



Datasheet: WC status indicator

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Description	WC status indicator (Display 4 in 1)
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WC status display

The toilet status display is used to show informations to the passenger inside passenger railway trains especially to show the state of a toilet cabin. The pictograms can be customer specific but need to be confirmed from manufacturer side. The status display should be assembled into the wall. The display unit depth is very low therefore mounting into a sandwich wall assembly is possible. In front of the wall the display will have a profile depth of only 5mm.

Technical changes reserved!

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1 Document version history

Date	Version	Type of Change	Author
15.06.2017	1.0	Initial creation	K. Schrank
22.10.2017	1.1	Pictograms updated	k. Schrank

2 Description

The toilet status display is used to show informations to the passenger inside passenger railway trains especially to show the state of a toilet cabin. The pictograms can be customer specific but need to be confirmed from manufacturer side. The status display should be assembled into the wall. The display unit depth is very low therefore mounting into a sandwich wall assembly is possible. In front of the wall the display will have a profile depth of only 5mm.

3 Technical data

- Power supply: 24VDC +25% -30%
- Power consumption: typ. 1,2W, max. 1,9W
- 3 digital inputs (24V) to select the appropriate pictogram
- Minimum voltage at high signal for inputs IN1, IN2, IN3: 14Vdc
- Maximum voltage at high signal for inputs IN1, IN2, IN3: 30Vdc
- Maximum voltage at low signal for inputs IN1, IN2, IN3: 5Vdc
- Minimum voltage at low signal for inputs IN1, IN2, IN3*: 18k Ω ;
- *) $U_{IN3} \leq$ Supply voltage
- Service interface: CAN
- Display:
 - Full colour-TFT LCD to show a maximum of 4 pictograms in 65k colour depth
 - 3,5" TFT / resolution 240x320 /active area 52,56 x 70,08mm
 - Viewing angle: typ. 50...60° (CR>10), max. brightness: typ. 800 cd/m² (automatically adjusted by ambient illumination level)
 - Operating temperature range -20...70°C
 - Storage temperature range -30...80°C
- Weight : 180g

4 Relevant standards

The hardware is designed according to the following standards:

EN 50155	Electronic equipment used on rolling stock
EN 50121 - 3 - 2	Railway applications - Electromagnetic compatibility Part 3-2: Rolling stock - Apparatus
DIN 5510	Preventive fire protection in railway vehicles
EN45545-2	Fire protection on railway vehicles - Part 2: Requirements for fire behaviour of materials and components

5 Electrical interface

5.1 Pin assignment

Male connector: 1x8-pin connector plug WAGO 2734-108/037-000

Female connector: 1x8-pin socket WAGO 734-138 (included)

Pin assignment (connector plug):

Pin/Row1	Function	Description
1	CAN L	Service
2	CAN H	Service
3	IN 1	Digital In 1, Pictogram
4	IN 2	Digital In 2, Pictogram
5	+24V	Power
6	GND	Power, internally connected to Pin13/14
7	GND	Power, internally connected to Pin11/12
8	IN 3	Digital In fire-warning / also Power supply

By using the second row, it is possible to connect several displays in serial. The pin assignment is equal to the first row.

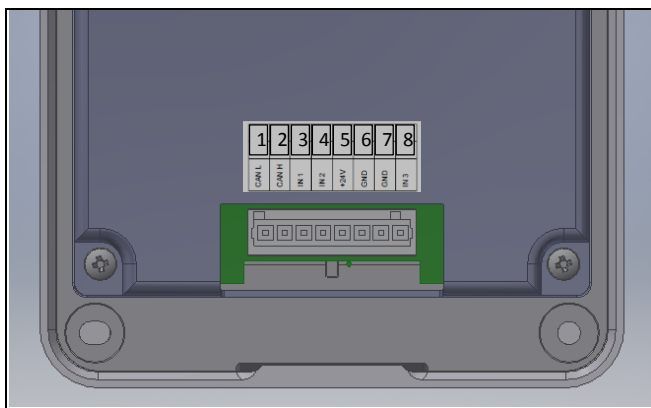


Fig. 1: Pin assignment

5.2 Invocation of the pictograms

There can be up to 4 pictograms stored inside the display memory. The pictograms can be invoked in the following way (Pins 1 to 4 are not shown):

IN 1	IN 2	+24V	GND	IN 3	Pictogram	Colour
(Pin3)	(Pin4)	(Pin5)	(Pin6/7)	(Pin8)		
open / 0V	open / 0V	24V	0V	open / 0V	-	black
24V	open / 0V	24V	0V	open / 0V	<i>WC free</i>	green, permanent
open / 0V	24V	24V	0V	open / 0V	<i>WC occupied</i>	red, permanent
24V	24V	24V	0V	open / 0V	<i>WC out of order</i>	red, permanent
X	X	X	0V	24V	<i>SOS Signal</i>	red, permanent

(X: without influence)

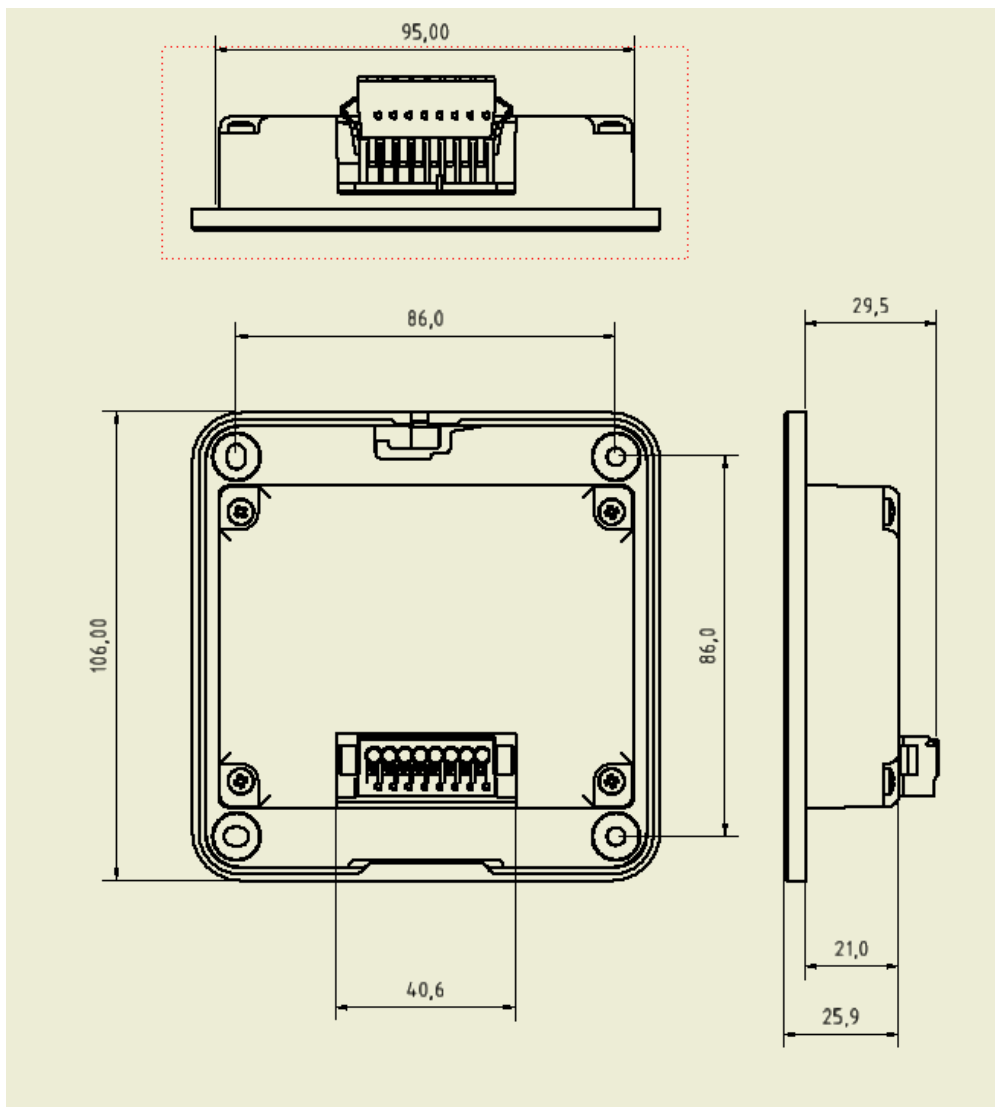
The signal IN3 creates independently from other input signals and without additional power supply on PIN8 the warning pictogram.

Remark: Toggling of display symbols can be done by toggling input signals on IN1 or IN2.

6 Mechanical description

6.1 Dimensions

- Front cover aluminium eloxed
- Hidden (invisible) mounting
- Display cover transparent plastic
- Mounting depth ca.22,5mm
- Mounting height from wall surface ca. 5mm

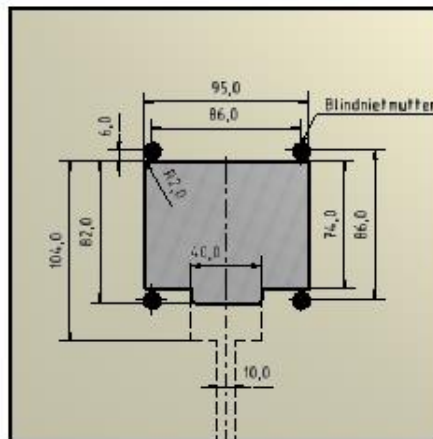


6.2 Installation

6.2.1 Installation recommendation

The fixation of the display should be done in a mounting hole (image below). The mounting plate is 1mm thick. The screwing connection should be done by 4 blind rivets.

Mounting hole



After connecting the electrical connector put the display into the mounting hole and screw it by using standard raised countersunk head screws M4x8 (included). Finally push the front cover on the display until it locks hearable.

6.2.2 Unmounting

On the upper side of the front cover you'll find a small hole. By using a tiny screwdriver you can push the mechanism to unlock and remove the cover.

7 Pictograms

There can be stored up to 4 pictograms to show different states of the toilet cabin. These pictograms can be customer specific. See some example as follows.

Toilet occupied



Toilet free



Toilet out of order



SOS

