

EE 8000



2-Wire Industrial Station Series 8000

The industrial stations are made of extremely rugged polyester reinforced with fibreglass in high-visibility bright orange (RAL 2004). The housing has additional shock absorber trim on each side. Large buttons enable operation with protective gloves. Buttons with two-colour LEDs (red, green - steady or blinking) can be used for status indication (inputs, outputs, conversations, call requests,

etc.). All buttons of the stations are fully programmable or can be assigned to predefined functions. Connection possibility for a handset. Two relays on the base PCB can be assigned with various functions. The DSP-technology enables additional functions, such as e.g. OpenDuplex®, Loudspeaker- / Microphone Surveillance or Audio Monitoring. Future functions can easily be added via software update.

1. EE 8158M

Industrial master station with 6 programmable LED direct dialling buttons, integrated loudspeaker, universal microphone and 2 programmable LED buttons. The DSP provides the possibility, to use a single microphone with omnidirectional and noise-cancelling characteristics. Button labels, for description of the direct dialling button functions, are included.

2. EE 8148M

Industrial master station with 6 programmable direct dialling buttons, integrated loudspeaker, universal microphone and 2 programmable LED buttons. The DSP provides the possibility, to use a single microphone with omnidirectional and noise-cancelling characteristics. Button labels, for description of the direct dialling button functions, are included.

3. EE 8238M

Industrial master station with a programmable full keypad, universal microphone, and 2 programmable LED buttons. The DSP provides the possibility, to use a single microphone with omnidirectional and noise-cancelling characteristics. External loudspeaker required.

4. EE 81ADMSOS

Industrial sub-station with "SOS" print, integrated loudspeaker, universal microphone, LED button and a large red mushroom button with "SOS" print. Both buttons can be programmed to various functions. The DSP provides the possibility, to use a single microphone with omnidirectional and noise-cancelling characteristics. Without lateral expansion openings.



Technical Data – Benefits

TECHNICAL DATA

IP rating:	IP 65, resistant against: all acids, light lyes, ultra violet radiation
Fire proof:	V0 according to UL
Keyboard:	Industrial push-buttons with micro-switch
Housing:	Polyester reinforced with fibre glass
Microphone:	Universal microphone, microphone sensitivity configurable from -21 to +12 dB
Loudspeaker:	Special membrane type for optimal sound quality, sound pressure: 92 dB/1 W/1 m (3.3 ft)/1 kHz
External loudspeaker:	8 or 16 Ohm
Amplifier:	class "D" amplifier, Output power: 25 W speech power, maximum load: 8 Ohm
Inputs:	2 inputs for floating contacts
Outputs:	2 floating relay contacts, max. switching capacity: 30 V, max. switching current: 3 A,
Frequency range:	200 – 7,000 Hz
Operating temperature range:	-20° C to +70° C (-4° F to 158° F)
Storage temperature range:	-30° C to +90° C (-22° F to 194° F)
Relative humidity:	up to 95 %
Plug:	plugable screw terminals
Cabling:	star feed, 2 wires, twisted pair + power supply
Power supply:	24 – 42 VAC / 40 VA or 22 – 60 VDC / 40 W
Signalling:	2B + D (2 x 64 kBit/s speech, 16 kBit/s data)
Measurements:	see "MEASUREMENTS" on page 9
Weight incl. package:	depends on the type Basic housing without modules: about 2,300 g (5.1 lbs)
Colour:	Orange (RAL 2004)

SYSTEM REQUIREMENTS

GE 200: min. Pro 05.7 build 15 with G2-GED-4 (all software versions)
 GE 700: min. Pro 05.7 build 15 with G7-GED-4 (min. software V02.2)
 Programming software min. CCT 5.7 build 12

BENEFITS

- Digital 2-wire technology
- Crystal clear speech quality
- 25 W speech power
- Volume level adjustable according to noise
- Adjustable microphone sensitivity
- Rugged construction – IP 65 rated
- Housing reinforced with fibreglass
- Buttons with two-colour LEDs
- Supports DSP functions like OpenDuplex®, Audio Monitoring, Loudspeaker-/Microphone Surveillance, etc.
- Connection possibility for handset

EXTENT OF SUPPLY

1 industrial station including:

- PG13.5-thread cable glands and gaskets
- Short reference and CD
- EE 8158M / EE 8148M incl. legendable button labels

LINE LENGTH

Cable type:	ø 0.5 mm	ø 0.6 mm	ø 0.8 mm
AWG:	24	22	20
F-YAY (installation cable PVC) 100 nF/km (30.5 nF/1,000 ft)	*	2,000 m 6,562 ft	2,000 m 6,562 ft
J-02YS(St)Y: Cat. 5 cable, foamed polyethylene, 45 nF/km (13.7 nF/1,000ft)	3,000 m 9,843 ft	3,000 m 9,843 ft	3,000 m 9,843 ft

*...no data, because this diameter is not available for this cable type.



Configuration of Industrial Stations

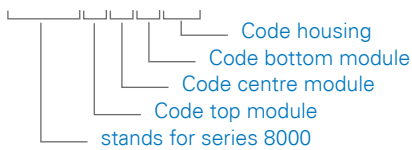
THE MODULAR CONCEPT

The modular concept of this system allows a flexible, customer specific configuration of digital heavy industrial stations. There are modules for dialling, modules with inscribable direct dialling buttons, microphone modules and a loudspeaker module.

MODULE CODE

The order code compositions consist of the following codes:

EE 8 1 5 8 M



MOUNTING

The industrial stations can be combined horizontally and vertically. A mounting kit is available (EE 8999-KIT).



BASIC AND EXPANSION HOUSINGS

One basic and two expansion housings can be combined. This way industrial stations with up to 50 freely programmable direct dialling buttons can be configured. The modules are connected to the PCB of the housing and can be combined as described in the positioning table (see "Module Positions" on page 5).

Code	Image	Description	Code
EE 8999M		Basic housing with three module slots, includes electronics, with expansion openings and covers.	M
EE 8999MSOS		Basic housing with three module slots, includes electronics, with "SOS" print on both sides (therefore no expansion openings on the sides).	MSOS
EE 8999S		Expansion housing with three module slots, includes electronics, with expansion openings and covers. Up to two expansion housings can be combined with one basic housing. The cabling, also for multiple housings, is done with only 2 wires to the central and 2 wires to the power supply. Mounting material (EE 8999-KIT) for expansion housing is available separately.	S
EDI 600	(not shown)	Basic housing with three module slots, without electronics.	E



Configuration of Industrial Stations

THE MODULES

			Code
EM 600		Dummy module to fill empty module slots or for fitting of customer specific buttons.	0
EM 6A0		Dummy module with "SOS" print to fill empty module slots.	A
EM 650		Loudspeaker module for industrial stations. The loudspeaker features high sound pressure and excellent intelligibility of speech. 15 W output power; sound pressure 92 dB/1 W/1 m/1 kHz; impedance 8 Ohm	1
EM 602		Keypad module with buttons 1 to 6 as part of a full keypad. The buttons can be programmed with various functions. Industrial push button with micro-switch.	2
EM 603		Keypad module with buttons 7 to X as part of a full keypad. The buttons can be programmed with various functions. Industrial push button with micro-switch.	3
EM 606		Keypad module with 6 direct dialling buttons that can be custom-labelled. The buttons can be programmed with various functions. For labelling of the buttons exchangeable tags are included. Industrial push button with micro-switch.	4
EM 605		Keypad module with 6 LED direct dialling buttons that can be custom-labelled. The buttons can be programmed with various functions. For labelling of the buttons exchangeable tags are included. Industrial push button with micro-switch.	5
EM 660		Microphone module with universal microphone and 2 buttons. The DSP provides the possibility, to have a single microphone working for omnidirectional and noise cancelling characteristics. The two buttons can be programmed with various functions. Button labels "L" and "X" are included in extent of supply. Microphone sensitivity adjustable in a range of 30 dB; speaking distance adjustable 3 cm to 5 m (dependent on ambient noise and microphone sensitivity adjusted); ambient noise level up to max. 95 dBA.	6
EM 680		Microphone module with universal microphone and 2 LED buttons. The DSP provides the possibility, to have a single microphone working for omnidirectional and noise cancelling characteristics. The two buttons can be programmed with various functions. Button labels "L" and "X" are included in extent of supply. Microphone sensitivity adjustable in a range of 30 dB; speaking distance adjustable 3 cm to 5 m (dependent on ambient noise and microphone sensitivity adjusted); ambient noise level up to max. 95 dBA.	8
EM 681		Microphone module with universal microphone, 1 LED button and 1 big red mushroom button with "SOS" print. The two buttons can be programmed with various functions. The DSP provides the possibility, to have a single microphone working for omnidirectional and noise cancelling characteristics. Button labels "L" and "X" are included in extent of supply. Microphone sensitivity adjustable in a range of 30 dB; speaking distance adjustable 3 cm to 5 m (dependent on ambient noise and microphone sensitivity adjusted); ambient noise level up to max. 95 dBA.	D
EM 6B0		Microphone module with universal microphone, white conversation lamp and big red mushroom button with "SOS" print. The DSP provides the possibility, to have a single microphone working for omnidirectional and noise cancelling characteristics. The button can be programmed with various functions. Microphone sensitivity adjustable in a range of 30 dB; speaking distance adjustable 3 cm to 5 m (dependent on ambient noise and microphone sensitivity adjusted); ambient noise level up to max. 95 dBA.	B



Configuration of Industrial Stations

MODULE POSITIONS

✓ Module can be used in all three module places.

✗ Module can not be used.

(1) Not possible in combination with microphone modules EM 660, EM 6B0.

Code	Type	Description	EE 8999M	EE 8999S	EDI 600
0	EM 600	 Dummy module	✓	✓	✓
1	EM 650	 Loudspeaker module	only top	yes (connected to EE 8999M)	yes (connected to EE 8999M)
2	EM 602	 Module with buttons 1 – 6	✓	✓	✗
3	EM 603	 Module with buttons 7 – X	✓	✓	✗
4	EM 606	 Direct dialling module with 6 buttons	✓	✓	✗
5	EM 605	 Direct dialling module with 6 LED buttons	✓ (1)	✓ (1)	✗
6	EM 660	 Microphone module with universal microphone and 2 buttons	only bottom	✗	✗
8	EM 680	 Microphone module with universal microphone and 2 LED buttons	only bottom	✗	✗
D	EM 681	 Microphone module with universal microphone, 1 LED button and "SOS" mushroom button	only bottom	✗	✗
A	EM 6A0	 Dummy module "SOS"	✓	✓	✓
B	EM 6B0	 Microphone module with universal microphone, conversation lamp and "SOS" mushroom button	only bottom	✗	✗



Installation

PRECAUTIONS

- With 60 VDC power supply the precautions for handling with 60 V direct current must be observed!
- When opening the stations ESD precautions must be observed.
- The stations may only be opened by authorised service engineers.

POWER SUPPLY

- 24 – 42 VAC connection to the terminals “PWR1” and “PWR2”:
- 22 – 60 VDC connection to the terminals “PWR1” and “PWR2”:
Attention: The precautions for handling with 60 V direct current have to be observed!
- Power consumption max. 40 VA (40 W)

MOUNTING INSTRUCTIONS

- Do not expose the station to extreme temperature (below -20°C or above $+70^{\circ}\text{C}$ / -4°F to 158°F).

Recommended Mounting height:

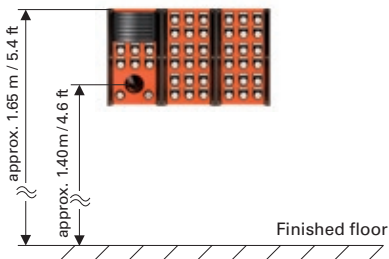
Regardless if a single industrial station or a combination of stations in vertical or horizontal order is used:

The station(s) shall be mounted in a way, that the microphone is about 1.40 m (4.6 ft) above the floor. Please adapt the mounting height to the individual needs.

Horizontal Combination of Stations and/or Single Station

The upper edge of the station(s) about 1.65 m (5.4 ft) from the finished floor:

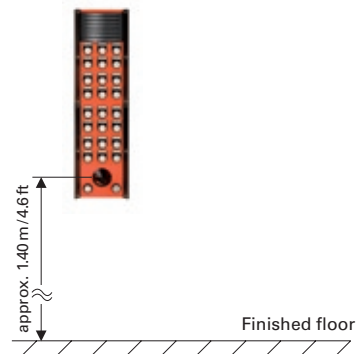
The microphone thus is about 1.40 m (4.6 ft) above the floor.



Vertical Combination of Stations

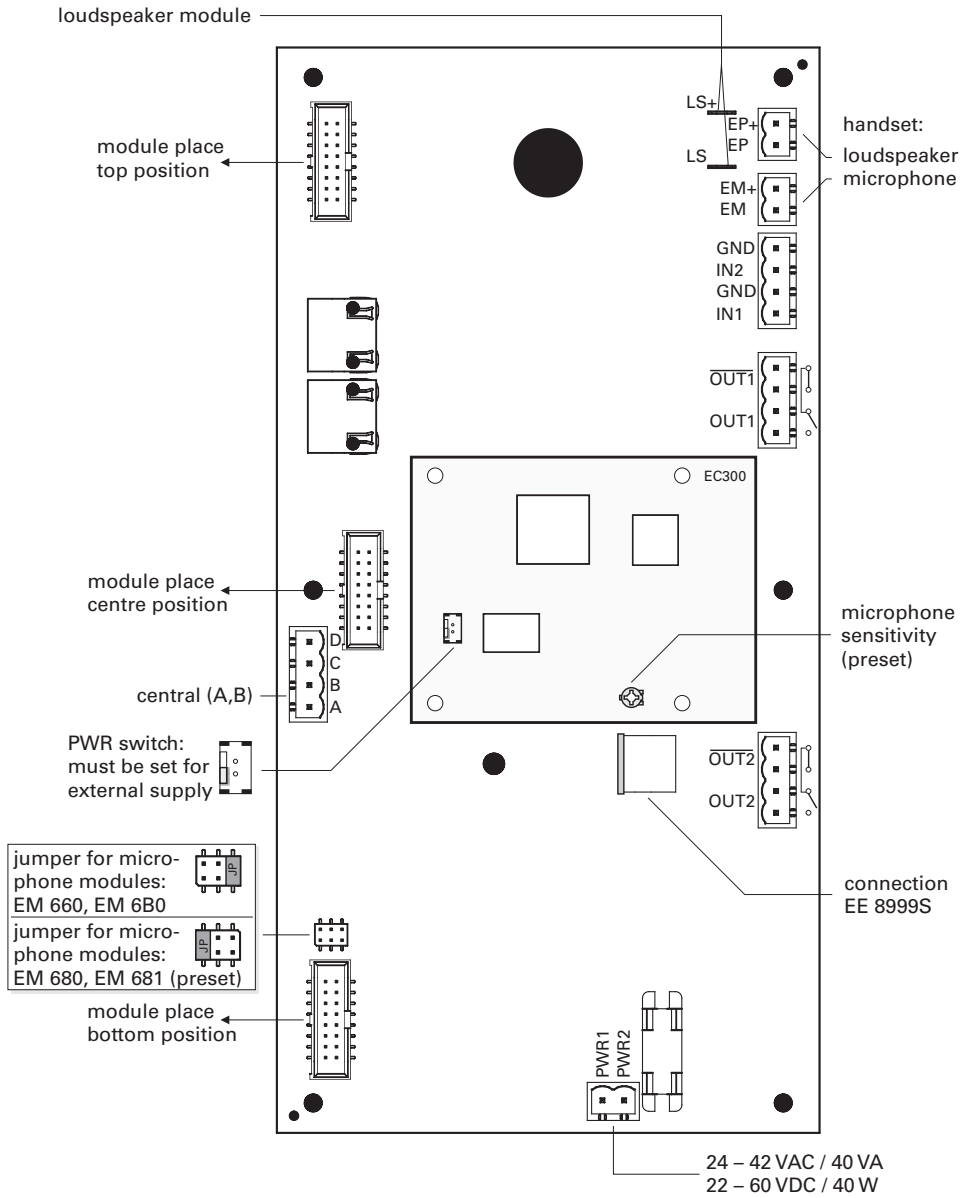
Regardless if a combination of 2 or 3 stations is used:

The microphone shall be located about 1.40 m (4.6 ft) above the floor.



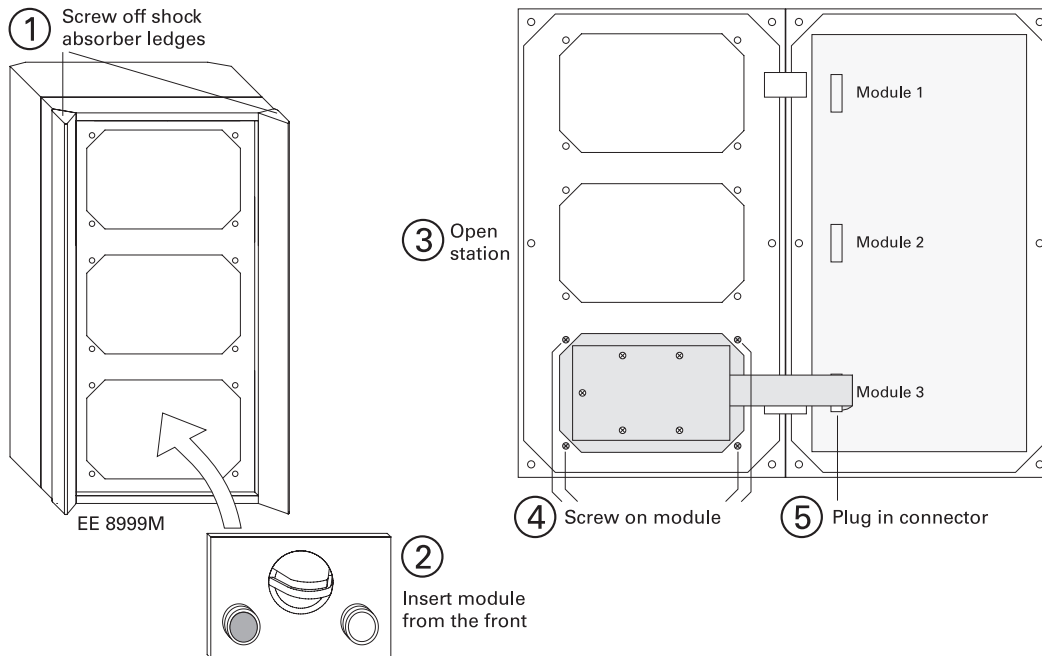
Installation

CONNECTION DIAGRAM EE 8999M



Installation

MOUNTING OF THE MODULES

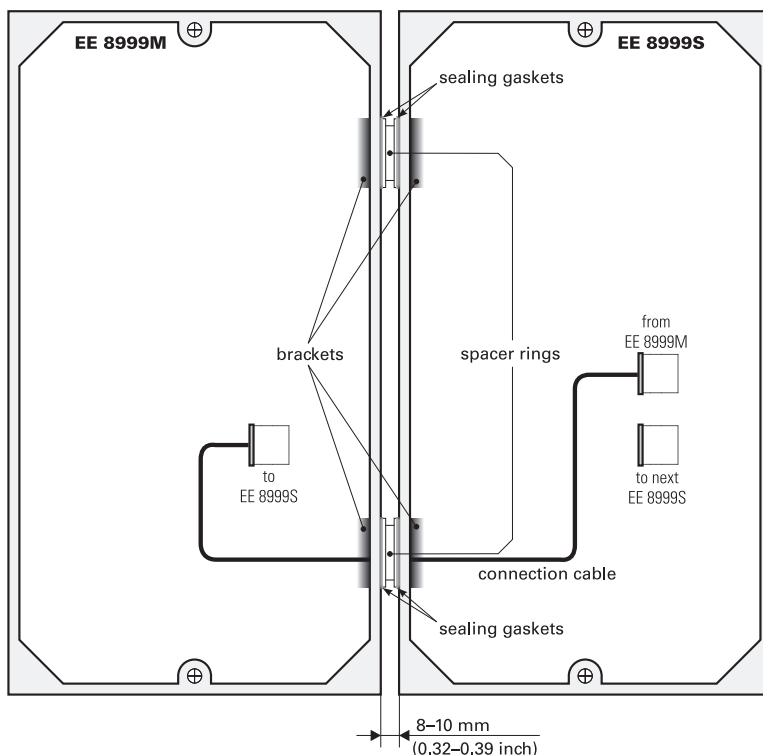


MOUNTING EE 8999M AND EE 8999S

For the mounting of an EE 8999S to an EE 8999M and/or of a 2nd EE 8999S to the 1st EE 8999S, the mounting material EE 8999-KIT is used:

- 2 spacer rings / 4 brackets / 4 sealing gaskets / 2 dummy plugs incl. gaskets (for covering of unused openings of the housing)

Mounting example (horizontal order):



Horizontal order

- Space between EE 8999S and EE 8999M: 8–10 mm (0.32–0.39 inch).

Vertical order

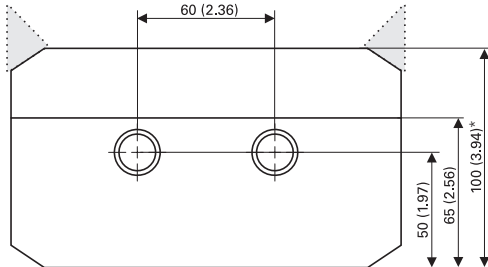
- Space between EE 8999S and EE 8999M: 8 mm (0.32 inch).



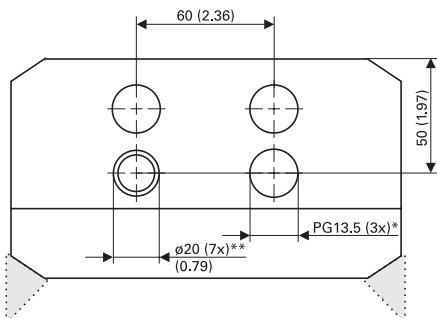
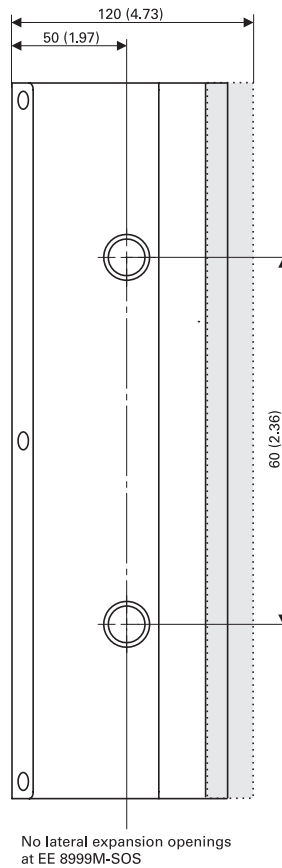
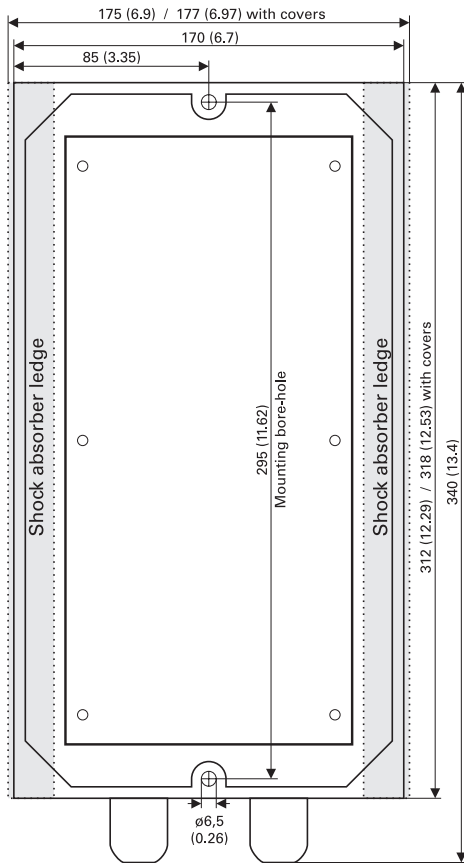
Installation

MEASUREMENTS

Measuring units: mm (inch), not scale!



*Note: Depth of an industrial station with connected microphone module: 142 (5.59)



*Screw thread for PG13.5 thread cable glands
 **Expansion openings: can be broken out

