	X2, X3
See current data sheets						

Three current transformers ESW75 have to be connected to the flexotemp® component DIO16CI, for heating current monitoring.

Component	DIO 16 CI	DIO16CI
Terminal	X2, X3	X2, X3

The outgoing control lines for the Heating actuators on DIO16CI, have to be led through the connected current transformer.

An output module SMS01 has to be connected to the digital outputs (see *P*Example1-Specify Cooling outputs) (in terminal design), e.g. for control of a three phase fan.

Component	DIO 16 CI DIO 16 CI	
Terminal	X2, X3 X2, X3	
	SMS01(X5) SMS01(X5)	



See current data sheets

3.1.4 Example1-Create serial interface connection to controller

A serial connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component PCU48.

6	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
6	Prerequisite	flexotemp® component PCU48 has the option COM interface RS232/ RS422.
	PC side	
	Interface converter	Due the fact, that a PC has no standard RS485 interface, an interface converter is required (see data sheet SK232485).
		Take care of the pin assignment and the correct connection.
	Controller side	The RS232 cable must be connected to the connection X5 COM of the flexotemp® component PCU48.
	PSGCommServer	Create a serial interface (operating instructions Project setup and Configuration Tool flexotempMANAGER Operation chapter 3.1.2, see <i>¬</i> Additional and continuative documents).
	flexotempMANAGER	Check on the side of the communication server, that the setting <the as="" computer="" flexotempman-ager="" on="" psgcommserver="" runs="" same="" the=""> is selected. By the key <read by="" interface="" manually="" of="" psgcommserver="" setting="">, the settings of the serial interface are taken from the previous step and can be selected.</read></the>

3.1.5 Example1-Create interface connection to controller per Ethernet

A connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component PCU48 per Ethernet.

6	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
	PC side	
	LAN connection	For direct coupling from PC and controller, use a cross-over cable. Us- ing a Fast-Ethernet-Switch, use a standard Ethernet network cable.
	Controller side	The Ethernet network cable must be connected to the connection X2 TCP/IP of the flexotemp® component PCU48.
	flexotempMANAGER	Check on the side of the communication server, that the setting <the as="" computer="" flexotempman-ager="" on="" psgcommserver="" runs="" same="" the=""> is selected.</the>

3.1.6 Example1-Project setup and configuration

Further details, how the project setup and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter ¬Additional and continuative documents).

3.1.6.1 Example1-Create controller and components

6	Prerequisite	flexotempMANAGER is installed on PC.
	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
6		The flexotemp® components are configured in the order shown in PExample1-Installation (from the left, starting from the controller, to the right).

PC side

flexotempMANAGER Symbol bar: <View> Symbol bar, Status bar, Project are active. start Menu bar: <File> <New>. No project (<Unnamed>) is displayed.



Create controller

Create controller PCU048 by <Create new component>.



Address setting

The setting of the device ID on the coding switch here and on the rotary switch on the controller must fit. At communication by Ethernet, the PC must have the same subnet like the controller (subnet mask: 255.255.255.0).

flexotempMANAGER - Unnamed		_ & ×
File Edit Communication View Extras ?		
D 🚅 🖬 X 🖻 💼 🚭 🦹 😻 💷 💷	19 19 19 19 📾 🏂 é 🕡	
Communication server Communication server Commentary Correate new components	Image: Component for PCU048 Component names Component names Coderschalter Device ID Device ID Device ID Image: Component interface Coderschalter Device ID Image: Component interface Serial interface CAN interface CAN interface CAN interface Device ID Image: Component interface Coderschalter Device ID Image: Component interface Coderschalter Device ID Image: Component interface Image: Component int	
	OK Cancel	
Project 😓 Status 🔄 Trend		

Controller PCU048 is created.

E flexotempMANAGER - Unnamed *				-	8 ×
File Edit Communication View Extras ?					
D 🖆 🔲 X 🖻 🖻 🎒 😵 🕕) 1) 12 19 19 19 18 18 1 6 (Ð			
Communication server Commentary Commentary Commentary Commentarion Time server System parameter Comparameter System parameter Comparame	PCU048>Info PCU048>Info Component name DLL Data version Software version Details	PCU048 PCU048 DAT 1.1 010001 PCU0480?????			
Project [3:3] Status [2] [Tend]]		STNGLE MODE		
Press F1 for help.			SINGLE MODE	OFFLINE TREND OFFLINE 🛒	

Create further components

Beneath the controller, the further components (TCPT08, TC12, DIO16 CI, AIO04) are selected out of a list and created.



The controller and the components are created in the project.



The project is stored with the name Example_1.

18 Chapter 3 Examples

3.1.6.2 Example1-Specify Heating outputs

Specify 20 Heating outputs

At the first (004)DIO16_CI: for DIO1...DIO16 select and set the type <Heating with current measurement>.

flexotempMANAGER - Example_1					_ 6 ×
File Edit Communication View Extras ?					
🗋 🗅 🚅 🔒 X 🖻 🖻 🎒 🎒 😵 💷) 10 19 19 19 19 📫 🏠	é 🛈			
×	DI016 CI->In-/outputs	X2/X3			
Communication server					
Commentary		News		T	Definition
E 🙀 PCU048		Name		l iyp	Demition
Datasheet	In-/output DIO 01 (X2. 5)	00401016_01.0101	M		· <u> </u>
Time server	In-/output DI0 02 (X2. 6)	004DI016_CI.DI02		Heating with current measurem	ent
System parameter	In-/output DID 03 (X2. 7)	004DI016_CI.DI03	v	Cooling	2
🗄 🔶 Zone parameter	In-/output DID 04 (X2, 8)	004DI016_CI.DI04		Heating digital output	~
Name of zone/Input blocks	In Journal DIO 05 N/2 91	00401016_CL0105		digital input	
Profibus DPEA	involuplatibilo do (x2. o)	00401010_01.01000	— Ĕ	Heating with common supply	
Inputs	In-/output DIO 06 (X2.10)	00401016_01.0106	M	Cooling with common supply	
Tool coding	In-/output DI0 07 (X2.11)	004DI016_CI.DI07			
 Virtual digital inputs 	In-/output DIO 08 (X2.12)	004DI016_CI.DI08	~		
Virtual digital outputs Measured values	In-/output DIO 09 (X3. 5)	004DI016_CI.DI09	1		
Group administration	In-/output DIO 10 (X3. 6)	004DI016_CI.DI010	~		
🗈 🕎 ТСРТОВ	In-/output DIO 11 (X3. 7)	004DI016_CI.DI011			
	In-/output DID 12 (X3. 8)	004DI016_CI.DI012			·
Datasheet	In-/output DID 13 (X3, 9)	004DI016 CI.DI013			
- Q Parameter	In /output DID 14 (V2.10)	00401016_0101014	— Ë		-
In-/outputs X2/X3	1119 Odipar D10 14 (7.3.10)		— <u> </u>	J	
E E DIO16_CI	In-/output DI0 15 (X3.11)	00401016_01.01015	¥		
Create new component >	In-/output DIO 16 (X3.12)	004DI016_CI.DI016	V		
<create component="" new=""></create>				→ <u>*</u>	
-					
Bé p : , N. Sister 🕞 Trand					
	•				
Press F1 for help.					OFFLINE TREND OFFLINE 🕺 🗂

At the first (004)DIO16_CI: for DIO1...DIO16 of type <Heating with current measurement> assign zone 1...16.

flexotempMANAGER - Example_1						_ <u>8 ×</u>
File Edit Communication View Extras ?		<u> </u>				
		8 🔍				
	DI016_CI->In-/outputs	×2/×3				
Commentary				-	-	
E- 🙀 PCU048		Name		Тур	De	finition
Datasheet	In-/output DIO 01 (X2. 5)	004DI016_CI.DI01	•	Heating with current measurem		
Communication	In-/output DID 02 (X2. 6)	004DI016_CI.DI02	~			
System parameter	In-/output DID 03 (×2, 7)	004DI016_CI.DI03		, 	X1>Zone 1 (2>Zone 2	
🖅 💊 Zone parameter	In (output DID 04 0/2, 9)				<3> Zone 3 🐴	
Name of zone/Input blocks					<4> ∠one 4 1 <5> Zone 5	
🕀 🔶 Profibus DPEA	In-/output DIU 05 (X2. 9)	00401016_01.0105			<6> Zone 6	
Direct IOs	In-/output DIO 06 (X2.10)	004DI016_CI.DI06	V		<7> Zone 7 (8) Zone 8	
Tool coding	In-/output DIO 07 (X2.11)	004DI016_CI.DI07			<9> Zone 9	
Virtual digital inputs	In-/output DIO 08 (X2.12)	004DI016_CI.DI08			<10> Zone 10 <11> Zone 11	
 Virtual digital outputs 	Involutional DID 09 0/3-51	004DI016 CLDI09		,	<12> Zone 12	
Measured values		004DI016_CLDI010			1<13> Zone 13 1<14> Zone 14	
Group administration	In-/output DIU TU (X.3. 6)	00401016_01.01010			<15> Zone 15	
	In-/output DIO 11 (X3. 7)	004DI016_CI.DI011	🔽		<16> Zone 16	
DIO16_CI	In-/output DIO 12 (X3. 8)	004DI016_CI.DI012			<18> Zone 18	
Datasheet	In-/output DID 13 (X3. 9)	004DI016_CI.DI013	- -		1<19> Zone 19	
Parameter	In-/output DID 14 (X3.10)	004DI016_CI.DI014			<20> Zone 20 <21> Zone 21	
In-foutputs X2/X3		00401016_CL01015		,	<22> Zone 22 (22) Zone 22	
	In-Youtput Dio 15 (X.3.11)			ļ	<23> Zone 23	
<pre></pre>	In-/output DIO 16 (X3.12)	00401016_01.01016	· ·	I	<25> Zone 25	
<pre>Create new component></pre>				→ <u>≪</u>	<26> Zone 26 <27> Zone 27	
					<28> Zone 28	
					<29> Zone 29 <30> Zone 30	
					<31> Zone 31	
					<32> Zone 32	
					<34> Zone 34	
					<35> Zone 35	
					<36> Zone 36	
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16 Heating outputs are defined for zone 1...16.

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× #	DID16 Claip (outpute X	2/22			
Compunication server					
Commentary			-		B (1)
E G PCU048		Name		lyp	Definition
Datasheet	n-/output DIO 01 (X2. 5)	00401016_01.0101	_ 12	Heating with current measurem	<1> Zone 1
Time server	n-/output DIO 02 (X2. 6)	004DI016_CI.DI02	- ₽	Heating with current measurem	<2> Zone 2
System parameter	n-/output DIO 03 (X2. 7)	004DI016_CI.DI03		Heating with current measurem	<3> Zone 3
One parameter	n-/output DIO 04 (X2. 8)	004DI016_CI.DI04	V	Heating with current measurem	<4> Zone 4
• Value of zonejunpot blocks • Profibus DPEA	n-/output DIO 05 (X2. 9)	004DI016_CI.DI05		Heating with current measurem	<5> Zone 5
- I Direct IOs	n-/output DIO 06 (X2.10)	004DI016_CI.DI06	-	Heating with current measurem	<6> Zone 6
- • Inputs	n-/output DIO 07 (X2.11)	004DI016_CI.DI07	-	Heating with current measurem	<7> Zone 7
Virtual digital inputs	n-/output DID 08 0(2 12)	004DI016 CI.DI08	- 7	Heating with current measurem	<8> Zone 8
🗣 Virtual digital outputs	n-/output DIO 09 (X3, 5)	004DI016_CI.DI09	- 🔽	Heating with current measurem	<9> Zone 9
	n-/output DIO 10 (X3, 6)	004DI016_CI.DI010		Heating with current measurem	<10> Zone 10
⊕ ₩ ТСРТО8	n-/output DID 11 0/3 7)	004DI016 CI.DI011		Heating with current measurem	<11> Zone 11
н 🕎 ТС12	n/output DIO 12 (V3. 1)		-	Heating with current measurem	<12> Zone 12
Dio16_CI	n /output DIO 12 (vid. 0)	004DI016_CLDI013	-	Heating with current measurem	(13) Zone 13
Parameter	n-/output DIO 15 (A3. 5)	004DI016_CLDI013		Heating with current measurem	(14) Zono 14
 In-/outputs X2/X3 	nivoutput Dio 14 (A.3. To)		- 🖻	In the standard standar	15 2 15
	n-/output DIO 15 (X3.11)	004DI016_CI.DI015	- 🖻	Heating with current measurem	<15> 20ne 15
<pre>Create new component></pre>	n-/output DIO 16 (X3.12)	004DI016_CI.DI016		Heating with current measurem	<16> Zone 16
				→	
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At the second (005)DIO16_CI: for DIO1...DIO4 select and set the type <Heating with current measurement>.

At the second (005)DIO16_CI for DIO1...DIO4 of type <Heating with current measurement> assign zone 17...20.

All 20 Heating outputs with heating current monitoring are defined for zone 1...20.

flexotempMANAGER - Example_1						_ <u>8</u> ×
		é 🛈				
	* B+II DI016_CI->In-/outputs	×2/×3				
Communication server						
Commentary		Name		Тур		Definition
R Datasheet	In-/output DIO 01 0/2 51	005DI016 CI.DI01		Heating with current measurem	<17> Zone 17	
- 🖗 Communication	In /output DID 02 (V2 E)	00501016_010102	_	- Heating with current measurem	<18> Zone 18	
Time server		00501010_010102		Heating with a ment measurem	(10) Zone 10	
System parameter	In-/output DIU 03 (X2. 7)	00501016_01.0103		Heating with current measurem	C132 2018 13	
Some parameter Some parameter Some parameter Some parameter	In-/output DIO 04 (X2. 8)	00501016_01.0104		Heating with current measurem	<20> Zone 20	
Profibus DPEA	In-/output DIO 05 (X2. 9)	005DI016_CI.DI05				
 Direct IOs 	In-/output DI0 06 (K2.10)	005DI016_CI.DI06				
S Inputs	In-/output DIO 07 (X2.11)	005DI016_CI.DI07				
 Virtual digital inputs 	In-/output DID 08 0(2 12)	005DI016 CI.DI08				
💊 Virtual digital outputs	In Andrea DIO 00 (V2. E)	00501016_CL0109	- 2.			
• Measured values	Involupation of the time of	005D1010_01.0100	- 2.			
Group administration	In-/output DIU 10 (X3. 6)	00501016_01.01010	_			
B SU TC12	In-/output DID 11 (K3. 7)	005DI016_CI.DI011				
E DIO16_CI	In-/output DIO 12 (X3. 8)	005DI016_CI.DI012				
🖨 🕎 DIO16_CI	In-/output DIO 13 (X3. 9)	005DI016_CI.DI013				
Datasheet	In-/output DIO 14 (X3.10)	005DI016_CI.DI014	_			
Parameter	In (output DIO 15 (V2 11)	00501016_CL01015				
H SU AIO04		00501010_0101010	- 2			
<create component="" new=""></create>	In-/output DIU 16 (X3.12)	00001016_0101016		2000		
- of <create component="" new=""></create>				→		
Topect Zay Status E Trend	•					▶
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20 Chapter 3 Examples

3.1.6.3 Example1-Specify Cooling outputs

Specify 8 Cooling outputs

At the second (005)DIO16_CI for DIO5...DIO12 select and set the type <Cooling>.

	× ■+ DI016_CI->In-/outputs	8 V X2/X3			
Communication server		Name		Tun	Definition
PCU048	Involutout DID 01 (V2 5)	005DI016_CLDI01		Heating with current measurem	<17>Zone 17
Communication	In-foutput DID 02 0(2, 6)	005DI016 CI.DI02		Heating with current measurem	<18> Zone 18
Time server	In /output DID 02 (v2. 0)	00501016_010103		Heating with current measurem	(19) Zone 19
- System parameter	In /output DIO 03 (22, 7)	00501016_01.0104		Heating with current measurem	(20) Zone 20
Name of zone/Input blocks	In-/output DIO 04 (x2, 8)	00501016_01.0104			1207 2010 20
Profibus DPEA Direct IOc	In-/output DID 05 (X2. 9)	00501016_01.0105			
- Inputs	In-/output DIO 06 (X2.10)			Heating with current measurem	ent
 Tool coding 	In-/output DID 07 (X2.11)	00501016_01.0107		Cooling Heating	
Virtual digital inputs Virtual digital outputs	In-/output DIO 08 (X2.12)	005DI016_CI.DI08	_ □	digital output	
 Writear digital outputs Weasured values 	In-/output DIO 09 (X3. 5)	005DI016_CI.DI09		Heating with common supply	
🗣 Group administration	In-/output DIO 10 (X3. 6)	005DI016_CI.DI010		Cooling with common supply	
EU TCPT08	In-/output DIO 11 (X3. 7)	005DI016_CI.DI011			
U DIO16 CI	In-/output DID 12 (X3. 8)	005DI016_CI.DI012			
DI016_CI	In-/output DIO 13 (X3. 9)	005DI016_CI.DI013			
Datasheet	In-/output DIO 14 (X3.10)	005DI016_CI.DI014			
 Farameter In-/outputs X2/X3 	In-/output DI0 15 (X3.11)	005DI016_CI.DI015	- F		,
[] AI004	In /output DID 16 (×3 12)	005DI016 CI.DI016			
Create new component>				→ <u>×</u>	

At the second (005)DIO16_CI for DIO5...DIO12 of type <Cooling> assign zone 11...18.

flexotempMANAGER - Example_1					_ <u>- </u> ×
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🗅 😅 🖬 🙏 🖻 🕄 🎒 💡 🛒 💷	11 12 19 19 19 🔹 🏠	é 🕡			
	B+III DI016 Cl-bin-/outputs'	×2/x3			
Commentary			_		
E 🙀 PCU048		Name	1 2 1 2	Тур	Definition
- 👘 Datasheet	In-/output DIO 01 (X2. 5)	005DI016_CI.DI01		Heating with current measurem	<17> Zone 17
Communication	In-/output DID 02 (X2. 6)	005DI016_CI.DI02		Heating with current measurem	<18> Zone 18
System parameter	In-/output DID 03 0/2 71	00501016_CL0103		Heating with current measurem	<19> Zone 19
	In Joseph DID 03 (A2, P)	00501016_010104	- 2	Heating with oursent measurem	(20) Zana 20
Name of zone/Input blocks	In-/output DIU 04 (X2. 8)	00001016_01.0104		Heating with culterit measurem	<20> 20He 20
🖅 🗣 Profibus DPEA	In-/output DIO 05 (X2. 9)	005DI016_CI.DI05		Cooling	
 Direct IOs 	In-/output DIO 06 (X2.10)	005DI016_CI.DI06			(1) 71
Inputs Tool coding	In-/output DID 07 (X2.11)	005DI016_CI.DI07			<2> Zone 2
Virtual digital inputs	In-/output DID 08 0/2 12)	00501016_CLDI08			<3> Zone 3
Virtual digital outputs	117000p0(010-00(7/2.12)	005DI01C_CLDI00			<4> 20ne 4 <5> Zone 5
Measured values	In-/output DIU 09 (X3. 5)	00001018_01.0103			<6> Zone 6
Group administration	In-/output DIO 10 (X3. 6)	005DI016_CI.DI010			
	In-/output DIO 11 (X3. 7)	005DI016_CI.DI011			<9> Zone 9
H-1011C12	In-/output DI0 12 (X3. 8)	005DI016_CI.DI012			<10> Zone 10 <11> Zone 11
	In-/output DID 13 0/3 91	005DI016_CLDI013			<12> Zone 12
Tatasheet	1.1.1.1.1.DIO 110(210)	00501016_0101014			<13> Zone 13 (14) Zone 14
Parameter	In-7output DIO 14 (X.3.10)	00001010_01.01014			<15> Zone 15
In-/outputs X2/X3	In-/output DI0 15 (X3.11)	005DI016_CI.DI015			<16> Zone 16 (17) Zone 17
AIO04	In-/output DI0 16 (X3.12)	005DI016_CI.DI016			<18> Zone 18
<pre>Create new component ></pre>				→ «	<19> Zone 19
					<20> 20ne 20 (21) Zone 21
					<22> Zone 22
					<23> Zone 23
					<24> Zone 24
					(20) Zone 20 (26) Zone 26
					<27> Zone 27
					<28> Zone 28
					<29> Zone 29
					<30 Zone 30
					(31) Zone 31 (22) Zone 22
					<33> Zone 33
					<34> Zone 34
					<35> Zone 35
🗣 Project 🐉 Status 🔚 Trend	-				<36> Zone 36
	•				
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8 Cooling outputs are defined for zone 11...18.

🖻 🖬 X 🖻 🖻 🎒 📍 🕏 🕏	10 10 19 19 19 19 🖬 🏠	é 🗊			
	× BIO16_CI->In-/outputs	X2/X3			
Communication server					
PCUD48		Name	□ : ₽	Тур	Definit
📲 Datasheet	In-/output DIO 01 (X2. 5)	005DI016_CI.DI01		Heating with current measurem	<17> Zone 17
Communication	In-/output DI0 02 (X2. 6)	005DI016_CI.DI02		Heating with current measurem	<18> Zone 18
System parameter	In-/output DID 03 (×2, 7)	005DI016_CI.DI03	— F	Heating with current measurem	<19> Zone 19
🗉 🗣 Zone parameter	In-/output DID 04 (X2. 8)	005DI016_CI.DI04	— Ē	Heating with current measurem	<20> Zone 20
Name of zone/Input blocks	In-/output DID 05 0(2, 9)	005DI016 CI.DI05		Cooling	<11> Zone 11
Vertical Street IOs	In Jourput DIO 06 (v2.10)	00501016_CL0106		Cooling	<12> Zone 12
💊 Inputs	In four bio 00 (x2.10)	00501016_01.0107		Cooling	(12) Zone 12
Sol coding Sol coding	In-Youtput Dio 07 (A2, 11)	00501016_01.0107		Cooling	(14) Zone 14
 Virtual digital inputs Virtual digital outputs 	In-Youtput DID 08 (X2, 12)	00501016_01.0108	— Ľ		15.7 15
💊 Measured values	In-/output DIU 09 (X3. 5)			Looling	<15> Zone 15
Group administration	In-/output DIO 10 (X3. 6)	00501016_01.01010		Cooling	<16> Zone 16
	In-/output DIO 11 (X3. 7)	005DI016_CI.DI011	▼	Cooling	<17> Zone 17
DIO16_CI	In-/output DID 12 (X3. 8)	005DI016_CI.DI012	•	Cooling	<18> Zone 18
E DIO16_CI	In-/output DI0 13 (X3. 9)	005DI016_CI.DI013			
Datasheet	In-/output DI0 14 (X3.10)	005DI016_CI.DI014			
In-/outputs X2/X3	In-/output DI0 15 (X3.11)	005DI016_CI.DI015			
AI004	In-/output DI0 16 (×3.12)	005DI016_CI.DI016	- F		
∰ <create component="" new=""></create>				→ <u>~~</u>	
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By the output module SMS01 (in terminal design) for each digital output e.g. a three phase fan can be connected. A project setup and/or configuration for the SMS01 is not necessary (see *¬*Example1-Installation).

3.1.6.4 Example1-Specify Cooling outputs as analog outputs

Specify 2 Cooling outputs as analog outputs

At (006)AIO04: for AO1...AO2 select and set the type <Cooling>.

New Edite Communication New Edites ? Communication server Constrainty Communication server Constrainty Output AD1 (K3.1-3) Output AD1 (K	flexotempMANAGER - Example 1				
Image: Status	File Edit Communication View Extras ?				
Communication server Communication server Comparison Compa	🗅 🚅 🖬 🕺 🖻 📾 🎒 🤗 🥵 🗊) 10 19 19 19 19 🚅 🏠	· é 🛈		
Output AD 2 (23, 4, 6) Docknow AD 2 Output AD 2 (23, 4, 6) Docknow AD 3 Hearing Hearing Name of zone parameter Duput AD 3 (23, 7, 9) Output AD 3 (23, 7, 9) DOcknow AD 3 Hearing Hearing Name of zone framether Duput AD 3 (23, 7, 9) Output AD 3 (23, 7, 9) DOcknow AD 3 Hearing Hearing Hearing Hearing Output AD 4 (23 10-12) DOcknow AD 3 Hearing Hearing Output AD 4 (23 10-12) DOcknow AD 4 Departments Colessing Group admitstration Hearing Hearing Dotaclest Parameter Parameter Parameter	Communication server - Commentary - Commen		Name 006AI004.A01	Type	Definition
Output AD 3 (3,7,7) UBARIUM AU3 Heating Heating Heating Name of zone/Input blocks Porticitus DEFA Direct 105 Input add 3 (4,7,7) Output AD 3 (3,7,7) Output AD 3 (3,7,7,9) Output AD 3	- Ö Time server	Output AO 2 (X3. 4-6)	006A1004.A02	Cooling	
Output AD 4 (231012) UUSAUUUAU4 Coolesys Output AD 4 (231012) Coolesys	System parameter	Output A0 3 (X3. 7-9)	006AIU04.AU3	Measured value	
	Name of zone/Input blocks	Output A0 4 (X3.10-12)	006A1004.A04	CoDeSys	
	Finjels Froject Zy Status Foject Zy Status Trend	4			

At (006)AIO04: for AO1...AO2 of type <Cooling> assign zone 19...20.

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Communication server	∎•IC Al004->0utputs X3	Name	Туре		Definition
Datasheet	Output A0 1 (X3, 1-3)	006AI004.A01	Cooling		
Communication	Rutnut AD 2 (X3, 4-6)	006AI004.A02			
System parameter	Output 40 30X3 7-9)	006AI004.A03		<1> Zone 1 <2> Zone 2	
	Output AD 4 (x3 10.12)	006AI004.A04	_	<3> Zone 3	
Anne of zone[Trout blocks Original Status Original Status				(a) 2006 4 (b) 2006 5 (c) 2006 7 (c) 2006 7 (c) 2006 7 (c) 2006 8 (c) 2006 9 (c) 2006 9 (c) 2006 9 (c) 2006 9 (c) 2006 10 (c) 2006 10 (c	
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2 Cooling outputs are defined as analog outputs for zone 19...20.

FlexotempMANAGER - Example_1				_ 6)
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File Edit Communication Yew Extras ? Image: Edit Communication Server Image: Edit Communication Server Image: Edit Communication Server Image: Edit Communication Im	BO DO	Name 0064/004.A01 0064/004.A01 0064/004.A02 0064/004.A03 0064/004.A03 0064/004.A04	Type Cooling Cooling	(13) Zone 19 (20) Zone 20
Event Cross Crosse new component> Create new component>				
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3.1.6.5 Example1-Parameterize Heating/Cooling outputs

Output type switching SSR (zero-crossing switching)

For zone 1...18 the parameters must be specified as follows: [P026 RELH] = <Off> [P027 RELC] = <Off>

Output type analog signal

For zone 19...20 the parameters must be specified as follows: [P026 RELH] = <Off> [P027 RELC] = <On>

Zone only Heating

For zone 1...10 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = 0

Zone Heating/Cooling

For zone 11...20 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = -100

3.1.6.6 Example1-Assign analog inputs to measurement inputs

2 Analog inputs for registration of process values e.g. RPM, pressure or charging level are assigned to measurement inputs.

At the controller, under <Measured values> zone 21 is assigned to analog input 006AIO04.AI1.



At the controller, under <Measured values> zone 22 is assigned to analog input 006AIO04.AI2.

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×	PCU048->Measured values							
Communication server	Name of zone	T	Measured value 1	Filter 1		Measured value 2	Filter 2	
Commentary	1 Zone 1	42	Hoddardd Valae 1	11001 1	42	Fieldsdred Valde E	TROFE	
🖻 🙀 PCU048	2 Zone 2	1			44			4
📲 Datasheet	3 Zone 3	1.1			12			
- 🖓 Communication	4 Zone 4	122			12			
Time server	5 Zone 5	12			12			1
System parameter	6 Zone 6	44			W.,			
🕀 💊 Zone parameter	7 Zone 7	110			22			
Name of zone/Input blocks	8 Zone 8	100			44			
E Profibus DPEA	9 Zone 9	1			-			4
Direct IOc	10 Zone 10							
Insults	11 Zone 11				1			4
Test and an	12 Zone 12	-			-			
V Tool coding	13 20ne 13	-			-			4
virtual digital inputs	15 Zone 15	-			44			
Virtual digital outputs	15 Zone 15	1			44			4
Measured values	17 Zone 17	1.1			12			
Group administration	18 Zone 18	12			12			
	19 Zone 19	12			22			1
🗄 🚰 TC12	20 Zone 20	12			12			
H HUDI6_CI	21 Zone 21	12	006AIO04.AI1	0 - Off	11			1
🗄 💯 DIO16_CI	22 Zone 22	W .	•		W.,			
E AI004	23 Zone 23	100		1	12			4
- 👧 Datasheet	24 Zone 24		002TCPT08.AU		11 A			
Parameter	25 Zone 25	-	002TCPT08.AI2					4
Inputs X2	26 Zone 26		002TCPT08.AI3					
Outputs V3	27 Zone 27	100	002TCPT08.AI4		100			4
	20 Zone 20	-	002TCPT08.AI5		-			
Create new components	29 Zone 20	-	UU21CPTU8.AI5		44			4
<pre>Create new component></pre>	31 Zone 31	1	0021CP108.AI7		-			
	32 Zone 32	122	003TC12.AI1		12			4
	33 Zone 33	12	003TC12.AI2		12			1
	34 Zone 34	12	003TC12.AI3		12			
	35 Zone 35	110	003TC12.AI4		11			1
	36 Zone 36	25	0031C12.AI5		22			
	37 Zone 37	100	0031C12.AID		10			
	38 Zone 38	44	003TC12.AI8		11 A			
	39 Zone 39		003TC12.AI9					1
	40 Zone 40		003TC12.AI10		100			
	41 Zone 41		003TC12.AI11		10			
	42 Zone 42	4.4	003TC12.AI12		4.4			
	44 Zone 44	100	DUBALOU4.ATI		44			4
📲 Project 😹 Status 🛃 Trend	45 Zone 45		006ATO04_AT3		1			-
			006AIO04.AI4					
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3.1.6.7 Example1-Assign analog inputs of type TC, Pt100 to measurement inputs

20 Analog inputs of type TC, Pt100 are assigned to measurement inputs

At the controller, under <Measured values> zone 1 is assigned to analog input 002TCPT08.Al1



The analog inputs 002TCPT08.AI2...8 are assigned to the further zones 2...8.

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×	PCU048->Measured v	values		
Communication server	Name of zone	Measured value 1	Filter 1 Meas	sured value 2 Filter 2
- Commentary	1 Zope 1	1002TCPT08 AT1	0 - Off 😽	
😑 🙀 PCU048	2 700e 2	1002TCPT08.AI2	n - off 📉	
📲 Datasheet	3 Zone 3	1002TCPT08.AI3	0 - Off 📉	
	4 Zone 4	002TCPT08.AI4	0 - Off 🔍	
Time server	5 Zone 5	002TCPT08.AI5	0 - Off 📉	
System parameter	6 Zone 6	002TCPT08.AI6	0 - Off 📉	
🗐 💊 Zone parameter	7 Zone 7	002TCPT08.AI7	0 - Off 🔼	
Name of zone/Input blocks	8 Zone 8	002TCPT08.AI8	0 - Off 📉	
A Drofibur DDEA	9 Zone 9	<u>**</u>		
Direct IOs	10 Zone 10	<u>×</u>	<u>*</u>	
V Direct IOs	11 Zone 11	<u>×</u>	<u>×</u>	
V Inputs	12 Zone 12	<u>×</u>	<u>×</u>	
🗣 Tool coding	13 Zone 13	<u>×</u>	<u>×</u>	
🗣 Virtual digital inputs	14 Zone 14	<u>×</u>	<u>N</u>	
Virtual digital outputs	15 Zone 15	N	<u>×</u>	
Measured values	16 Zone 16	25.		
Group administration	1/ Zone 1/	201		
TCPT08	18 Zone 18	100		
H	19 20ne 19	1		
IL BUILDING CT	20 2016 20 21 Zone 21	00601004 011	0 - Off	
	22 Zone 22	00641004 AT2	0 - Off	
	23 Zone 23	N COORTOO TIME		
E alou4	24 Zone 24	1	*	
Datasheet	25 Zone 25	1	~	
🗣 Parameter	26 Zone 26	1	×.	
Inputs X2	27 Zone 27	× 1		
💊 Outputs X3	28 Zone 28	N		
<pre>Create new component></pre>	29 Zone 29	<u></u>	<u></u>	
<pre>Create new component></pre>	30 Zone 30	***		
	31 Zone 31	<u>**</u>	<u>**</u>	
	32 Zone 32	**	<u>**</u>	
	33 Zone 33	<u></u>	<u>×</u>	
	34 Zone 34	<u></u>	<u></u>	
	35 Zone 35	<u>~</u>	<u>~</u>	
	36 Zone 36	<u>×</u>	<u>~</u>	
	37 Zone 37	<u>×</u>	<u>×</u>	
	38 Zone 38	<u></u>	<u>×</u>	
	39 Zone 39		×	
	40 Zone 40	1000		
	41 20ne 41 42 Zene 42	100		
1	43 7000 43	100 N		
	44 Zone 44	1		
📲 Project 🛃 Status 둘 Trend	45 Zone 45	*	100 M	
Dress Et far hale			SINCLE MODE	

At the controller, under <Measured values> zones 9...20 are assigned to analog inputs 003TC12.AI1...12.



The zones 1...20 are 20 analog inputs TC, Pt100 assigned as measured value inputs. The zones 21...22 are 2 analog inputs for registration of process values assigned as measured value inputs.

3.1.6.8 Example1-Analog inputs - specify sensor types

The sensor types are specified in groups on the input cards TCPT08 and TC12. On TCPT08 the sensor type <SEN1> is set to <PT100> for the first four analog inputs.

File Edit Communication View Extras ?
Communication server Communication Server Communication Communi
Inputs Inputs Virtual digital inputs Virtual digital inputs Virtual digital inputs Wirtual digital input Wirtual digital
Create new component>

On TCPT08 the sensor type <SEN2> is set to <J(Fe-J)> for the second four analog inputs.



On TC12 the sensor type <SEN1>...<SEN3> is set for four analog inputs. Standard setting for the sensor type is <J(Fe-J)>.



The sensor types for the input card TCPT08 and TC12 are defined.

3.2 Example_2 - PCU system expanded by a peripheral I/O node

3.2.1 Example2-Target

The described and configured control system under Example_1, should be expanded by 8 further zones in a new project part.

This is in detail:

- 8 zones (Heating/Cooling)
- 8 zones with measurement inputs thermocouple TC
- Outputs Heating, SSR, zero-crossing switching
- Outputs Cooling, SSR, zero-crossing switching activation for fan, drive

For the distribution on two plant components, a peripheral I/O node is necessary. On the existing control system the adapter module BE is connected and from there is branched to the peripheral I/O node, the flexotemp® component CANBC. The CANBC ensures, as a base module, the communication with the controller as well, as the across communication and the power supply for further connected flexotemp® components.

The planned I/O node should be represented in a table, e.g. in the way shown, to deduce the number of components and the project setup.

Explanation of the table contents

6	Prerequisite	The standard names of flexotempMANAGER are used.		
	Z	Number of zone		
	M/C	Measurement/Control		
	SSR	Solid State Relay		
	e.g. 008DIO16_CI.DIO7	flexotemp® component DIO16_CI, 7th DIO		
		(008 is an internal consecutive number, which is assigned by the pro- gram, to identify the flexotemp® component)		
	S-Type	Sensor Type		

Ζ	M/	Output type	Output type	Output type	Measurement	S-	Measurement input
	С	Switching SSR	Switching SSR	Analog signal	input	Туре	Sensor Type
		Heating	Cooling		Analog signal		
23	С	008DIO16_CI.DIO1	008DIO16_CI.DIO9			J	007TC12.AI1
24	С	008DIO16_CI.DIO2	008DIO16_CI.DIO10			J	007TC12.AI2
25	С	008DIO16_CI.DIO3	008DIO16_CI.DIO11			J	007TC12.AI3
26	С	008DIO16_CI.DIO4	008DIO16_CI.DIO12			J	007TC12.AI4
27	С	008DIO16_CI.DIO5	008DIO16_CI.DIO13			J	007TC12.AI5
28	С	008DIO16_CI.DIO6	008DIO16_CI.DIO14			J	007TC12.AI6
29	С	008DIO16_CI.DIO7	008DIO16_CI.DIO15			J	007TC12.AI7
30	С	008DIO16_CI.DIO8	008DIO16_CI.DIO16			J	007TC12.AI8

Examples

3.2.2 Example2-Necessary components

The following flexotemp® components are required in addition to the components of Example_1:

1 Bus Extension Interface flexotemp® BE

- 1 Bus Coupler flexotemp® CANBC
- I Thermocouple Interface flexotemp® TCPT08
- 1 Digital In-/Output Interface, Current Input flexotemp® DIO16CI

3.2.3 Example2-Installation

The adapter module BE is connected with the last component of Example_1 from the right. For the peripheral I/O node, the flexotemp® components are added from the right side, starting from the CANBC, as shown. The cross connections click into place for automatic parallel bus contact in the housing, that builds a block of flexotemp® components.



Rated voltage	1830 VDC	1830 VDC	1830 VDC	1830 VDC
Power	2 W	2 W	2 W	2 W
consumption	(Electronics)	(Electronics)	(Electronics)	(Electronics)
8	See current data sheets			

Starting with the power unit, the flexotemp® components must be connected with the 24 VDC power supply.

Component	BE	CANBC	TCPT 08	DIO 16 CI
Terminal	<n.a.></n.a.>	X1	<n.a.></n.a.>	X1
	See current data sheets			

The in-/outputs of the flexotemp® components must be wired accordingly.

Component	BE	CANBC	TCPT 08	DIO 16 CI
Terminal	<n.a.></n.a.>	<n.a.></n.a.>	X2, X3	X2, X3
6	See current data sheets			

The interfaces of the CAN filed bus have to be connected with each other.

Component	BE	CANBC	TCPT 08	DIO 16 CI
CAN field bus	X1	Х3	<n.a.></n.a.>	<n.a.></n.a.>
8	See current data sheets			

3.2.4 Example2-Project setup and configuration

Further details, how the project setup and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter Additional and continuative documents).

3.2.4.1	Example2-Create compone	nts for peripheral I/O node	
6	Prerequisite	flexotempMANAGER is installed on PC.	
6	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.	
0		The flexotemp® components are configured in the order shown in ⊿Example1-Installation (from the left, starting with CANBC, to the right).	
		The flexotemp® component BE is connected to the right side of the component of Example_1. A project setup/configuration is not necessary.	
	PC side		
	flexotempMANAGER	Symbol bar: <view> Symbol bar, Status bar, Project are active.</view>	
	start	Menu bar: <file> <open> Project <example_1>.</example_1></open></file>	
		The project <example_1> is displayed.</example_1>	

Create peripheral I/O node

The flexotemp® component CANBC is added to the existing project Example_1 as peripheral I/O node.

📴 flexotempM/	NAGER - Example_	L	8 ×
File Edit Comr	TCPT08	as ?	
🗋 🗁 🔚 🛛	TC12		
Communication of the second se	TC12 PT12 DI016_C1 PT12 DI016_C1_SPL AT004 BAC1 D008R VC02 CANBC CANBC CANBC CANBC HPC24 HC02,16 CANCT CANICA CANCT CANICA CANCT CANICA CANCT CANICA CANCCA CANPC12 CANCCA CANPC12 CANCCA CANPC12 CANCCA CANPC3 CANPC3 CANCCA CANPC3 CANCCA CANPC3 CANCCA CANPC3 CANP	Communication Details	

Address setting

The setting of the device ID on the coding switch here and on the rotary switch on the CANBC must fit. The CANBC gets CAN NodeID 16, because the controller reserves 15 slots.



Create further components

Beneath the CANBC, the further components (TCPT08, DIO16_CI) are selected out of a list and created.





The I/O node and the components are created in the project.



The project is stored with the name Example_2.
3.2.4.2 Example2-Specify Heating outputs

Specify 8 Heating outputs

At (008)DIO16_CI on CANBC: for DIO1...DIO8 select and set the type <Heating>.

	× #+M DI016 Cl->In-/outnuts	:×2/×3			
Vommunication server					
E Commentary		Name	- :V	Тур	D
Datasheet	In-/output DID 01 (X2, 5)	008DI016_CI.DI01			
- 🖗 Communication	Involtent DID 02 0/2 E				
Time server	111700.pdf D10 02 (A2. 0)	00001016_010102		Heating with current measuremen	nt
System parameter	In-7output DIO 03 (X2. 7)		— Ĕ	Heating	
Name of zone/Input blocks	In-/output DIO 04 (X2. 8)	00801016_01.0104		digital output	
🗄 🗣 Profibus DPEA	In-/output DIO 05 (X2. 9)	008DI016_CI.DI05	V	Heating with common supply	
Direct IOs	In-/output DIO 06 (X2.10)	008DI016_CI.DI06	V	Cooling with common supply	
Tool coding	In-/output DID 07 (X2.11)	008DI016_CI.DI07			
Virtual digital inputs	In-/output DID 08 (×2 12)	008DI016 CI.DI08		i	
💊 Virtual digital outputs	In:/output DID 09 0(3, 5)	008DI016_CLDI09			
Measured values	In Joseph DIG 10 (20 0)	00901016_01010			
Group administration	In-Youtput DID TO (X.3. 6)				
	In-/output DIO 11 (X3. 7)	00801016_01.01011	M		
DIO16_CI	In-/output DID 12 (X3. 8)	008DI016_CI.DI012	1		
DIO16_CI	In-/output DIO 13 (X3. 9)	008DI016_CI.DI013	V		
田 禮坦 AIOO4	In-/output DIO 14 (X3.10)	008DI016_CI.DI014	v		
	In-/output DID 15 (×3 11)	008DI016 CI.DI015		i i i i i i i i i i i i i i i i i i i	
ПОТОВ 1000 ПОТОВ	In (output DIO 16 (V2 12)				
	[119/00(par bio 10 (x3.12)		- Ť		
Datasheet				→ <u> </u>	
Parameter A In-/outputs ¥2/¥3					
<pre></pre>					
<pre><create component="" new=""></create></pre>					
<pre>Create new component></pre>					

At (008)DIO16_CI on CANBC: for DIO1...DIO8 of type <Heating> assign zone 23...30.

Communication server	Ĩ				
Commentary		Name	1 2 1	Тур	D
Datasheet	In-/output DIO 01 (x2, 5)	008DI016_CI.DI01		Heating	
- 🖓 Communication	In Journal DID 02 N/2 E)		- E		
Time server	1117/04(put D10 02 (A2, 6)		— Ĕ		<1> Zone 1
System parameter	In-/output DIO 03 (X2. 7)	00801016_01.0103	M		<2> Zone 2 (3) Zone 3
E Vane parameter	In-/output DI0 04 (X2. 8)	008DI016_CI.DI04			<4> Zone 4
Profibus DPEA	In-/output DID 05 (X2. 9)	008DI016_CI.DI05	N		<5> Zone 5
Direct IOs	Involutional DID 05 0/2 100	00801016 CL0106	-		< 6> Zune 6 <7> Zone 7
🔷 🌢 Inputs		00001016_CLDI07		I	<8> Zone 8
Tool coding	In-/output DIU U/ (X2.11)	00801016_01.0107		<u> </u>	<3> Zone 9 <10> Zone 10
 Virtual digital inputs 	In-/output DIO 08 (X2.12)	008DI016_CI.DI08			<11> Zone 11
Virtual digital outputs Massured unloss	In-/output DIO 09 (X3. 5)	008DI016_CI.DI09	V		<12> Zone 12 (13) Zone 13
Group administration	In-/output DIO 10 043-61	008DI016 CI.DI010			<14>Zone 14
		00901016_CLD1011			<15> Zone 15 (10) Zone 16
TC12	In-7output DID 11 (X.3. 7)				<17> Zone 17
DI016_CI	In-/output DIO 12 (X3. 8)	00801016_01.01012			<18> Zone 18
DIO16_CI	In-/output DIO 13 (X3. 9)	008DI016_CI.DI013			<195 Zone 19 <205 Zone 20
AIO04	In-/output DIO 14 (X3.10)	008DI016_CI.DI014			<21> Zone 21
	In Journal DIO 15 0(2.11)	00901016_CLD1015		·	<22> Zone 22
	In-Youtput Dio 15 (X.3.11)		_ Ľ		<24> Zone 24
	In-/output DIO 16 (X3.12)			L	<25> Zone 25
Datasheet				→ <u>«</u>	<26> Zone 26 (27) Zone 27
💊 Parameter					<28> Zone 28
 In-/outputs X2/X3 					<29> Zone 29
<pre>Create new component></pre>					<31> Zone 31
<pre>Generate new component></pre>					<32> Zone 32
Create new component>					<33> Zone 33
					<34> Zone 34
					<35> Zone 35 (35) Zone 35
					1307 2010 30

8 Heating outputs are defined for zone 23...30.

🚅 🖬 X 🖻 🖻 🖨 🤶 👷 😴		é 🛈				
	≓× ∎. DI010 Chala /autoutu	V1W1				
		n2/n3				
- Commentary			_			
🙀 PCU048		Name	- : M	Тур		Definitio
📲 Datasheet	In-/output DIO 01 (X2. 5)	008DI016_CI.DI01	~	Heating	<23> Zone 23	
Time contraction	In-/output DIO 02 (X2. 6)	008DI016_CI.DI02	~	Heating	<24> Zone 24	
System parameter	In-/output DI0 03 (x2, 7)	008DI016_CI.DI03		Heating	<25> Zone 25	
E 🗣 Zone parameter	Involution DID 04 0/2 81	008DI016 CI.DI04		Heating	<26> Zone 26	
Name of zone/Input blocks	In fourte A DIO OF (V2. 0)	00901016_CLD105		Heating	(27) Zone 27	
Profibus DPEA	In-/output DIO 05 (X2. 9)	00001018_01.0105		meaung	(21) Zurie 21	
V Direct IOS	In-/output DI0 06 (X2.10)	008DI016_CI.DI06	🔽	Heating	<28> Zone 28	
Tool coding	In-/output DIB 07 (X2.11)	008DI016_CI.DI07	V	Heating	<29> Zone 29	
Virtual digital inputs	In-/output DIO 08 (X2.12)	008DI016_CI.DI08		Heating	<30> Zone 30	
 Virtual digital outputs 	In-/output DI0 09 (X3, 5)	008DI016_CI.DI09	_	, 		
Measured values	Invoitent DIO 10 0/3 6)	008DI016_CLDI010	- F.			
		000DI01C_CLDI011				
🖮 📴 TC12	In-7output DIO 11 (X.3. 7)		_ 5	ļ		
🖶 🕎 DI016_CI	In-/output DI0 12 (X3. 8)	00801016_01.01012	_ □			
DI016_CI	In-/output DIO 13 (X3. 9)	008DI016_CI.DI013				
E-EN CONSC	In-/output DI0 14 (X3.10)	008DI016_CI.DI014				
Datasheet	In-/output DID 15 (×3 11)	008DI016 CI.DI015	- F	, 	(
🗈 🕎 ТСРТОВ	In (output DIO 16 (V2 12)	00801016_CL01016				
🖻 🚰 DI016_CI	[Involuplations in [X3.12]	100001010_01.01010	- 1		1	
Datasheet						
 Parameter In-Joutnute V2/V2 						
<pre>create new component></pre>						
Create new component>						
<pre> <create component="" new=""></create></pre>						

3.2.4.3 Example2-Specify Cooling outputs

Specify 8 Cooling outputs

At (008)DIO16_CI on CANBC: for DIO9...DIO16 select and set the type <Cooling>.

S Communication server						
Commentary		Name	-: V	Тур	_	De
Datasheet	In-/output DIO 01 (X2, 5)	008DI016_CI.DI01	<u> </u>	Heating	<23> Zone 23	
Communication	In-/output DID 02 0/2_61	008DI016 CI.DI02		Heating	<24> Zone 24	
Time server System parameter	In-/output DIO 03 (v2. 7)	00801016_CL0103		Heating	<25> Zone 25	
+	In Fourput DIO 03 (x2, 7)			Heating	(26) Zono 26	
Name of zone/Input blocks	In-/output DIO 04 (X2. 8)		Ľ	i reading	20/2016 20	
🗉 🗣 Profibus DPEA	In-/output DIO 05 (X2. 9)	00801016_01.0105		Heating	<27> Zone 27	
Direct IOs	In-/output DI0 06 (X2.10)	008DI016_CI.DI06	•	Heating	<28> Zone 28	
Inputs Tool coding	In-/output DI0 07 (X2.11)	008DI016_CI.DI07		Heating	<29> Zone 29	
Virtual digital inputs	In-/output DI0 08 (X2.12)	008DI016_CI.DI08		Heating	<30> Zone 30	
 Virtual digital outputs 	Invortent DID 09 0/3 51	008DI016_CLDI09			-	
Measured values		00001016_CLDI010				
Group administration	In-/output DIU TU (X.3. 6)	00001018_01.01010		Heating with current measure	ment	
	In-/output DI0 11 (X3. 7)	008DI016_CI.DI011		Cooling		
DIO16 CI	In-/output DI0 12 (X3. 8)	008DI016_CI.DI012		digital output		
DIO16_CI	In-/output DIO 13 (X3. 9)	008DI016_CI.DI013		digital input		
1004 AIO04	In-/output DID 14 (×310)	008DI016 CLDI014	— F	Cooling with common supply		
Datasheet	In-/output DIU 15 (X3.11)	00801016_01.01015			_	
E UDIO16 CI	In-/output DI0 16 (X3.12)	00801016_CI.DI016		<u> </u>		
Datasheet				→ ≪		
🗣 Parameter						
 In-/outputs X2/X3 						
<pre>Create new component></pre>						
<pre>create new component></pre>						
 Create new component> 						

At (008)DIO16_CI on CANBC: for DIO9...DIO16 of type <Cooling> assign zone 23...30.

flexotempMANAGER - Example_2 *					<12> Zone 12
File Edit Communication View Extras ?					<13> Zone 13
	i dh' dh' dh' dh' i 🛶 🛝	6.0			<15> Zone 15
		• •			<16> Zone 16
× (BIO16_CI->In-/outputs	X2/X3			<1/> <1/> 19
					<19> Zone 19
Commentary			_		<20> Zone 20
E 🙀 PCU048		Name	□:¥	Тур	<21> Zone 21
Datasheet	In-/output DIO 01 (X2. 5)	008DI016_CI.DI01		Heating	<23) Zone 23
Communication	Indoutout DID 02 0/2 61	008DI016_CLDI02		Heating	<24> Zone 24
Time server	1117000p0c010 02 (A2. 6)			I loading	<25> Zone 25
System parameter	In-/output DIO 03 (X2. 7)			Heating	<27> Zone 27
	In-/output DID 04 (X2. 8)	008DI016_CI.DI04	V	Heating	<28> Zone 28
Name or zone/input blocks	In-/output DID 05 0/2 91	008DI016 CLDI05		Heating	(29) Zone 29 (20) Zone 20
Pronous DPEA Direct IOc	in roaparbio co (inc. o)			0.7	<31> Zone 31
	In-/output DIU 06 (X2.10)	00801016_01.0106	_ M	Heating	<32> Zone 32
- S Tool coding	In-/output DIB 07 (X2.11)	008DI016_CI.DI07	V	Heating	<33> Zone 33 (24) Zone 24
Virtual digital inputs	In-/output DID 08 (X2.12)	008DI016_CI.DI08		Heating	<35> Zone 35
💊 Virtual digital outputs	In Anatus DID 09 M2 E			Cooling	<36> Zone 36
Measured values	involuplic bio da (x.s. s)			cooling	<37> Zone 37 (38) Zone 38
Group administration	In-/output DIO 10 (X3. 6)	00801016_01.01010			<39> Zone 39
E EU TCPT08	In-/output DID 11 (X3. 7)	008DI016_CI.DI011			<40> Zone 40
1 TC12	In-/output DID 12 0/3 8)	008DI016 CLDI012			(41) Zone 41 (42) Zone 42
		009DI016_CLDI012			<43> Zone 43
	In-routput DID 13 (X.3. 9)	00001018_01.01013			<44> Zone 44 (45) Zone 45
E BN CANBC	In-/output DIO 14 (X3.10)	00801016_CI.DI014			<46> Zone 46
Patasheet	In-/output DI0 15 (X3.11)	008DI016_CI.DI015			<47> Zone 47
E EU TCPT08	Involutout DID 16 (V3 12)	00801016_CL01016			<48> ∠one 48
E DIO16_CI	[] [] [] [] [] [] [] [] [] []		- 'T		I
				→ <u>×</u>	
Parameter					
In-/outputs x2/x3					
<pre>Create new component > </pre>					
<pre>Create new component ></pre>					
🎕 Project 😹 Status 🛃 Trend	4				
Drass E1 fee hele					

8 Cooling outputs are defined for zone 23...30.

		8 🔍			
	- = DI016_CI->In-/outputs	×2/×3			
Commentary			_		
🙀 PCU048		Name	- : M	Тур	Defir
📲 Datasheet	In-/output DIO 01 (X2. 5)	008DI016_CI.DI01		Heating	<23> Zone 23
Communication	In-/output DID 02 (X2, 6)	008DI016_CI.DI02		Heating	<24> Zone 24
Time server	In (autout DID 02 N/2 7)	00801016_CL0103		Heating	(25) Zone 25
System parameter	1/1-/04(put bio 03 (22. 7)	00001010_01.0103		l lo d'ag	20, 7,
Name of zone/Input blocks	In-/output DIU 04 (X2. 8)	00801016_01.0104		Heating	<26> Zone 26
🗄 🗣 Profibus DPEA	In-/output DID 05 (X2. 9)	008DI016_CI.DI05		Heating	<27> Zone 27
 Orrect IOs 	In-/output DIO 06 (X2.10)	008DI016_CI.DI06		Heating	<28> Zone 28
 Inputs 	Indexted DID 07 0/2 111	00801016_CL0107		Heating	(29) Zone 29
Tool coding				l la stina	(20) 7-10 20
 Virtual digital inputs Virtual digital outputs 	In-/output DIU 08 (X2.12)	00001016_0.0108		neaung	<30> Zohe 30
Measured values	In-/output DI0 09 (X3. 5)	008DI016_CI.DI09		Cooling	<23> Zone 23
Group administration	In-/output DID 10 (X3. 6)	008DI016_CI.DI010	v	Cooling	<24> Zone 24
庄 🕎 ТСРТОВ	In /output DID 11 0/3 71	008DI016_CLDI011		Cooling	<25> Zone 25
🗄 🕎 ТС12		00001010_0I.01011		Casling	(20) Zono 20
DIO16_CI	In-/output DIU 12 (X3. 8)	00801018_01.01012		Cooling	<26> 20He 26
DI016_CI	In-/output DID 13 (X3. 9)	008DI016_CI.DI013	v	Cooling	<27> Zone 27
	In-/output DIO 14 (X3.10)	008DI016_CI.DI014		Cooling	<28> Zone 28
Datacheet	Involutional DID 15 (v2.11)	008DI016_CLDI015		Cooling	<29> Zone 29
		00001010_0101010		Cashar	(20) 7:10 20
DIO16_CI	In-/output DIU 16 (X3.12)	00001016_0.01016	- ·		C302 20He 30
Datasheet				→	
🗣 Parameter					
In-/outputs X2/X3					
<pre><create component="" new=""></create></pre>					
<pre><create component="" new=""></create></pre>					
Create new components					

3.2.4.4 Example2-Parameterize Heating/Cooling outputs

Output type switching SSR (zero-crossing switching)

For zone 23...30 the parameters must be specified as follows: [P026 RELH] = <Off> [P027 RELC] = <Off>

Zone Heating/Cooling

For zone 23...30 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = -100

3.2.4.5 Example2-Assign analog inputs of type TC to measurement inputs

8 Analog inputs of type TC are assigned to measurement inputs

At the controller, under <Measured values> zone 23 is assigned to analog input 007TCPT08.Al1



The zones 23...30 are 8 analog inputs TC assigned as measured value inputs.

flexotempMANAGER - Example_2 *							_	8 ×
File Edit Communication View Extras ?								
🗅 🚅 🖶 🗴 🖻 🖻 🎒 🤶 👷 🗊		🏠 é 🛈						
×								
Communication server	PCU040->IMEdSUIE0	values						
Commentary	Name of zone	Measu	red value 1	Filter 1	Me	asured value 2	Filter 2	
	1 Zone 1	K 002TCF	T08.AI1	0 - Off	10			
English PC0040	2 Zone 2	🖄 002TCF	T08.AI2	0 - Off	- S.C.			_
Datasheet	3 Zone 3	🖄 002TCF	T08.AI3	0 - Off	<u></u>			
	4 Zone 4	🖄 002TCF	T08.AI4	0 - Off	18 A.			_
Time server	5 Zone 5	002TCF	T08.AI5	0 - Off	<u></u>			
🔍 🗣 System parameter	6 Zone 6	S 002TCF	T08.AI6	0 - Off	- S.S.			_
🗄 🔶 Zone parameter	7 Zone 7	S 002TCF	T08.AI7	0 - Off	100			
Name of zone/Input blocks	8 Zone 8	002TCF	T08.AI8	0 - Off	18. I			- 1
🕀 💊 Profibus DPEA	9 Zone 9	S 003TC1	2.AI1	0 - OH				
Direct IOc	10 Zone 10	003TC1	2.AI2	0 - 0H	100			- 11
Tanuka	11 Zone 11	N 0031C1	2.AI3	0 - 011	100			
• inputs	12 Zone 12	N 0031C1	2.AI4	0 - OFF				_
Tool coding	13 Zone 13	003TC1	2.AI5	110 - 0	W			
🗣 Virtual digital inputs	14 Zone 14	N 0031C1	2.AI5	U - Off				_
Virtual digital outputs	15 Zone 15	N 0031C1	2.AI/	U - Off	100			
Measured values	16 Zone 16	1003TC1	2.AI8	U - Off	200 C			- 1
Group administration	17 Zone 17	N 0031C1	2.AI9	0-01	100			
EU TOPTOS	18 Zone 18	N 0031C1	2.AITU	0 - Off				_
I FUI TC12	19 Zone 19	N 0031C1	2.AIII 2.AIII	0 - Off	10			-
	20 Zone 20		2.AII2	0-06	100			_
	21 Zone 21	N UUDAIC	04.4II	0 - Off	100			
	22 Zone 22		U4.AIZ	0 - 011	42			- 1
I AIO04	23 2018 23		T00.AI1	0.06	100			
E P CANBC	24 2018 24		T00.AL2	0 - 011	-			
Datasheet	25 2018 25 26 Zono 26	002TCF	TUO.AL3	0 - Off	-			-
FI BU TCPT08	27 Zone 27	1 002TCF	100.AIT	0-00	44			
DIO16 CI	27 2016 27 28 Zone 28	002TCF	T00.A15	0 - Off	42			-
Datacheat	20 Zone 20	002TCF	T00.A10	0 - 06	42			- 1
	29 Zone 29	1002TCF	TO0.417	0 - Off	52			
Parameter	31 Zone 31	102 C	100.MI0	0 - 011	1			
····· ♥ In-foutputs X2/X3	32 Zone 32	1			52			
Create new component>	33 Zone 33	12			52.1			
- greate new component>	34 Zone 34	1			42.1			
Create new component>	35 Zone 35	100			St. 1			
	36 Zone 36	1			54.			_
	37 Zone 37	1			12			
	38 Zone 38	1			S2.			
	39 Zone 39	100			52.			
	40 Zone 40	1			12			
	41 Zone 41	12			100			
	42 Zone 42	1			12			
	43 Zone 43	1			12			
	44 Zone 44	**			12. C			
📲 Project 😹 Status 🛃 Trend	45 Zone 45	1			12			-
Dress E1 for hele	-							

40 Chapter 3 Examples

3.2.4.6 Example2-Analog inputs - specify sensor types

The sensor types are specified in groups on the input card TCPT08 on CANBC.

On TCPT08 the sensor type <SEN1>...<SEN2> is set for four analog inputs. Standard setting for the sensor type is <J(Fe-J)>.



The sensor types for the input card TCPT08 are defined.

3.3 Example_3 - MCU system with peripheral CAN components

3.3.1 Example3-Target

Project setup of a control system with

- 8 zones (3 Heating, 5 Heating/Cooling)
- Zones with measurement inputs thermocouple TC
- Outputs Heating, SSR, zero-crossing switching
- Outputs Cooling, SSR, zero-crossing switching activation for fan, drive
- Heating Current Monitoring

The planned control system should be represented in a table, e.g. in the way shown, to deduce the number of components and the project setup.

Explanation of the table contents

6	Prerequisite	The standard names of flexotempMANAGER are used.
	Z	Number of zone
	M/C	Measurement/Control
	SSR	Solid State Relay
	e.g. 002CANAIN08.AI3	flexotemp® component CANAIN08, 3rd AI
		(002 is an internal consecutive number, which is assigned by the pro- gram, to identify the flexotemp® component)
	S-Type	Sensor Type

No	Z	M/	Output type	Output type	Output type	Measurement	S-	Measurement input
		С	Switching SSR	Switching SSR	Analog signal	input	Туре	Sensor Type
			Heating *)	Cooling		Analog signal		
1	1	С	003SMA09G.1				тс	002CANAIN08.AI1
2	2	С	003SMA09G.2				тс	002CANAIN08.AI2
3	3	С	003SMA09G.3				тс	002CANAIN08.AI3
4	4	С	003SMA09G.4	003SMA09G.10			тс	002CANAIN08.AI4
5	5	С	003SMA09G.5	003SMA09G.11			тс	002CANAIN08.AI5
6	6	С	003SMA09G.6	004MC08.X4.Out			тс	002CANAIN08.AI6
7	7	С	003SMA09G.7	004MC08.X4.Out2			тс	002CANAIN08.AI7
8	8	С	003SMA09G.8	004MC08.X4.Out3			тс	002CANAIN08.AI8

*) In the example, the heating current monitoring should be executed for all Heating outputs. The flexotemp® component CANCT with internal current transformer is used For registration. The control outputs Heating are of type <Heating with current measurement>. Further details on heating current monitoring see operating instructions **Temperature Control System flexotemp® Parameter**.

3.3.2 Example3-Necessary components

The following flexotemp® components are required:

- I Multi Loop Control Unit flexotemp® MCU 128
- I Current Transducer Interface flexotemp® CANCT
- I Analog Input Interface flexotemp® CANAIN 08
- 1 Digital Output Module flexotemp® SMA09G
- 1 output module flexotemp®/sysTemp® MC08
- 5 output modules sysTemp® SMS01



Project setup



3.3.3 Example3-Installation

At all installation work, note the current data sheets for each flexotemp® component.

The data sheets can be accessed in Internet by www.meusburger.com, and/or are available under menu bar \rightarrow <Extras> \rightarrow <Options> \rightarrow <Update> in flexotempMANAGER in the project view below each flexotemp® component (see operating instructions **Project setup and Configuration Tool flexotempMANAGER Operation**, see \neg Additional and continuative documents).

The flexotemp® components are connected with each other, starting from the controller, as shown.

Power unit Fourput voltage 24 VDC

Rated voltage	1830 VDC
Power consumption	5 W





CANCT

CANAIN 08

Rated voltage	1830 VDC	1830 VDC
Power consumption	580 W	Current con- 60 mA sumption



SMA09G

Rated voltage	1830 VDC
Power consumption	1 W



MC08

Rated voltage	1830 VDC
Power consumption	1 W

See current data sheets

Starting with the power unit, the flexotemp® components must be connected with the 24 VDC power supply.

Component	MCU128	CANCT	CANAIN08	SMA09G	MC08	
Terminal	X1	X4	<n.a.></n.a.>	<n.a.></n.a.>	X4	
6	See current data s	heets				

The in-/outputs of the flexotemp® components must be wired accordingly.

Component	MCU128	CANCT	CANAIN08	SMA09G	MC08	
Terminal	<n.a.></n.a.>	<n.a.></n.a.>	X1, X2	X5	X4	
6	See current data s	sheets				

An output module SMS01 (in terminal design) has to be connected to the digital outputs (see *P*Example3-Specify Cooling outputs).

Component		MC08
Terminal		X4
		SMS01(X5)
8	See current data sheets	

The interfaces of the CAN filed bus on one hand and the PSG bus on the other hand have to be connected with each other.

Component	MCU128	CANCT	CANAIN08	SMA09G	MC08	
CAN field bus	X5	X1 (in)				
		X3 (out)	X3 (in)			
PSG bus		X2		X2 (in)		
				X3 (out)	X1	
0	See current data s	heets				

For the flexotemp® component CANCT an internal current transformer is available. The outgoing control lines for the Heating actuators on SMA09G, have to be led through the connected current transformer on CANCT. Further details on heating current monitoring see operating instructions **Temperature Control System flexotemp® Parameter**.

3.3.4 Example3-Create serial interface connection to controller

A serial connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component MCU128.

6	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.		
	PC side			
	Interface Converter	Due the fact, that a PC has no standard RS485 interface, an interface converter is required (see data sheet SK232485).		
		Take care of the pin assignment and the correct connection.		
	Controller side	The RS232 cable must be connected to the connection X2 COM of the flexotemp® component MCU128.		
	PSGCommServer	Create a serial interface (operating instructions Project setup and Configuration Tool flexotempMANAGER Operation chapter 3.1.2, see <i>¬</i> Additional and continuative documents).		
	flexotempMANAGER	Check on the side of the communication server, that the setting <the PSGCommServer runs on the same computer as flexotempMAN- AGER> is selected. By the key <read by<br="" interface="" manually="" of="" setting="">PSGCommServer>, the settings of the serial interface are taken from the previous step and can be selected.</read></the 		

3.3.5 Example3-Create interface connection to controller per Ethernet

A connection to PC, where flexotempMANAGER is installed, is created from the flexotemp® component MCU128 per Ethernet.

R	Prerequisite	flexotempMANAGER and the communication server (PSGCommSer-
		ver) are running on the same computer hardware.

PC side	
LAN connecti	ion For direct coupling from PC and controller, use a cross-over cable. Us- ing a Fast-Ethernet-Switch, use a standard Ethernet network cable.
Controller side	The Ethernet network cable must be connected to the connection X6 TCP/IP of the flexotemp® component MCU128.
flexotempMANAGER	Check on the side of the communication server, that the setting <the as="" computer="" flexotempman-ager="" on="" psgcommserver="" runs="" same="" the=""> is selected.</the>

3.3.6 Example3-Project setup and configuration

Further details, how the project setup and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter ¬Additional and continuative documents).

3.3.6.1 Example3-Create controller and components

[]	Prerequisite	flexotempMANAGER is installed on PC.
	Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
6		The flexotemp® components are configured in the order shown in PExample1-Installation (top down and from the left to the right).

PC side

flexotempMANAGER Symbol bar: <View> Symbol bar, Status bar, Project are active. start Menu bar: <File> <New>. No project (<Unnamed>) is displayed.



RexotempMANAGER - Unnamed		_ <u>_</u> X
The Edit Communication view Extras ?		Ð
Communication server	Communication server Info	
Creat PCU024 PCU024 PCU048	Name of component: DLL:	Communication server LAN
PCU128 PCU024PNIO PCU048PNIO	Data version Server version Connection status	Offine - Server connection terminated
PCU128PNIO MCU128	Communication parameter of PSGCom	n Server
	The PSGCommServer runs on the	e same computer as flexotempMANAGER
	Server IP address: Server name:	C localhost
	Server port number:	4568
	Timeout [ms]	2000 Ø Send ping before connect
	Serial	Read setting of interface manually by PSGCommServer
	LAN	Load standard values
		Save as standard values
l		
Project 法 Status 둔 Trend		OFFLINE TREND OFFLINE

Address setting

The setting of the device ID on the coding switch here and on the rotary switch on the controller must fit. At communication by Ethernet, the PC must have the same subnet like the controller (subnet mask: 255.255.255.0).

🗱 flexotempMANAGER - Unnamed	
File Edit Communication View Extras ?	
Communication server Communication server CCreate new component>	Communication server Consorter hames Codetschalter Device ID Codetschalter Codetschalter Device ID Codetschalter Codetschalter Device ID Codetschalter Device ID Codetschalter Device ID Codetschalter Device ID Codetschalter Codetschalter Device ID Codetschalter Codetschalter Device ID Codetschalter Codetschalter Device ID Codetschalter Codetschalter Codetschalter Device ID Codetschalter C
Press F1 for help.	OFFLINE TREND OFFLINE 对 🗂

Controller MCU128 is created.

flexotempMANAGER - Unnamed *				_ 5
File Edit Communication View Extras ?				
Communication server Communication server Datastheet Communication Time server System parameter Original Communication System parameter Original Communication Of the Communicati	MCU128->Info Info Component name DLL Data version Software version - Details	MCU128 MCU128 DAT 1.1 010001 MCU128?????		
Project 23 Status E Trend				
Press F1 for help.			SINGLE MODE	OFFLINE TREND OFFLINE 🛒 💼

Create further components

Beneath the controller, the CAN components (CANCT [bus coupler module], CANAIN08 [I/O module] are selected out of a list and created.



The CAN components are created in the project.

flexotempMANAGER - Unnamed *					_ <u>8</u> ×
File Edit Communication View Extras ?					
🗋 🗅 🚅 🛃 X 🖻 💼 🥌 🌮 📑 🚺	10 12 19 14 19 📷 🏠	é 🗊			
Communication server Commentary Communication Comparison Comparis	MULI128>Info MULI128>Info Info Component name DLL Data version Component name PLL Data version Details Projection modified, but not	MCU128 MCU128 DAT 1.1 010001 MCU128????? yet transferred !			
Press F1 for help.			SING	LE MODE	OFFLINE TREND OFFLINE 💐 🛲

Beneath the CANCT, the RS485 components (SMA09G, MC08 [I/O module PSG bus]) are selected out of a list and created.

FlexotempMANAGER - Unnamed *			X
File Edit Communication View Extras ?			
🗋 🕞 🖶 X 🖻 📾 🥌 🍞 📑 🕏 🚺) 10 19 19 14 19 🖬 🏙 👫	• é 🛈	
Pile Edit Communication view Exitas / Communication server Communication server Communication server Communication Pile Edit Control Pice I Dis Pile Edit Control Piret I Dis Piret I Dis Pile Edit Outputs P	Component name DLL Software version Component name DLL Software version CAN NodeID 1 Details	 ▲ ▲ ● □ANCT □ANCT □ANCT. □ANCT.	
1			
🔩 Project 🛃 Status 🔚 Trend			
Press F1 for help.			OFFLINE TREND OFFLINE 🛒 📻

The RS485 components are created in the project.

flexotempMANAGER - Unnamed *	X
File Edit Communication View Extras ?	
🗋 🗅 🚅 🔚 🕺 🕒 🔁 🛃 🛃 🛃 🚺	TO BÙ BÙ BÙ 📫 🏂 🍝 🕖
Image: Communication view Extra f Image: Communication server Commentary Image: Communication server Commentary Image: Communication server Commentary Image: Communication server Communication Image: Communication server Communication Image: Communication server Communication Image: Communication server Comparameter Image: Comparameter Statest Image: Comparameter <t< th=""><th>CANCT Shrine CANCT Component name CANCT Component name CANCT Component name CANCT COMPCT CONTROL CONTR</th></t<>	CANCT Shrine CANCT Component name CANCT Component name CANCT Component name CANCT COMPCT CONTROL CONTR
📲 Project 😹 Status 📂 Trend	
Press F1 for help.	OFFLINE TREND OFFLINE 🕺 📻

The project is stored with the name Example_3.

3.3.6.2 Example3-Specify Heating outputs

Specify 8 Heating outputs

At (003)SMA09G on CANCT: for DIO1...DIO8 select and set the type <Heating with current measurement>.*)

RexotempMANAGER - Example_3 *				_ <u>8</u> ×
File Edit Communication View Extras ?				
D 🖆 🖬 X 🖻 🖻 🎒 餐 🔮 🕏 💵		é 🗊		
	Bit	Name Name 0035MA096.1 0035MA096.2 0035MA096.4 0035MA096.4 0035MA096.5 0035MA096.6 0035MA096.6 0035MA096.9 0035MA096.9	Typ Hasting with current measureme Cooling digital output Heating with common supply Cooling with common supply	
Create new component>	D01 D02	D0 3 C	00 4 D0 5	D06 D07 D08

At (003)SMA09G on CANCT: for DO1...DO8 of type <Heating with current measurement>assign zone 1...8.*)

	× ■+ SMA09G->Outputs	SSR		
Communication server				
MCU128	()	Name	Тур	Definition
	Output D0 1 (1)	003SMA09G.1	Heating with current measurem	· · · · · · · · · · · · · · · · · · ·
Time server	Dutnut DD 2 (2)	003SMA09G.2		
System parameter	Output DD 3 (3)	003SMA09G.3		<1> Zone 1 <2> Zone 2
Varie of zone/Input blocks	Output DD 4 (4)	003SMA09G 4		<3> Zone 3
🗈 🔹 🗣 Profibus DPEA	0 upu 00 4 (4)	0025MA095 5		<4> ∠one 4 <5> Zone 5
Direct IOs	Output DU 5 (5)	0035MA030.5		<6> Zone 6
 Virtual digital inputs 	Output DO 6 (6)	0035MA09G.6		<8> Zone 8
💊 Virtual digital outputs	Output D0 7 (7)	UU35MAU9G.7		<9> Zone 9 <10> Zone 10
Measured values	Output DO 8 (8)	003SMA09G.8		<11> Zone 11
Group administration	Output DO 9 (9)	003SMA09G.9		<12> Zone 12 <13> Zone 13
			DO4 DO5	1 (1) 2016 1 (18)

*) By the key the allocation of the logical (DO1-9) to the physical outputs (1-9) can be reversed.



8 Heating outputs are defined for zone 1...8.



3.3.6.3 Example3-Specify Cooling outputs

Specify 5 Cooling outputs

At (003)SMA09G on CANCT: for DIO10...DIO11 select and set the type <Cooling>.



At (003)SMA09G on CANCT: for DO10...DO11 of type <Cooling> assign zone 4...5.

flexotempMANAGER - Example_3 *				<u>_ 8 ×</u>
File Edit Communication View Extras ?				
D 🛱 🖬 X 🖻 🖻 🎒 🦹 🕏 💷	10 19 19 19 19 🖬 👘	· é 🗊		
×.	SMA09G->Outputs X5			
Communication server				
			-	
E- 🚰 MCU128		Name	Тур	Definition
Datasheet	Output DO 10 (×5.1/2)	003SMA09G.10	Cooling	
Communication	Output DO 11 (X5.3/4)	003SMA09G.11		-[
Time server		1	1	<1> Zone 1 (2) Zone 2
System parameter				<3> Zone 3
Vane of zone/Input blocks				<4> Zone 4
Profibus DPEA				<5> Zone 5 (F) Zone 6
Inductory Direct IOs				<7> Zone 7
Inputs				<8> Zone 8
Tool coding				<9> Zone 9 (10) Zone 10
💊 Virtual digital inputs				<11>Zone 10
 Virtual digital outputs 				<12> Zone 12
Measured values				<13> Zone 13 <14> Zone 14
Group administration				<15) Zone 15
E-MU CANCT				<16> Zone 16
Datasheet				<17> Zone 17 (19) Zone 19
System parameter				<19>Zone 19
SM009C				<20> Zone 20
Datacheet				<21> Zone 21
- Q Outputs SSR				<22> Zone 22 <23> Zone 23
Outputs X5				<24> Zone 24
				<25> Zone 25
<pre>Create new component></pre>				<26> 20ne 26 <27> Zone 27
E CANAINOB				<28> Zone 28
<create component="" new=""></create>				<29> Zone 29
<pre></pre>				<30> Zone 30 <31> Zone 31
				<32> Zone 32
				<33> Zone 33
				<34> Zone 34 <35> Zone 35
				<36> Zone 36
Trend	•			
Press button F1 for help.				OFFLINE TREND OFFLINE 剩 📻

2 Cooling outputs are defined for zone 4...5.

a contraction of the second seco	SMA09G->Outputs X5				
Communication server Commentary				D. (1)	~
MCU128		Name	Тур	Defin	tion
Datasheet	Output DO 10 (×5.1/2)	003SMA09G.10	Cooling	<4> Zone 4	
We Communication	Output DO 11 (X5.3/4)	003SMA09G.11	Cooling	<5> Zone 5	
Suctors parameter				'	
Jystelli parameter					
Name of zone/Input blocks					
Profibus DPEA					
Direct IOs					
🗣 💊 Inputs					
🗝 🗣 Tool coding					
🗣 Virtual digital inputs					
🗝 🗣 Virtual digital outputs					
🗣 Measured values					
Group administration					
Datasheet					
 System parameter Descentation 					
Marameter SMADOC					
Outputs SSR					
Outputs X5					
F 50 MC08					
<pre></pre>					
CANAINO8					
<pre></pre>					
Create new component>					

At (004)MC08.X4 on CANCT: for DO1...DO3 select and set the type <Cooling>.

flexotempMANAGER - Example_3 *				_ <u>5</u> ×
File Edit Communication View Extras ?				
		▶ e 🕡		
File Edit Communication Vew Extras ? Image: Communication server Image: Commentary Image: Commentary Image: Commentary Image: Communication Image: Commentary Image: Commentary Image: Communication Image: Commentary Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communication Image: Communic	Image: Control of the second secon	É Image: Control of the second s	Typ Heating with ourrent measurement Cooline Heating with common supply Cooling with common supply	Definition
	<u>.</u>			

	■ × III MC08->Outputs ×4				
💱 Communication server 📄 Commentary					0.00
MCU128		Name 004MC00 V4 0-wt	Typ		Definition
	Uutput DU T (X4.5)	004MC08.A4.0001			
Time server	Output DO 2 (X4.6)	004MC08.X4.Out2		<1> Zone 1	
System parameter	Output DO 3 (×4.7)	004MC08.X4.Out3		<2> Zone 2	
🗉 🗣 Zone parameter	Output DO 4 (×4.8)	004MC08.×4.0ut4		<3> Zone 3	
Name of zone/Input blocks			1	<5> Zone 5	
Prohbus DPEA				<6> Zone 6	
V Direct IOS				<8> Zone 8	
Inputs Tool coding				<9> Zone 9	
Virtual digital inputs				<10> Zone 10	
Virtual digital outputs				<12>Zone 12	
Measured values				<13> Zone 13	
Group administration				<14> Zone 14	
E 🙀 CANCT				<15> Zone 15 <16> Zone 16	
- 📲 Datasheet				<17> Zone 17	
🔷 System parameter				<18> Zone 18	
Parameter				<205 Zone 19	
E SMA09G				<21> Zone 21	
E-EM MC08				<22> Zone 22	
Datasheet				<23> Zone 23 (24) Zone 24	
Contraction V4				<25> Zone 25	
Outputs X4				<26> Zone 26	
Create new component>				<27> Zone 27 (29) Zone 29	
				<29> Zone 29	
<pre></pre> Create new component>				<30> Zone 30	
<pre></pre>				<31> Zone 31	
				<33> Zone 33	
				<34> Zone 34	
				<35> Zone 35	
				K302 Zurie 3b	

At (004)MC08.X4 on CANCT: for DO1...DO3 of type <Cooling> assign zone 6...8.

3 Cooling outputs are defined for zone 6...8.

flexotempMANAGER - Example_3 *				
Edit Communication View Extras ?				
DI⊆ ▙ X ℡ B ⊕ ¥ \$ \$		🚯 ė 🔍		
	MC08->Outputs X4			
Communication server				
El Commentary		Name	Тур	Definition
Datasheet	Output DD 1 (%4.5)	004MC08×4.0ut1	Cooling	<b 6<="" td="" zone="">
Communication		004MC09.V4.0.42	Casting	(3) Zana Z
Time server	Output DO 2 (X4.6)	004///000.74.0002	Couling	Cr) Zone r
 System parameter 	Output D0 3 (X4.7)	004MC08.X4.Out3	Cooling	<8> Zone 8
E 🗣 Zone parameter	Output DO 4 (×4.8)	004MC08.X4.Out4		
Name of zone/Input blocks		,		,
Profibus DPEA				
Direct IOs				
• Inputs				
Tool coding				
Virtual digital inputs				
Virtual digital outputs				
Measured values				
Group administration				
E P CANCT				
- Patasheet				
System parameter				
💊 Parameter				
1 5MA09G				
- 50 MC08				
Datasheet				
Inputs X4				
Outputs VA				
Outputs V3				
Create new components				
Create new components				
Project 🛃 Status 🔚 Trend				
	11			
utton F1 for help.				OFFLINE TREND OFFLINE

3.3.6.4 Example3-Parameterize Heating/Cooling outputs

Output type switching SSR (zero-crossing switching) For zone 1...8 the parameters must be specified as follows: [P026 RELH] = <Off> [P027 RELC] = <Off>

Zone only Heating

For zone 1...3 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = 0

Zone Heating/Cooling

For zone 4...8 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = -100

3.3.6.5 Example3-Assign analog inputs of type TC to measurement inputs

8 Analog inputs of type TC are assigned to measurement inputs

At the controller, under <Measured values> zone 1 is assigned to analog input 002CANAIN08.Al1

flexotempMANAGER - Example_3 *						_ 8
File Edit Communication View Extras ?						
D 🚅 🖬 X 🖻 🖻 🚭 🤻 🕏	[] [] [] [] [] [] [] [] [] [] [] [] []	🎙 é 🛈 🗌				
	×					
	- WEOT20-7 Measured (values		, ,	,	
	Name of zone		Measured value 1	Filter 1	Measured value 2	Filter 2
	1 Zone 1	100	-			
E-mail MCU128	2 Zone 2	100		· · · · · · · · · · · · · · · · · · ·		
Datasheet	3 Zone 3	100	002CANAINOS ATI	<u>×</u>		
Communication	4 Zone 4		INCOMPANY AND ANY	<u>×</u>		
Time server	5 Zone 5		002CANAIN08.AI3	<u>**</u>		
🔍 🗣 System parameter	6 Zone 6		002CANAIN08.AI4	<u>**</u>		
🗄 🔶 Zone parameter	7 Zone 7	14	002CANAIN08.AI5	<u></u>		
Name of zone/Input blocks	8 Zone 8	100	002CANAIN08.AI6	<u></u>		
E S Profibus DPEA	9 Zone 9	<u></u>	002CANAIN08.AI7	<u>«</u>		
Direct IOc	10 Zone 10	<u>×</u>	002CANAIN08.AI8	<u>×</u>		
Tranks	11 Zone 11	<u></u>		<u>×</u>		
V inputs	12 Zone 12			× *		
V Tool coding	13 Zone 13			<u>~</u>		
Virtual digital inputs	14 Zone 14	100				
Virtual digital outputs	15 Zone 15	100				
Measured values	16 Zone 16					
Group administration	1/ 2018 1/					
E B CANCT	10 2010 10	-				
R Datasheet	20 7000 20	-		44		
Surtem parameter	20 2018 20 21 7ope 21	52		14		
Dyscent parameter	22 Zone 22	52		42		
Parameter	23 Zone 23	14		1		
E BO SMAUAC	24 Zone 24	1		**		
E E MC08	25 Zone 25	1				
📲 Datasheet	26 Zone 26	12				
💊 Inputs X4	27 Zone 27	14		1 C C C C C C C C C C C C C C C C C C C		
- 🔶 Outputs X4	28 Zone 28	12		1		
- Qutputs X3	29 Zone 29	14		1		
Create new component >	30 Zone 30	12		2		
	31 Zone 31	14				
	32 Zone 32	22		S2.		
<pre><create component="" new=""></create></pre>	33 Zone 33	12				
Create new component>	34 Zone 34	12		42.		
	35 Zone 35	14		14		
	36 Zone 36	100				
	37 Zone 37	14				
	38 Zone 38	- 10 C				
	39 Zone 39	***		<u></u>		
	40 Zone 40	<u>***.</u>				
	41 Zone 41	<u></u>		<u></u>		
	42 Zone 42	11 A		<u></u>		
	43 Zone 43	<u>***</u>		<u></u>		
📭 Designat 🗮 Stature 🔚 Trend	44 Zone 44	<u>×</u>		<u>*</u>		
	45 Zone 45	<u>**</u>		<u>~</u>		
Press button F1 for bein				SINCLE	MODE DEFLINE TRE	

exotempMANAGER - Example_3 *					
Edit Communication View Extras ?					
🖆 🖶 X 🖻 🖻 🎒 🤗 🛃 🦻		🏠 é 🛈			
	×				
	MCU128->Measured	values			
😴 Communication server	Name of zone	Measured value 1	Filter 1	Measured value 2	Filter 2
🗊 Commentary	Name or zone		1 1001 1	Priododi od Valdo 2	T licel 2
🚰 MCU128	1 Zone 1	002CANAIN08.AI1	0 - Off	12	
🗬 🚯 Datasheet	2 2016 2	CO2CANAINOS.AL2	0 - 00		
- 🖗 Communication	4 7one 4	S 002CANAIN08 AIA	0 - 06	14 I	
Time server	5 Zone 5		0 - Off	100 C	
Suctor parameter	6 Zone 6	NO2CANAINOS AI6	0 - Off	100 C	
Jystelli paralleter	7 Zone 7	1 002CANAIN08.AI7	n - Off	×.	
3 Vice parameter	8 Zone 8	102CANAIN08.A18	0 - Off	14. I	
vame of zone/Input blocks	9 Zone 9	×		<u>**</u>	
🗄 🗣 Profibus DPEA	10 Zone 10	×.		***	
🗣 🗣 Direct IOs	11 Zone 11	×.		2	
💊 Inputs	12 Zone 12	100		44. I	
🗣 Tool coding	13 Zone 13	<u>×</u>		<u></u>	
Virtual digital inputs	14 Zone 14	<u>×</u>		44.	
💊 Virtual digital outputs	15 Zone 15	<u>×</u>		<u>* </u>	
Meacured values	16 Zone 16	***			
Course administration	17 Zone 17	<u>**</u>		<u>×</u>	
• • • Group administration	18 Zone 18	**			
CANCT .	19 Zone 19	<u>×</u>		<u>×</u>	
📲 Datasheet	20 Zone 20	<u>**</u>			
🛶 🗣 System parameter	21 Zone 21	<u>**</u>		<u></u>	
💊 Parameter	22 Zone 22	<u>**</u>		444.	
1 5MA09G	23 Zone 23	<u>×</u>		<u>**</u>	
E MCD8	24 Zone 24	<u>×</u>		<u>*</u>	
Datacheat	25 Zone 25	<u>×</u>		<u>×</u>	
Topuda Vd	26 Zone 26	<u>×</u>		<u>×</u>	
Inputs X4	27 Zone 27	<u>×</u>		<u></u>	
 Outputs X4 	28 Zone 28	<u> </u>		<u>×</u>	
🗣 Outputs X3	29 Zone 29	<u>×</u>		100 m	
Create new component>	30 Zone 30	100		255 C	
CANAIN08	31 Zone 31	100		25	
<pre> create new component></pre>	32 Zone 32	2000 100		100	
<pre></pre>	33 Zone 33			100	
	25 Zone 25				
	35 Zone 35			10	
	30 Zone 36	12		1	
	37 Zuile 37	12		100	
	30 Zone 30	1		100 M	
	40 Zone 40	1		1 A A	
	41 Zone 41			×.	
	42 Zone 42	100 M		×.	
	43 Zone 43	*		*	
	44 Zone 44	**		**	
oject 法 Status 📂 Trend	45 Zone 45	*		*	

The zones 1...8 are 8 analog inputs TC assigned as measured value inputs.

3.4 Example_4 - MCU system expanded by a peripheral I/O node

3.4.1 Example4-Target

The described and configured control system under Example_3, should be expanded by 9 further zones in a new project part.

This is in detail:

- 9 zones (3 Heating, 6 Heating/Cooling)
- Zones with measurement inputs thermocouple TC
- Outputs Heating, SSR, zero-crossing switching
- Outputs Cooling, SSR, zero-crossing switching activation for fan, drive
- Heating Current Monitoring

For the distribution on two plant components, a peripheral I/O node is necessary. From the control system of Example_3, a connection is established between CANAIN08.X4 and the peripheral I/O node of the flexotemp® component CANBC. The CANBC ensures, as a base module, the communication with the controller as well, as the across communication and the power supply for further connected flexotemp® components.

The planned I/O node should be represented in a table, e.g. in the way shown, to deduce the number of components and the project setup.

Explanation of the table contents

6	Prerequisite	The standard names of flexotempMANAGER are used.
	Z	Number of zone
	M/C	Measurement/Control
	SSR	Solid State Relay
	e.g. 006DIO16_CI.DIO7	flexotemp® component DIO16_CI, 7th DIO (006 is an internal consecutive number, which is assigned by the pro- gram, to identify the flexotemp® component)
	S-Type	Sensor Type

Ζ	M/	Output type	Output type	Output type	Measurement	S-	Measurement input
	С	Switching SSR	Switching SSR	Analog signal	input	Туре	Sensor Type
		Heating *)	Cooling		Analog signal		
10	С	007SMA09G.1				TC	005TC12.AI1
11	С	007SMA09G.2				TC	005TC12.AI2
12	С	007SMA09G.3				TC	005TC12.AI3
13	С	007SMA09G.4	006DIO16_CI.DIO1			TC	005TC12.AI4
14	С	007SMA09G.5	006DIO16_CI.DIO2			TC	005TC12.AI5
15	С	007SMA09G.6	006DIO16_CI.DIO3			TC	005TC12.AI6
16	С	007SMA09G.7	006DIO16_CI.DIO4			TC	005TC12.AI7
17	С	007SMA09G.8	006DIO16_CI.DIO5			TC	005TC12.AI8
18	С	007SMA09G.9	006DIO16_CI.DIO6			ТС	005TC12.AI9

*) In the current example, the heating current monitoring is done for all Heating outputs, which are distributed to the module SMA09G, so the flexotemp® component BACI is connected with external current transformers. The PSG current transformer module ESW75 is used. The control outputs Heating are of type <Heating with current

measurement>. Further details on heating current monitoring see operating instructions **Temperature Control System flexotemp® Parameter**.

3.4.2 Example4-Necessary components

The following flexotemp® components are required in addition to the components of Example_3:

- I Bus Coupler flexotemp® CANBC
- 1 Bus Actuator Interface, Current Input flexotemp® BACI
- 1 Thermocouple Interface flexotemp® TC12
- 1 Digital In-/Output Interface, Current Input flexotemp® DIO16CI
- 1 Digital Output Module flexotemp® SMA09G

Components for

Project setup



3.4.3 Example4-Installation

A connection is established between CANAIN08.X4 (CAN-OUT) of Example_3 and the peripheral I/O node. For the peripheral I/O node, the flexotemp® components are added from the right side, starting from the CANBC, as shown. The cross connections click into place for automatic parallel bus contact in the housing, that builds a block of flexotemp® components.



Rated voltage	1830 VDC	1830 VDC	1830 VDC	1830 VDC
Power	2 W	2 W	2 W	2 W
consumption	(Electronics)	(Electronics)	(Electronics)	(Electronics)



SMA09G

Rated voltage		1830 VDC
Power consumption		1 W
0	See current data sheets	

Starting with CANBC, the flexotemp® components must be connected with the 24 VDC power supply.

Component		CANBC	BACI	TC12	DIO16CI
Terminal		X1	X1	<n.a.></n.a.>	X1
6	See current data sheets				

The in-/outputs of the flexotemp® components must be wired accordingly.

Component		CANBC	BACI	TC12	DIO16CI
Terminal		<n.a.></n.a.>	X2	X2, X3	X2, X3
0	See current data sheets				

The interfaces of the CAN filed bus on one hand and the PSG bus on the other hand have to be connected with each other.

Component	CANAIN08 (Example_3)	CANBC	BACI	TC12	DIO16CI
CAN field bus	X4 (out)	Х3	<n.a.></n.a.>	<n.a.></n.a.>	<n.a.></n.a.>
PSG bus	<n.a.></n.a.>	<n.a.></n.a.>	X3 (out)	<n.a.></n.a.>	<n.a.></n.a.>
			with		
			SMA09G.X2		
6	See current data sheets				

The three current transformers ESW75 have to be connected to the flexotemp® component BACI, for heating current monitoring.

Component	BACI
Terminal	Х2
Current transform- er	3 x ESW75
6	See current data sheets

The outgoing control lines for the Heating actuators on SMA09G, have to be led through the connected current transformer.

3.4.4 Example4-Project setup and configuration

Further details, how the project setup and configuration tool flexotempMANAGER should be used and operated, as well as further explanations of the parameters, please see the operating instructions (see chapter ¬Additional and continuative documents).

Prerequisite	flexotempMANAGER is installed on PC.
Prerequisite	flexotempMANAGER and the communication server (PSGCommServer) are running on the same computer hardware.
	The flexotemp® components are configured in the order shown in 7Example1-Installation (from the left, starting with CANBC, to the right).
	A connection is established between CANAIN08.X4 (CAN-OUT) of Example_3 and the peripheral I/O node.
PC side	
flexotempMANAGER	Symbol bar: <view> Symbol bar, Status bar, Project are active.</view>
start	Menu bar: <file> <open> Project <example_1>.</example_1></open></file>
	The project <example_1> is displayed.</example_1>
	Prerequisite Prerequisite Prerequisite Prerequisite PC side flexotempMANAGER start

3.4.4.1 Example4-Create components for peripheral I/O node

Create peripheral I/O node

The flexotemp® component CANBC is added to the existing project Example_3 as peripheral I/O node.

flexotempMANAGER - Example_3				_ <u>8</u> >
B C D V B C V B C C C C C C C C C C C C C C C		<u> </u>		
×	MCU128->Info			
Communication server	- Info			
🗊 Commentary		NCU120		
😑 🚰 MCU128	L'omponent name	MC0128		
📲 Datasheet	DLL	MCU128		
Communication	Data version	DAT 1.1 010001		
Time server	Calleration	MCI 1128222222		
System parameter	Sonware version	Incoleon		
Vone parameter	L			
What is a profibure DPE 0	Details			
W Pronous Driek				
Inputs				
Tool coding				
Virtual digital inputs				
Virtual digital outputs				
Measured values				
Group administration				
E CANCT				
E CANAINO8				
<create component="" now=""></create>				
CANCT				
CANCT SPI				
CANATION				
CANTC12				
CANTC24				
CANPCO3				
CANPCOS				
CANPC12				
CANVI				
CANTORS				
EDS Beisniel				
🃲 Project 🛃 Status 🔄 Trend				
Press F1 for help.	,		SINGLE MODE OFFLINE TF	REND OFFLINE 剩 📻

Address setting

The setting of the device ID on the coding switch here and on the rotary switch on the CANBC must fit. The CANBC gets CAN NodeID 16, because the controller reserves 15 slots.



Create further components

Beneath the CANBC, the further components (BACI (SMA09G below), TC12, DIO16_CI) are selected out of a list and created.

flexotempMANAGER - Example_3 *			
File Edit Communication View Extras ?			
▁□		<u>é ()</u>	
×	CANBC->Info		
Communication server	_ Info		_
Commentary	Component name	CANRC	
E 🙀 MCU128	Component name	CANDO	
Datasheet		LANBL	
Time cerver	Software version	CANBC-82????	
System parameter	L		
+ 🛛 Zone parameter	Number of slots		
Name of zone/Input blocks	15	-	
🕀 🔶 Profibus DPEA		_	
 Direct IOs 	Communication		
- 🗣 Inputs	CAN NodelD		
Tool coding			
Virtual digital inputs	16	Ľ <u>3**</u> €, œ	
Measured values		Q * ~ ⊗ ¥	
Group administration		³⁹ Q38 ⁴	
E D CANCT		0345 D	
E CANAINOB			
E P CANBC		E S S	
Datasheet		-800×	
Create new component>			
Create r TCP100	Details		-
PT12			
DI016 CI			
DIO16 CT SPI			
AIO04			
BACI			
DO08R			
VC02			
MPI02			
CANBE			
HPC24			
HC06_16			
P			
Project 🛃 Status 🗁 Trend			
Press button H1 for help.			JUFFLINE JEREND UFFLINE 🛒 👝

The I/O node and the components are created in the project.



The project is stored with the name Example_4.

3.4.4.2 Example4-Specify Heating outputs

Specify 9 Heating outputs

At (007)SMA09G on BACI: for DO1...DO9 select and set the type <Heating with current measurement>.*)



At (007)SMA09G on BACI: for DO1...DO9 of type <Heating with current measurement> assign zone 10...18.*)

	데 데 데 데 데 데 데 데 프로	8 🔍			
	* 3+ 11 SMA09G->Outputs	ssr.			
Communication server					
		Name	Тур	Defi	inition
Datasheet	Dutrue DO 1 (1)	005SMA09G 1	Heating with current measurem		
Time server	04p4 00 1(1)	0055MA095 2			
 System parameter 		0055MA09G 2		<9> Zone 9	
Sone parameter	Uutput DU 3 (3)	00055MA030.5		<10> Zone 10 <11> Zone 11	
Vialie of 2016/11poc blocks Profibus DPEA	Output DO 4 (4)	UU5SMAU9G.4		<12> Zone 12 (13) Zone 13	
Oirect IOs	Output DO 5 (5)	005SMA09G.5		<13> Zone 13 <14> Zone 14	
 Inputs 	Output DO 6 (6)	005SMA09G.6		<15> Zone 15 (16) Zone 16	
 Virtual digital inputs Virtual digital outputs 	Output D0 7 (7)	005SMA09G.7		<17> Zone 17	
Weasured values	Output DO 8 (8)	005SMA09G.8		<18> Zone 18 <19> Zone 19	
Group administration	Output DO 9 (9)	005SMA09G.9		<20> Zone 20	
E CANCT				<21> Zone 21 <22> Zone 22	
				<23> Zone 23	
Datasheet				<24> 20ne 24 <25> Zone 25	
🖨 🚰 BACI				<26> Zone 26	
		0 0 0 0 0 000		<27> Zone 27 <28> Zone 28	
I System parameter	6 5 6 1 1 0 .			<29> Zone 29	
Parameter				<30> Zone 30	
Datacheet				<32> Zone 32	
Outputs SSR	D01 D	10 2 DO 3	D04 D05	<33> Zone 33	
Outputs X5				<34> 20ne 34 <35> Zone 35	
<pre>Create new component></pre>				<36> Zone 36	
				<37> Zone 37	
🐵 🕎 DIO16_CI				<38>∠one 38 <39\ Zone 39	
<pre>Create new component></pre>				<40> Zone 40	
<pre>Create new component></pre>				<41> Zone 41	
ன <create component="" new=""></create>				<42> Zone 42	
-				<43> Zone 43	
					_

*) By the key the allocation of the logical (DO1-9) to the physical outputs (1-9) can be reversed.



9 Heating outputs are defined for zone 10...18.



3.4.4.3 Example4-Specify Cooling outputs

Specify 6 Cooling outputs

At (006)DIO16_CI on CANBC: for DIO1...DIO6 select and set the type <Cooling>.

😅 🖬 X 🖻 💼 🚭 🤋 🕏	10 IO IO IO IO IO IO IO	é 🗘			
	DI016_CI->In-/outputs	×2/×3			
Communication server					
MCU128		Name		Тур	Defin
Datasheet	In-/output DID 01 (x2 5)	006DI016 CI.DI01			
Communication					,
Time server	In-Youtput DID 02 (A2. 6)	00001010_01.0102	V	Heating with current measurem	ent
 System parameter 	In-/output DI0 03 (X2. 7)	006DI016_CI.DI03	🔽	Cooling	
Zone parameter	In-/output DI0 04 (X2. 8)	006DI016_CI.DI04	V	digital output	
Name or zonejunput blocks	In-/output DID 05 (X2, 9)	006DI016_CI.DI05		digital input	
Direct IOs	In Justice DID 00 MO 10			Cooling with common supply	
Inputs	In-700(put bit) 06 (A2.10)				
Tool coding	In-/output DIO 07 (X2.11)	00601016_01.0107	▼		
🛶 🗣 Virtual digital inputs	In-/output DID 08 (X2.12)	006DI016_CI.DI08	v		
 Virtual digital outputs 	In-/output DIO 09 (X3, 5)	006DI016_CI.DI09			
Measured values Course a deviation	In Journal DID 10 0/2 (2)		-		
	involuplic bib to (x.s. 6)		_		
	In-/output DIO 11 (X3. 7)	00601016_01.01011			
ANBC	In-/output DID 12 (X3. 8)	006DI016_CI.DI012			
Datasheet	In-/output DID 13 (X3, 9)	006DI016_CI.DI013			
🖻 🚰 BACI	Involutional DID 14 0/3 100	006DI016_CLDI014			
	(1770aparbib 14(70.10)				J
System parameter	In-/output DIO 15 (X3.11)	00601016_01.01015			
Parameter	In-/output DID 16 (X3.12)	006DI016_CI.DI016	V		
Andres				→ ≪	
- 9 Outputs SSR					
Outputs X5					
<pre></pre>					
🗈 🏭 ТС12					
🖻 🅎 DIO16_CI					
- 📲 Datasheet					
🗣 Parameter					
In-/outputs X2/X3					
Create new component>					
<pre>Generate new component></pre>					
Create new component>					

At (006)DIO16_CI on CANBC: for DIO1...DIO6 of type <Cooling> assign zone 13...18.

flexotempMANAGER - Example_4 *					_ <u>-</u>
File Edit Communication View Extras ?					
🗅 🚅 🖶 🙏 🖻 💼 🎒 💡 🕏 🗊) 11 12 19 19 19 📫 🔥	é 🗊			
	DI016 Cl->In-/outputs	X2/X3			
Commentary				-	
E 🖓 MCU128		Name		Тур	Definition
📲 Datasheet	In-/output DIO 01 (X2. 5)	006DI016_CI.DI01	~	Cooling	
Communication	In-/output DIO 02 (X2. 6)	006DI016_CI.DI02			
Suctor payameter	In (output DIO 02 N/2, 7)		-		
System parameter	1119/04(par bio 03 (x2, 7)				
Arme of zone/Input blocks	In-/output DIU U4 (X2. 8)	00601016_01.0104			<4> Zone 4
Profibus DPEA	In-/output DIO 05 (X2. 9)	006DI016_CI.DI05	V		<5> Zone 5 <6> Zone 6
💊 Direct IOs	In-/output DIO 06 (X2.10)	006DI016_CI.DI06	-	ĺ	<7> Zone 7
Inputs	In (autout DIO 07 0/2 11)		- E		
 Tool coding 	In-Youtput Dio 07 (A2.11)			l	- <10> Zone 10
 Virtual digital inputs 	In-/output DIO 08 (X2.12)		V		<11> Zone 11
Virtual digital outputs Massured values	In-/output DIO 09 (X3. 5)	006DI016_CI.DI09	v		<12> Zone 12 <13> Zone 13
Group administration	In-/output DID 10 043-61	006DI016 CI.DI010		ĺ	<14> Zone 14
R R CANCT		006DI016_CLDI011			<15> Zone 15
CANAIN08		00001010_01.01011			- (17) Zone 17
E ANBC	In-/output DIO 12 (X3. 8)	006DI016_CI.DI012	~		<18> Zone 18
Datasheet	In-/output DIO 13 (X3. 9)	006DI016_CI.DI013	v		(19) Zone 19 (20) Zone 20
E BACI	In-/output DID 14 (×3.10)	006DI016 CI.DI014	_		<20 Zone 20
Datasheet					<22> Zone 22
System parameter	In-/output DI0 15 (X3.11)	00601016_01.01015			<23) Zone 23 (24) Zone 24
SMARG	In-/output DIO 16 (X3.12)	006DI016_CI.DI016			<25> Zone 25
Datasheet				→ ≪	<26> Zone 26
Outputs SSR					<27> Zone 27 <28> Zone 28
Outputs X5					<29> Zone 29
<pre>Create new component></pre>					<30> Zone 30
ш 🕎 тС12					<32> Zone 32
E DIO16_CI					<33> Zone 33
Datasheet					<34> Zone 34 (35) Zone 35
Parameter					<36> Zone 36
<pre></pre>					
Create new component >					
<create component="" new=""></create>					
- ·					
	1				
Topect 23 Status E Trend	•				Þ
Press button E1 for belo.					DEFLINE TREND DEFLINE 剩 🛲

6 Cooling outputs are defined for zone 13...18.

) 🛋 🖬 🗶 🕒 🖻 🛤 🛛 🖉 🖉 🖉		á 🗊				
		0 •				
-	- #+UL DI016_CI->In-/outputs	X2/X3				
Communication server						
E MCUIIIeitary		Name		Тур		Definitio
Datasheet	In-/output DIO 01 (X2, 5)	006DI016_CI.DI01	- T	Cooling	<13> Zone 13	
Communication	In:/output DID 02 0/2_61	006DI016 CI.DI02		Cooling	<14> Zone 14	
Sustem parameter	In Journal DID 02 (V2.7)			Cooling	(15) Zone 15	
System parameter	11-700 put bio 03 (x2, 7)	000DI010_CLDI03		Cashing	(10) Zone 10	
Name of zone/Input blocks	In-/output DIU 04 (X2. 8)	00601016_01.0104		Cooling	<16>Zune 16	
🗉 🔹 🗣 Profibus DPEA	In-/output DID 05 (X2. 9)	006DI016_CI.DI05		Cooling	<17> Zone 17	
Direct IOs	In-/output DI0 06 (X2.10)	006DI016_CI.DI06		Cooling	<18> Zone 18	
Tool coding	In-/output DID 07 (X2.11)	006DI016_CI.DI07				
Virtual digital inputs	In-/output DID 08 (X2.12)	006DI016_CI.DI08				
 Virtual digital outputs 	Involtent DID 09 0/3 51	00601016 CL0109		, 		
Measured values		00601016_CL01010				
Group administration	In-760 put DID 10 (A3. 6)	00001010_01.01010				
CANAIN08	In-/output DIU 11 (X3. 7)		_ !!!			
E R CANBC	In-/output DID 12 (X3. 8)	00601016_01.01012		<u> </u>		
Datasheet	In-/output DID 13 (X3. 9)	006DI016_CI.DI013				
E Marci	In-/output DI0 14 (X3.10)	006DI016_CI.DI014				
System parameter	In:/output DI0 15 (×3 11)	006DI016 CI.DI015	- F	, 		
💊 Parameter	In Journal DID 16 (V2.12)					
回 層 SMA09G	(X3.12)	100001010_00.01010	- 1			
Datasheet						
Outputs 55R						
<pre></pre>						
🖻 🏧 DIO16_CI						
- 9 Parameter						
In-/outputs X2/X3						
 Create new component> 						
Create new component >						
Service new componency						

3.4.4.4 Example4-Parameterize Heating/Cooling outputs

Output type switching SSR (zero-crossing switching)

For zone 10...18 the parameters must be specified as follows: [P026 RELH] = <Off> [P027 RELC] = <Off>

Zone only Heating

For zone 10...12 the parameters must be specified as follows: [P023 OUTH] = 100[P024 OUTC] = 0

Zone Heating/Cooling

For zone 13...18 the parameters must be specified as follows: [P023 OUTH] = 100 [P024 OUTC] = -100

3.4.4.5 Example4-Assign analog inputs of type TC to measurement inputs

9 Analog inputs of type TC are assigned to measurement inputs

At the controller, under <Measured values> zone 10 is assigned to analog input 005TC12.Al1.



The zones 10...18 are 9 analog inputs TC assigned as measured value inputs.

flexotempMANAGER - Example_4 *				<u>_ 8</u>	X
File Edit Communication View Extras ?					
🗅 🚅 🖶 🙏 🖻 💼 🎒 💡 🛃 🗊		🏠 é 🔍			
	MCU128->Measured	values			_
Communication server	Name of zone	Measured value 1	Filter 1	Maanmad value 2 Eilter 2	
Commentary	1 7ace 1				-
🗄 🚰 MCU128	2 Zone 2	CO2CANAINOS AT2	0 - Off		4
📲 💼 Datasheet	2 2016 2 3 700e 3	M 002CANAIN08 AT3	0 - Off		
Communication	4 Zone 4	1002CANAIN08.A14	0 - Off 🐝		4
Time server	5 Zone 5	1002CANAIN08.AI5	0 - Off 🔣		1
System parameter	6 Zone 6	002CANAIN08.AI6	0 - Off 🕺		
Tone parameter	7 Zone 7	002CANAIN08.AI7	0 - Off 📉		1
Alamo of appo/Input blocks	8 Zone 8	002CANAIN08.AI8	0 - Off 📉		
	9 Zone 9	<u>*</u>	×.		
Prondus UPEA	10 Zone 10	005TC12.AI1	0 - Off 🛛 🖄		
V Direct IOs	11 Zone 11	005TC12.AI2	0 - Off 🛛 🖄		
 Inputs 	12 Zone 12	005TC12.AI3	0 - Off 🔣		
- 🗣 Tool coding	13 Zone 13	005TC12.AI4	0 - Off 🛛 🤽		1
Virtual digital inputs	14 Zone 14	005TC12.AI5	0 - Off 🔽		
Virtual digital outputs	15 Zone 15	005TC12.AI6	0 - Off 🔽		
Measured values	16 Zone 16	005TC12.AI7	0 - 011		
Group administration	17 Zone 17	005TC12.AI8	0 - 0H		
B-BN CANCT	18 Zone 18	005TC12.AI9	0 - Off 📉		
	19 Zone 19		<u></u>		
	20 Zone 20	100			-
	21 Zone 21	10			
Datasheet	22 Zone 22				
	24 Zone 24	100 M			
	25 Zone 25	1			
- 🗣 System parameter	26 Zone 26	1	~		
💊 Parameter	27 Zone 27	× 1	*		
E B SMA09G	28 Zone 28	1	14		
- 👘 Datasheet	29 Zone 29	N	× 1		
- Quinuts SSR	30 Zone 30	*			
Outputs X5	31 Zone 31	<u></u>	<u>×</u>		
Create new component>	32 Zone 32	<u>**</u>	<u>**.</u>		
	33 Zone 33	<u>×</u>	<u>*</u>		
	34 Zone 34	<u></u>	<u>**</u>		
	35 Zone 35	<u>×</u>	<u>×</u>		
Datasheet	36 Zone 36	<u>×</u>	<u>×</u>		
🗣 Parameter	37 Zone 37	<u>×</u>	<u>×</u>		
- 🗣 In-/outputs X2/X3	38 Zone 38	<u>×</u>	<u>×</u>		
Create new component>	39 Zone 39	100 I	<u></u>		
Create new component>	40 Zone 40	1996 - 1997 - 19			
<pre>Create new component></pre>	42 Zone 42	100			
- · · ·	43 7000 43				
	44 Zone 44				1
📲 Project 🛃 Status 🛃 Trend	45 Zone 45	*			-
Press button E1 for help			STNGLE MO		
3.4.4.6 Example4-Analog inputs - specify sensor types

The sensor types are specified in groups on the input card TC12 on CANBC.

On TC12 the sensor type <SEN1>...<SEN3> is set for four analog inputs. Standard setting for the sensor type is <J(Fe-J)>.



The sensor types for the input card TC12 are defined.

4 Project setup and configuration of alarms

Based on example_4, the configuration and the project setup of a system alarm and a zone specific alarm is described.

For further information on alarms see operating instructions on

- Temperature Control System flexotemp® Parameter Chapter Alarm Management
- Project setup and Configuration Tool flexotempMANAGER Operation Chapter IN-/Outputs

(see Additional and continuative documents).

4.1 System alarm

In flexotempMANAGER are system alarms available. Which event/status triggers the alarm, is specified by so called alarm definition bytes. The system alarm can be output on a terminal by allocation of a digital output on a I/ O component.

In the example, the connected thermo couples TC are monitored on sensor break. An occurrence of a sensor break should be signalized by system alarm 1. The system alarm 1 is put on a digital output.

Configure system alarm 1

Set [SP12] S1D2 - Definition Byte 2 - System Alarm $1 = 2_{dec}$ (matches with: sensor break (SB)/sensor incorrect polarity (SP) sensor 1 (not storing))

flexotempMANAGER - Example_4 *				_ <u>8</u> ×				
File Edit Communication View Extras ?								
] D 🖨 🖬 X 🖻 🖻 🗳 🕈 📑	😴 🕕 10 19 19 19 19 📫 🏠 é 🕠							
	MCU128->System parameter							
Communication server	System parameter	Linit						
Commentary	SP01_CELS_Temperature.unit 9C/9E	One	1 - 90					
🕀 🙀 MCU128	MCU128 SP02 AMPD Heating current measurement method 1 - Display of active current							
📲 Datasheet	SP03 MAXK Maximum number of channels		128					
- 💏 Communication	SP04 LVA1 Release limit value 1	[°C]	0					
Time server	SP05 LVA2 Release limit value 2	[°C]	0					
System parameter	SP06 LVA3 Release limit value 3	[°⊂]	0					
🛨 🔶 Zone parameter	SP07 LVA4 Release limit value 4	[°⊂]	0					
Name of zone/Input blocks	SP08 AGAP Tolerance band for automatic ramp		20					
🕀 🔶 Profibus DPEA	SPU9 IN15 Function digital input 1 system		U - not allocated					
Direct IOs	CD11 C1D1 Definition digital input 2 system		0 - not allocated					
Inputs	SP11 S1D1 Definition byte 1 - system alarm 1		0					
Tool coding	CD12_CDD1_Definition byte 1_custom alarm 2		0					
Wirtual digital inputs	Definition byte 2 - system alarm 1		x	1				
Virtual digital outputs								
Measured values	Bit 0 🔲 0x01 - Sensoralarm SAL (always storing)							
Group administration	Bit 1 🔽 0x02 - Sensor break (SB)/sensor polarity (SP) sensor 1 (not stori	nal						
	Rit 2 DvD4 - Sancor braak (SR)/cancer polarity (SR) cancer 2 (not steri	nal						
	Dire T a service of the service production production of the second	19)						
	Bit 3 0x08 - Heat sink temperature alarm							
E Galaction	Bit 4 🔲 0x10 - without function							
Datasheet	Bit 5 🔲 0x20 - Projection or control zone not started							
E PACI	P2 6 Du40 Susteen Johannal data awar							
⊞ BUDIO16_CI	Bit 7 0x80 - Error CAN / slave Error							
<pre>Create new component></pre>								
<pre>Create new component></pre>	OK Abbrech	ien						
Create new component>		_						
	SP30 S303 Derinition word channel riag 1,2 - system alarm 3		0					
	SP31_53D4_Definition word channel flag E.4., custom alarm 3		0					
	SP32_S3D5_Definition word channel flag 7.8 - system alarm 3		0					
	SP34 S3D7 Definition word channel flag 9,10 - system alarm 3		0					
	SP35 S4D3 Definition word channel flag 1,2 - system alarm 4		0					
	SP36 S4D4 Definition word channel flag 3,4 - system alarm 4		0					
	SP37 S4D5 Definition word channel flag 5,6 - system alarm 4		0					
	SP38 S4D6 Definition word channel flag 7,8 - system alarm 4		0					
	SP39 S4D7 Definition word channel flag 9,10 - system alarm 4		0					
	SP40_PMOD_Process monitoring mode	_	0 - passive					
🃲 Project 🐉 Status 🛃 Trend								
Press button F1 for help.			SINGLE MODE 0	FFLINE TREND OFFLINE 🛒 💳				

Project setup of the digital output for system alarm 1

(006)DIO16_CI on CANBC for DIO9 select and set the type <Digital output>.

Sommunication server		×2/×3					
Commentary		Name		Тур		De	finition
Patasheet	In-/output DIO 01 (X2. 5)	006DI016_CI.DI01		Cooling	<13>Zo	one 13	
Communication	In-/output DIO 02 (X2. 6)	006DI016_CI.DI02	~	Cooling	<14> Zo	one 14	
System parameter	In-/output DIO 03 (X2, 7)	006DI016_CI.DI03	- -	Cooling	<15> Zo	one 15	
🗈 🗣 Zone parameter	In-/output DIO 04 (X2. 8)	006DI016_CI.DI04	- -	Cooling	<16> Zo	one 16	
Name of zone/Input blocks	In-/output DID 05 (%2, 9)	006DI016 CI.DI05		Cooling	<17> Zo	one 17	
Vindus Drea	In-/output DID 06 (%2.10)	006DI016 CI.DI06		Cooling	<18> Zo	one 18	
• Inputs	In:/output DID 07 (v2.11)	006DI016_CL.DI07			_		
 Tool coding Virtual digital inputs 	In-/output DID 08 (x2 12)	006DI016 CI.DI08	- F		_		
🛶 💊 Virtual digital outputs	In-foutput DID 09 (v3. 5)	00601016 CL0109			_		_
Measured values Crosup administration	In-/output DIO 10 (x3, 6)			 	I	1	
Group administration	In /output DIO 10 (V3. 0)	00601016_01011		Heating with current mea	surement		
E P CANAINOS	In-/output DIO 12 (V3. 9)			Heating			_
	In /output DIO 12 (x3. 8)	00601016_01.01012	-	digital output digital input		4	
BACI	In-Youtput DIO 13 (A3. 3)	00601016_01.01014	- •	Heating with common sup Cooling with common sup	aply olu		_
н 🚰 тс12	In-700(put Dio 14 (x.3.10)			Cooling War common sap		<u>ــــــــــــــــــــــــــــــــــــ</u>	
Datasheet	In-/output DI0 15 (X3.11)			ļ			_
Parameter	In-/output DID 16 (X3.12)			1			
 In-/outputs X2/X3 				→ <u> </u>			
<pre>Create new component> </pre>							
<pre></pre>							
-							

(006)DIO16_CI on CANBC for DIO9 of type <Digital output> assign <System alarm 1>.

flexotempMANAGER - Example_4 * File Edit Communication View Extras ?					_ 8 :
□ ☞ 묘 X 백 18 ❹ ? \$ \$	III III III III III III III IIII IIII	1 (i) X2/X3			
Communication server		12110			
Commentary		Name		Tun	Definition
E- 23 MCU128	In Jackson DIO 01 N/2 E			Cooling	(13) Zone 13
Communication	111-700(put bit of (x2, 5)			Cooling Iour	
Time server	In-/output DI0 02 (X2. 6)	UUGDIU16_CI.DIU2		Cooling	<14> Zone 14
System parameter	In-/output DIO 03 (X2. 7)	006DI016_CI.DI03		Cooling	<15> Zone 15
🗄 🔶 Zone parameter	In-/output DID 04 (X2, 8)	006DI016_CI.DI04		Cooling	<16> Zone 16
Name of zone/Input blocks	In Journal DID 05 0/2 91	00601016_CL0105		Cooling	(17) Zone 17
Profibus DPEA	111/00/p0/010/03 (A2. 3)		— Ě	lo r	
Direct tos Direct tos	In-/output DIO 06 (X2.10)		· ·	Cooling	<18> Zone 18
Tool coding	In-/output DIO 07 (X2.11)	006DI016_CI.DI07			
 Virtual digital inputs 	In-/output DID 08 (X2.12)	006DI016_CI.DI08		ĺ	
Virtual digital outputs	In Journal DID 09 0/2 51			digital output	
Measured values	In-700(put bit) 03 (A.S. 5)			digital oaipat	
Group administration	In-/output DIO 10 (X3. 6)			<u> </u>	CoDeSus variable
E CANCT	In-/output DIO 11 (X3. 7)	006DI016_CI.DI011	V		Alarm 1 (channel)
	In-/output DID 12 (X3, 8)	006DI016 CI.DI012			Alam 2 (channel)
		006DI016_CLDI012			Alam 4 (channel)
	In-Youtput DID 13 (X.3. 9)		_		System alarm 1
1 TC12	In-/output DIO 14 (X3.10)			ļ	System alarm 2 Sustem alarm 3
DIO16_CI	In-/output DID 15 (X3.11)	006DI016_CI.DI015	v		System alarm 4
Datasheet	In-/output DID 16 (x/3.12)	006DI016_CLDI016		, 	Process timer 1 active
- Q Parameter	[Introduptic bio 10 (No.12)	1	- <u> </u>		Process timer 2 active Process timer 3 active
In-/outputs X2/X3			_	→	Process timer 4 active
<pre>Create new component></pre>					Current alarm for OFF and ON (channel)
<create component="" new=""></create>					Alarm 2 (group)
 Create new component> 					Alarm 3 (group)
					Alarm 4 (group)
					Alam 2 inverted (channel)
					Alarm 3 inverted (channel)
,					
🎕 Project 🛃 Status 🛃 Trend					
one butten Et fer hale	1.1				

4.2 Zone specific alarm

In flexotempMANAGER are zone alarms available. Which event/status triggers the alarm, is specified by so called alarm definition bytes. The zone alarm can be output on a terminal by allocation of a digital output on a I/O component.

In the example for zone 1, a temperature alarm should be output, when the actual value of the zone is 5 C° less than the setpoint value. The zone alarm is put on a digital output.

Configure zone alarm 1

Set [P073] A1D2 - Definition Byte 2 - Alarm 1 = 4dec (matches with: LI1 (storing by LI1D))

flexotempMANAGER - Example_4 *				_	8 ×
File Edit Communication View Extras ?					
🗅 🚅 🖶 🙏 🖻 🕄 🎒 🤻 🕏 🚺) 10 12 19 19 19 📫 🏠 é 🕕				
	MCU128->Zone parameter				
Communication server	Zone parameter		<1> Zone 1	<2> Zone 2	<.
Commentary	P056 TIC2 Cooling integral time 2	[s]	500	500	500
P- 🙀 MCU128	P057 CTC2 Cooling sampling time 2	[5]	1.0	1.0	1.0
Datasheet	P058 GPNr Group number		0 - No group selecte	e 0 - No group selecte	e O -
Communication	P059 GPF Group release by		0 - No group release	0 - No group release	e O -
Time server	P060 GPM Group mode		0 - Release when Ic	0 - Release when lo	-0 c
 System parameter 	P061 LI1 Limit value 1	[°C]	5	5	5
🗄 🗣 Zone parameter	P062 LTD Limit value 2	[9/]	-5	-5	-5
Name of zone/Input blocks	P064_LT2DLtmit_value_definition_2	[14]	0	-5	0
🗄 🗣 Profibus DPEA	P065 LI3 Limit value 3	[20]	0	0	0
 Direct IOs 	P066 LI3D Limit value definition		0	0	0
- 💊 Inputs	P067 LI4 Limit value 4	[°C]	0	0	0
 Tool coding 	P068 LI4D Limit value definition 4		0	0	0
 Virtual digital inputs 	P069 LIS Limit value 5	[°C]	0	0	0
 Virtual digital outputs 	P070 LISD Limit value definition 5	[oc]	0	0	0
Measured values	P071 LI6 Limit value 6	[*]	0	0	0
Group administration	P072_E100 Enric Value definition of 0		n	0	0
E CANCT			la la	0	0
E P CANAIN08	P073 A1D1 Definition byte 1 - alarm 1 Zone <1> Zone 1		×	0	0
E CANBC				0	0
<pre>Create new component></pre>	Bit U UxU1 - I hyristor alarm (IA)			0	0
Create new component>	Bit 1 Dx02 · Current tolerance alarm (CTA)			0	0
-	Bit 2 🔽 0x04 - LI1 (storing by LI1D)			0	0
	Bit 3 D 0x08 - L12 (storing bull 12D)			0 - No group selecte	.0.
				0 - not allocated	0 -
	Dit 4 UXIU - LI3 (storing by LI3D)			0 - not allocated	0 -
	Bit 5 🔲 0x20 · LI4 (storing by LI4D)			0 - No group selecte	э O -
	Bit 6 🔲 0x40 - LI5 (storing by LI5D)			0	0
	Bit 7 Dv80 - LI6 (storing bull I6D)			0 - 'OFF '	0 -
	and points are (staning by area)			0 - 'OFF'	0.
	ПК	Abbrechen		0 /055 /	0
		- Hostochion		0 - 'OFF'	0.
	IP091 t3 Timer 3	5	10	0	0
	P092 t3d1 Timer 3 definition 1		0 - 'OFF '	0 - 'OFF '	0.
	P093 t3d2 Timer 3 definition 2		0 - 'OFF '	0 - 'OFF '	0.
	P094 t4 Timer 4	[s]	0	0	0
	P095 t4d1 Timer 4 definition 1		0 - 'OFF '	0 - 'OFF '	0.
	PU96 (402 filmer 4 definition 2	For 3	U - 'OFF '	U - 'OFF'	0.
	P097 PTOL Tolerance or process	[%]	0 - OFF	0 - OFF	0
	P099 POP Operating point of process monitoring	F94.1	0.00	0	0
📲 Project 🛃 Status 🔚 Trend	port of process mentaling	[/0]	1	-	•
Describe the Eff for hele		(cm/c) cm/c			

Project setup of the digital output for zone alarm 1

(006)DIO16_CI on CANBC for DIO10 select and set the type <Digital output>.

Edit Communication View Extras ?	n on en en en en 🖃 🛥 🛝	6 D				
		V2N2				
Sommunication server		~2/~3				
Commentary		Name		Tun		Defi
MCU128	In Justice DIO 01 N/2 ED			Cooling	(13) Zone 13	Den
		00001016_01.0101		Cooling	(13) Zone 14	
Time server	In-Youtput DIU 02 (X2. 6)	00601016_01.0102		Cooling	(14) Zurie 14	
System parameter	In-/output DIO 03 (X2. 7)	00601016_01.0103		Cooling	<15> Zone 15	
Variable Annual Strategy	In-/output DIO 04 (X2. 8)	006DI016_CI.DI04		Cooling	<16> Zone 16	
Profibus DPEA	In-/output DIO 05 (X2. 9)	006D1016_CI.D105	v	Cooling	<17> Zone 17	
Direct IOs	In-/output DIO 06 (X2.10)	006D1016_CI.D106	v	Cooling	<18> Zone 18	
Inputs Tool or disc	In-/output DIO 07 (X2.11)	006DI016_CI.DI07	- -		1	
Virtual digital inputs	In-/output DIO 08 (×2 12)	006D1016 CI.DI08			-	
💊 Virtual digital outputs	Involutiont DID 09(X3.5)	00601016 CL0109		digital output	System alarm 1	
Measured values Group a detailable black	In fourbut DIO 10 M2 C					
Group administration		00001010_01.01010	_		1	
CANAIN08	In-/output DIU 11 (X3. 7)			Heating with current measuren	nent	
	In-/output DIO 12 (X3. 8)	00601016_01.01012		Cooling		
Datasheet	In-/output DIO 13 (X3. 9)	006DI016_CI.DI013	v	digital output		
	In-/output DIO 14 (X3.10)	006DI016_CI.DI014	V	digital input Heating with common supply		
DIO16_CI	In-/output DIO 15 (X3.11)	006DI016_CI.DI015		Cooling with common supply		
Datasheet	In-/output DIO 16 (X3.12)	006DI016_CI.DI016				
Parameter		-	- L		1	
Create pew component >						
<create component="" new=""></create>						
<pre>Create new component></pre>						
	-					

(006)DIO16_CI on CANBC for DIO10 of type <Digital output> assign <Alarm 1 (channel)>.

flexotempMANAGER - Example_4 *					_ <u>5</u> ×
File Edit Communication View Extras ?	8)	6.0			
	DI016_CI->In-/outputs	×2/×3			
			_		
E- 🙀 MCU128		Name	1 2 1 2	Тур	Definition
Datasheet	In-/output DIO 01 (X2. 5)	006DI016_CI.DI01	V	Cooling	<13> Zone 13
Communication	In-/output DID 02 (X2. 6)	006DI016_CI.DI02		Cooling	<14> Zone 14
System parameter	In-/output DIO 03 (X2. 7)	006DI016_CI.DI03		Cooling	<15> Zone 15
🕀 🔶 Zone parameter	In-/output DID 04 0/2 81	006DI016 CI.DI04		Cooling	<16> Zone 16
Name of zone/Input blocks	In Journal DIO 05 (V2. 9)	00601016_CLD105		Cooling	(17) Zone 17
Profibus DPEA	111/004put Dio 05 (x2, 3)		— Ē	Cashas	(10) Zana 10
Inputs	In-/output DIU U6 (X2.10)				<16>Zune 16
- 💊 Tool coding	In-/output DIO 07 (X2.11)	006DI016_CI.DI07			
 Virtual digital inputs 	In-/output DID 08 (X2.12)	006DI016_CI.DI08	~		
Virtual digital outputs Measured unlines	In-/output DIO 09 (X3. 5)	006DI016_CI.DI09		digital output	System alarm 1
Group administration	In-/output DIO 10 (X3. 6)	006DI016_CI.DI010		digital output	
E P CANCT	Invortent DID 11 0/3 70	006DI016_CLDI011			i'
E CANAINO8		DREDID16, CLDID12		<u> </u>	CoDeSys variable
	In-/output DIU 12 (X.3. 8)	00601016_01.01012	M		Alam 1 [channel]
Datasheet	In-/output DID 13 (X3. 9)	006DI016_CI.DI013	v		Alarm 3 (channel)
E SU TC12	In-/output DI0 14 (X3.10)	006DI016_CI.DI014	v		Alarm 4 (channel) Sustem alarm 1
DI016_CI	In-/output DID 15 (X3.11)	006DI016_CI.DI015			System alarm 2
- The Datasheet	In /output DID 16 (×3.12)	006DI016_CI.DI016			System alarm 3 System alarm 4
• Parameter		-	- T		Process timer 1 active
In-routputs X2/X3			_		Process timer 2 active Process timer 3 active
Create new component>					Process timer 4 active
<pre>Create new component></pre>					Current alarm for OFF and ON (channel)
					Alam 1 (group)
					Alarm 3 (group)
					Alarm 4 (group)
					Alarm 2 inverted (channel)
					Alarm 3 inverted (channel)
Project Za Status Er Trend					
Press button F1 for help.					OFFLINE TREND OFFLINE 🛒 📻

(006)DIO16_CI on CANBC for DIO10 assign zone 1.

Communication server Commentary	DID16_CI->In-/outputs	X2/X3				
Communication server						
			_			
MCU128		Name	□ : ∀	Тур		Defini
📲 Datasheet	In-/output DIO 01 (X2. 5)	006DI016_CI.DI01	V	Cooling	<13> Zone 13	
Communication	In-/output DID 02 (X2. 6)	006DI016_CI.DI02	v	Cooling	<14> Zone 14	
System parameter	In-/output DID 03 (×2, 7)	006DI016_CI.DI03		Cooling	<15> Zone 15	
🖉 💊 Zone parameter	Invioutput DID 04 0/2 8)	006DI016_CLDI04		Cooling	<16>Zone 16	
 Name of zone/Input blocks 	In Joseph DIO 05 (v2. 0)	00601016_010105		Cooling	(17) Zone 17	
Profibus DPEA Dest IOs	In-Youtput Did Us (X2, 3)	00001010_01.0105		Cooling	10.7.10	
	In-/output DI0 06 (X2.10)	00601016_01.0106	_ ~	Looling	<18> Zone 18	
• Tool coding	In-/output DID 07 (X2.11)	006DI016_CI.DI07	v			
💊 Virtual digital inputs	In-/output DIO 08 (X2.12)	006DI016_CI.DI08				
💊 Virtual digital outputs	In-/output DIO 09 (X3. 5)	006DI016_CI.DI09		digital output	System alarm 1	
Measured values Group administration	In-/output DID 10 K3 6)	006DI016 CI.DI010		digital output	Alarm 1 (channel)	<1> Zone 1
ANCT		00601016_CL01011				1
CANAIN08		00001010_01.01011				
ANBC CANBC	In-/output DIU 12 (X.3. 8)	00601016_01.01012				
Datasheet	In-/output DIO 13 (X3. 9)	006DI016_CI.DI013	I			
E EU TC12	In-/output DIO 14 (X3.10)	006DI016_CI.DI014	V			
DIO16_CI	In-/output DI0 15 (X3.11)	006DI016_CI.DI015	- -			
Datasheet	In-/output DID 16 (×3.12)	006DI016_CI.DI016				
• Parameter		-	- î.			
<pre>In-routputs x2/x3 </pre>			_			
<pre>Create new component></pre>						

5 Project setup and configuration of an input function

For further information on alarms see operating instructions on

- Temperature Control System flexotemp® Parameter Chapter System Parameters
- Project setup and Configuration Tool flexotempMANAGER Operation Chapter IN-/Outputs

(see 7Additional and continuative documents).

5.1 Input function - Disconnect all actuators

All actuators should be disconnected controlled by an input signal (on example_4 based configuration and the project setup of the input function).

In flexotempMANAGER are system inputs available. By configuration of the system input is specified, which function the system executes for all zones, when the digital input is activated. By allocation of a digital input on an I/O component, the system input is triggered.

In the example, the controller should disconnect all actuators, when the digital input is set.

Project setup of the digital input

(006)DIO16_CI on CANBC for DIO11 select and set the type <Digital input>.

FlexotempMANAGER - Example_4 *						_ -
File Edit Communication View Extras ?						
		00				
·,	DIO16_CI->In-/outputs	X2/X3				
Communication server						
Commentary		Name	1 2 1	Тур		Definition
Patasheet	In-/output DIO 01 (X2, 5)	006DI016_CI.DI01	<u> </u>	Cooling	<13> Zone 13	
Communication	In-/output DID 02 (X2. 6)	006DI016_CI.DI02		Cooling	<14> Zone 14	
System parameter	In-/output DID 03 (X2, 7)	006DI016_CI.DI03	-	Cooling	<15> Zone 15	
🕀 💊 Zone parameter	In-/output DID 04 0/2 8)	006DI016 CI.DI04		Cooling	<16> Zone 16	
Name of zone/Input blocks	In /output DIO 05 (V2. 9)		-	Cooling	(17) Zone 17	
Profibus DPEA	111/00/put D10 00 (A2, 3)			Casting	(10) Zana 10	
Inputs	In-/output DIU U6 (X2.10)				<10>Zune to	
🗣 Tool coding	In-/output DI0 07 (X2.11)	00601016_01.0107				
Virtual digital inputs United digital autoute	In-/output DIO 08 (X2.12)	006DI016_CI.DI08	<u> </u>			
Virtual digital outputs Measured values	In-/output DIO 09 (X3. 5)	006DI016_CI.DI09		digital output	System alarm 1	
Group administration	In-/output DIO 10 (X3. 6)	006DI016_CI.DI010	v	digital output	Alarm 1 (channel)	<1> Zone 1
CANCT	In-/output DIO 11 (X3. 7)	006DI016_CI.DI011			-	
	In-/output DID 12 (X3. 8)	006DI016_CI.DI012	v			
Datasheet	In-/output DIO 13 (X3, 9)	006DI016_CI.DI013	-	Heating with current measure Cooling	ment	
BACI	In-/output DIO 14 (X3.10)	006DI016_CI.DI014	-	Heating digital output		
	In-/output DID 15 (X3.11)	006DI016_CI.DI015	- -	digital input		
Datasheet	In /output DIO 16 (X3.12)	006DI016_CI.DI016	-	Cooling with common supply		
Parameter To Journal VOIVO				→ ≪	1	
<create component="" new=""></create>				·		
<pre>Create new component></pre>						
- of <create component="" new=""></create>						
1						
🍂 Project 🛃 Status 🛃 Trend						Þ
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On the controller under <Inputs> the digital input (006)DIO16_CI.DIO11 is assigned to <System Input 1>.



Configure system input 1

Set [SP09] IN1S - Function System Input 1 = 16dec (matches with: disconnect actuator)

flexotempMANAGER - Example_4 *								
File Edit Communication View Extras ?								
D 😅 🖬 X 🖪 🛍 🎒 💡 😻 🕵) IQ IQ 📫 🏠 é 🗘						
×	🔷 мі	CU128->System parameter						
Communication server		System parameter		Unit				
Commentary	SP01 CELS	Temperature upit °C/°E			1-90			
🖻 🚒 MCU128	E - G MCU128 SP02 AMPD Heating current measurement method 1 - Display of active current							
📲 Datasheet	SP03 MAXK	Maximum number of channels			128			
	SP04 LVA1	Release limit value 1		[°C]	0			
Time server	SP05 LVA2	Release limit value 2		[°C]	0			
System parameter	SP06 LVA3	Release limit value 3		[∘⊂]	0			
+ 💊 Zone parameter	SP07 LVA4	Release limit value 4		[°⊂]	0			
Name of zone/Input blocks	SP08 AGAP	Tolerance band for automatic ramp)		20			
Nume of 2010/Inpac blocks	SP09 IN1S	Function digital input 1 system			0 - not allocated			
	SP10 IN2S	Function digital input 2 system	SP10 IN2S					
Virect IOs	SP11 S1D1	Definition byte 1 - system alarm 1	12 - Proportional I	reducti	on/increasing by 4. setpoint value			
• V Inputs	SP12 51D2	Definition byte 2 - system alarm 1	13 - Absolute red	uction I	to 2. setpoint value, if 2.SW <sw< th=""></sw<>			
🗣 Tool coding	SP13 S2D1	Definition byte 1 - system alarm 2	14 - Absolute red	uction I	to 3. setpoint value, if 3.SW <sw< th=""></sw<>			
💊 Virtual digital inputs	SP14 S2D2	Definition byte 2 - system alarm 2	15 - Absolute red	uction I	to 4. setpoint value, if 4.SW <sw< th=""></sw<>			
💊 Virtual digital outputs	SP15 S3D1	Definition byte 1 - system alarm 3	16 - Disconnect a	actuato	u			
Measured values	SP16 S3D2	Definition byte 2 - system alarm 3	17 - Passivate all	zones				
Group administration	SP17 S4D1	Definition byte 1 - system alarm 4	18 - Activate inpu	it block	C			
	SP18 S4D2	Definition byte 2 - system alarm 4	19 - Reset-ackno	wledge	e zone alarms			
	SP19 TRES	Timer after reset	20 - Reset-ackno	wledge	e all alarms			
	SP20 ASP	Minimum setpoint value change for	automatic ramp	ru	20			
	SP21 PUT	Identification or potential on sense	r Input	[m A]	1 - Un			
Datasheet	SP22 CMAA	Elimit for Switching-Off leakage curr	enc	linal	0 pet allegated			
E BACI	SP23 IN35	Exection digital input 3 system			0 - not allocated			
I	SP25 INSS	Function digital input 5 system			0 - not allocated			
🖻 🕎 DIO16_CI	SP26 IN65	Euroption digital input 6 system			0 - not allocated			
📲 Datasheet	SP27 IN75	Function digital input 7 system			0 - not allocated			
- 💊 Parameter	SP28 IN85	Function digital input 8 system			0 - not allocated			
In-foutputs X2/X3	SP29 COEO	Controller overall function offset			1			
	SP30 53D3	Definition word channel flag 1.2 - s	vstem alarm 3		0			
	SP31 S3D4	Definition word channel flag 3,4 - s	ystem alarm 3		0			
	SP32 53D5	Definition word channel flag 5,6 - s	ystem alarm 3		0			
	SP33 53D6	Definition word channel flag 7,8 - s	ystem alarm 3		0			
	SP34 S3D7	Definition word channel flag 9,10 -	system alarm 3		0			
	SP35 S4D3	Definition word channel flag 1,2 - s	ystem alarm 4		0			
	CD24 C4D4	Definition word channel flag 2.4 - 4	uctom slarm 4		lo			

5.2 Input function - reduce zone X to 2. setpoint value

The zone X (here zone 7) is reduced to the 2. setpoint value, controlled by the input signal.

In flexotempMANAGER are zone inputs available. By configuration of a zone input is specified, which function the zone executes, when the digital input is activated. By allocation of a digital input on an I/O component, the zone input is triggered.

In the example, the controller should reduce the zone 7 to 2. setpoint value, when the digital input is set.

Project setup of the digital input

(003)DIO16_CI for DIO01 select and set the type <Digital input>.

ResotempMANAGER - Unnamed *					X
File Edit Communication View Extras ?					
🗅 🎯 🖬 🕺 🖻 📾 😵 🥩 🦻	00 03 08 08 08 08 📫 🔥	6 🤨			
	× B+ DIO16_CI->In-/outputs	X2/X3			
Communication server					
- D Commentary		Marra	117	Tun	Defection
Datacheat	Individual DID 01 N2 D	00201016_CL0101		datal int it	Certain
- 10 Communication	11-1-1-1-010-02-010-01	00201016_010102			
Time server	19-7004put 010 02 (52. 6)	00201016_010102			
 System parameter 	In-/output DIO 03 (K2. 7)	002DI016_CLDI03	- F		
 Zone parameter Name of some/line it blocks 	In-/output DIO 04 (x2. 8)	002DID16_CLDID4	2		
Profibus DPEA	In-/output DIO 05 (x2. 9)	002DID16_CLDID5	2		
Direct IOs	In-/output DIO 06 (P2.10)	002DI016_CLDI06	-		
- • Inputs	In-/output DIO 07 0(2.11)	002DI016_CLDI07	-		
 Virtual digital inputs 	In-/output DID 08 D(2.12)	002DI016_CLDI08			
 Virtual digital outputs 	In Jackard DIO 09/02 E	00201016_CLD109			
 Measured values 	1. 1. 1. 1010 10 10 10	00201016_0201010			
Group administration	Inv/output DIO 10 pc3. 6]	00201016_0.01010	_ <u>×</u>		
Totasheet	In-/output DIO 11 (K3. 7)	00201016_CLD1011			
Parameter	Inv/output DIO 12 (K3. 8)	002DI016_CI.DI012			
In-Joutputs 32/63	In-/output DIO 13 (K3. 9)	002DID16_CLDID13			
<pre>Create new component></pre>	In-/output DIO 14 (K3.10)	002DI016_CLDI014			
Constantian Configuration	In-/output DIO 15 (x3.11)	002DI016_CLDI015	2		
	In-/output DIO 16 (K3.12)	002DID16_CLDID16			
				+ *	
1					
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On the controller under <Inputs> the digital input (003)DIO16_CI.DIO01 is assigned to <Zone Input 1> of zone 7.

flexotempMANAGER - Unnamed *							,	6 2
Edit Communication View Extras ?								
1 🚅 🔜 X 🗈 🖻 🖓 🖓 🛷		💼 🏝 é 🛈						
	× •							
	PCU048->Input:							
Communication server		Sw	stem					
- D Commentary	Sustan incut 1							
E 🙀 PCU048	System input 2	144.1						
	System input 3	1						
- 💏 Communication	System input 4	94.						
Time server	System input 5	<u>s</u>						
 System parameter 	System input 6	<u>1</u>						
E - Sone parameter	System input 7	<u>×</u>						
 Name of zone/Input blocks 	System input 8	<u>s</u>						
FI- 9 Profibus DPEA							1	
 Direct IOs 	Groups	Gro	oup input 1		Group input 2		Input group release	
	1 Group 1	251		<u>×</u>		<u>×</u>		
Youl codes	2 Group 2	<u>s</u>		1				
 Hote coord Hote of debut here de 	3 Group 3	<u>88</u>		<u>.</u>				
 vircoal ageal inputs 	1 Group 1	100		25				
 Vitual digital outputs 	5 Group 5	1		100				
 Measured values 	6 Group 6							
— Group administration	A Group P			100		-		_
B and DI016_CI	9 Gran 9	1		10.1		-		
- m Datasheet	10 Group 10	144		100			1	
 Parameter 	11 Group 11	1		145		*	1	
 In-loutputs X2/X3 	12 Group 12	14		44		44	1	
<create component="" new=""></create>	13 Group 13	14		14		1		
Create new component>	14 Group 14	12		44		-		
9	15 Group 15	5		100			1	
	16 Group 16	<u>*</u>		<u>*</u>		**	1	2
	Zones	Zor	ne input 1			Zone input 2		Ŀ
	1 Zone 1				14	1		
	2 Zone 2	<u></u>			*			
	3 Zone 3	14			14	1		
	4 Zone 4	<u>s</u>			~			
	5 Zone 5	<u>s</u>			<u>s</u>			_
	6 Zone 6	<u> </u>			<u>×</u>			
	7 Zone 7	002	200016_CI.0001					
	8 Zone 8	-			-			
	9 Zone 9	Sec.						
	10 20re 10							
	12 Zone 12	1			14			
	13 Zone 13	1			1			
	14 Zone 14	100			84			
	15 Zone 15	8			*			
During Was Status 🕞 Trend	16 Zone 16	144			14			
😫 Project 🛃 Status 🔚 Trend	14 Zone 14 15 Zone 15 16 Zone 16	奥			SING F	MOOF DEFIN	F TREND OFFLINE	

Configure function zone input 1

Set zone 7 [P082] IN1C - Function Zone Input 1 = 1dec (matches with: absolute reduction to 2. setpoint value)

RexotempMANAGER - Unnamed *							_ # ×
ne eac communication view extension v		1 6 A O					
	× PCII04807008						
Communication server	200e parat	atar			<1> Zone 1	<2> Zone 2	<.
- D Commentary	DOE4, TIC2, Casha istar	wal time 0		[4]	600	000	001
E G PCU048	P057_CTC2_Cooling same	alian time 2		[4]	1.0	1.0	1.0
- 👘 Datasheet	POS8 GPty Group numb	And the second sec		(*)	0 - No group se	lecte 0 - No group sel	ecte 0 -
- 10 Communication	P059 GPF Group release	e by			0 - No group re	lease 0 - No group rel	ease 0 -
O Time server	P060 GPM Group mode				0 - Release wh	en lo 0 - Release who	en lo 0 -
System parameter	P061 LI1 Limit value 1			PC1	S	5	5
(a) A Topo parameter	P062 LI1D Limit value d	efinition 1			0	0	0
tione parameter	P063 LI2 Limit value 2			[*C]	-5	-5	-5
Rearing or zoneyunpoc bloors	P064 LI2D Limit value d	efinition 2			0	0	0
- V PTORIDUS UPLIA	P065 LI3 Limit value 3			[°C]	0	0	0
 Direct IOs 	P066 LE3D Limit value d	efinition			0	0	0
- linputs	P067 LI4 Limit value 4			[°C]	0	0	0
— I Tool coding	P068 LI4D Limit value d	efinition 4			0	0	0
 — Interval digital inputs 	P069 LIS Limit value 5			[*C]	0	0	0
 Virtual digital outputs 	P070 LISD Limit value d	efinition 5			0	0	0
Measured values	P071 LI6 Limit value 6			[*C]	0	0	0
Group administration	P072 LI6D Limit value d	efinition 6			0	0	0
	P073 A1D1 Definition by	te 1 - alarm 1			0	0	0
- an prote_cr	P074 A1D2 Definition by	te 2 - alarm 1			0	0	0
Datasheet	P075 A201 Definition by	te 1 - alarm 2			0	0	0
 Paramétér 	P076 A2D2 Definition by	të 2 - alarm 2			0	0	0
 In-loutputs X2/X3 	P077 A3D1 Definition by	te 1 - alarm 3			0	0	0
-create new component>	P078 A302 Definition by	te 2 - alarm 3			0	0	0
<create component="" new=""></create>	P079 A4D1 Definition by	te 1 - alarm 4			0	0	0
	P080 A402 Definition by	te 2 - alarm 4			0	0	0
	POUL GPAL Alarm group				0 - No group se	slecte U - No group sel	ecte 0 -
	POB2 INIC Ponction dig	cal input 1 zone	P082 IN1C 7 (1) Zone 1				
	Poss Mac Purceering	calinput 2 zone	253 -				±
	POOP OPIN Digital hpot	group	234 -				_
	POOD 11 Timer 1	itian 1	205 -				
	DOGT bld2 Timer I defin	NUT 4	U - not allocated				_
	proof crue Timer 2 done	100112	1 - Absolute reduction to 2.	serpoint value			OK.
	10000 k2d1 Timer 2 defin	altion 1	2 - Absolute reduction to 3.	setpoint value			-
	1000 12d2 Timer 2 deliv	ation 2	J - Absolute reduction to 4.	serpoint value			· · ·
	10001 F3 Timer 3	000112	4 - Relative reduction by 2	serpoint value			
	P092 k3d1 Timer 3 defin	ation 1	5 - Melative reduction by 3.	sepork vaue	10107		
	P093 t3d2 Timer 3 defin	ation 2			0 - 'OFF'	0 - 'OFF '	0 -
	P094 b4 Timer 4			[5]	0	0	0
	P095 t4d1 Timer 4 defin	ation 1			0 - 'OFF '	0 - 'OFF '	0 -
	P096 t4d2 Timer 4 defin	ation 2			0 - 'OFF '	0 - 'OFF '	0 -
	P097 PTOL Tolerance of	process		[%]	0	0	0
	PO98 HnD Heat 'n' dry				0 - Off	0 - Off	0
	P099 POP Operating p	aink of process monits	xing	[%]	0	0	0 -
Project 🔀 Status 🔚 Trend					1		•
ess button F1 for help.				SINGLE M	OFFLINE	TREND OFFLINE	

Set 2. setpoint value [P009] SP2 – 2. Setpoint / 2. Lowering/Reduction Value to 150 [°C] (it is reduced to this value)

otempMANAGER - Unnamed *					- 6
a Comunication View Extras 7	8 03 08 08 08 08 08 🖬 🏞 é 🛈				
	× PCU048->Zone parameter				
Communication server	Zone parameter		<1> Zone 1	<2> Zone 2	<
Commentary	P001 SP Setopint value	[PC]	0.0	0.0	0.
PCU048	P002 OFWR Degree of operation	[%]	0	0	0
- 👘 Datasheet	P003 MANU Magual mode		0 - Off	0 - Off	0
- 10 Communication	P004 CurS Current setpoint value	[A]	0.0	0.0	0.
① Time server	P005 CurT Current tolerance	[%]	20.0	20.0	21
System parameter	P006 ZONE Zone	-	1 - On	1-00	1
Tone our smaller	P007 ZTYP Type of zone		0 - Zone in contr	ol m 0 - Zone in contr	O m lor
A True haraneter	P008 SEnC Actual value of control		0 - Measured va	ue 0 - Measured va	due 0
 Name or zone/unput blocks 	P009 SP2 2. setpoint / 2. lowering reduction	[*C]	150.0	0.0	0,
+)- V PTORIDUS LIPELA	P010 SP3 3. setpoint / 3. lowering reduction	[°C]	0.0	0.0	0.
 Direct IOs 	P011 SP4 4. setpoint / 4. lowering reduction	[*C]	0.0	0.0	0.
- 🗣 Inputs	P012 SPLO Lower setpoint value limit	[°C]	0.0	0.0	0.
 — I Tool coding 	P013 SPHI Upper setpoint value limit	[*C]	500.0	500.0	50
 — Interval digital inputs 	P014 TCAL Monitoring of sensor SAL		0 - Off	0 - Off	Û
Virtual digital outputs	P015 TCAT Sensor short circuit monitoring time	[5]	0	0	0
Measured values	P016 TC-A Manual mode after sensor break		0 - Off	0 - Off	0
Con a christiantian	P017 TRMP Temperature ramp	[°C/m	0.0	0.0	
The second second	P018 ARMP Automatic ramp		0 - Off	0 - Off	0
- a blote_ct	P019 K-CO Amplification factor for zone in leading mode		0	0	0
Datasheet	P020 NrCO Leading zone	_	0 - No Leading Z	one 0 - No Leading Z	lone 0
 Parameter 	P021 DIAT Time for diagnostics	[min]	2.0	2.0	2
 In-joutputs X2/X3 	P022 APPL Application	_	0	0	0
Create new component>	P023 OUTH Heating degree of operation damping	[%]	100	100	1
<create component="" new=""></create>	P024_OUTC_Cooling degree of operation damping	[%]	-100	-100	-1
	P025 OUT% Maximum degree of operation in manual mode	[%]	100	100	1
	P026 RELH Heating relay output		0 - Off	0 - Off	0
	P027 RELC Cooling relay output		1 - On	1 - On	1
	P028 PCLG Pulse cooling	_	0 - Off	0 - Off	0
	P029 PULS Pulse duration	[10ms	20	20	2
	P030 PMIN Minimum pause puration	[5]	5.0	5.0	5
	P031 PMAX Maximum pause puration	[5]	20.0	20.0	
	P032 IDEH Heating identification		1 - On	1 - On	
	P033 IDEL Loop control in case of identification		1 - On	1 - On	
	P034 IDCH Cooling identification after heating identification		0 - Off	0 - Off	
	P035 SPCb Setpoint value cutback	[°C]	0	0	
	P036_CF1X_Cooling parameter fixed (heating identification)		0 - 081	0 - 08	_
	P037 IDEC Cooling identification		1 - On	1 - On	_
	PUSE ALGO Algorithm		0 - Standard	0 - Standard	0
	P039 KNr Cascade - zone number of main controller		0	0	0
	PD40 KSP- Cascade - setpoint value of auxiliary controller for degree of operation = 0/-10	0%	l0	d	0
	P041 KSP+ Cascade - setpoint value of auxiliary controller for degree of operation = 100%		0	0	0
	P042 XPH Heating proportional band	[%]	9.9	9.9	9
	PD43_TDHHeating derivative time	[8]	255	255	2
tion the Status 🕞 Toront	PO44_TIH Heating integral time	[5]	500	500	5
theor Two organs			141		

6 Memory Cards

The controllers of the design series flexotemp® are equipped with a slot for a

- SD card/MMC card for MCU
- Micro SD card for PCU

With the memory card, the following functions are usable:

- Firmware updates (duration approx. 2 minutes)
- Direct loading and storage of 10 controller settings (duration approx. 40 seconds each)
- Direct loading and storage of 10 rotary switch dependent controller settings (duration approx. 40 seconds each)
- Transfer of project setup software projects from memory card into the controller
- Project-oriented input of controller configurations from memory card in a project setup software readable and writeable format
- Representation of HTML pages stored on the memory card, with which a direct access to process and configuration data of the controller is possible

Prerequisites for the use of the memory card are:

- Card type SD-/MMC card for MCU, Micro SD card for PCU
- Formatting of the memory card with FAT16 file system
- Larger cards can also be formatted by FAT16. The controller can then only access a storage range of 1 GB
- Only file names of format 8.3 are supported.

The following are not supported:

Long file names

6.1 Handling

The memory card is to be inserted into the slot so that the arrow on the memory card points downwards and/or the trimmed corner points upwards. After inserting, the memory card LED lights up shortly.



Figure 6-1 Insert memory card into slot on the controller



Some of the functions are started immediately after inserting the card. Therefore it is absolutely necessary to consider the following references first.

6.2 Formatting

The memory card must be formatted with the FAT file system. With another system formatted memory cards are not identified by the controller. The formatting can for example be done with the aid of a card reader on a PC with MSWindows.

Formatieren von Winbond SD Drive 🎴 🗙
Speicherkapazität:
124 MB
Dateisystem:
FAT
Größe der Zuordnungseinheiten:
Standardgröße
Volume <u>b</u> ezeichnung:
- Eormatierungsoptionen
Schnellformatierung
Komprimierung aktivieren
<u>M</u> 5-DO5-Startdiskette erstellen ■
,
<u>S</u> tarten S <u>c</u> hließen

Figure 6-2 Formatting of the memory card with file system FAT

The formatting of the memory card can directly be executed by the entry of code number 90 and 93 on the controller alternatively. Code numbers can directly be entered by the connected operating and display unit BA, by project setup software or interface. However, the command for the input of a code number is also available in every interface protocol. In case of formatting over Code Number 93, the default file structure is additionally attached on the memory card.

6.3 Default file structure and default file names

The following minimum file structure must be attached on the memory card.



Figure 6-3 File structure

Folder	File	Description
	SYSTEM.CFG	Specifications of the file structure (optional)
	Various files with exten- sion ALD	Autoload files (optional). With the aid of the files it is controlled whether and how firmware updates are implemented after the switching on (see chap. 6.4 "Autoload files").
HEX	MCU12800.H86 MCU12801.H86 PCU02400.H86 PCU02401.H86 PCU04800.H86 PCU04801.H86 PCU12800.H86 PCU12801.H86 PCU12810.H86 PCU12811.H86	Firmware for controller MCU/PCU. The last numeral identifies, whether the software is running in the standard controller OEM (0) or in the hot runner controller (1). The last but one numeral identifies, whether it is a controller with PROFINET IO (1) or not (0).

Folder	File	Description
RECIPE	RCP_0.EXP RCP_9.EXP	10 controller settings, which can be secured by the controller on the memory card over the code number commands 6069.
		The file format is stored in a project setup software readable and writeable format
CFG	CFG_0.EXP CFG_9.EXP	10 controller settings, which can be secured by the controller on the memory card over the code number command 80 dependent on the rotary switch position. The file format is stored in a project setup software readable and writeable format

The configuration of the default file structure and the default file names is done in the file SYSTEM.CFG This is a text file with the following syntax:

```
#PATH_RCP="Path/Folder for the storage and/or loading of the recipes"
#PATH_CFG="Path/Folder for the storage and/or loading of the configurations"
#FILE_MCU12800="Path to firmware for die MCU128"
#FILE_PCU02400="Path to firmware for die PCU024"
#FILE_PCU02401="Path to firmware for die PCU024"
#FILE_PCU04800="Path to firmware for die PCU048"
#FILE_PCU04801="Path to firmware for die PCU048"
#FILE_PCU12801="Path to firmware for die PCU128"
#FILE_PCU12811="Path to firmware for die PCU128 PNIO"
```

The last numeral identifies, whether the software is running in the standard controller OEM (0) or in the hot runner controller (1). The last but one numeral identifies, whether it is a controller with PROFINET IO (1) or not (0).

If the file SYSTEMP.CFG is not existing on the memory card or if entries are missing in this or if it contains faulty entries, the default settings are then employed.

```
(Corresponds to the default settings)
#PATH_RCP="RCP"
#PATH_CFG="CFG"
#FILE_MCU12800="HEX\MCU12800.H86"
#FILE_MCU12801="HEX\MCU12801.H86"
#FILE_PCU02400="HEX\PCU02400.H86"
#FILE_PCU02401="HEX\PCU02401.H86"
#FILE_PCU04800="HEX\PCU04800.H86"
#FILE_PCU04801="HEX\PCU04801.H86"
#FILE_PCU12800="HEX\PCU12800.H86"
#FILE_PCU12801="HEX\PCU12801.H86"
#FILE_PCU12801="HEX\PCU12801.H86"
#FILE_PCU12810="HEX\PCU12811.H86"
```

6.4 Autoload files

The autoload files which are filed in the root directory (.ALD) are used for the automatic control of the firmware updates of the controllers of memory card. ALD files can (among other things) be generated manually with a text

editor or attached on the memory card through input of a pre-determined code number (*¬*Code numbers for the control of the memory card functions). The content of the autoload files is without importance in this case.

File name	Function / Action after reset of the controller	File is deleted automatically
HEX.ALD	The controller type is determined. If a valid controller type is identified, the relevant firmware is loaded into the flash and started. If no controller type is identified (controller does not have any firmware), the firmware is not updated.	Yes (One-time loading process of the H86)
ALL_DIP.ALD	After a restart/reset of the controller is checked, whether the file ALL_DIP.ALD is available on the memory card and the rotary switches are set to FF. Next the recipe file RCP_0.EXP is loaded into the controller. The file ALL_DIP.ALD remains on the memory card, to enable to repeat this action again and again.	No (is always reloaded, when rotary switch is set to FF)

6.4.1 Firmware update over autoload files

Sequence of a firmware update over autoload files
Copy required autoload file into root directory from memory card.
Controller is switched off. Insert memory card into card slot. Switch on controller.
Controller checks whether a firmware file is existing on the memory card under the indicated name and folder.
Firmware file is transferred from the memory card into the RAM of the controller.
Controller type is checked: if the controller types of the firmware contained in the flash of the controller and the firmware loaded into the RAM are different, then no firmware is programmed into the flash. Exception: No software is located in the flash.
Comparison of the firmware versions in the flash and RAM. If these are identical, the firmware is not programmed into the flash. Otherwise, software is programmed from the RAM into the flash.
Controller software is newly started, controller implements reset.
Regulations and notes for the firmware update of the controller
 During the programming procedure, the supply voltage of the controller must <u>not</u> be switched off! (Software in the flash deleted)
During loading of the firmware very fast flashing of memory card LED
After successful loading process, this LED goes out and the software starts.

6.4.2 Error reports during the firmware update over autoload files

If a fault occurs during the firmware update over memory card the fault is signaled for approx.15 seconds at the end of the loading process with the assistance of the LED's.

Error report	OK-LED	SIO-LED	Memory card LED
Checksum error in the firmware file	flashes cyclical (period 0.5 sec) synchronous with SIO LED	flashes cyclical (period 0.5 sec) synchro- nous with OK LED	flashes cyclical quickly (period approx. 0.25 sec)
Fault during the open- ing of the firmware file/fault during the programming of the FLASH	flashes cyclical (period 0.5 sec) synchronous with SIO LED	flashes cyclical (period 0.5 sec) synchro- nous with OK LED	flashes cyclical slowly (period approx. 1.0 sec)

Code number	Function
60	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_0.EXP.
61	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_1.EXP.
62	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_2.EXP.
63	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_3.EXP.
64	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_4.EXP.
65	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_5.EXP.
66	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_6.EXP.
67	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_7.EXP.
68	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_8.EXP.
69	Store current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from controller onto the memory card in the recipe file RCP_9.EXP.
70	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_0.EXP on the memory card into the controller.
71	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_1.EXP on the memory card into the controller.
72	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_2.EXP on the memory card into the controller.
73	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_3.EXP on the memory card into the controller.
74	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_4.EXP on the memory card into the controller.
75	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_5.EXP on the memory card into the controller.
76	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_6.EXP on the memory card into the controller.
77	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_7.EXP on the memory card into the controller.
78	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_8.EXP on the memory card into the controller.
79	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) from the recipe file RCP_9.EXP on the memory card into the controller.
80	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) dependent on rotary switch from controller and store in the configuration file on memory card CFG_x.EXP (x= Addresses of rotary switch position).
81	Load controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) dependent on rotary switch from the configuration file on memory card CFG_x.EXP (x= Addresses of rotary switch position) into the controller. An existing file is overwritten directly.

6.5 Code numbers for the control of the memory card functions

Code number	Function
90	Functional release memory card Before loading the firmware over code number or before formatting the memory card, a functional release must be implemented. If no further code number is entered after that within 20 seconds, then the functional release is canceled automatically again. With active functional release the message text "LdF" is output in the operating and display units BA and in the project setup and configuration tool. In addition, the mode is signaled over a cyclical flash- ing of the memory card LED (frequency 1 Hz).
91	Update of the firmware is started. Prerequisite: Functional release activated. The hex file assigned to the controller type is loaded into the controller (see also chap.6.3 "Default file structure and default file names")
93	Formatting of memory card. Prerequisite: Functional release activated. With formatting, the default file names and the default file structure are attached.
94	Formatting of memory card. Prerequisite: Functional release activated. After formatting of the memory card the current controller configuration (zone parameters, system parameters, attributes, Profibus, project setup) is stored into the recipe file RCP_0.EXP on the mem- ory card. In addition the file ALL_DIP.ALD is created.
99	Functional release cancellation memory card.

6.6 Generate memory card project from project setup software project

Projects generated in the project setup software can be converted directly into memory card compatible projects with the aid of the export function. The exported project can be copied directly onto the memory card. Based on an exemplary project with a PCU048 and a PCU128, the procedure is explained below step by step.

With the project setup software attach and edit a project

A project is attached in the project setup software consisting of the two controllers and stored in the directory C:\Programs\PSG\flexotempMANAGER\PROJEKTE under the project name TEST_2.

FlexotempMANAGER - Unnamed *		
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Ng Pener (Zg Status) E Terred		

Figure 6-4 With the project setup software attach a project

Compiling information for memory card project

Call up the menu item <Export on memory card> in the menu bar <File>. The following dialog window is opened.

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File Edit Communication View Extras ?			
Communication server Communication server Communication Communi	POU1283/refe POU1283/refe POU1283/refe POU1283/refe POU128 POU1	X t automatically orient automatically	
	Directory C-VPIOGRAMMEV-SGVLD-OTEMPMANAGER	NPROJEK Cancel	
Respect Justices Filter		STINGLE MODE	OFFLINE TREND OFFLINE 🛒 🕳

Figure 6-5 Dialogue window: Export memory card project before processing

In the dialog window the following stipulations are set for the memory card project:

- Is firmware file loaded automatically with insertion of the memory card into the controller and/or after new start of the controller?
- Is the configuration data loaded automatically with insertion of the memory card into the controller and/or after new start of the controller?
- The controllers of the project are listed in the component area and can be selected by ticking for export. The firmware files, which are associated with the controllers in the project, are listed by the +-sign left beside the controller. When they are identical with the firmware files of the controller, they are stored into the memory card project.
- The standard storage path (consisting of the standard directory C:\Programs\PSG\flexotempMANAGER\PRO-JEKTE\ & project name as storage path TEST_2\) of the memory card project can be taken or edited.

Before export of the project is checked, that the components, selected for the export, have a unique code switch setting. Is this not the case, the code switch setting can be corrected, and/or the components can be exported individually.

llexotempMANAGER - TEST_2 *	
File Edit Communication View Extras ?	
Communication server Communication server Communication server Communication server Communication server Conde reek component>	Component name PCU128 PCU128
	export Cancel
	Directory C-VTHOGRAMME-VSG-VLD-01EMPMANAGER/VTHOLEK C
약 Project (코고 Status) 둔 Trend	

The export is done onto the stated storage place, after a security query, where a selection of the firmware can be done.

Rest 2 Status Trade

Store memory card project and copy onto memory card

Figure 6-6 Dialogue window: Export memory card project after processing

The memory card project is stored on e.g. directory C:\Programs\PSG\flexotempMANAGER\PROJEK-TE\TEST_2, after specification of all data.

- In the main directory are the sub directories CFG and HEX
- In the directory CFG is located one file per controller with the configuration data
- The firmware files are located in the HEX directory

The files of the memory card project are complete and can be copied directly onto the memory card.

7 Appendix

7.1 Ordering designations

Order number	Article description
025 000	Multi Loop Control Unit flexotemp® MCU 128
025 010	Multi Loop Control Unit flexotemp® MCU 128 / SoftPLC
025 070	Peripheral Control Unit flexotemp® PCU 128
025 080	Peripheral Control Unit flexotemp® PCU 128 / SoftPLC
025 077	Peripheral Control Unit flexotemp® PCU 128 PNIO
025 020	Peripheral Control Unit flexotemp® PCU 48
025 030	Peripheral Control Unit flexotemp® PCU 48 / SoftPLC
025 027	Peripheral Control Unit flexotemp® PCU 48 PNIO
025 015	Peripheral Control Unit flexotemp® PCU 24
025 016	Peripheral Control Unit flexotemp® PCU 24 / SoftPLC
025 017	Peripheral Control Unit flexotemp® PCU 24 PNIO
025 040	Bus Coupler flexotemp® CANBC
025 041-1	Bus Extension Interface flexotemp® BE
025 041-2	Bus Extension Interface flexotemp® BEF
025 042	Bus Actuator Interface, Current Input flexotemp® BACI
025 043	Bus Extension Interface flexotemp® CANBE
025 050-1	Thermocouple Interface flexotemp® TCPT08
025 053-1	Thermocouple Interface flexotemp® TC12
025 054-0	Thermocouple Interface flexotemp® PT 08-3
025 054-1	Thermocouple Interface flexotemp® PT 12-2
025 054-2	Thermocouple Interface flexotemp® PT 16-3
025 051-1	Analog In-/Output Interface flexotemp® AIO04
025 057	Melt Pressure Input flexotemp® MPI 02
025 052-2	Digital In-/Output Interface, Current Input flexotemp® DIO16CI
025 052-3	Digital In-/Output Interface, Current Input flexotemp® DIO16CI SPL
025 055	Digital Output Interface Relay flexotemp® DO 08 R
025 055-1	Digital Output Interface flexotemp® DO 16
025 056	Valve Control Module flexotemp® VC 02
025 056-1	Valve Control Module flexotemp® VC 04
025 100	Current Transducer Interface flexotemp® CANCT
025 100-1	Current Transducer Interface flexotemp® CANCT 400 A
	Current Transducer Interface flexotemp® CANCT SPL
025 101	Voltage Transducer Interface flexotemp® CANVT
025 103	Digital In-/Output Interface flexotemp® CANIO 08
025 102	Analog Input Interface flexotemp® CANAIN 08 TCPT/TCPT/24VDC
025 106	Zero Crossing Detection flexotemp® ZCD
025 201	Digital In-/Output Interface flexotemp® MC 08
025 200	Digital Output Module flexotemp® SMA 09
025 202	Digital Output Module flexotemp® SMA 06G

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Appendix

Order number	Article description
025 203	Digital Output Module flexotemp® SMA 09G
020 322-03	sysTemp® Servo Valve Module SMV 04
020 323	sysTemp® Output Module SMAO 04

7.2 Version History

Version	Date	Changes
1.01.05	2/11/2013	In detail the following amendments were made:
		New modules DO16, VC04, PT08-3, PT16-3
		Chapter address scan activated manually added
1.01.04	10/29/2010	First release English version based on German version 1.01.03)
1.01.03	08/13/2010	Amendments of operating instructions for
		flexotempMANAGER software version 1.02.02
		in detail the following amendments were made:
		Amendments concerning translation Convert allocation for SMA09G
		Text corrections SP09/10/23-28, P082/83/84, Input->Eingang
1.01.02	01/25/2010	Amendments of operating instructions for
		flexotempMANAGER software version 1.02.00
		In detail the following amendments were made:
		Additional and continuative documents updated
		List of ordering designations updated
		PCU PNIO implemented
		For chapter memory cards default life names amended For chapter input functions, - reduce zone X to 2, setpoint value amended
1 01 01	10/30/2009	Amendments of operating instructions for
1.01.01	10/00/2000	flexotempMANAGER software version 1.01.00
		In detail the following amendments were made:
		List of ordering designations updated
		CAN connection BE plug
1.01.00	12/05/2008	Amendments of operating instructions for
		flexotempMANAGER software version 1.00.00
		In detail the following amendments were made:
		Show component DIO16CI in-/outputs as X2/X3
		 Export for memory card revised Termination of CAN-Bus amended
1 00 00	09/29/2008	
1.00.00	00/20/2000	Valid for flexotempMANAGER software version 0.9.13.
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