UNIMA-KS

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Specification of display unit

UCD10 AP

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HW V1

1. Operating Conditions

To enjoy the faultless operation of display unit (DJ) is necessary to observe the fundamental operating conditions which are defined in the following sections:
a) Proper connecting of Input/Output connectors
b) CU-power supply which meets the allowed tolerances
c) Observance of the operating temperature in surroundings of up to 60°C

2. Using

DU contains the Win10 operating system, it is designed for visualization and control of control systems and other UNIMA-KS devices.

DU serves primarily as a display unit for control systems without a display (UniGEN or MicroGEN control systems without a display, intended for mounting in a DIN rail in a switchboard). In this configuration, not all signals for the control system have to be fed to the cabinet door, but only communication and power supply for the control panel. DU also has binary inputs and outputs, so some controls and indicators on the cabinet door can be controlled by data via DU.

Data for visualization can be read from all UNIMA-KS devices using the RS-485 UnimaBUS bus. The CAN bus or RS-232 interface can be used to read data from third-party components (any Win10-compatible application can be installed).
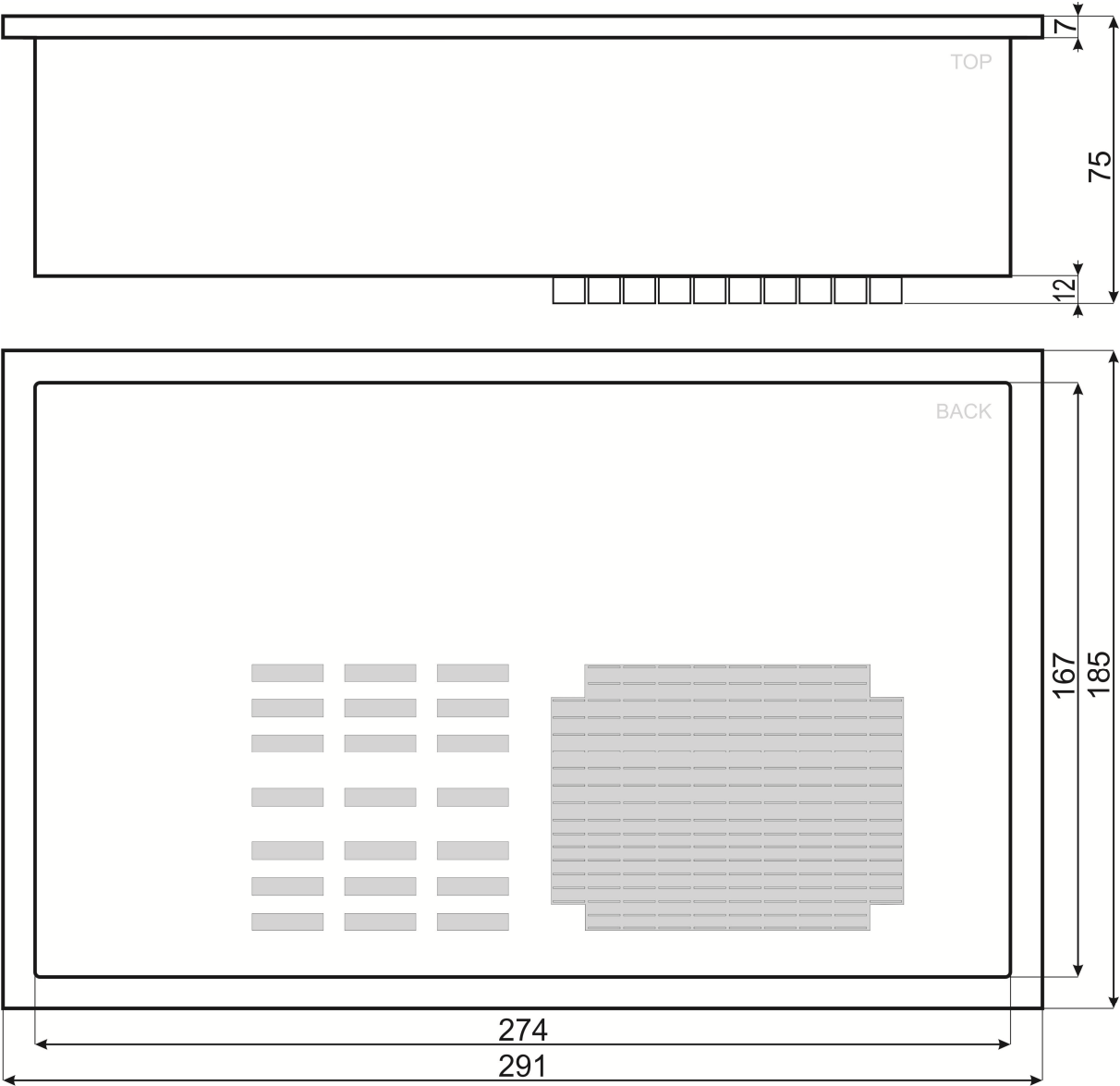
As in UNIMA-KS control systems and other devices, simple algorithms for controlling DU inputs and outputs can be created using user-definable functions (gates, flip-flops, analog elements, PID controllers, three-way valve control blocks, etc.) (see documentation „ ManagerAP mapping and functions ").

Using the communication bus, the control system, input and output expansion modules, USC speed controller, UIS voltage controller, UIS1 ÷ 4 ignition can be connected to the control panel. All these components can be parameterized using the "ManagerAP" service program using the DU. For visualization and control (for example of cogeneration units) the program "TerminalAP" is used, specially adapted for convenient control of the set from the touch screen.

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3.   Mechanical Design

DU is placed in a separate metal box with dimensions 291x185mm, height 75mm. Weight 2.0kg. The size of the mounting hole is 168x275. Connectors for connecting all signals are located on the bottom and top side of the unit.
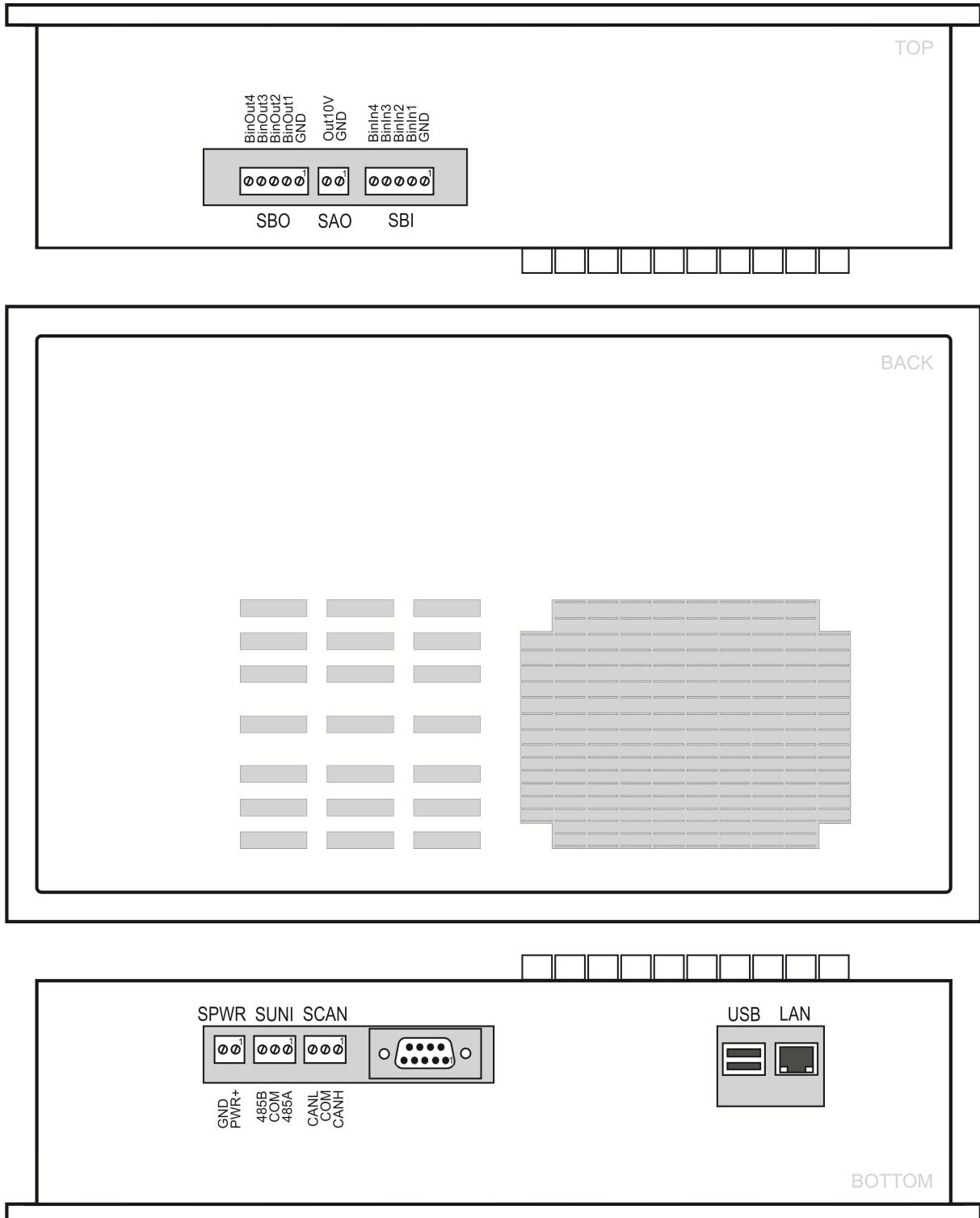
The front panel of the DU contains a "Power" button and a 10" color touch screen with a resolution of 1280x800 pixels.

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4.   Electrical Design

DU has PA256 connectors (pitch 5.08), CANNON connector (RS-232), Ethernet socket and two USB sockets for communication and connection of inputs and outputs. DU is powered by DC voltage 10 ÷ 33V or AC voltage 8 ÷ 24V.

Connector layout:

4.1 Connector SAO (analog output)

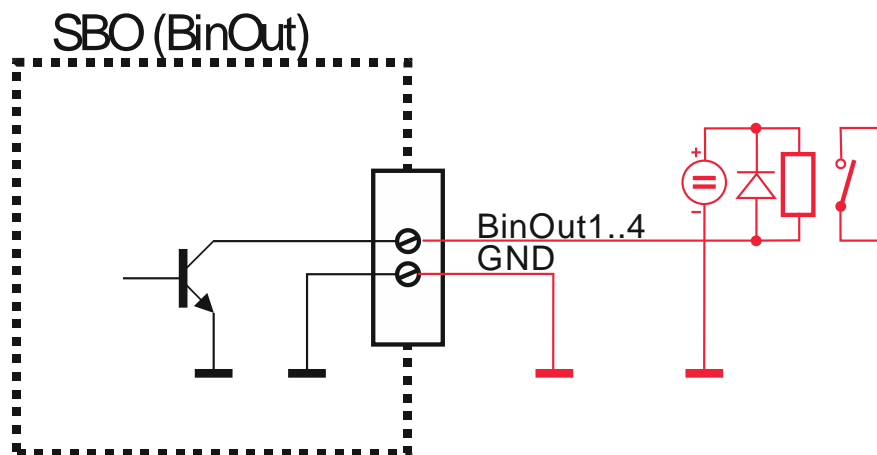| Pin	Name	Description
SAO.1	AnlOut10V	10V precision voltage reference source
SAO.2	GND	

Connector span: 5,08mm
Max. conductor cross-sect.:   2,5mm^2
El. Parameters of output :   Max.current 500mA

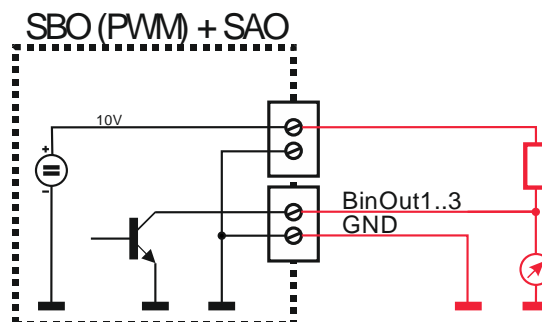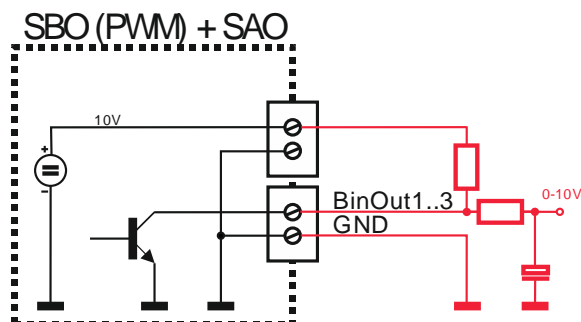## 4.2 Connector SBO (open collectors binary outputs)

Pin	Name	Description
SBO.1	GND	Common contact
SBO.2	BinOut1 (PWM A)	Configurable physical binary outputs. Binary outputs
SBO.3	BinOut2 (PWM B)	1-3 can be used to generate a PWM signal (together
SBO.4	BinOut3 (PWM C)	with the reference voltage on the SAO, it is possible
SBO.5	BinOut4	to generate 3x voltage 0-10V for example for an analog indicators)

Connector span: 5,84mm
Max. conductor cross-sect.:   2,5mm^2
El. Parameters of output :   Open collector 500mA/60V DC

Spare internal wiring diagram:

Use of binary output in PWM mode to generate 0-10V analog voltage or an analog indicator:
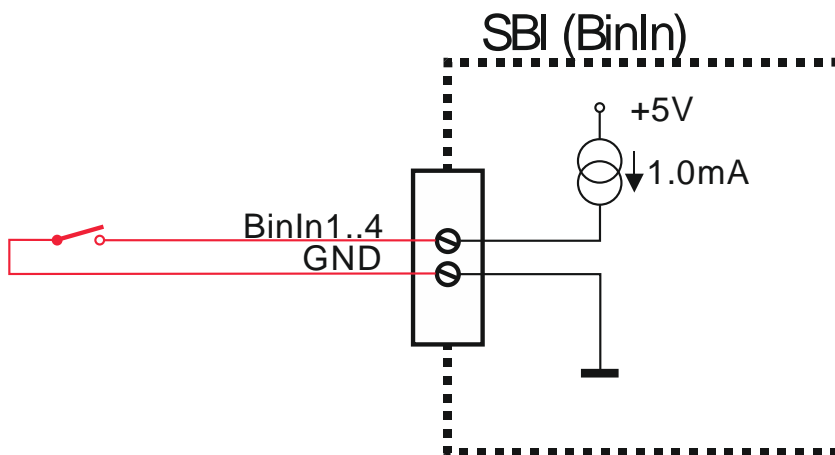
4.3 Connector SBI (binry inputs)

Pin	Name	Description
SBI.1	GND	Common contact
SBI.2	BinIn1	Configurable physical binary inputs
SBI.3	BinIn2	
SBI.4	BinIn3	
SBI.5	BinIn4	

Connector span: 5,08mm
Max. conductor cross-sect.: $2,5mm^2$
El. Parameters of output :   - Uout =5V output voltage
- Uext =+/- 50V max. ext.voltage which does not damage input

Spare internal wiring diagram:
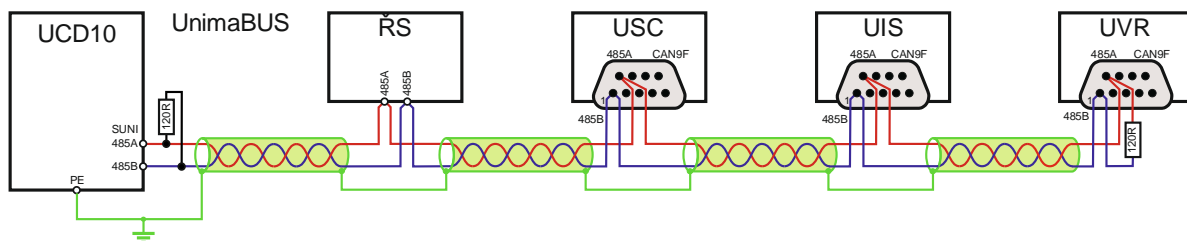
4.4 Connector SCAN (CAN communication)

Pin	Name	Description
SCAN.1	CANH	Communication interface CAN
SCAN.2	COM	
SCAN.3	CANL	

Connector span: 5,08mm

Max. conductor cross-sect.: 2,5mm^2

4.5 Connector SUNI (RS-485 UnimaBUS communication)

Pin	Name	Description
SUNI.1	485A	RS-485 communication interface (COM2) for connection
SUNI.2	COM	of UNIMA-KS devices (control system, USC speed
SUNI.3	485B	controller, UIS ignition, UVR voltage controller, expansion modules, etc.)

Connector span: 5,08mm

Max. conductor cross-sect.: 2,5mm^2

4.6 Connector CANNON (RS-232)

Pin	Name	Description
2	RxD	Communication interface RS-232 (COM1)
3	TxD	
5	GND	

4.7 Connector SPWR (power)

Pin	Name	Description
SPWR.1	PWR	Power supply 10÷33V DC or 8÷24V AC
SPWR.2	GND	

Connector span: 5,08mm

Max. conductor cross-sect.: 2,5mm^2

5. Terminal AP

The ManagerAP service program can be started on the DU. However, the TerminalAP program, adapted for convenient touch control, is used for basic visualization and control of the set (SW for the operator). The program has a basic configurable screen for data visualization (as well as the Monitor window in ManagerAP) and also contains a screen with graphs and history.