APAC Sales Meeting

Dec 2022

BU-H / Bender GmbH & Co.KG
René Bülow

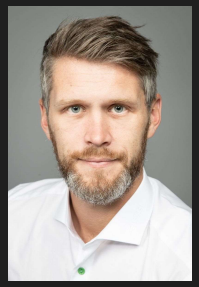
Ihr Referent: René Bülow

- René Bülow (46)
- married / two children (9 /11)
- Vice President Business Unit Hospital
- Office at HQ Grünberg

Ihr Referent: René Bülow

- Member of the German Standards Committee of UK221.4 "Electrical equipment in medical facilities" VDE 0100-710
- Member of the International Standards Committee of CENELEC CLC/TC 64/WG 06 Medical locations (European Committee for Electrotechnical Standardisation)
- Member of the International Electrotechnical Commission of IEC/TC 64/MT 40 Maintenance of IEC 60364-7-710 - Medical sites

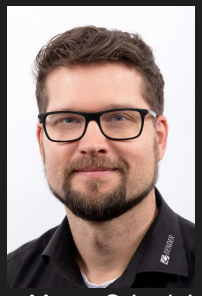
Hospital solutions



Daniel König

control panels

MERIVAARA



Marco Schedel

Switching devices / Transfomators / Earth fault detection

Karl-Heinz Rein

mobile test devices Unimet

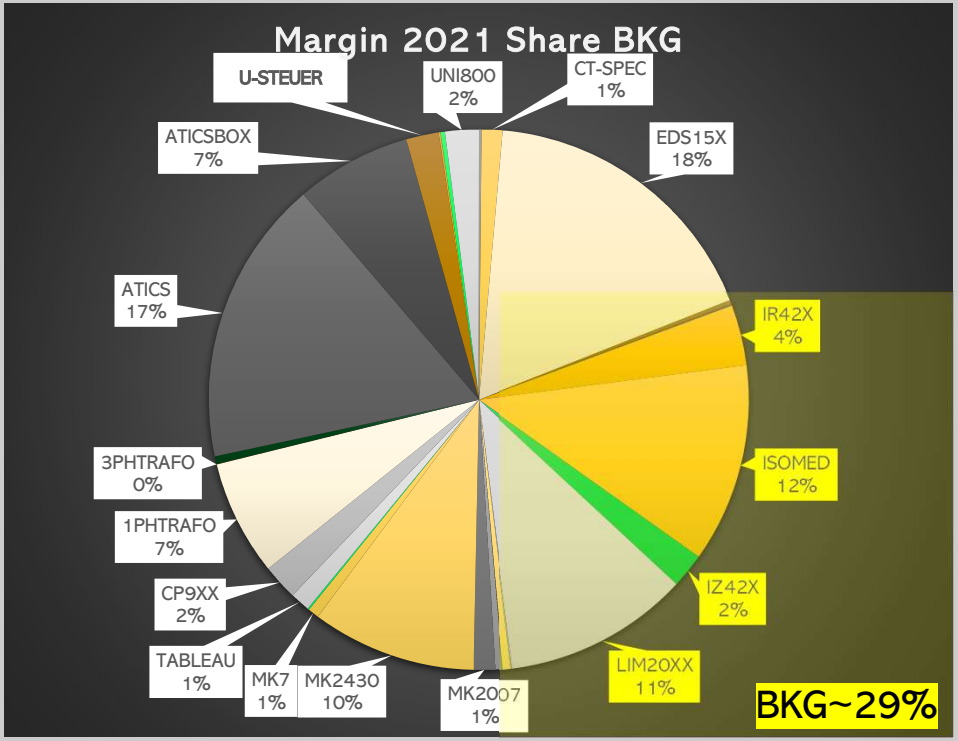
Jens Sonntag

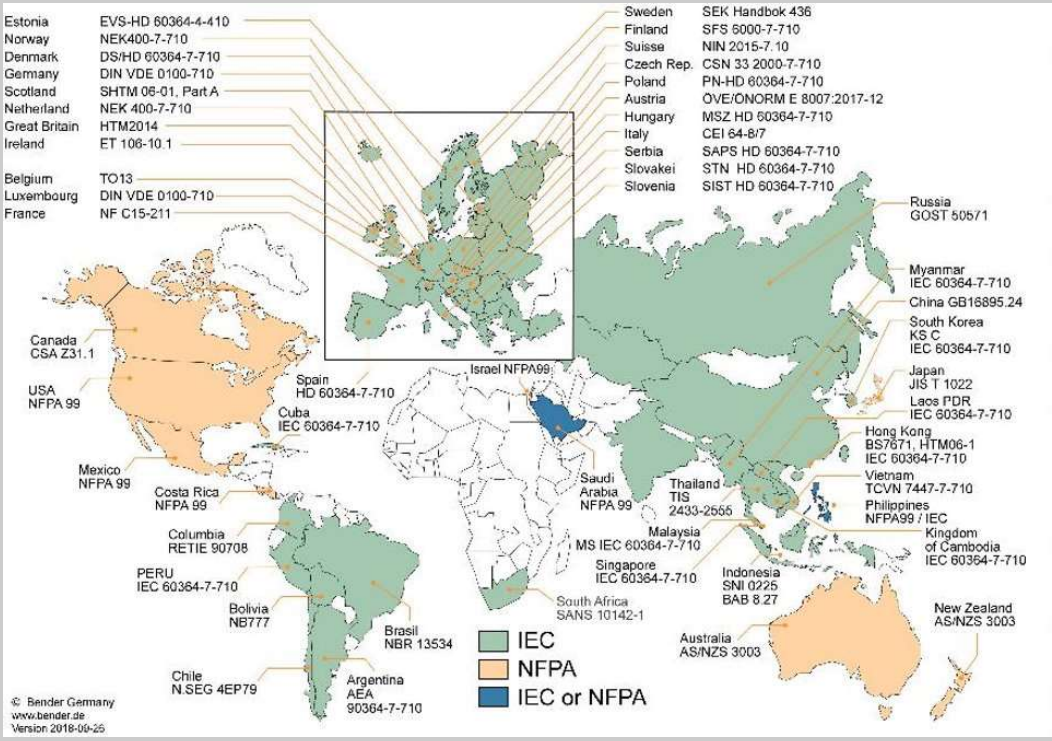
System solutions / insulation measuring devices

New Sensor Unit

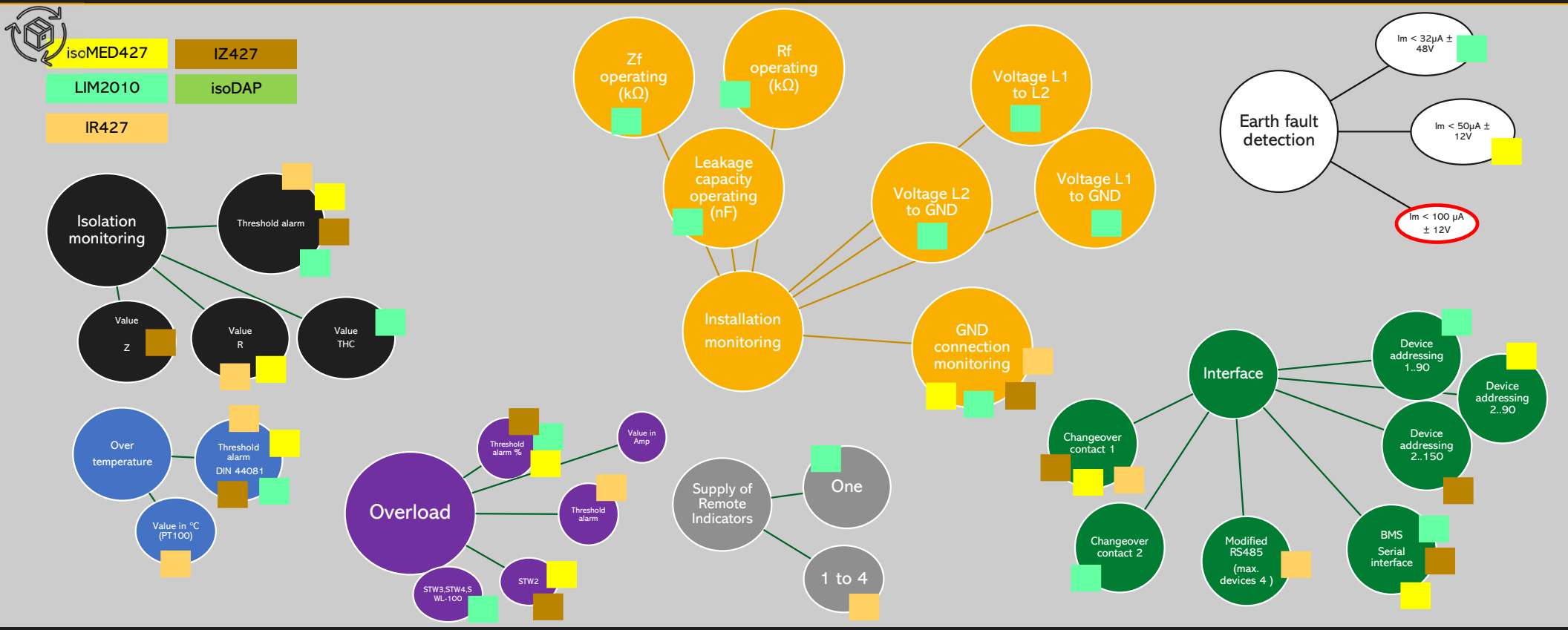
Insulation measuring devices in the hospital sector

Portfolio Bender Hospital – World





Overview existing features



our solution today

Insulation measuring devices

Control Panel (HMI)

LIM2010

isoMED
P
PT

IZ427

IR427
LD
DAP

Cloud/
Remote

CP924
CP915

CP907

CP305

MK7

SmartDetect Hospital

BENDER

Bender App

SmartDetect Hospital (Sensor)

Control Panel (HMI)

Cloud/ Remote

CP924
CP915

CP907

CP305

CP10x

Sensor Unit SmartDetect Hospital Isometer

NFC is integrated and SU is Bender implemented in Bender Connect.

SU Device can be connected via RS485 with EDS441-LNA/CMS and so on.

SU Device can be connected vias RS485 with any of the CPxxx.

SU HMI is realized with LED'S.

Pluggable connectors with push in /screws.
This allows to purchase preconfigured wire harnesses.

SU allows to select features like:
- IFLS (EDS)
- Overload / Temperature

SU is fulfilling UL1022 and IEC

Timeline

2022 2023 2024 2025

What has already been done:

- Regular exchange with BINC to understand the NFPA99 hospital applications.

- Collected the feedback of the LATAM region.

- Workshop in February 2022
→ SU and HMI separated

→ Bender Platform options
-Bender APP
-Neptune Measuring principle
-CP-Series

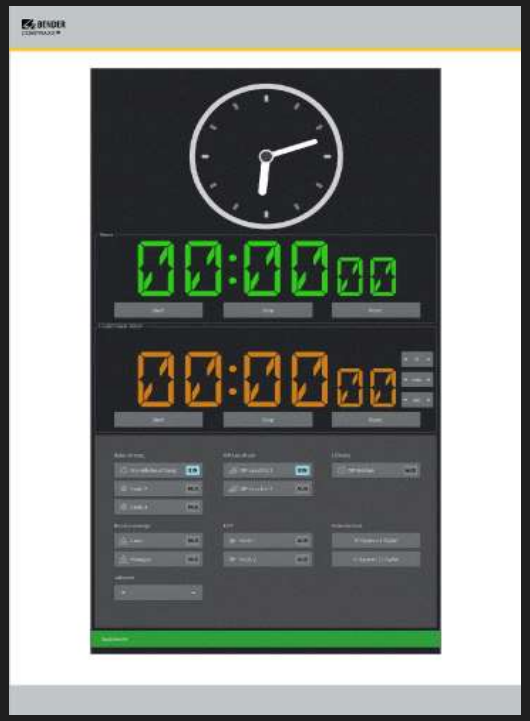
Neptune development for various devices has already begun.

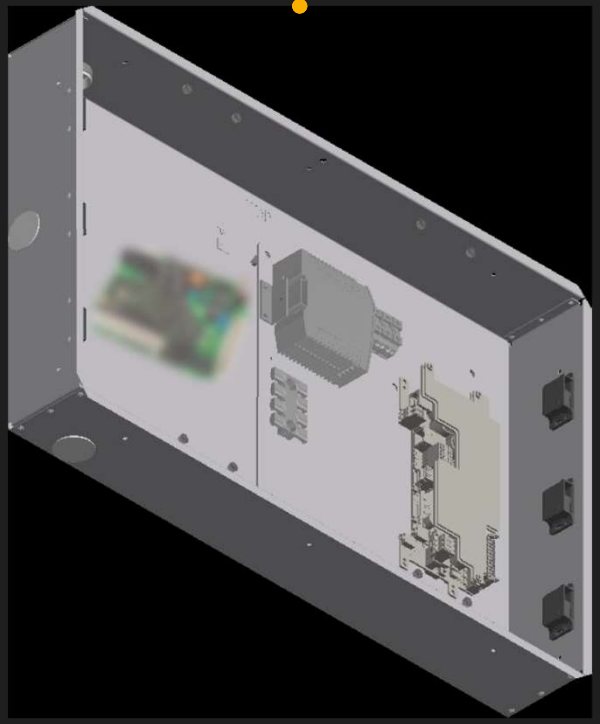
- Specification for the LIM20XXV and the SU for IEC ready
- Start of development
- SU Prototype Update
- SU UL / IEC certification
- SU IEC ready to launch
- LIM2025 / SU UL ready to launch

CP924 - Out of the Box -

Plug and Play device for OR’s

Out of the Box
CP924 based Concept





Power Supply

"IO Hardware"

CP9xx Kit

Out of the Box,
all required hardware is mounted inside the Wall Box.

This concept comes with a standard visualization.

This concept is an island solution, made to control the room.

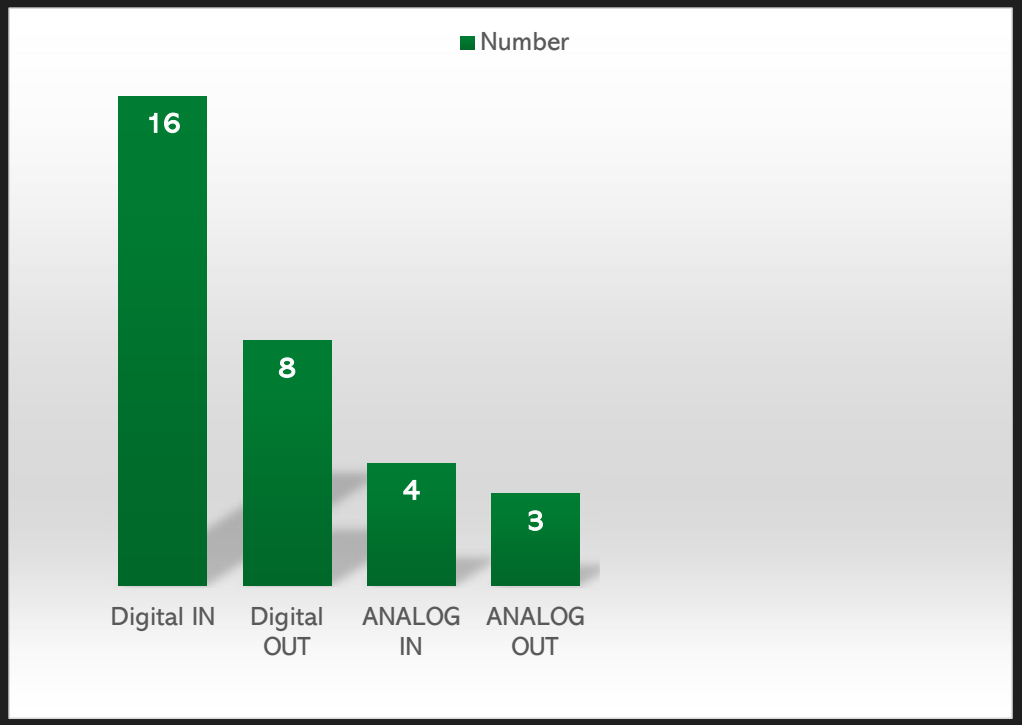
The Big Question

- The question we asked ourselves is how many digital inputs and outputs or analogue inputs and outputs are needed to represent 80% of the solutions.

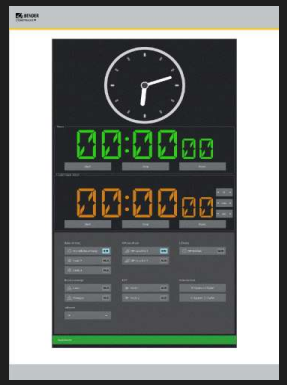
What kind of IO's and how many are needed?

- Bender Solution provides (T)CP's since approximately 10 years
  - Jens Sonntag analyzed projects between 2010 and 2020
  - Total number of projects **195**
  - Total number of TCP's **764**
  - **Regions** within the analysis: EU, UK, ASIA, middle EAST

Result →



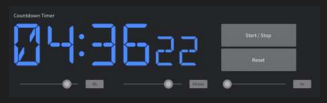
What else do we need a tableau for?



BENDER BMS

Visual function

OT IO Module



Medical Gas

Light on/off

With all this information we have built a solution that satisfies about 80% of all customers.

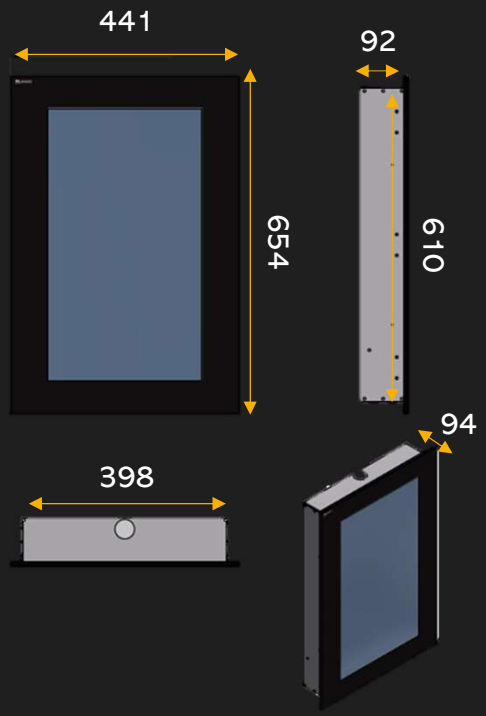
CP924-Essential

Function and Features

Overview HMI - Visualization

- Functions
  - Clock
  - Timer
  - Elapsed Timer/ Countdown
  - Isolation Monitoring
  - Room temperature control
  - Room humidity control
  - Ambient light group dimming
  - Light group 1 and 2 on / off
  - Surgical light on/ off
  - UPS collective alarm monitoring
  - Medical gas monitoring
  - Ventilator on/off
  - Ventilator Setback
  - Cleaning Mode

Overview Wallbox



*Dimensions in mm

- Highlights
  - Cable channel for comfortable installation
  - Low installation depth
  - Flush mounted (glass covering the wall cutout)
  - Hygienic glass surface easy to clean
  - Degree of protection front **IP54**

In Q1/2023 we will launch a board that has exactly the connections you need for 80% of all projects.

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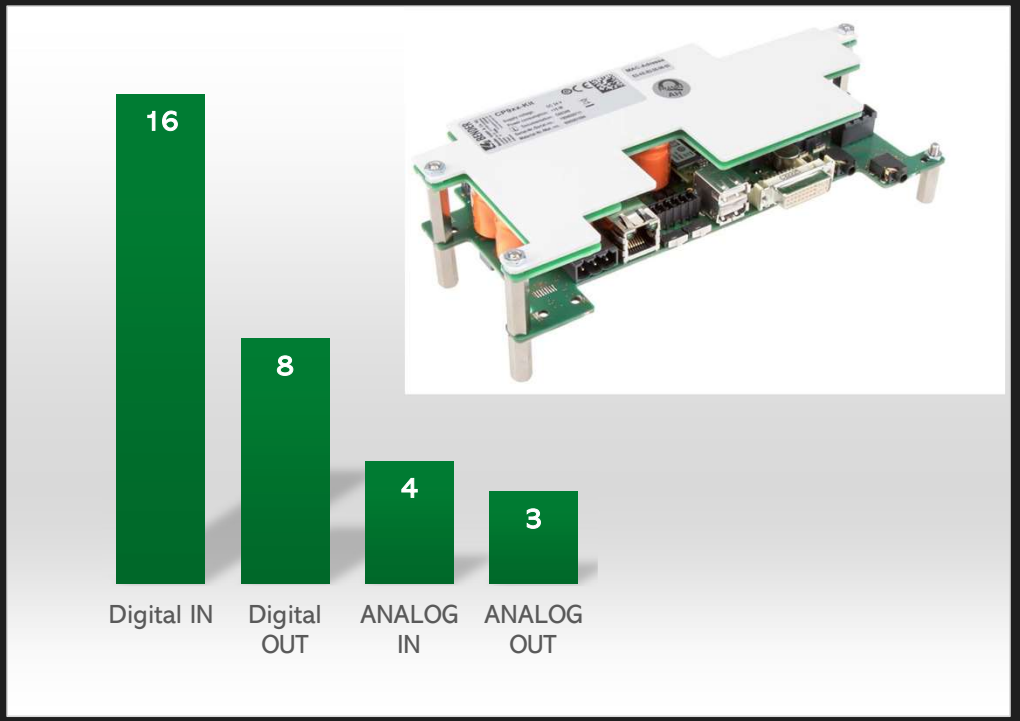
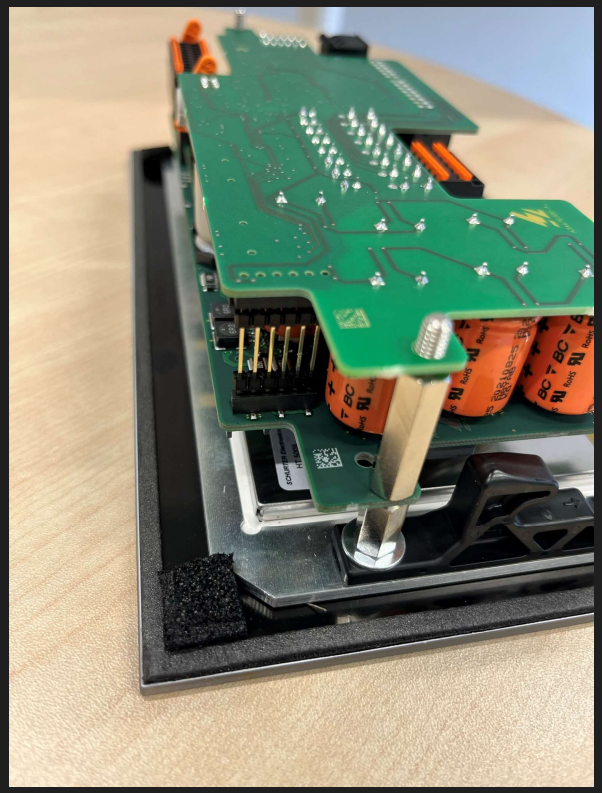
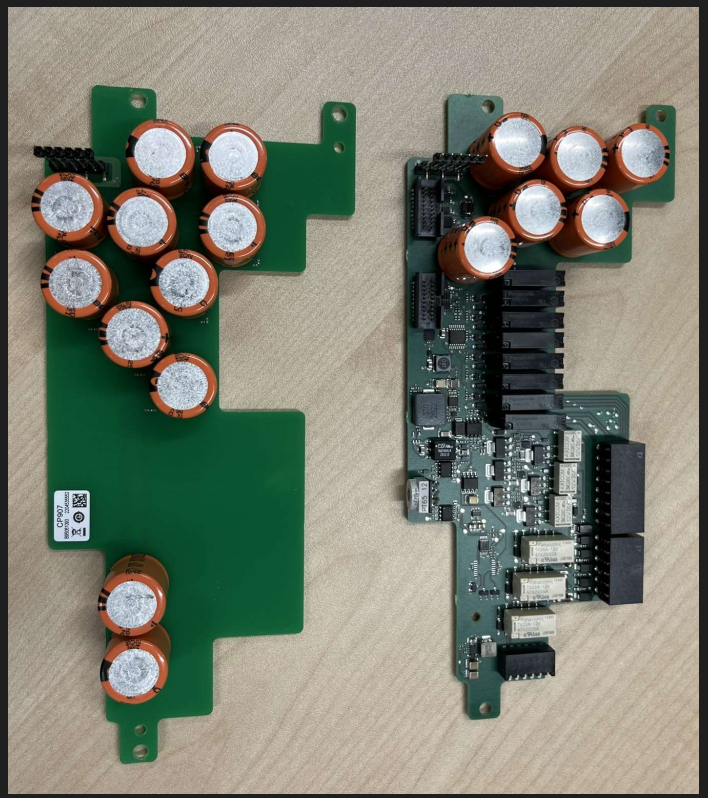
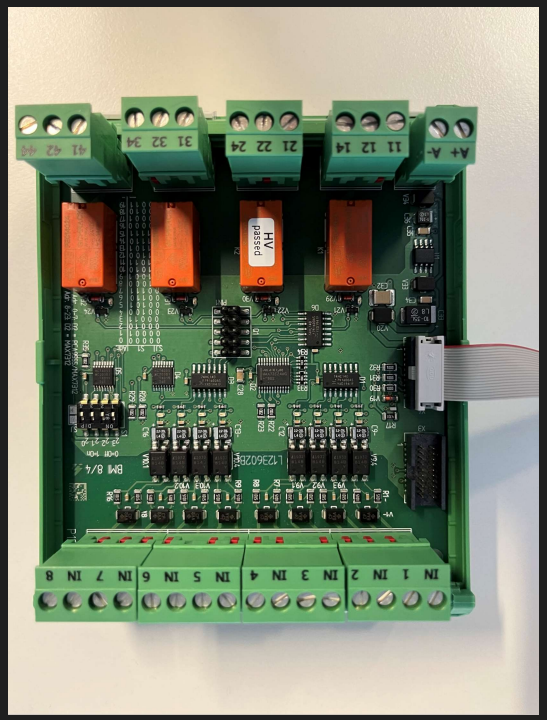


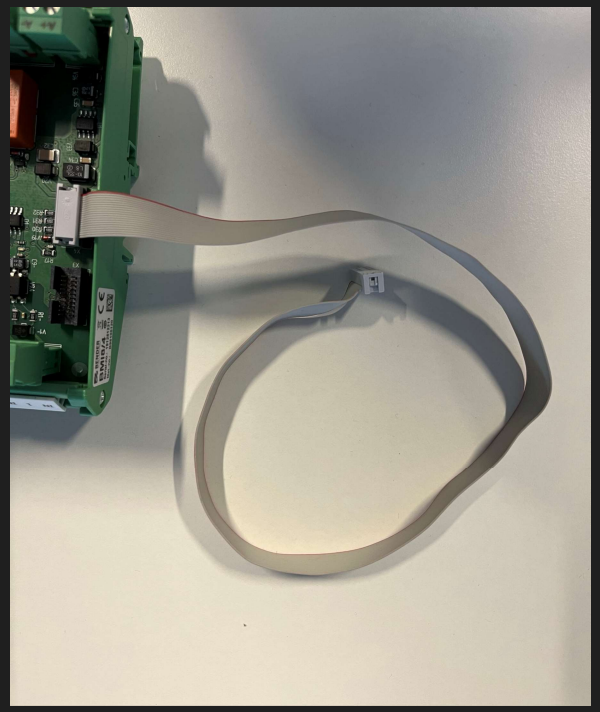
Extension of the CP9XX board





If more connections are needed, the BMI series can be added as before. (e.g. BMI 8/4)





Overview IN / OUT-puts



planned

		CP924-E Rev.1		CP924-E Rev.2 Q1/23		CP9xx Kit w. IO-PCB	
Digital IN High AC/DC 10…30 V Low AC/DC 0…2 V		20		20		12	
Digital Out see technical drawing	Relais collective alarm	8	1	12	1	8	1
Analog IN 0V … 10V or 0mA … 20mA		4 only 0V…10V		3		3	
Analog Out 0V … 10V or 0mA … 20mA		3 only 0V…10V		3		3	
Ethernet Port available		No		Yes		Yes	
DALI (selectable)		dimming Via Analog out		dimming & color Via Modbus RTU		Na	
DMX (selectable)		Na		dimming & color Via Modbus RTU		Na	

Overview HMI - Visualization

- Functions
  - Clock
  - Timer
  - Elapsed Timer/ Countdown
  - Isolation Monitoring
  - Room temperature control
  - Room humidity control
  - Ambient light group dimming
  - Light group 1 and 2 on / off
  - Surgical light on/ off
  - UPS collective alarm monitoring
  - Medical gas monitoring
  - Ventilator on/off
  - Ventilator Setback
  - Cleaning Mode

Feature Clock

On the top of the screen the date and time are displayed.

The position on the top Guarantees a better visibility for the user.

Date and time are configured as Followed,

-Date: dd.mm.yy
-Time: h:min:sec

The time preset is:

-Summer time is set to on
This means that the device switch Automatically between Summer or winter time .

-UTC offset is set to CET (+01:00)

Feature Timer

Timer

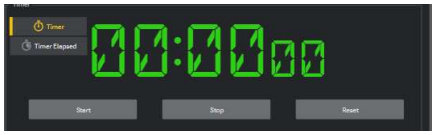
Timer: h:min:sec

The timer can be
start, stop and reset.

The reset command set
the timer always back to zero.

Timer are located right below
the clock within the upper third
of the screen.

Better visibility for the user.



Which timer feature is selected are
shown by the yellow highlighted
Button.

Timer Elapsed

Timer: h:min:sec

The time can be set by
up and down buttons
for h, min, sec.

The buttons have a step with of one.

The timer can be
start, stop and reset.

The reset command set
the timer always back to zero

Feature Room Ambient Light

Light Control

Group edge button switches a single light group ON/OFF.

Group center button switches a single light group ON/OFF

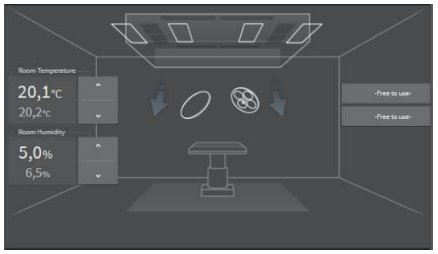
Dimming UP/DOWN set the light level for all connected DALI Groups.
The light level can be et in 5% steps.

***
DALI functionality limited to dimming up to 10 DALI el. by manipulating the DALI bus voltage.

**
No scenario or addressing of individual groups.

*
In case no DALI light groups are used the dimming feature can be deleted. The push buttons are still working.

Room Ambient light control is located right above the OT room image on the left-hand side .



Which light group is switched ON/OFF is indicated by the light symbols of the OT room sketch.

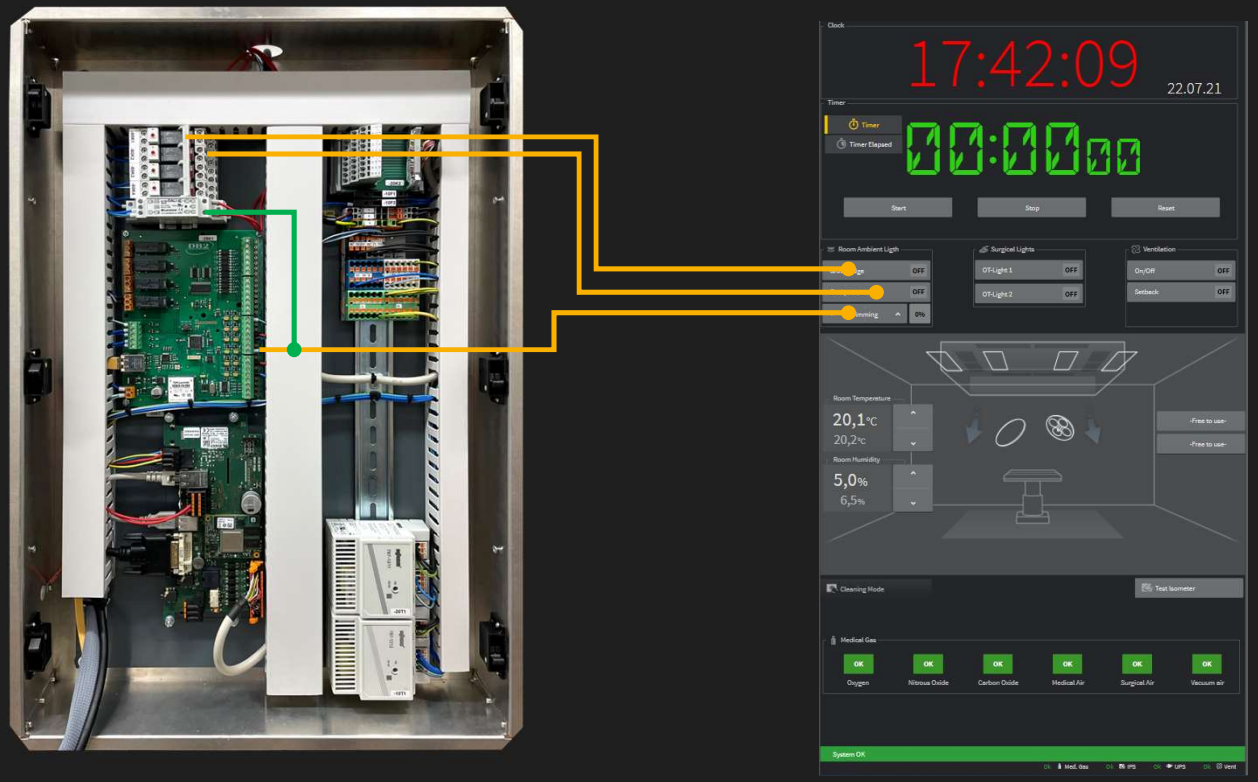
For each light group there is an feedback element.
The ON/OFF status of the light is shown.

← OFF ON→

Room Ambient Light - Connection

Controlled outputs of the Ambient light buttons.

Relais	Button
80K1	Groupe edge
80K2	Groupe center
80K3	OP Lamp 1
80K4	OP Lamp 2



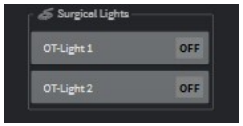
Feature OT Light

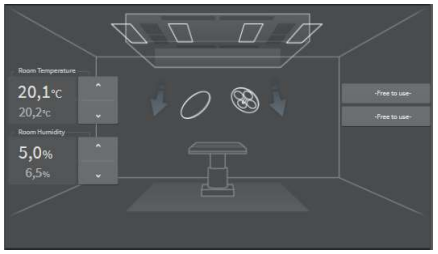
OT Light control

OT-Light 1 switches
The main OT-light ON/OFF.

OT-Light 2 switches
The satellite OT-light ON/OFF.

OT-light control is located
right above the OT room image
In the center of the screen.





Which OT-light is switched ON/OFF
is indicated by the symbol
of the OT room sketch.

There is a feedback element for the satellite and main OT-light.
The ON/OFF status of the OT-light is shown.

← OFF ON→

OT-Light - Connection

Controlled outputs of the OT-light buttons.

Relais	Button
80K1	Groupe edge
80K2	Groupe center
80K3	OP Lamp 1
80K4	OP Lamp 2

Feature Ventilator

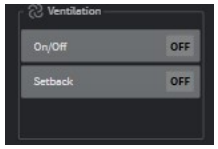
Vent. control

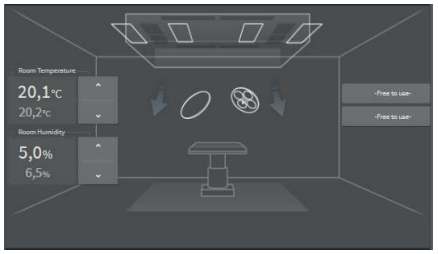
ON/OFF switchs
the ventilator ON/OFF.

Setback set
the ventilator to half full (50%).

* Vent failure are indicated
by the digital input 1.

Vent. control is located
right above the OT room image
at the right-hand side.





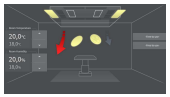
The Vent. status
is indicated by the arrow symbols
of the OT room sketch.

There are a feedback elements for the
Ventilator status.
Vent OFF (grey)

Vent ON (green)

Vent in setback, half full, 50% mode
(yellow)

Vent in fault (red)



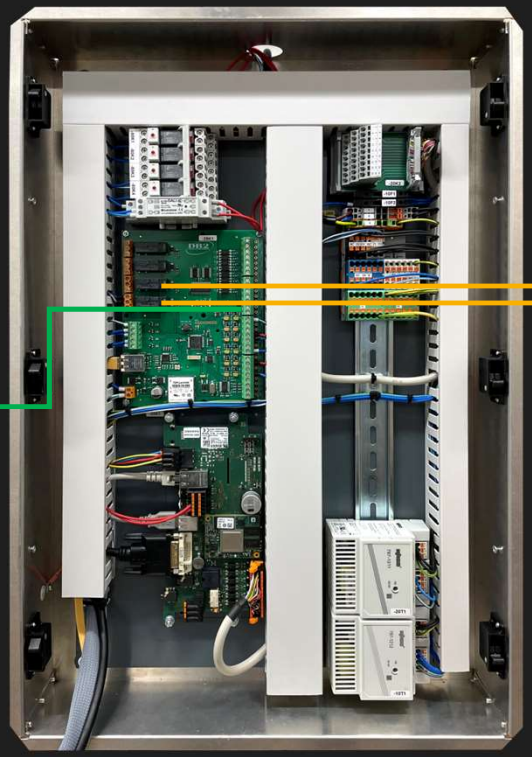
Ventilation - Connection

Controlled outputs of the Vent buttons.

Digital IN 1

Vent Dirty Filter/fault

High active



Feature Room ambient

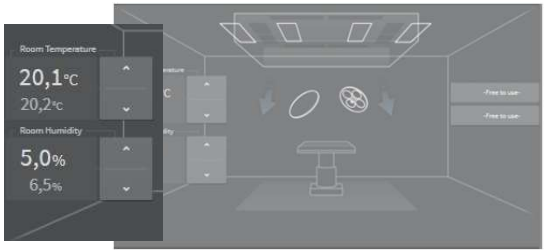
Room ambient control

The Up/Down buttons control the temperature and humidity of the room.

Actuators with an analog 0V to 10V control signal can be Connected.

The step size is:
0.1 °C (temp.)
1% (humidity)

Room ambient controls are located within the OT room image At the left-hand side.



Which OT-light is switched ON/OFF is indicated by the symbol of the OT room sketch.

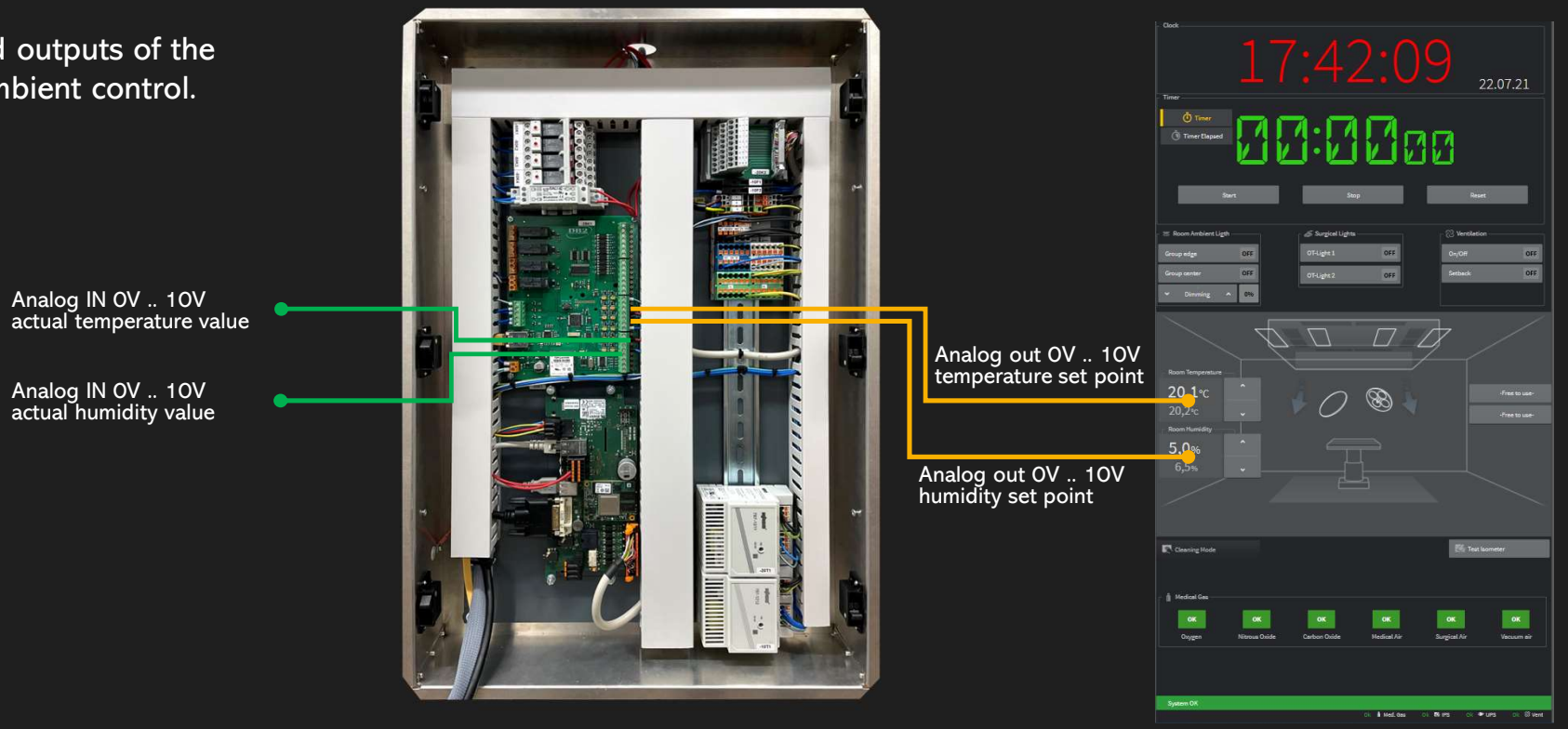
There are a feedback elements for the Room temperature and humidity.

Actual Value

Set Point

Room ambient control - Connection

Controlled outputs of the Room ambient control.

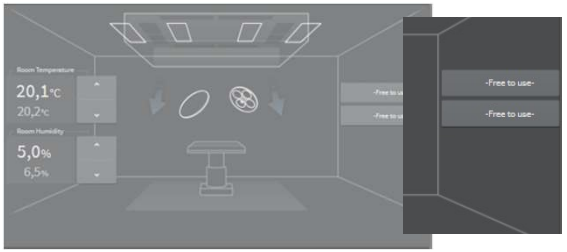


Feature Free to use

Free to Use control

The buttons switch ON/OFF Relais (250V / 8A).

Free to Use controls are located within the OT room image at the right-hand side.

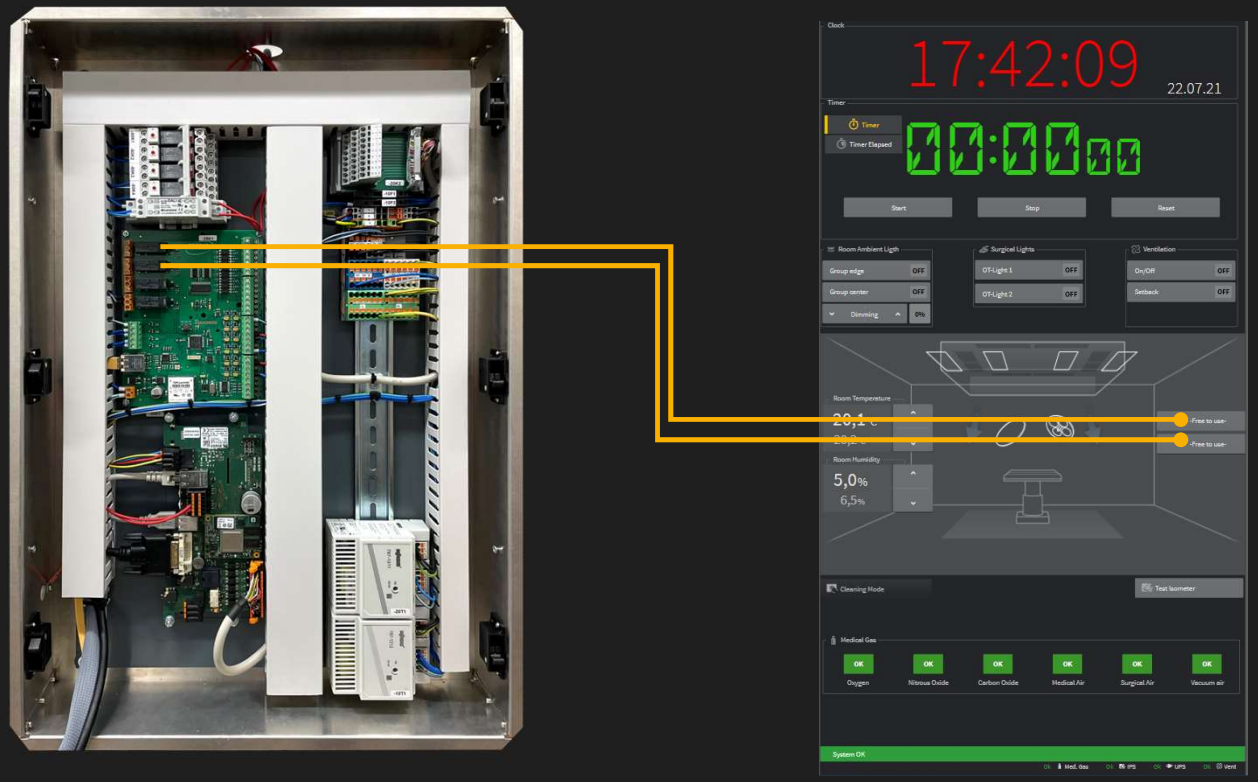


The Free to Use is buttons are already connected to hardware outputs.

Easy to configure:

Free to Use- Connection

Controlled outputs of the Free to Use buttons.



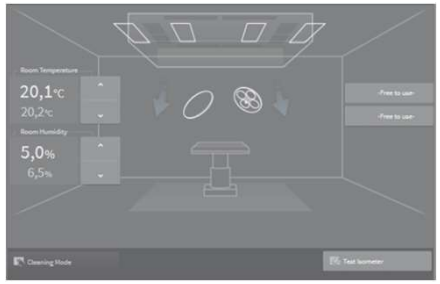
Feature Add On

The Add On features are to find below the OT room image.

Cleaning mode

Pressing the cleaning mode button disable the touch functionality of the display for **20 sec.**

Unwanted operations during the glass surface cleaning are avoided.



Test Isometer

Pressing the Test button starts the Recommended daily test of the Isometer.

The Pop Up window shows the result.

Bender BMS Bus - Connection

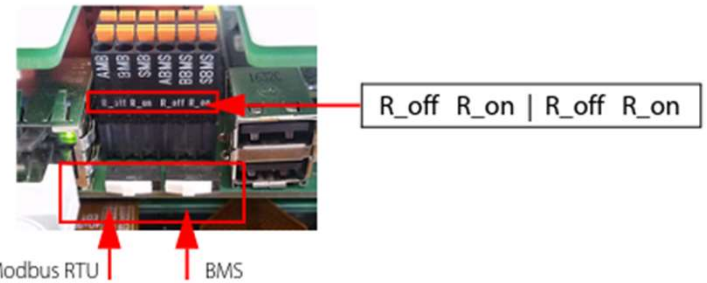
Bender devices like an Isometer® must be connected at the A and B input. (BMSi)

A connected Bender device set to a predefined BMS address is monitored in the alarm bar and can be tested by pressing the test button right after connecting via BMS-BUS.

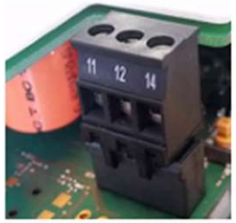
Connection part Cominication

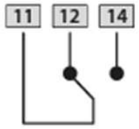
3. If the CP9xx is located at the beginning or end of the respective bus (Modbus RTU and BMS), the respective terminating switch of the device (**7**) must be switched to "ON".

Termination
Modbus RTU
BMS bus



4. Establish connection with PC and BCOM:
   Connect the CP9xx device to the PC network using an Ethernet cable (**5**).
5. Link digital inputs (see chapter 4.3).
6. Connect relay (if necessary).





N/C operation contacts **11-12**
(the alarm relay is energised during normal operation).

N/O operation contacts **11-14**
(the alarm relay is de-energised during normal operation).

Feature Medical Gas

Medical Gas

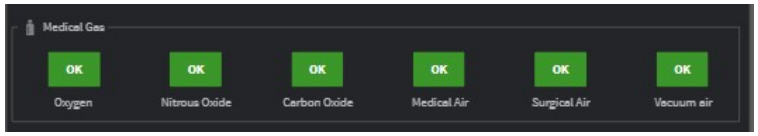
Displaying the current condition of the med. gases in case of a fault the areas turn red.

The preset of the gases are:

Med. Gas
Oxygen
N2O
CO2
Med. Air
Surgical Air
Vacuum

*Easy to configure

The Medical Gas features are located . right above the alarm bar of the screen.



Digital Inputs 1 – 12 can be set to active high or low.

Medical Gases Alarm

The Pop Up window shows alarm in case of a two Low or to High pressure.

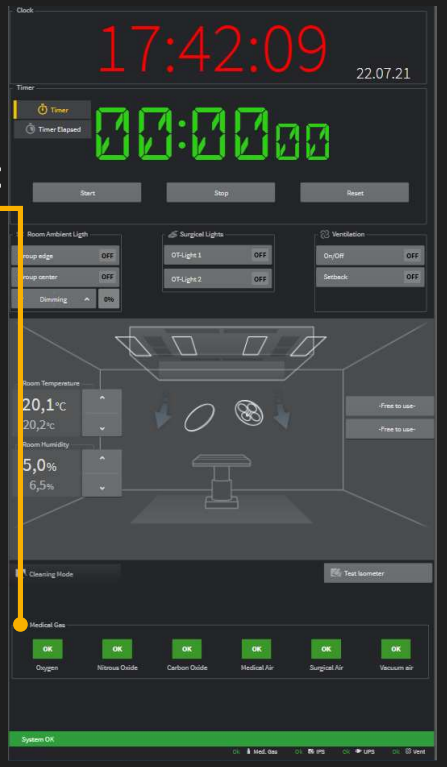
The alarm repeats every **12 minutes** as required in the standards.

Medical Gas - Connection

Dig INPUT	Med. Gas
1 2	Oxygen Low
3 4	Oxygen High
5 6	N2O Low
7 8	N2O High
9 10	CO2 Low
11 12	CO2 High
13 14	Med. Air Low
15 16	Med Air High
17 18	Surgical Air Low
19 20	Surgical Air High
21 22	Vacuum Low
23 24	Vacuum High

Digital Inputs default mode is active high.

Digital in 24V DC



Feature Alarm Bar

Alarm Bar

monitoring the system condition.

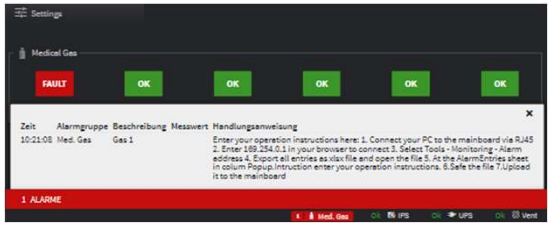
- IPS
- UPS
- Med. Gas
- Vent.

The alarm bar feature is attached at the bottom of the screen.

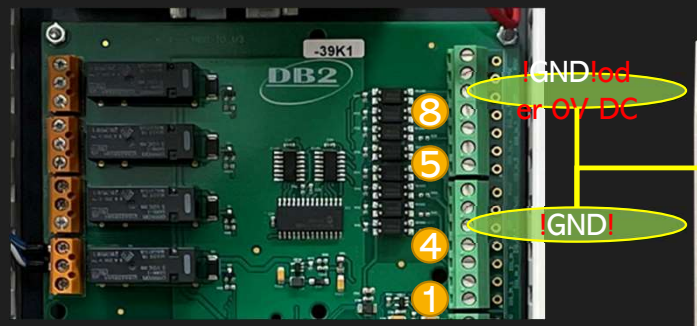
The large green bar shows the medical staff that the OT-Room is safe.

Alarm bar

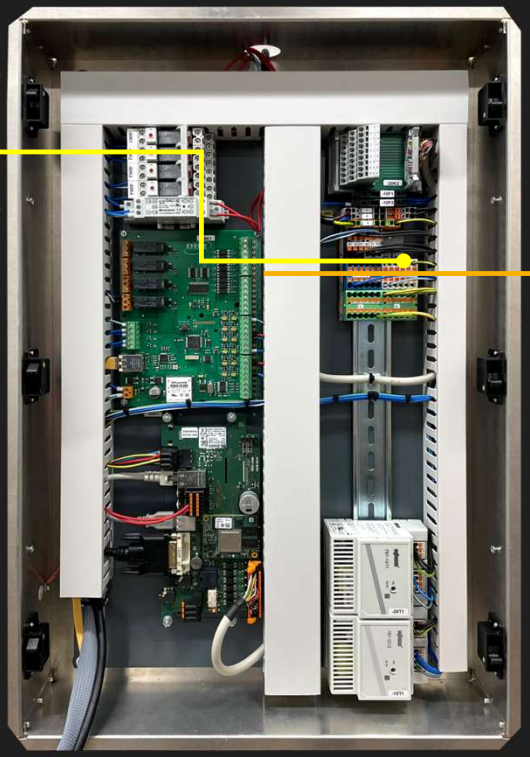
The alarm bar contains the operation Instructions, after the Pop Up window Is closed.



System Failure dig Inputs- Connection



Dig INPUT	Description
1	Vent Dirty Filter/fault (alarm)
2	UPS loads on bypass (warning)
3	UPS failure cumulative (alarm)
4	UPS discharge level (warning)
5	AGS Pump trip/ Low Vac (alarm)
6	free to use
7	free to use
8	free to use



Digital in 24V DC high active

Feature Building Management System Basic integration

Collective alarm via Relay .

Collective Alarm Relay

Basic integration by monitoring the single system via a collective alarm.

In case of failure of any kind within the alarm groups:

- IPS
- UPS
- Med. Gas
- Vent.

Technical data Relay:

Contact data acc. to IEC 60947-5-1:			
Utilisation category	AC-13	AC-14	DC-12
Rated operational voltage	24 V	24 V	24 V
Rated operational current	2 A	2 A	2 A
Minimum contact rating	1 mA at AC/DC > 10 V		
Connection	plug-in terminal: (11;12;14)		

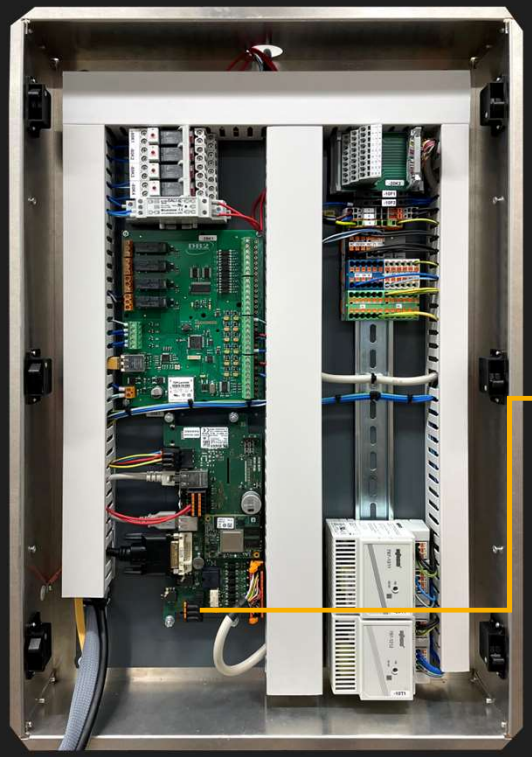
Behavior of the N/O Relais:

X → connected

Terminal pins	System OK	System Warning / Alarm
11	X	X
12	X	
14		X

System Failure Collective alarm

Terminal pins	System OK	System Warning / Alarm
11	X	X
12	X	
14		X



Feature Set up Screen

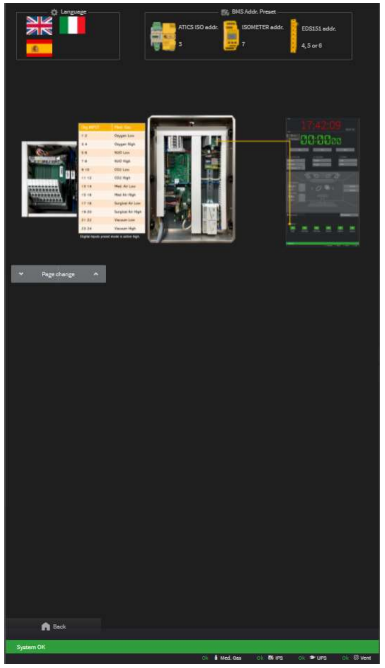
Set up Screen:

Language selection.

BMS address preset overview.

Overview of the assignment of hardware in/out puts to software elements.

The setting screen can only be reached if the password is entered.
807



Language:
By selecting the language, the predefined labels occur in the HMI in the selected language.

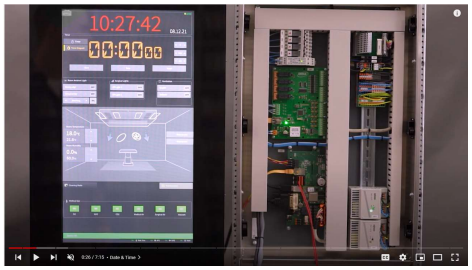
The Set up Screen can only be reached by pressing on the Bender logo in the upper right corner of the display screen This is only possible if Timer Elapsed is selected.

Feature Overview

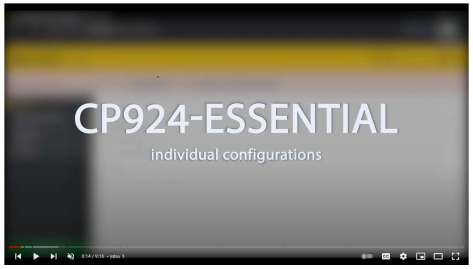
CP924-E Plug & Play

How to Videos

- CP924-E Introduction

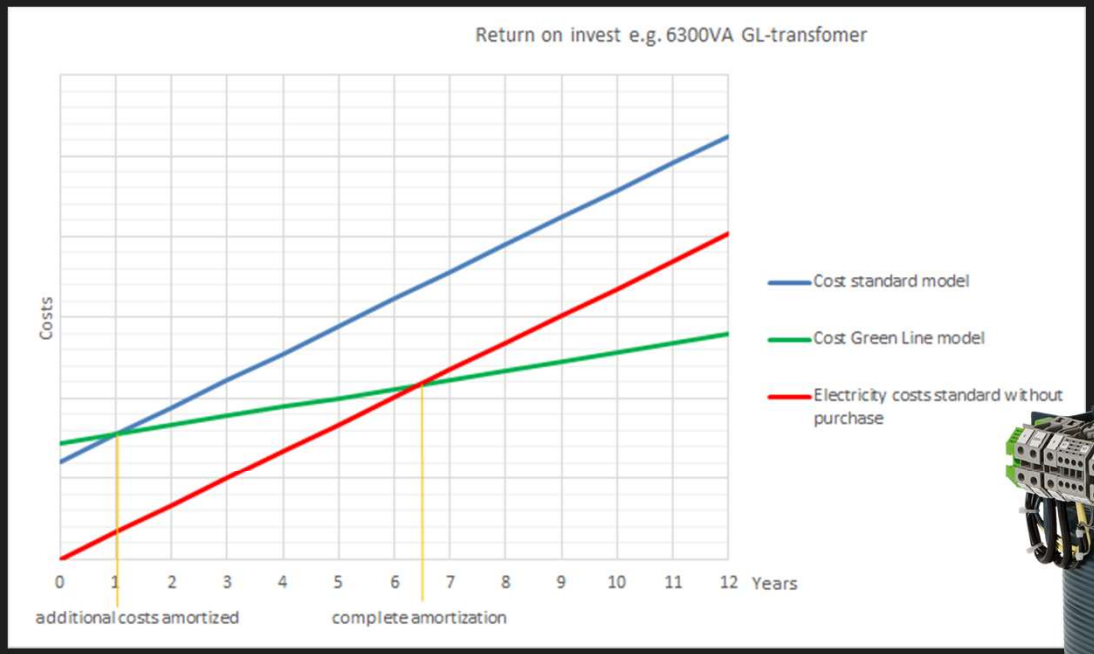


- CP924-E Configuration



Bender transformer solutions

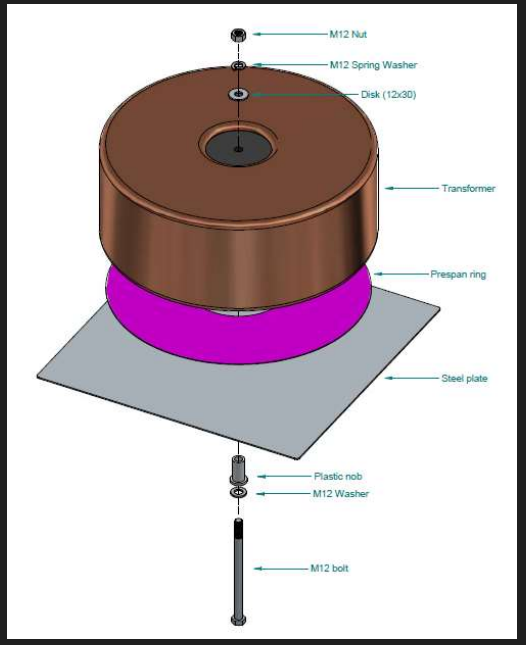
savings opportunity by ES710/xxxx-GL series



- Green line transformer
- Cost advantages for the hospital operator
- Protects the environment
- Less waste heat
- Meets and exceeds the standard requirements
- Low inrush current < 8x In
- ROI

inrush current opportunity

- toroidal transformer ES710/...-T
- Size of transformer, can use low depth cabinets
- No problem in “black start of UPS” due to the low inrush current (1x In)
- Some cases the UPS can be reduced in size
- Less magnetic stray field



ATICS in conjunction with the new standard

ATICS (Strong arguments for project negotiations)

710.536.101 Automatic transfer switching or automatic change-over equipment

In medical locations, where automatic transfer switching or automatic change-over equipment is installed, the following shall apply.

- The automatic transfer switching or automatic change-over equipment shall comply with IEC 60947-6-1.
- The wiring system between the automatic transfer switching or automatic change-over equipment and the subsequent overcurrent protection device shall be installed in an inherently short circuit and earth-fault free manner.
- The automatic transfer switching or automatic change-over equipment shall be arranged so that safe separation between supply-lines is maintained.
- Arrangements to allow for the maintenance of automatic transfer switching or change-over equipment shall be considered, for example, a bypass could be implemented.

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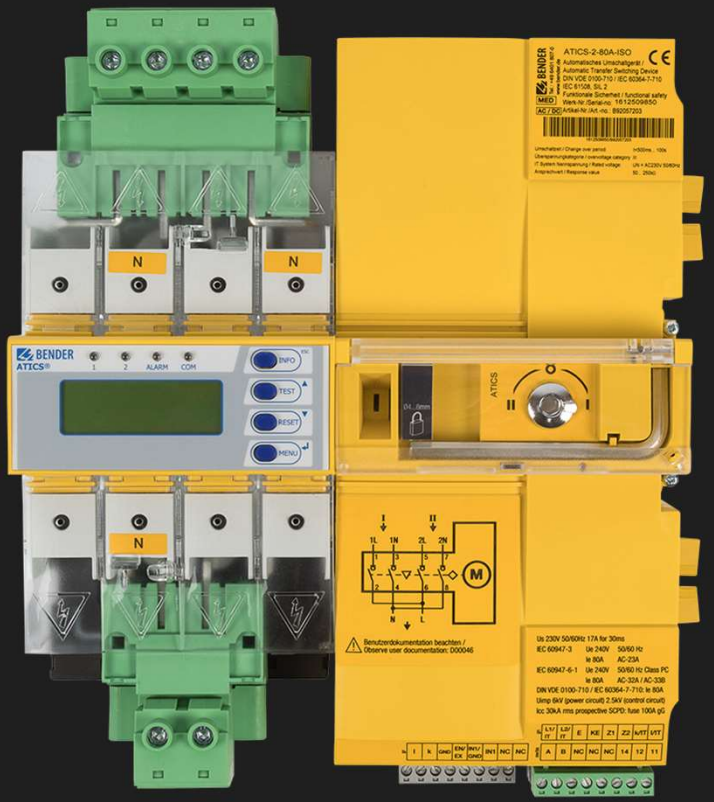
the ATICS fulfils all requirements according to IEC60947-6-1



Utilisation categories acc. to DIN EN 60947

Type	Ie AC-23A	Ie AC-23B	Ie AC-32A	Ie AC-32B	Ie AC-33B
ATICS-2-63A-ISO ATICS-2-63A-ISO-ES	63 A	63 A	63 A	63 A	63 A
ATICS-2-80A-ISO ATICS-2-80A-ISO-ES	80 A	80 A	80 A	80 A	80 A

10.4 Standards and certifications

The transfer switching and monitoring device conforms to the following standards:

- DIN VDE 0100-710 (VDE 0100 Part 710):2002-11*
- DIN VDE 0100-710 (VDE 0100 Part 710):2012-10*
- DIN VDE 0100-710 (VDE 0100-710) supplement 1:2014-06
- DIN VDE 0100-718 (VDE 0100-718):2014-06
- ÖVE/ÖNORM E 8007:2007-12-01
- IEC 60364-7-710:2002-11*
- IEC 60364-7-710:2021-05
- DIN EN 61508-1 (VDE 0803-1):2011-02*
- IEC 61508-1 (2010-04) Ed. 2.0*
- DIN EN 61508-2 (VDE 0803-2):2011-02*
- IEC 61508-2 (2010-04) Ed. 2.0*
- DIN EN 61508-3 (VDE 0803-3):2011-02*
- IEC 61508-3 (2010-04) Ed. 2.0*
- DIN EN 60947-6-1 (VDE 0660-114):2014-09
- IEC 60947-6-1 (2013-12) Ed. 2.1
- DIN EN 61557-8 (VDE 0413-8):2015-12

- Source: ATICS manual

The switches from ABB that ESA Grimma uses are not tested according to IEC60947-6-1.

Von: Michael Dumbeck <michael.dumbeck@de.abb.com>
Gesendet: Montag, 10. Oktober 2022 12:46
An: Schedel, Marco <marco.schedel@bender.de>
Betreff: AW: Umschalteinrichtung mit einer Umschaltzeit von 0,5 Sekunden aufgebaut über Fernantriebe

Hallo Herr Schedel,

bitte entschuldigen die verspätete Rückmeldung. Durch die light + building und diverse Schulungen in der vergangenen Woche, war es mir nicht möglich zu antworten.
Die Lasttrennschalter in Automatenform (für das System Pro M compact) gehören nicht zu meinem Produktportfolio.
Nach Rücksprache mit meinem Kollegen können wir hier leider nichts passendes anbieten. Unsere Lasttrennschalter sind gemäß DIN EN 60947-3 geprüft.
Eine Prüfung nach IEC 60947-6-1 wurde nicht durchgeführt.

Viele Grüße aus Heidelberg

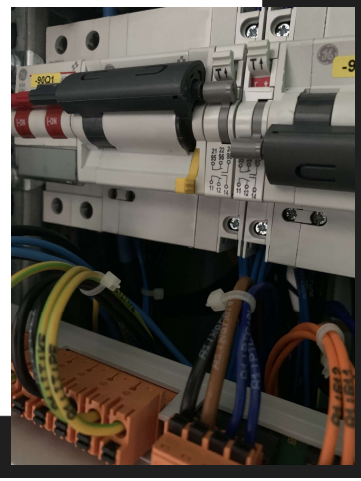
A test according to IEC 60947-6-1 was not carried out.

ABB

—
Michael Dumbeck
Product Marketing Specialist
Switches and Fusegear

Elektrifizierung, Deutschland
ABB | BUSCH-JAEGER | STRIEBEL & JOHN

ABB STOTZ-KONTAKT GmbH
Eppelheimer Str. 82
Heidelberg
Mobile: +49 172 6225141
Phone: +4962217011141
E-mail: michael.dumbeck@de.abb.com
abb.com



ATICS (Strong arguments for project negotiations)

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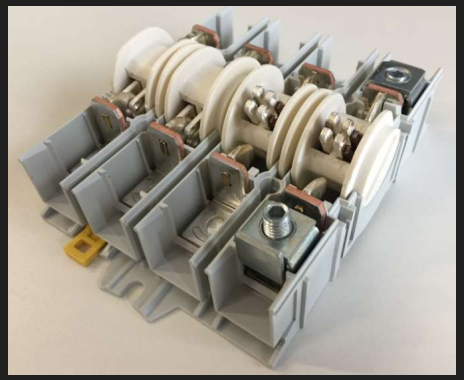
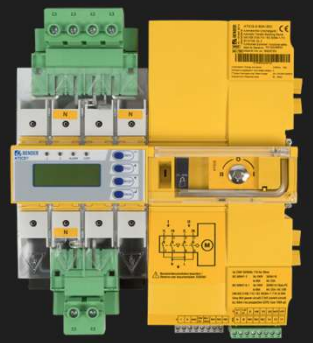
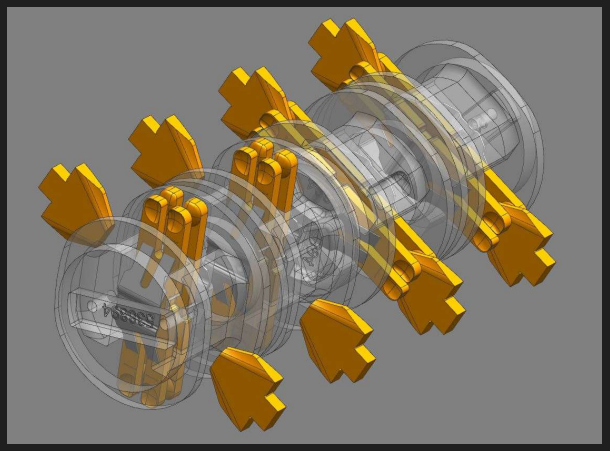
separation between supply-lines

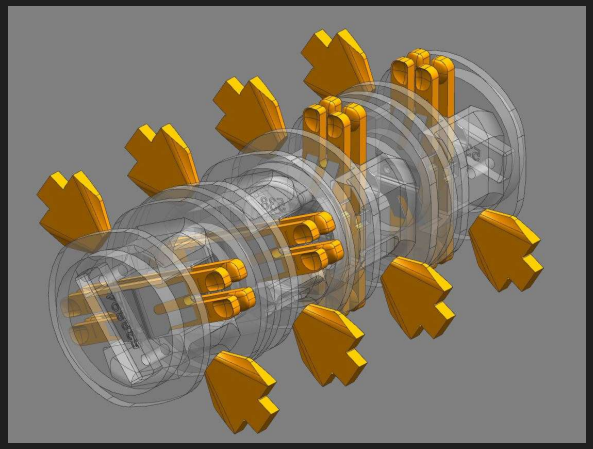




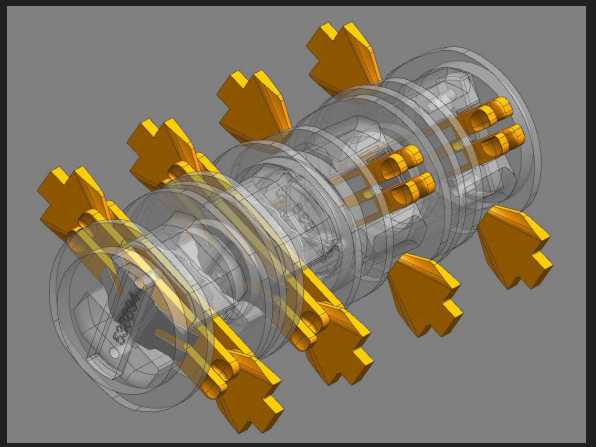
- With the ATICS, it is not mechanically possible for line 1 and line 2 to be switched on at the same time.



Line 1 on



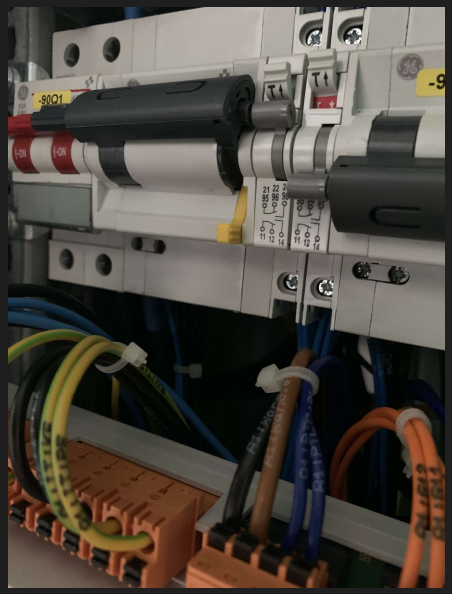
Line 1 and 2 OFF



Line 2 on

separation between supply-lines is not maintained by ESA Grimma

The automatic transfer switching or automatic change-over equipment shall be arranged so that safe separation between supply-lines is maintained.



We have asked ABB if the Tele MP remote actuator can be used for changeovers.

Von: Stefan W. Klein <stefan.w.klein@de.abb.com>
Gesendet: Mittwoch, 19. Oktober 2022 09:08
An: Schedel, Marco <marco.schedel@bender.de>
Betreff: WG: Umschalteinrichtung mit einer Umschaltzeit von 0,5 Sekunden aufgebaut über Fernantriebe

Hallo Herr Schedel,

Ihre Frage muss ich leider mit nein beantworten. Die beiden Antriebe arbeiten unabhängig voneinander (nicht mechanisch verbunden) und somit können wir nicht gewährleisten das eine Verzögerung der Zuschaltung gegeben wird. Diese Geräte sind nicht für Umschaltungen gemacht. Für solch eine Lösung gibt es unsere Umschalter der OT Reihe (manuell und motorbetrieben), siehe Link. Diese haben auch eine zugeordnete Umschaltzeit und entsprechen den IEC Normen.

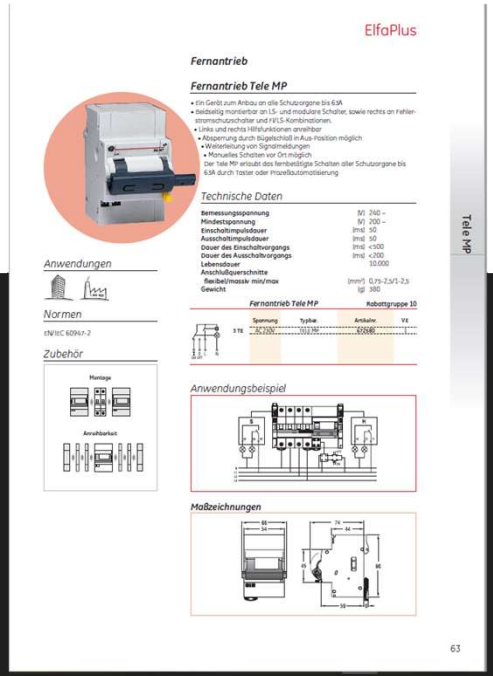
Motorbetriebene Umschalter | ABB e-Configure Produktkatalog

Mit freundlichen Grüßen

i.A. Stefan Klein
Schulungsleiter

Elektrifizierung, Deutschland
ABB | Busch-Jaeger | STRIEBEL & JOHN

ABB STOTZ–KONTAKT GmbH
Eppelheimer Straße 82, 69123 Heidelberg
Mobile Phone : +49 170 5640135
e-mail: stefan.w.klein@de.abb.com


ElfaPlus

Fernantrieb

Fernantrieb Tele MP

Technische Daten

Anwendungen

Normen

Zubehör

Anwendungsbeispiel

Maßzeichnungen

Tele MP

63

- Unfortunately, I have to answer your question with no. The two drives work independently of each other (not mechanically connected) and therefore we cannot guarantee that there will be a delay in switching on. These devices are not made for changeovers. For such a solution, there are our changeover switches of the OT series (manual and motor-driven), see link. These also have an assigned switching time and comply with IEC standards.

ATICS (Strong arguments for project negotiations)

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ESA Grimma Comparison

CP305

Remote Alarm Indicator CP305

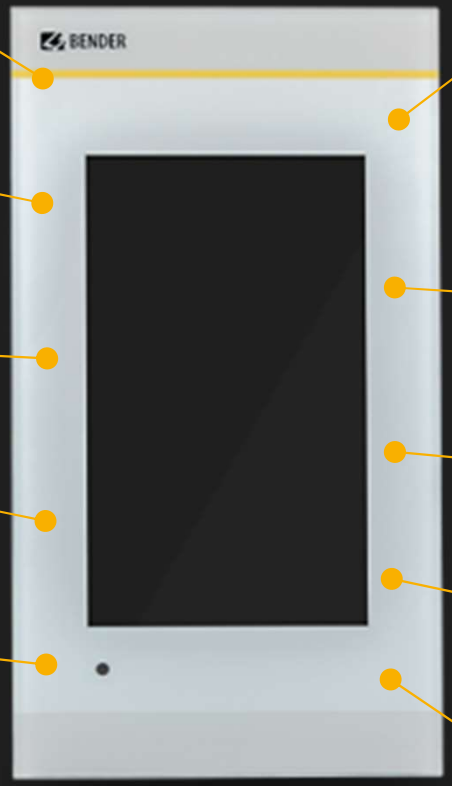
>25 languages

Free progr.
Alarm messages

History logger
1.000 entries

Touch control

Glass surface
Easy-to-clean



Information
assessment by
coloured display

4 free
programable
lines

Iso-Test function

Bender Connect
App ready

12 digital inputs
2 relay contacts

Application

- Display of status and alarm messages in medical locations of group 2 according to IEC 60364-7-710
- Easy to connect to Bender BMS
- Straightforward commissioning due to pre-defined message texts

Features

An insulation measuring device always needs a display unit

- **710.411.6.3.101 Medical insulation monitoring device**

- The medical IT system shall be equipped with a medical insulation monitoring device (MEDIMD) in accordance with IEC 61557-8:2014, Annex A and Annex B.

Source: IEC 60364-7-710:2021 © IEC 2021

An insulation measuring device always needs a display unit such as an MK or a CP305

Currently, no competitor has a green alarm lamp

A.2.3.2 Local insulation warning (LIW)

This function shall include the measurement of the insulation resistance RF of an IT system
including symmetrical and asymmetrical components, an assessment of this resistance RF and a local warning.
For each medical IT system, an acoustic and visual alarm system incorporating the following
components shall be arranged at a suitable place, so that it can be permanently monitored (audible and visual signals) by the medical staff:
– a green signal lamp to indicate normal operation
– a yellow signal lamp which lights when the warning indication of the insulation monitoring device takes place. It shall not be possible for this light to be cancelled or disconnected;
– an audible alarm which sounds, when the minimum value set for the insulation resistance
RF is reached. This audible alarm may have provisions to be silenced under alarm conditions;
– the yellow signal and the audible alarm shall be cancelled on removal of the fault and when normal condition is restored.

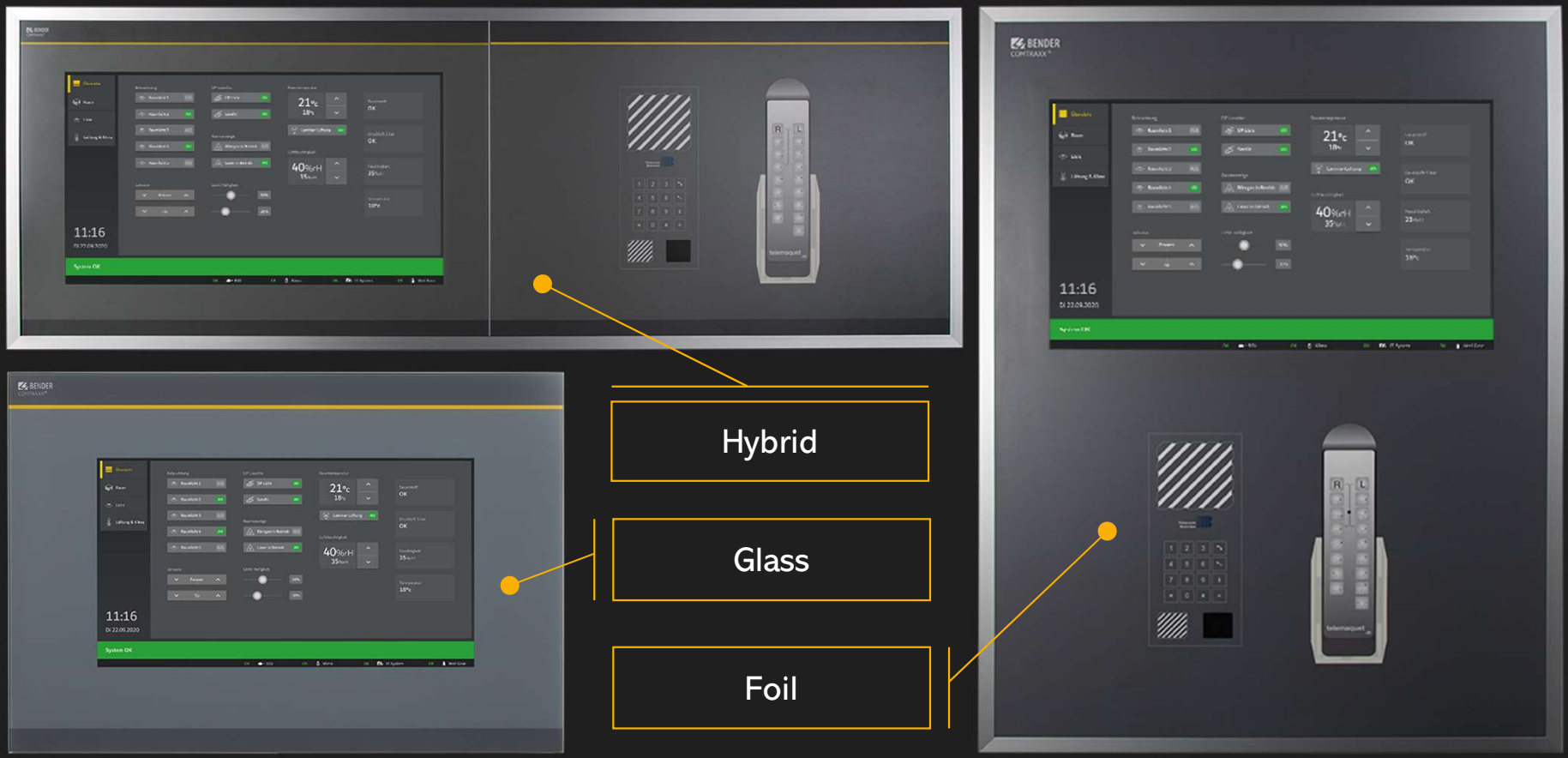
Source: IEC 61557-8:2014 © IEC 2014 Annex A

ESA BMTI Touch

- programming only possible from the manufacturer ESA Grimma in Germany
- launch in the next few months
- Price unknown
- Lifetime Display less than with Bender

Bender – Control Panels

CP9xx-x
Preference series



Bender Hospital Solutions
Control Panel

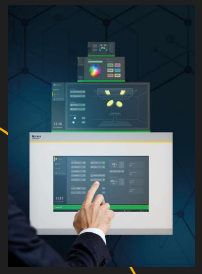
Are the dimensions of the wall cutout freely selectable?

- New Hospitals
- Renovations

- Modification
- Replacements

Foil Control Panels - explained

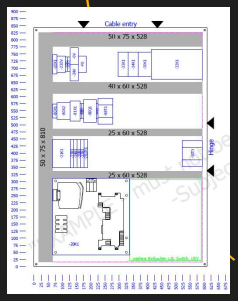
- Fix orientation
- 21” display
- Flexible in height and width



- Visualization design and functionality
- Individual alarm texts

System integration (addressing)

Individual wiring on request



3rd party devices build in

Control Cabinet Panel or Wallbox

Bender Solution scope of delivery

- Integration of all required functions and devices incl.
  - Mounting
  - Wiring
- Technical Documentation
  - Provided
  - Version update
- Implementation of PLC incl.
  - Codesys programming
  - Modbus TCP/RTU
- End of Line Test
  - IPS System – CP
  - PLC – CP
- Commissioning

	DC/UPS from Bicker
	OT-Light interface
	VPN Router
	Latching switch
	Ethernet switch
	DALI or DMX
	BACnet/IP
	Time server
	Ethernet plugs

Control Cabinet Panel or Wallbox

Bender Solution scope of delivery

- Integration of all required functions and devices incl.
  - Mounting
  - Wiring
- Technical Documentation
  - Provided
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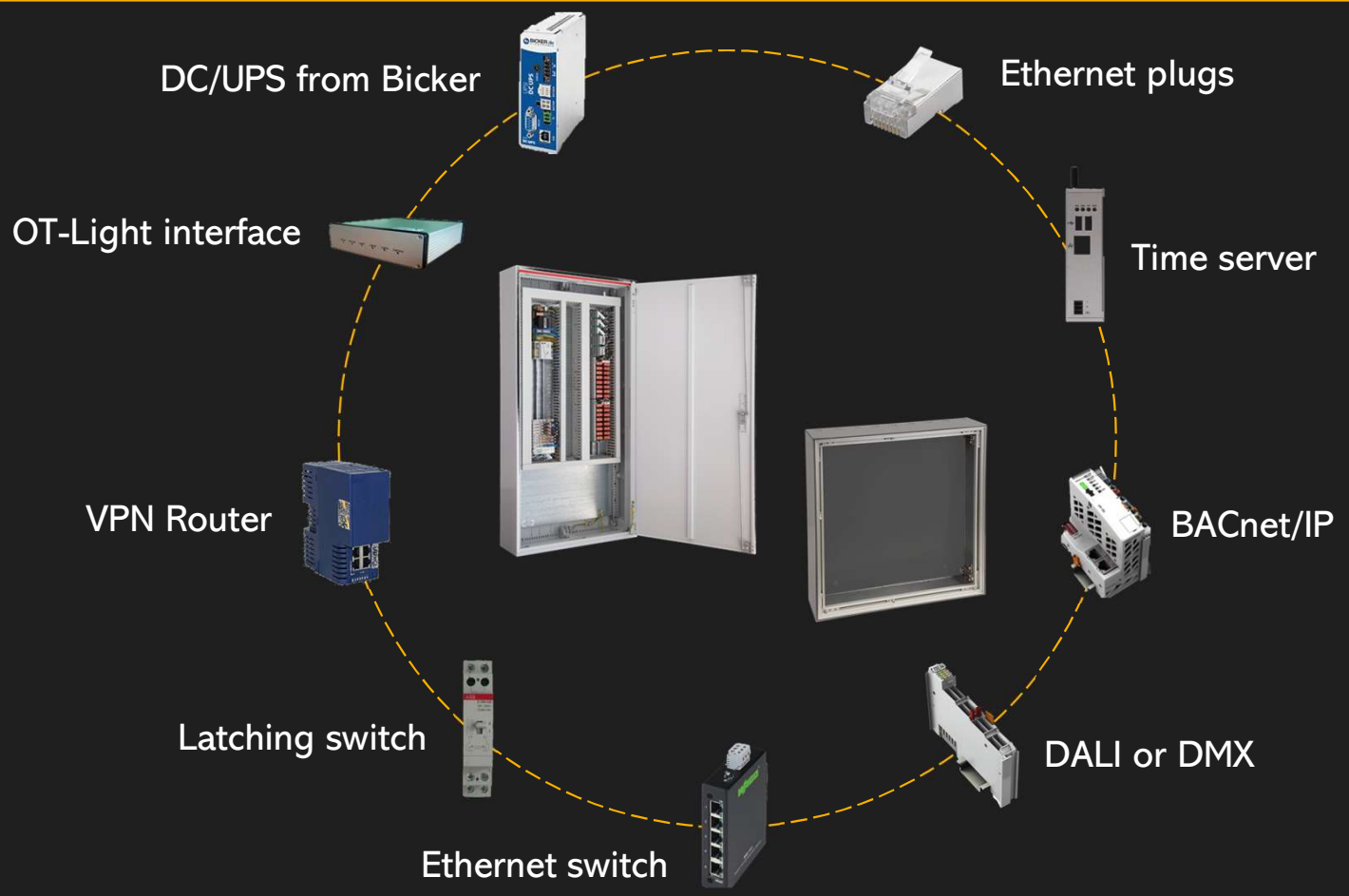


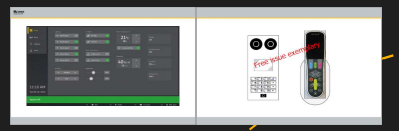
System - Project offering
based on BSKG modules

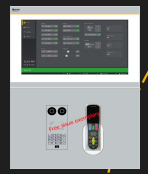
BENDER

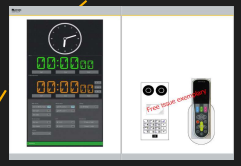
Type	Project offer always requiered	Equipment features	OPTIONS
CP907-G		▪ Color white ▪ Glass plate protruding the enclosure ▪ Anti-reflective (=matted)	▪ **Wago Ethernet plugs** ▪ **Wago Ethernet switch (including power supply wiring plus two Wago Ethernet plugs)** ▪ **Mini-UPS Bicker** ▪ **Customer-specific wiring adjustments** ▪ **Time server** ▪ **OT-light converter** ▪ … ▪ *** CP910-F also available** ▪ **** high transparent foil possible** ▪ ***** matted foil possible** ▪ **G = Glass** ▪ **F = Foil** ▪ **H = Hybrid**
CP915-G		▪ Color white/grey ▪ Glass plate protruding the enclosure or Bezel frame or Plaster frame ▪ Anti-reflective (=matted)	
CP924-G		▪ Color white/grey ▪ Glass plate protruding the enclosure or Bezel frame or Plaster frame ▪ Anti-reflective (=matted)	
CP915-H		▪ Color white/grey ▪ Foil part matted** ▪ Bezel frame or Plaster frame ▪ **3rd Party devices**	
CP924-H		▪ Color white/grey ▪ Foil part matted** ▪ Bezel frame or Plaster frame ▪ **3rd Party devices**	
CP921-F*		▪ Color white/grey ▪ Foil high transparent*** ▪ Bezel frame or Plaster frame or Surface mounted ▪ **3rd Party devices**	

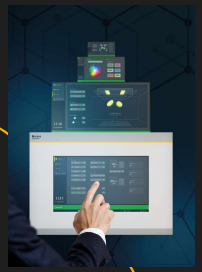
Hybrid Control Panels - explained

- All orientations
- 15,6" or 24” display



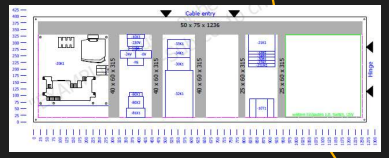




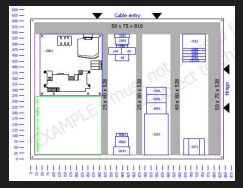


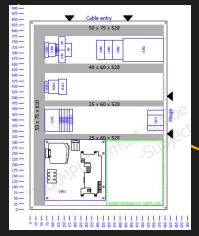
- Visualization design and functionality
- Individual alarm texts

System integration (addressing)



Individual wiring on request

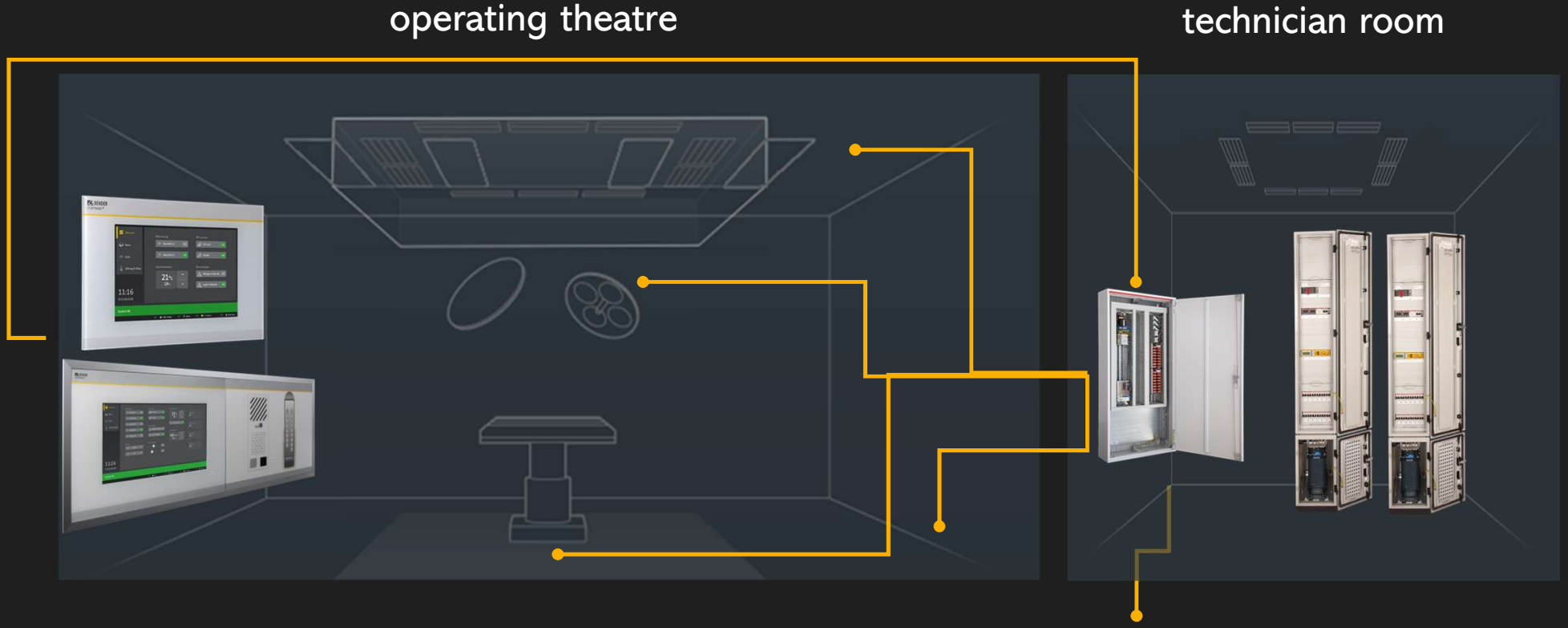




3rd party devices build in

Control Wallbox
PLC inside

BENDER



WHY?
Advantages, reasons, use cases

Having the whole installation outside the OT in a separate cabinet,

- easy access for service technicians.
- Higher flexibility for later modifications for example additionally devices or functions.
- The OT can be used for operations even if the technicians do troubleshoot (1st fault) or do regular maintenance.
  Beneficial for the technician is he do not have to prepare himself to enter the OT. (change clothes, disinfection)

Control Cabinet Panel - Performance Level

Challenge - idea

BENDER SOLUTIONS

BENDER

BENDER Group Member
Representant

- Price
- Local standards
- individual expectations

Customer

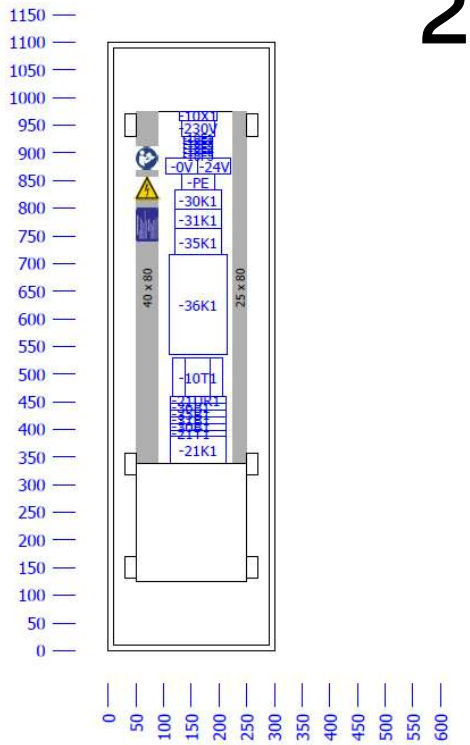
Requirements

CP9xx - Enabler Concept

Overview Performance Level

Technical specification, mechanical structure, main system components and diagram included

1



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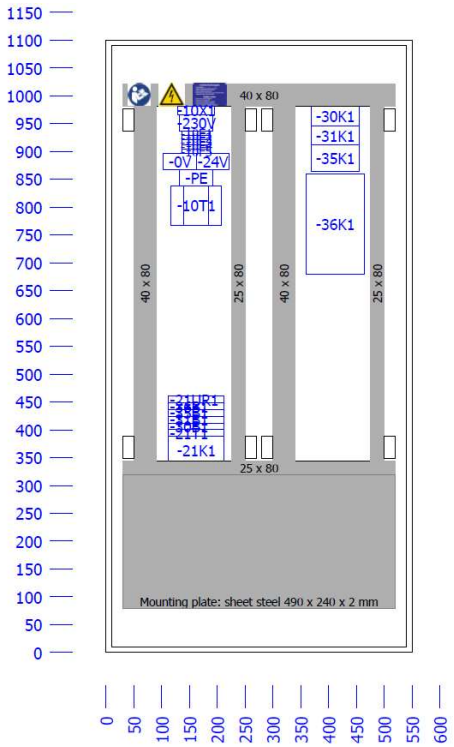


4

All dimensions in mm

Choose your Performance Level

Type	Equipment features	OPTIONS + …€
Performance Level 1 B22100132	• one-field-wide wall cabinet WxHxD **330x1100x160** • **4** analog inputs and **4** analog outputs • **16** digital inputs and **16** digital outputs • Mounting plate approx. **200x200** for third party products	• two Wago Ethernet plugs • Wago Ethernet Switch (including power supply wiring plus two Wago Ethernet plugs) • Mini-UPS Bicker • Customer-specific wiring adjustments
Performance Level 2 B22100133	• two-field-wide wall cabinet WxHxD **550x1100x160** • **4** analog inputs and **4** analog outputs • **16** digital inputs and **16** digital outputs • Mounting plate approx. **300x490** for third party products	
Performance Level 3 B22100134	• two-field-wide wall cabinet WxHxD **550x1100x160** • **4** analog inputs and **4** analog outputs • **16** digital inputs and **16** digital outputs • **4** potential-free digital inputs • Mounting plate approx. **300x490** for third party products	
Performance Level 4 B22100135	• two-field-wide wall cabinet WxHxD **550x1100x160** • **4** analog inputs and **4** analog outputs • **32** digital inputs and **32** digital outputs • **4** potential-free digital inputs • Mounting plate approx. **300x490** for third party products	

! individually cabinet manufacturing possible, but always requires a separate offer !

Add the additional requirements of the customer!

Control Cabinet Panel - Performance Level

Level 1
Cabinet
(330x1100x160)

Mounting plate
(200x200)

Dig. IN/OUT: 16/16
Analog. IN/OUT: 4/4

Level 4
Cabinet
(550x1100x160)

Mounting plate
(300x490)

Dig. IN/OUT: 32/32
Analog. IN/OUT: 4/4
+ 4 potential free Dig IN

Options

	**Ethernet switch**
	DC/UPS from Bicker
	Ethernet plugs
	Wiring adjustments

Options are additional they will be integrated on request

Challenge - idea

BENDER SOLUTIONS

BENDER

BENDER Group Member Representant

- Price
- Local standards
- individual expectations

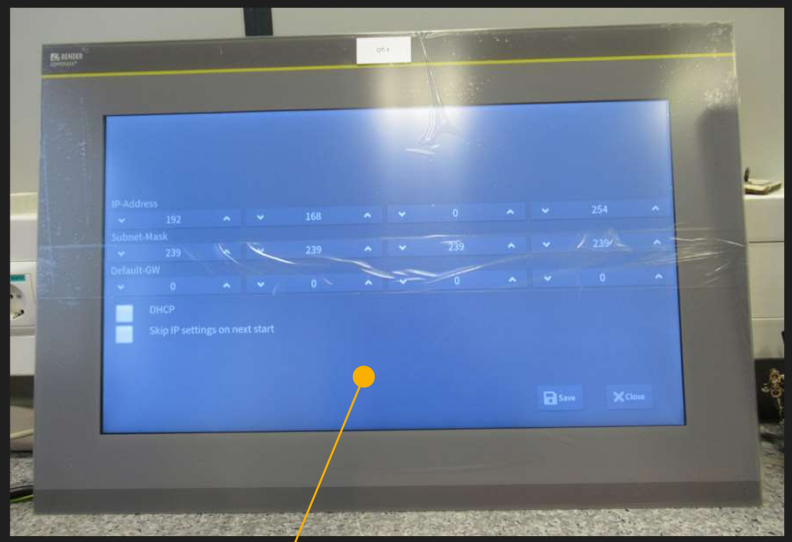
Customer

Requirements

Control Panel 9xx-Glass

Scope of delivery

Display unit



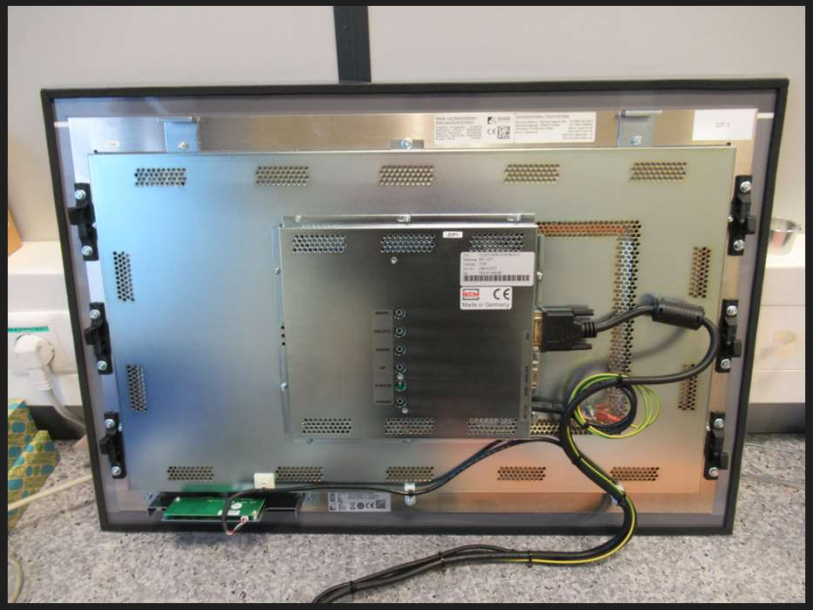
Selectable display size

Flush-mounting enclosure

Display mounting assistant hooks

Scope of delivery

Connecting cable and plug connector kit



Mounting plate with electronics

Scope of delivery

CP924

The suction lifter is needed to remove the display (B95061911)

What does it mean?

Conclusion, how is the BGM or Rep now enabled

Challenge - idea

Control cabinet panel		
Performance Level	Options	
1	A	B
	C	D
2	A	B
	C	D
3	A	B
	C	D
4	A	B
	C	D

CP924
CP915
CP907

BENDER SOLUTIONS

BENDER

BENDER Group Member Representant

- Price
- Local standards
- individual expectations

Customer

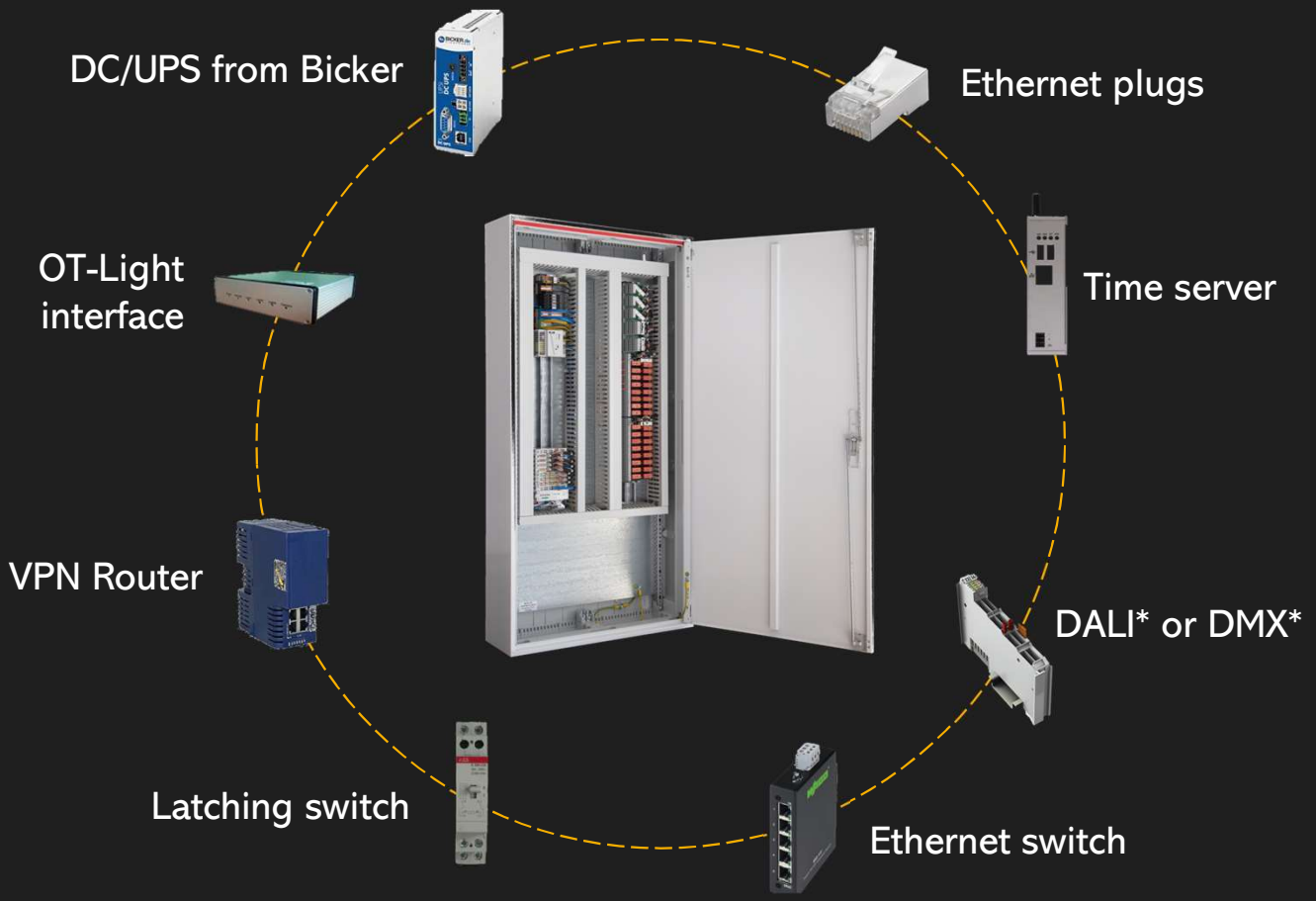
Requirements

You are the key
to creating a 100% solution out of the enabler products

Bender Solution delivers the control cabinet with the required performance level this enables you to use it as basis for …

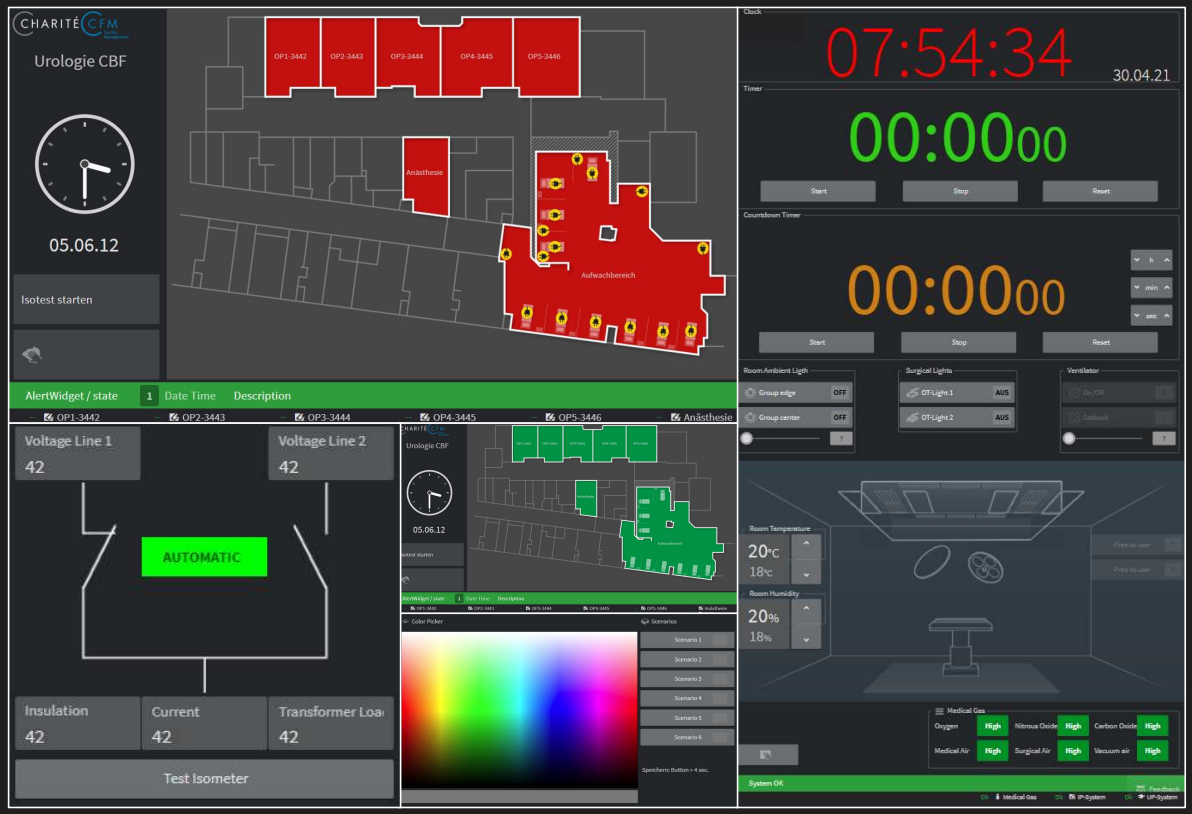
- You have the possibility to use the mounting space for
  - Integration of additional devices
    - Mounting
    - Wiring
  - Implementation of PLC incl.
    - Codesys programming
    - Modbus TCP/RTU

* WAGO controller is required and can be offered on request. Otherwise, with the included WAGO field coupler no Codesys programming possible.



commissioning and visualization

- If help is needed with commissioning or visualization, this can be purchased separately.



commissioning and visualization

CP9xx Product training by BKG

- Basic addressing BCOM
- First start up , Settings, Start a project
- editor start project, meet the Widgets, Exercises

Training set up

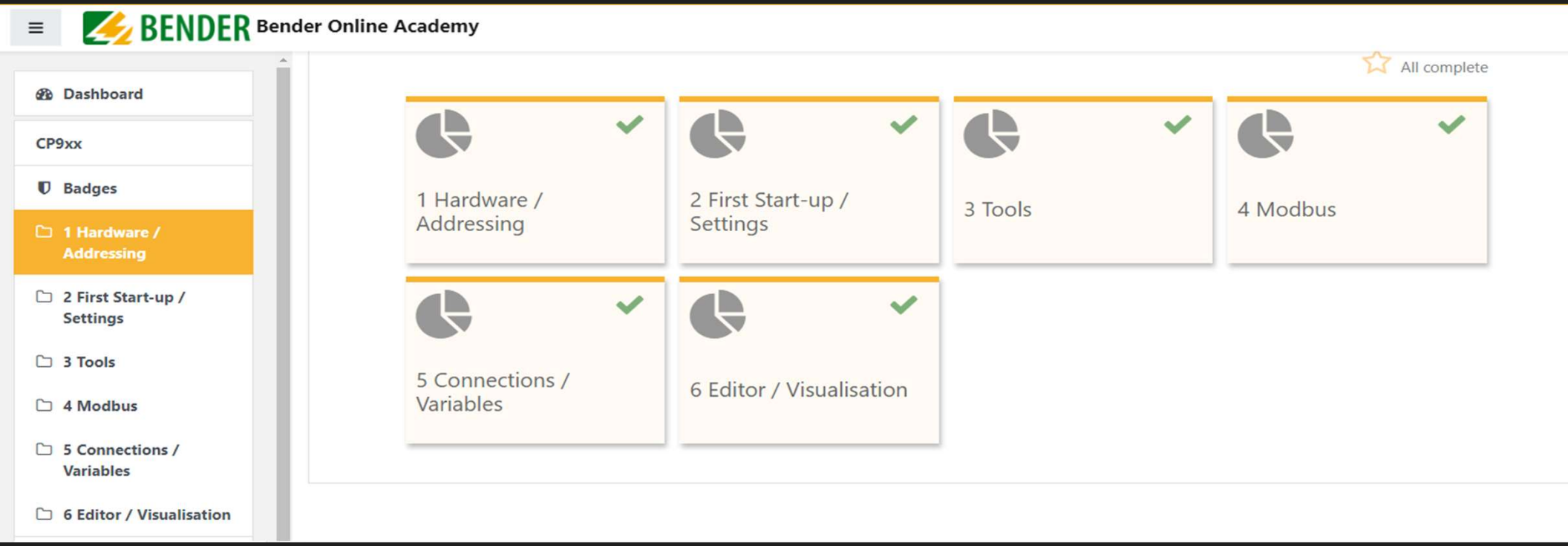
Project Support by BSKG

- Estimated cost for project support for Xh ~ According to offer XXX€ as option.

Support order number
B22000006

- As backup for the first projects
- Let BSKG create a master visualization for you
- Use BSKG know-how as a reliable source in case of troubleshooting

Bender Academy BU-H Training



https://academy.bender.de/login/index.php

CP9xx
Enabler Concept – Take away massage

- The Control Panel of the preferred **Display Size** in combination with the required Control Panel Cabinet **Performance Level** are the hardware basis for your hospital project.
- These are the products which enable you to provide a customized solution:
- The solution out of one hand from the customer network diagram to designing individual visualizations and finally the system installation and commissioning.

In case that you prefer to purchase the whole solution package from Bender then the preference types are the right choice for you.

Control Panel 9er series - Customer required solutions

- Example of a 42 “display with glass front and individual housing.
- Whether functionality or design - almost everything is possible Display size, control of devices or system integration.
- The COMTRAXX® CP9xx is therefore the future solution for your hospital.

Thank you for your attention

René Bülow

rene.buelow@bender.de