

Installation Instructions

MARSIC300

Ship Emission Measuring Device

Cooling Device



Described product

Product name: MARSIC300

Manufacturer

Endress+Hauser SICK GmbH+Co. KG
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Germany

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1 Important Information

1.1 About this document

**NOTICE:**

The retrofitting may only be carried out by trained personnel!
For this purpose, it is important to be familiar with the MARSIC300.

These instructions are Retrofit Instructions and describe the service work required for installation of a new cooling device.

The Retrofit Instructions are only to be used in combination with the valid Operating Instructions and additional documents listed below.

Part Number	Document
8029898	Operating Instructions MARSIC300
9321479	Drawing: Basic Housing MARSIC300 Cooling Unit
	Assembly and Operating Instructions Rittal Enclosure Cooling Unit 3654

**NOTICE:**

Always read the Operating Instructions before starting any work!
Be sure to observe all safety and warning information!

2 Tools

The following tools are required for installation:

- Nut M5
- Nut M6
- Allen Key 2.5
- Allen Key 5

3 Installation



NOTE: For new orders of analyzers including the cooling device

The following steps have already been completed in the factory:

- Preparation of the cabinet
- Mounting of the reinforcement sheet
- Preparation of the cabinet door



CAUTION:

Please use caution when applying these instructions as they may require advanced product knowledge.

3.1 Preparatory work

- 1 Switch the analyzer to "Stand-by".
- 2 Flush system for 10 minutes.
- 3 Switch system off at the external power disconnection unit.

3.2 Preparing the cabinet

Please see drawing provided: „Basic Housing MARSIC300 Cooling Unit“

3.3 Mounting the reinforcement sheet inside cabinet

- 1 Remove grounding wire from side wall.



- 2 Install and fasten reinforcement sheet inside the cabinet with the screws and washers provided.
► Screw **head outside** cabinet and flange **nut inside** cabinet.



- 3 Fasten the grounding conductor.



3.4 Mounting the cooling device

- 1 Replace threaded bolt of cooling device with stainless steel threaded bolt provided.
 - Fasten threaded bolts using screw lock, e.g. Loctite 243.



- 2 Fasten attached sealing on rear side of the cooling device.

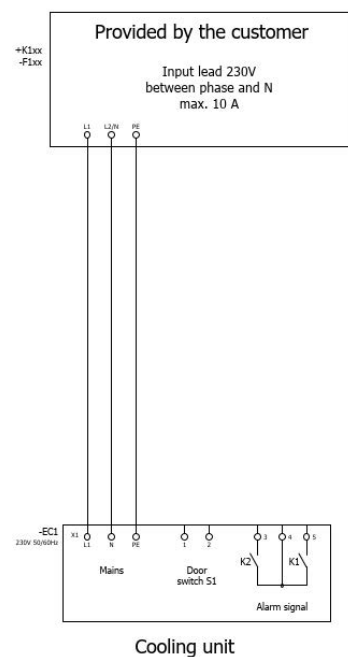


- 3 Attach cooling device to the cabinet and fasten 4 flange nuts.

Attention: Should be performed by at least 2 persons due to the weight of the cooling device.

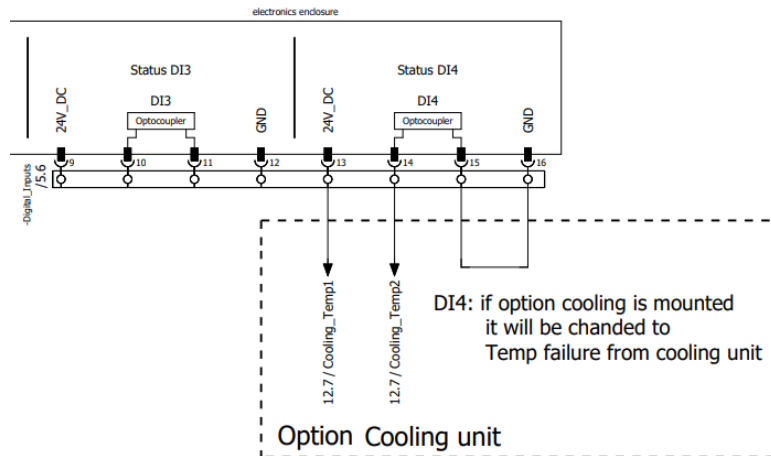


- 4 Assemble connector for power supply according to the wiring diagram of the cooling device.



- ▶ L1 – L2/N – PE
- ▶ Route the cable for external power supply via floor of cabinet. For better accessibility, place the cable from the front side near the door hinge towards the bottom.
- ▶ Use one free appropriate cable gland.
- ▶ To fasten the cable, use the 5 cable ties and adhesive sockets in the accessory pack.

5 Assemble connector for alarm signal of cooling device according to the wiring diagram:



Cooling unit	MARSIC300
Digital output: • Terminal 3/5 - signal to MARSIC300	Digital input: • Terminal 13/14 - Signal from cooling unit • Terminal 15/16 - bridged

- ▶ Route the signal cable via floor of cabinet. For better accessibility, place the cable from the front side near the door hinge towards the bottom.
- ▶ Use one free appropriate cable gland.
- ▶ To fasten the cable, use the 5 cable ties and adhesive sockets in the accessory pack.

3.5 Preparing the cabinet door

- 1 Disconnect and remove fan in cabinet door.
- 2 Insert Rittal frame and cover sheet to close air inlet in cabinet door.
Air outlet on top of cabinet door does not need to be modified.



3.6 Restarting the system

- 1 Switch the system back on at the external power disconnection unit.
- 2 Establish a connection to the service computer.
- 3 Set the device to "Measuring", if it does not go to "Measuring" automatically.
Select: Maintenance - Operating status

Operating states

Maintenance signal ●

Set manual maintenance signal

☐

Activate operating status

Current operating status

3.7 Setting the cooling device

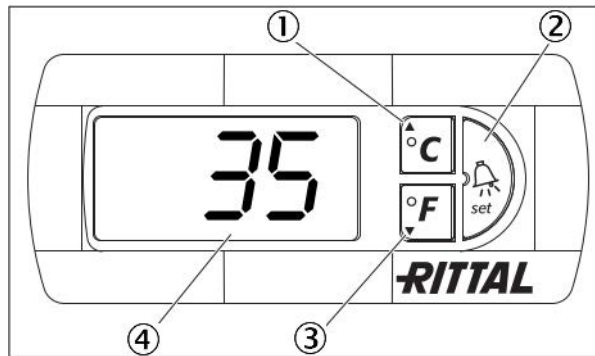
- 1 Switch on the external power supply of the cooling device.
- 2 Deselect the ECO mode (OFF=0; ON=1) on the cooling device. For details, see [“Control using the e-Comfort controller”, page 11.](#)
- 3 Set the target temperature inside the cabinet to 40 °C. For details, see [“Control using the e-Comfort controller”, page 11.](#)

3.7.1 Parameter of the e-Comfort controller

Description	Prog. level	Display screen	Parameter	Min. value	Max. value	Factory setting
The internal enclosure temperature setting is preset at the factory to 35 °C (95 °F) and may be altered within a range of 20 – 55 °C (68 – 131 °F).	1	St	Internal enclosure temperature set-point Ti	20 °C / 68 °F	55 °C / 131 °F	35 °C / 95 °F
Eco mode OFF: 0 / Eco mode ON: 1	26	ECO	Eco-mode operation	0	1	1

3.7.2 Control using the e-Comfort controller

- 1 Press button ② ("Set") for approx. 5 seconds.
 - » The controller is now in programming mode.
 - » While in programming mode, if you do not press any buttons for approx. 30 seconds, the display will first flash, then the controller will switch back to normal display mode.
 - » "Esc" in the display indicates that any changes made have not been saved.
- 2 Press the programming buttons ① (°C) or ③ (°F) to switch between the editable parameters.
 - Choose program level "1" (Display screen: "St") or "26" (Display screen: "ECO").
- 3 Press button ② ("Set") to select the displayed parameter for editing.
 - » The current value of this parameter is displayed.
- 4 Press one of the programming buttons ① (°C) or ③ (°F).
 - » "Cod" will appear in the display.
 - In order to be able to change a value, you must enter the authorization code "22".
- 5 Keep the programming button ① (°C) held down until "22" appears.
- 6 Press button ② ("Set") to confirm the code.
 - You can now alter the parameter (① and ③) within the preset limits.



① Programming button, also display of the set temperature unit (degrees Celsius)

② Set button

③ Programming button, also display of the set temperature unit (degrees Fahrenheit)

④ 7-segment display

3.8 Parameter setting in SOPAS ET

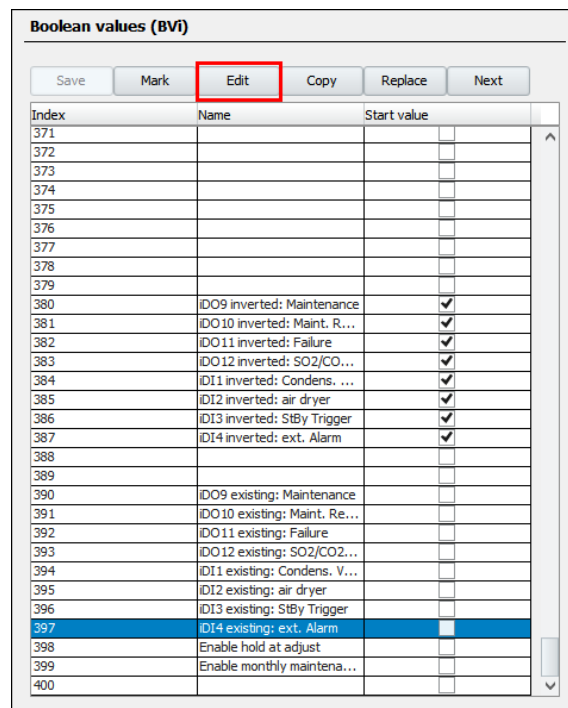
3.8.1 Device version YXD6 or newer

1 Activate variable BV397.

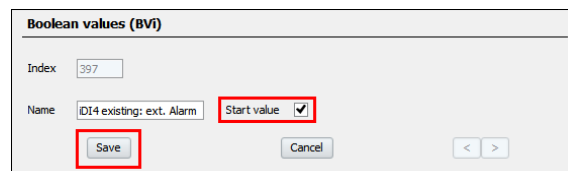
Select: Parameterization - Variables and functions - Boolean values (BVi)

► Mark the "Index 397" and click <Edit>.

► Activate "Start value" and apply the change with <Save>.



Index	Name	Start value
371		<input type="checkbox"/>
372		<input type="checkbox"/>
373		<input type="checkbox"/>
374		<input type="checkbox"/>
375		<input type="checkbox"/>
376		<input type="checkbox"/>
377		<input type="checkbox"/>
378		<input type="checkbox"/>
379		<input type="checkbox"/>
380	IDO9 inverted: Maintenance	<input checked="" type="checkbox"/>
381	IDO10 inverted: Maint. R...	<input checked="" type="checkbox"/>
382	IDO11 inverted: Failure	<input checked="" type="checkbox"/>
383	IDO12 inverted: SO2/CO...	<input checked="" type="checkbox"/>
384	ID11 inverted: Condens. ...	<input checked="" type="checkbox"/>
385	ID12 inverted: air dryer	<input checked="" type="checkbox"/>
386	ID13 inverted: StBy Trigger	<input checked="" type="checkbox"/>
387	ID14 inverted: ext. Alarm	<input checked="" type="checkbox"/>
388		<input type="checkbox"/>
389		<input type="checkbox"/>
390	IDO9 existing: Maintenance	<input type="checkbox"/>
391	IDO10 existing: Maint. Re...	<input type="checkbox"/>
392	IDO11 existing: Failure	<input type="checkbox"/>
393	IDO12 existing: SO2/CO2...	<input type="checkbox"/>
394	ID11 existing: Condens. V...	<input type="checkbox"/>
395	ID12 existing: air dryer	<input type="checkbox"/>
396	ID13 existing: StBy Trigger	<input type="checkbox"/>
397	ID14 existing: ext. Alarm	<input type="checkbox"/>
398	Enable hold at adjust	<input type="checkbox"/>
399	Enable monthly maintena...	<input type="checkbox"/>
400		<input type="checkbox"/>



Boolean values (BVi)

Index: 397

Name: ID14 existing: ext. Alarm

Start value: ☒

Save Cancel < >

2 Check if BV387 is activated, if not, activate it.

► Select: Parameterization - Variables and functions - Boolean values (BVi)

3 Change logbook text 80.

Select: Parameterization - Logbook texts (TXTi)

- ▶ Mark the "Index 80" and click <Edit>.
- ▶ Change the name of the "Device" from "extern" to "Cooling device".
- ▶ Change the "Classification" from "Failure" to "Maintenance Request".
- ▶ Apply the changes with <Save>.

Logbook texts (TXTi)

Save Mark **Edit** Copy Replace Next

Index	Source	Device	Text	Classification
68		Debug	M068 SP enabled #iv26	Extended
69		Debug	M069 valve coll #rv40	Extended
70	NULL			Failure
71	tm4>iv29	Filter Unit	M071 Lifetime filter exceeded	Maintenance Re...
72	idi5	Valve driv...	M072 Temperature > Limit	Failure
73	idi6	Power Su...	M073 115V	Extended
74	bv17&bv3	Program	M074 Stop by internal failure	Extended
75	bv17&...	Program	M075 Cancelled by user	Extended
76	bv299	System	M076 Monthly maintenance	Maintenance Re...
77	bv294	Condens...	M077 Condens. vessel full ID1	Maintenance Re...
78	bv295	Air dryer	M078 Condition i-air fail ID12	Maintenance Re...
79	bv55	System	M079 Ext. standby	Extended
80	bv297	extern	M080 Ext. alarm ID14	Failure
81	mbif8&(...	System	M081 SP8 selected by modbus	Extended
82	mbif9&(...	System	M082 SP9 selected by modbus	Extended
83	mbif10&...	System	M083 SP10 selected by modbus	Extended
84	mbif11&...	System	M084 SP11 selected by modbus	Extended
85	mbif12&...	System	M085 SP12 selected by modbus	Extended
86		Pressure	M086 Sensors OK	Extended
87		Pressure	M087 Sensors adjusted	Extended
88		Pressure	M088 Sensors not OK	Maintenance Re...
89	mppi&iv...	Sampling ...	M089 All disabed	Maintenance Re...
90	bv1&8&mp...	System	M090 Measuring SP1	Extended
91	bv1&8&mp...	System	M091 Measuring SP2	Extended
92	bv1&8&mp...	System	M092 Measuring SP3	Extended
93	bv1&8&mp...	System	M093 Measuring SP4	Extended
94	bv1&8&mp...	System	M094 Measuring SP5	Extended
95	bv1&8&mp...	System	M095 Measuring SP6	Extended
96	bv1&8&mp...	System	M096 Measuring SP7	Extended
97	hvv1&8&mp...	System	M097 Measuring SP8	Extended

Logbook texts (TXTi)

Index: 80

Source: bv297

Device: Cooling device

Text: M080 Ext. alarm ID14

Classification: Failure

Save

Failure
Maintenance Request
Check
Uncertain
Extended

4 Restart the MARSIC300.

Select: Maintenance - Restart system

Restart system

Restart system

3.8.2 Device versions 0000, YN56, Y008, ZL50

- 1 Change the name of variable BV301.
Select: Parameterization - Variables and functions - Boolean values (BVi)
 - ▶ Mark the "Index 301" and click <Edit>.
 - ▶ Enter "**Cooling device**" and apply the change with <Save>.

Boolean values (BVi)

Save Mark **Edit** Copy Replace Next

Index	Name	Start value
288		<input type="checkbox"/>
289		<input type="checkbox"/>
290		<input type="checkbox"/>
291		<input type="checkbox"/>
292		<input type="checkbox"/>
293		<input type="checkbox"/>
294		<input type="checkbox"/>
295		<input type="checkbox"/>
296		<input type="checkbox"/>
297		<input type="checkbox"/>
298		<input type="checkbox"/>
299		<input type="checkbox"/>
300		<input type="checkbox"/>
301		<input type="checkbox"/>
302		<input type="checkbox"/>
303		<input type="checkbox"/>
304		<input type="checkbox"/>
305		<input type="checkbox"/>
306		<input type="checkbox"/>
307		<input type="checkbox"/>
308		<input type="checkbox"/>
309		<input type="checkbox"/>
310		<input type="checkbox"/>
311		<input type="checkbox"/>
312		<input type="checkbox"/>
313		<input type="checkbox"/>
314		<input type="checkbox"/>
315		<input type="checkbox"/>
316		<input type="checkbox"/>
317		<input type="checkbox"/>

Boolean values (BVi)

Index

Name Start value ☐

Save Cancel < >

- 2 Create a formula to read the iDI4 signal on the BV301.
 - Select: Parameterization - Formulas
 - ▶ Mark the "Index F129" and click <Edit>.
 - ▶ Enter "Cooling device" as the "Formula name".
 - ▶ Enter "BV301=iDI04" as the "Formula"
 - ▶ Activate the "Initial activation" check box and apply the change with <Save>.

Formulas

Save Mark **Edit** Copy Insert Next

Index	Initial Activation	Name	Result Tag	Formula
F105				
G12		Help Formulas		Initial Activation <input checked="" type="checkbox"/> activate <input checked="" type="checkbox"/>
F106	<input checked="" type="checkbox"/>	Correction Factor		(iv8<62&&iv8>49)?(>+ac1...
F107	<input checked="" type="checkbox"/>	Adjust or Validation		(sc31e sc37e)?(>+ae);(>+...
F108	<input checked="" type="checkbox"/>	Auto Reset Pop Up		(pu==1 pu==2 pu==3 p...
F109	<input checked="" type="checkbox"/>	Timometer		(bv170>bv74)?(>+tm2,>+...
F110				
G13		Sample Switching		Initial Activation <input checked="" type="checkbox"/> activate <input checked="" type="checkbox"/>
F111	<input checked="" type="checkbox"/>	Sample Select by ...		(bv135 bv136 bv137 bv1...
F112	<input checked="" type="checkbox"/>	Sample Select by ...		(bv72&&(mbf1 mbf2 mbi...
F113	<input checked="" type="checkbox"/>	Sample Select by ...		(bv71)?(>-bv71,bv128=mbi...
F114	<input checked="" type="checkbox"/>	Sample Select by ...		(bv72&&((opc50>0.1) o...
F115	<input checked="" type="checkbox"/>	Sample Select by ...		(bv71)?(>-bv71,bv122=(op...
F116	<input checked="" type="checkbox"/>	no Selection		(bv72)?(bv120=(iv38>=1)...
F117	<input checked="" type="checkbox"/>	Enable Sample Point		bv120=bv120&&bv210&&...
F118	<input checked="" type="checkbox"/>	Enable Sample Point		bv126=bv126&&bv216&&...
F119	<input checked="" type="checkbox"/>	collection Signal		iv26=bv120+bv121*2+bv1...
F120	<input checked="" type="checkbox"/>	set Configuration		(iv251=iv26 bv247)?(mp1c...
F121	<input checked="" type="checkbox"/>	Purge Sample Line		((bv210>bv380 bv211>bv...
F122	<input checked="" type="checkbox"/>	Purge Sample Line		bv380=bv210;bv381=bv21...
F123	<input checked="" type="checkbox"/>	Gas from SP...		bv260=bv18&bv171;bv261...
F124	<input checked="" type="checkbox"/>	Hold signals		bv151=(iv40&128)&&iv38>...
F125	<input checked="" type="checkbox"/>	Data Valid All		bv279=mpnv&&bv18&mvc
F126	<input checked="" type="checkbox"/>	ActiveSamp Show...		(bv279)?(iv21=0);(bv151)...
F127	<input checked="" type="checkbox"/>	Control		bv60=(bv1 bv2)&&(iv40&1...
G14		Specialist only		Initial Activation <input checked="" type="checkbox"/> activate <input checked="" type="checkbox"/>
F128	<input type="checkbox"/>	Modbus Simulation		rv1=1;rv2=2;rv3=3;rv4...
F129				
F130				

Formulas

Formula index: 129 Group index: 14 Group name:

Initial activation: ☒ Formula name: Cooling device

Formula: = BV301=iDI04

Save Cancel < >

3 Change logbook text 80.

Select: Parameterization - Logbook texts (TXTi)

- ▶ Mark the "Index 80" and click <Edit>.
- ▶ Enter the "Source": **bv301**
- ▶ Enter the name of the "Device": **Cooling device**.
- ▶ Enter the "Text": **M080 Ext. alarm iD14**
- ▶ Change the "Classification" from "Extended" to "Maintenance Request".
- ▶ Apply the changes with <Save>.

Logbook texts (TXTi)

Save Mark **Edit** Copy Replace Next

Index	Source	Device	Text	Classification
67		Leakage t...	M067 Deviation= #rv32-1\hPa	Extended
68		Debug	M068 SP enabled #iv26	Extended
69		Debug	M069 valve coll #rv40	Extended
70	tm3>iv30	Light Source	M070 Lifetime exceeded	Maintenance Re...
71	tm4>iv29	Filter Unit	M071 Lifetime filter exceeded	Maintenance Re...
72	id5	Valve driv...	M072 Temperature > Limit	Failure
73	id6	Power Su...	M073 115V	Extended
74	bv178&bv3	Program	M074 Stop by internal failure	Extended
75	bv178&l...	Program	M075 Cancelled by user	Extended
76	tm5>iv28	Cell	M076 Lifetime filter exceeded	Maintenance Re...
77			M077	Extended
78			M078	Extended
79			M079	Extended
80			M080	Extended
81	mbif8&(&...	System	M081 SP8 selected by modbus	Extended
82	mbif9&(&...	System	M082 SP9 selected by modbus	Extended
83	mbif10&(&...	System	M083 SP10 selected by modbus	Extended
84	mbif11&(&...	System	M084 SP11 selected by modbus	Extended
85	mbif12&(&...	System	M085 SP12 selected by modbus	Extended
86		Pressure	M086 Sensors OK	Extended
87		Pressure	M087 Sensors adjusted	Extended
88		Pressure	M088 Sensors not OK	Maintenance Re...
89	mppi&iv...	Sampling ...	M089 All disabed	Maintenance Re...
90	bv18&mp...	System	M090 Measuring SP1	Extended
91	bv18&mp...	System	M091 Measuring SP2	Extended
92	bv18&mp...	System	M092 Measuring SP3	Extended
93	bv18&mp...	System	M093 Measuring SP4	Extended
94	bv18&mp...	System	M094 Measuring SP5	Extended
95	bv18&mp...	System	M095 Measuring SP6	Extended
96	bv18&mp...	System	M096 Measuring SP7	Extended

Logbook texts (TXTi)

Index: 80

Source: bv301 Device: Cooling device

Text: M080 Ext. alarm iD14 Classification: Extended

Save

Failure
Maintenance Request
Check
Uncertain
Extended

4 Put signal on Modbus.

Select: Parameterization - I/O - Data - Modbus value (MBVi)

- ▶ Mark the "Index 89" and click <Edit>.
- ▶ Activate the checkbox "Active".
- ▶ Enter the "Name": **Cooling device**.
- ▶ Enter the "Source": **bv301**
- ▶ Change the "Data Type": **Bool**.
- ▶ Activate the checkbox "**SICK Std. Meas.**".
- ▶ Change the related "Registertype": **DI**.
- ▶ Change the related "Pos.": **32**.
- ▶ Apply the changes with <Save>.

Parameters for the customer signal test:

- Signal: Cooling device
- Tag: BV301
- State Signal: Discrete Inputs, FC 02
- Address: 1031
- Data Type: Bool

Modbus values (MBVi)

Index	Name	Unit	Meas. Range Start	Meas. Range End	Source	Status	Scale	Active
71	Valve from SP1	0.0	0.0	1.0	BV301			
72	Valve from SP2	0.0	0.0	1.0	BV302			
73	Valve from SP4	0.0	0.0	1.0	BV303			
74	Valve from SP5	0.0	0.0	1.0	BV304			
75	Valve from SP6	0.0	0.0	1.0	BV305			
76	Valve from SP7	0.0	0.0	1.0	BV306			
77	Valve from SP8	0.0	0.0	1.0	BV307			
78	Valve from SP9	0.0	0.0	1.0	BV308			
79	Valve from SP10	0.0	0.0	1.0	BV309			
80	Valve from SP11	0.0	0.0	1.0	BV310			
81	Valve from SP12	0.0	0.0	1.0	BV311			
82	State 201 active	0.0	0.0	1.0	BV312			
83	State 202 active	0.0	0.0	1.0	BV313			
84	State 203 active	0.0	0.0	1.0	BV314			
85	State 204 active	0.0	0.0	1.0	BV315			
86	State 205 active	0.0	0.0	1.0	BV316			
87	State 206 active	0.0	0.0	1.0	BV317			
88	State 207 active	0.0	0.0	1.0	BV318			
89	State 208 active	0.0	0.0	1.0	BV319			
90	State 209 active	0.0	0.0	1.0	BV320			
91	State 210 active	0.0	0.0	1.0	BV321			
92	State 211 active	0.0	0.0	1.0	BV322			
93	State 212 active	0.0	0.0	1.0	BV323			
94	State 213 active	0.0	0.0	1.0	BV324			
95	State 214 active	0.0	0.0	1.0	BV325			
96	State 215 active	0.0	0.0	1.0	BV326			
97	State 216 active	0.0	0.0	1.0	BV327			
98	State 217 active	0.0	0.0	1.0	BV328			
99	State 218 active	0.0	0.0	1.0	BV329			
100	State 219 active	0.0	0.0	1.0	BV330			

Modbus values (MBVi)

Index: 89

Active: ☒ Auto Name/Unit: ☒ Auto Status: ☒ Scale: ☒

Name: Cooling device Start Meas. Range: 0 End Meas. Range: 10000 Unit:

Source: bv301 Data Type: Bool Status:

Norm: ☐ Pos.: 1

SICK Std. Meas.: ☒ Registertype: DI Pos.: 32

SICK Std. Sys.: ☐ Registertype: Holding Pos.: 1

MARSIC: ☐ Registertype: Holding Pos.: 1

Save Cancel < >

8031263/1HKV/V2-0/2023-01

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