



Series EX 200

Stations for EX zones



Audio +
functionality

16 kHz
eHD Voice

Ultimate
availability

ATEX
IIC / T6

EXcellent Intercom quality for EX zones

Where things can get explosive, Commend's ATEX-certified EX 200 stations stay cool, providing their superior, noise suppressing 16 kHz voice connections with proven push button simplicity, no matter what.

All internal components are safely cast encapsulated and heat contained, so they pose no risk of igniting, whether in highly explosive atmospheres or at high temperatures. Water, dust or weather influences are no problem either, thanks to the terminal's IP66 rating.

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Features and highlights

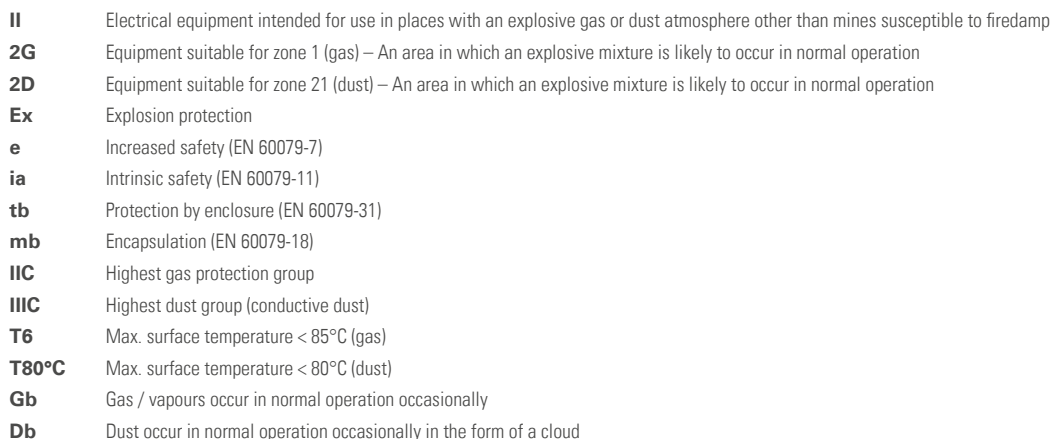
- Certified for highest explosion hazard group and temperature class (IIC / T6)
- Flexible party line connectivity for up to five connections (up to 40 simultaneous connections per Intercom Server)
- Full range of more than 150 proven Commend Intercom features (e.g. audio monitoring, OpenDuplex®, background noise suppression, automatic volume adjustment, loudspeaker/microphone surveillance or audio recording)
- Support of secure one-to-one calls
- Powerful built-in 25 W amplifier, for noisy environments
- 1.5 W emergency power supply option via Intercom Server ensures uninterrupted operation
- Large button panel, specifically optimised for ease of use with protective gloves
- Convenient night-time illumination based on photoluminescence technology (EX 200P and EX 220)
- 2-wire digital technology helps reduce cabling requirements and installation costs
- Interface to VoIP® and integrated third-party systems allow for net-working sites over any distance, anywhere in the world



Reliability

IP66 rating

Optimum intelligibility

[illegible]

EX zones – categories and classifications

Extreme conditions are a typical feature of the application environments for the Commend stations for EX zones. Whether in explosive atmospheres, extreme frost or heat – the stations for EX zones keep communication lines going wherever there is possible danger in the air: in chemical and petrochemical environments or oil and gas production facilities, for example.

Device categories

Areas with extreme conditions are classified in three zones according to frequency and duration of the occurrence of explosive atmosphere:

Zone 0

A place in which an explosive atmosphere is **continually / frequently** present or present **over a long period**.

- Inside of tanks, equipment

Zone 1 (Series EX 200)

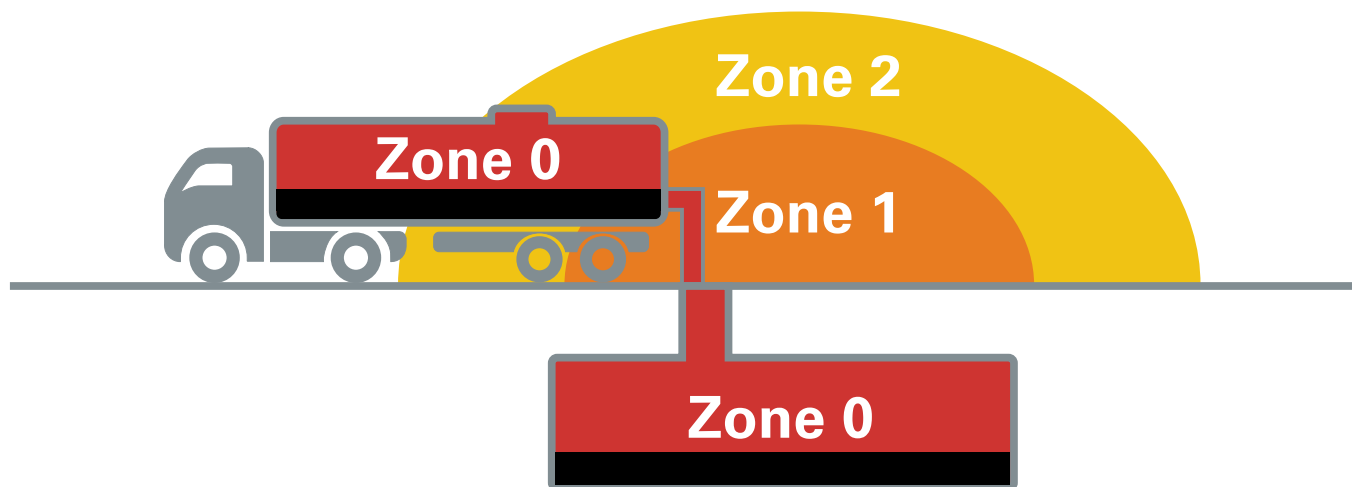
A place in which an explosive atmosphere is likely to occur in **normal operation occasionally**.

- Area around drain and fill arrangements
- Fragile objects (gauge-glass)

Zone 2

A place in which an explosive atmosphere is **not** likely to occur in **normal operation**, but if it does, it only occurs for **short periods**.

- Flange joints



EX zones – categories and classifications

Temperature classification – T6

To keep a device operable in explosive atmospheres, its maximum surface temperature must be below the ignition temperature of the ambient atmospheric mixture. For easy assessment, a range of temperature classes has been defined, into which devices can be subdivided in accordance with their maximum permissible surface temperatures.

An equipment with a higher temperature classification – e.g. T6 – also meets the requirements of all lower temperature classes (in this case, T5 to T1).

Note: The temperature classification is not the same as the operating temperature range (without loudspeaker –40 to +60 °C, with loudspeaker –40 to +50 °C)!

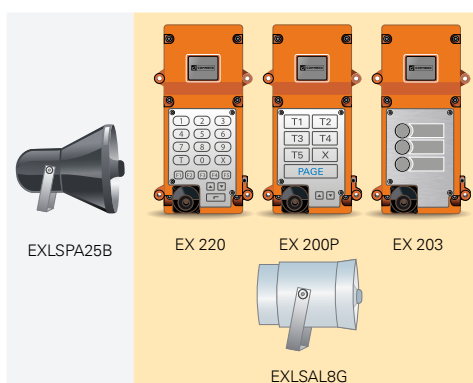
Gas classification – IIC

Depending on its ignition protection type, equipment for EX zones intended for use in environments containing combustible gases, mists and vapours, is categorised into gas groups: II A, II B and II C. These groups indicate the ignition properties (combustibility) of gases (i.e. explosive atmospheres). The explosion safety requirements for equipment increase from group II A to II C. Equipment classified under a higher explosion hazard group such as II C is also suitable for all lower classified environments.

Overview

The following table shows the classification of gases in the temperature classes and gas groups:

Temperature class						
	T1 (450 °C) (842 °F)	T2 (300 °C) (572 °F)	T3 (200 °C) (392 °F)	T4 (135 °C) (275 °F)	T5 (100 °C) (212 °F)	T6 (85 °C) (185 °F)
Gas groups						
IIA	acetone (540 °C) ammonia (630 °C) benzol (555 °C) ethane (515 °C) ethylacetate (460 °C) acetic acid (485 °C) carbon oxide (605 °C) methanol (455 °C) propane (470 °C) toluol (535 °C)	1,2 dichloroethane (440 °C) cyclohexanone (430 °C) i-amyl acetate (380 °C) n-butane (365 °C) n-butyl alcohol (340 °C)	petrol (220 – 300 °C) diesel fuel (220 – 300 °C) kerosine (220 – 300 °C) domestic fuel oil (220 – 300 °C) n-hexane (240 °C)	acetaldehyde (140 °C)		
IIB	illuminating gas (560 °C)	ethyl alcohol (425 °C) ethylene (425 °C) ethylene oxide (440 °C)	ethylene-glycol (335 °C) hydrogen sulphide (270 °C)	ethyl ether (180 °C)		
IIC	hydrogen (560 °C)	acetylene (305 °C)				carbon disulphide (95 °C)



System overview

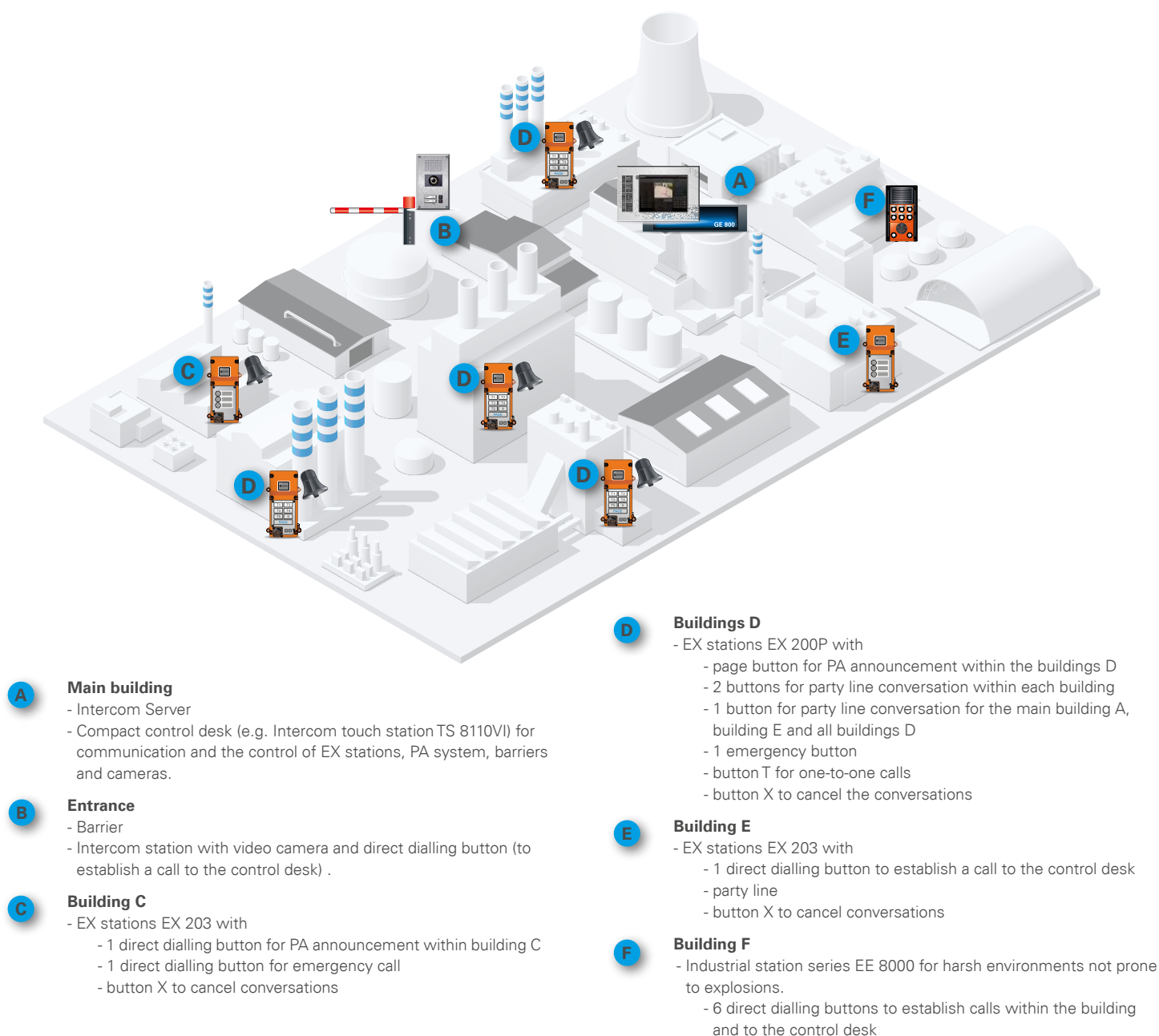
Functional variety for explosion-prone environments

Despite their EX certified construction, the stations of the series EX 200 provide Commend's hallmark adaptability and user convenience down to the last detail. This is because the devices support the full range of more than 150 proven Commend Intercom functions, such as:

- Direct control of gates and barriers, lighting equipment, integrated PA systems, etc.
- Integration of control desks and additional Intercom stations
- Reliable communication in crystal clear speech quality
- Audio functions such as: OpenDuplex®, background noise suppression, automatic volume adjustment, loudspeaker/microphone monitoring and audio recording
- Networking of multiple sites across any distance
- Extensive emergency support capabilities with central administration and implementation of emergency and evacuation plans

Example how stations for EX zones can be integrated in a system:

The following image gives a short overview of a possible system and the configuration in an explosive area.



System overview

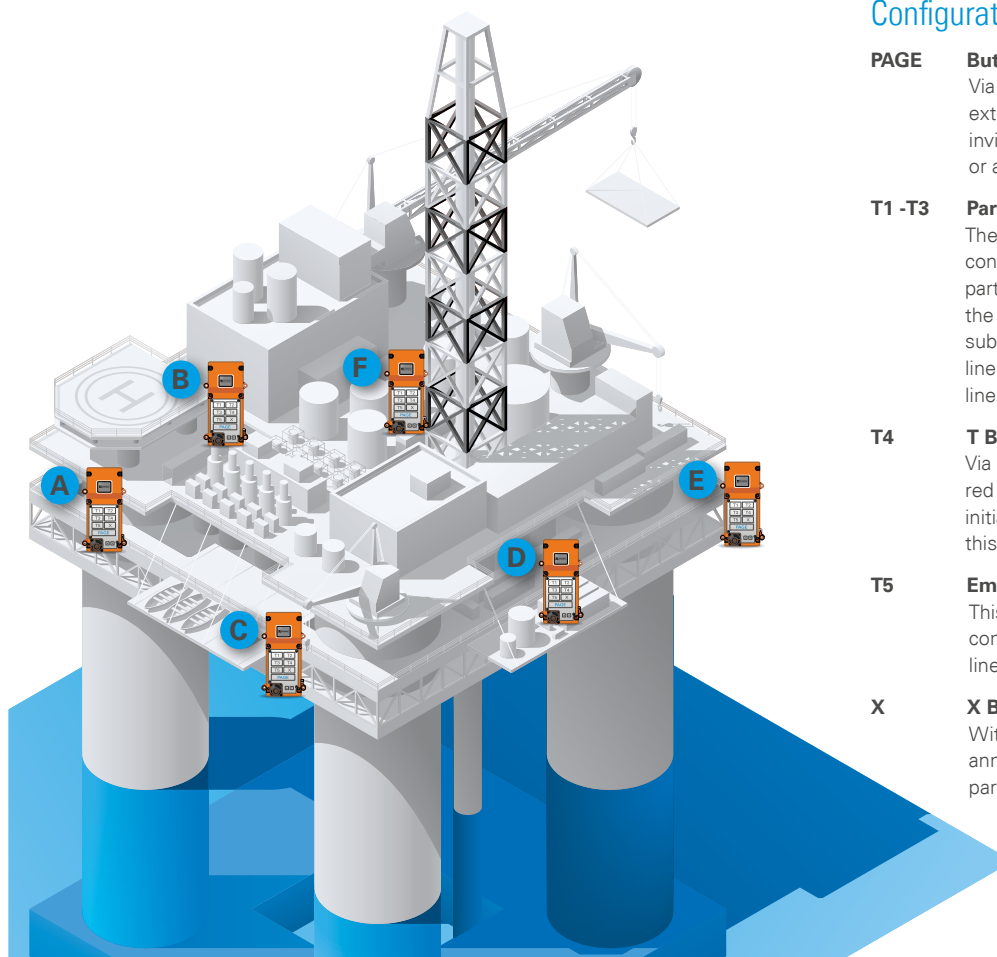
Party line solution

Networked communication that allows more than two people to share the same line and join in by a simple push of a button: it all comes courtesy of the powerful Commend party line function. Thanks to convenient activation via a direct dialling button, conference calls, even in explosion prone environments, have never been easier – or more versatile:

- Up to 5 party lines per EX 200P, easy to set up via the terminals' programmable direct dialling buttons
- Up to 40 party lines per Intercom Server
- Collective 'All Call' for acoustic invitation to join a conversation by a simple push of the correct direct dialling button (see sample scenario below)
- Simple, flexible configuration via CCT 800 enables individual party line implementation for each EX 200P station
- Party line capable terminals also support regular two-person conversations that cannot be joined by other parties

Example oil platform:

Oil platforms with highly explosive atmospheres represent a perfect example to highlight the benefits of the party line feature of the stations for EX zones. Out of hundreds of other possible set-ups, the following example gives you an idea, how such an EX system with party line can be configured.



Configuration:

PAGE	Button to initiate the All Call announcement Via an announcement broadcasted via stations, external loudspeakers or a PA system it is possible to invite several subscribers to a party line conversation or a line conversation or a one-to-one call.
T1 -T3	Party line for communication The first three party lines can be used for normal conversations. After the All Call announcement, a party line is chosen and all subscribers are able to join the party line by pressing the party line button. Each subscriber, including the initiator can leave the party line conversation without cancelling the whole party line.
T4	T Button for one-to-one calls Via this button, an All Call announcement is answered via setting up a secure one-to-one call to the call initiator. For other subscribers it is not possible to join this conversation.
T5	Emergency party line This party line works like the party line for normal communication. It is recommended to keep one party line free for emergency conversations.
X	X Button to cancel the conversations With this button it is possible to cancel All Call announcements, one-to-one conversations or leave party line conversations

Example of use:

Task 1:

Employee 1 wants to start a conversation with the employees 2 and 3. Employee 1 goes to the nearest station, e.g. station A and initiates an All Call announcement via pressing the PAGE button: "Employees 2 and 3 please enter conversation T1". The employees 2 and 3 go to the nearest stations (e.g. station B, C) and join the party line conversation T1. Now the party line T1 is busy and for other conversations the lines T2 or T3 are still available.

Task 2:

Employee 4 wants to establish a one-to-one conversation with Employee 2. Employee 4 starts an All Call: "Employee 2 please call me" and sets up an invitation with the button T. Employee 2 leaves the party line T1 with button X and accepts the invitation via the button T. For employee 2 it is possible to cancel the one-to-one conversation with button X anytime and he is able to reenter the party line conversation via the button T1.

Stations for EX zones – series EX 200

EX 220

EX 220 LV	Standard version / 18 – 45 V AC or 20 – 65 V DC
EX 220 HV	Standard version / 90 – 264 V AC
EX 220 LV SK	Version with loudspeaker / 18 – 45 V AC or 20 – 65 V DC
EX 220 HV SK	Version with loudspeaker / 90 – 264 V AC
EX 220 LV HS	Version with handset / 18 – 45 V AC or 20 – 65 V DC
EX 220 HV HS	Version with handset / 90 – 264 V AC
EX 220 LV SKHS	Version with handset and loudspeaker / 18 – 45 V AC or 20 – 65 V DC
EX 220 HV SKHS	Version with handset and loudspeaker / 90 – 264 V AC



EX 200P

EX 200P LV	Standard version / 18 – 45 V AC or 20 – 65 V DC
EX 200P HV	Standard version / 90 – 264 V AC
EX 200P LV SK	Version with loudspeaker / 18 – 45 V AC or 20 – 65 V DC
EX 200P HV SK	Version with loudspeaker / 90 – 264 V AC
EX 200P LV HS	Version with handset / 18 – 45 V AC or 20 – 65 V DC
EX 200P HV HS	Version with handset / 90 – 264 V AC
EX 200P LV SKHS	Version with loudspeaker and handset / 18 – 45 V AC or 20 – 65 V DC
EX 200P HV SKHS	Version with loudspeaker and handset / 90 – 264 V AC



EX 203

EX 203 LV	Standard version / 18 – 45 V AC or 20 – 65 V DC
EX 203 HV	Standard version / 90 – 264 V AC
EX 203 LV SK	Version with loudspeaker / 18 – 45 V AC or 20 – 65 V DC
EX 203 HV SK	Version with loudspeaker / 90 – 264 V AC
EX 203 LV HS	Version with handset / 18 – 45 V AC or 20 – 65 V DC
EX 203 HV HS	Version with handset / 90 – 264 V AC
EX 203 LV SKHS	Version with handset and loudspeaker / 18 – 45 V AC or 20 – 65 V DC
EX 203 HV SKHS	Version with handset and loudspeaker / 90 – 264 V AC
EX 200LABEL1	Adhesive high-grade steel label (1 piece).



Accessories

EX loudspeaker EXLSAL8G

IP 67 

The loudspeaker for EX zones has been designed specifically to enable the reliable transmission of voice signals under rough environmental conditions. The device's ignition protection rating makes it suitable for use in explosive zones 1 and 2. Although the design meets the highest demands in terms of explosion protection (IIC and T6), it provides high-volume sound at superior quality. Weather-proof, thanks to M20 Ex ATEX cable glands and dummy plug (included). Enclosure manufactured from aluminium, Light Grey (RAL 7035).

Frequency range: 650 to 7,000 Hz; Power output: 8 W; impedance 8 Ω;
sound pressure: 94 dB/W/m (1 kHz).

Ignition protection types: II 2G Ex d e mb IIC T6 Gb -50°C ≤ Ta ≤ +50°C;

 Diameter 124 mm, D 141 mm  2 kg




EX loudspeaker EXLSPA25B

IP 66 

The loudspeaker for EX zones has been designed specifically to enable the reliable transmission of voice signals under rough environmental conditions. The device's ignition protection rating makes it suitable for use in explosive zones 1 and 2. Developed for an extra-high sound volume output, the design also provides a high degree of explosion protection (IIB and T5). Weather-proof, thanks to M20 Ex ATEX cable glands and dummy plug (included). Enclosure made from black polyamide.

Frequency range: 370 to 7,000 Hz; Power output: 25 W; impedance 8 Ω;
sound pressure: 106 dB/W/m (1 kHz).

Ignition protection types: II 2G Ex d e mb IIB +H2 T5 Gb -53°C ≤ Ta ≤ +55°C;

 Diameter 250 mm, D 340 mm  4 kg



Series EX 200

Technical Specifications

Technical data

IP rating:	IP66
ATEX certificate number:	TRAC11ATEX21273X
Buttons:	EX 203: Snap-disc stainless steel buttons EX 220 and EX 200P: photoluminescence membrane keypad
Microphone:	noise-cancelling microphone
Amplifier:	built-in class-D amplifier with 25 W power, minimum impedance 8 Ω
Maximum input power:	30 W
Input:	2 inputs
Output:	2 relay outputs: 1 relay output with open and close contact 1 power out relay* e.g. to switch a warning light *The power out relay provides the voltage of the external power supply.
Call indication:	multifunction LED (colours: red, green, blue)
Transmission bandwidth:	16 kHz
Operating temperature range for station without loudspeaker:	-40°C to +60°C (-40°F to +140°F)
Operating temperature range for station with loudspeaker:	-40°C to +50°C (-40°F to +122°F)
Storage temperature range:	-40° C to +60° C (-40° F to +140° F)
Plug:	EX-proof screw terminals
Cabling:	star feed, 2-wire, twisted
Power supply variant HV:	90 – 264 V AC
Power supply variant LV:	18 – 45 V AC or 20 – 65 V DC
Emergency operation:	from the Intercom Server 1.5 W (see "Emergency operation")
Dimensions with handset (WxHxD):	247 x 405 x 123 mm (9.7 x 15.9 x 4.9 inch)
Dimensions without handset (WxHxD):	193 x 346 x 123 mm 7.5 x 13.6 x 4.9 inch
Weight with hand set:	about 9.5 kg (21 lbs)
Weight without hand set:	about 8.5 kg (19 lbs)
Colour:	yellow orange (RAL 2000)



Line length high voltage

	Normal operation	Emergency operation
Ethernet cable e.g. Cat. 5		
Loop resistance: 190 Ω /km	2,800 m (9186 ft)	600 m (1970 ft)
Capacity: 48 nF/km (14.4 nF/1000 ft)		
Telecommunication cable e.g. F-YAY; ø 0.6 / 0.8 mm; AWG: 22 / 20		
Loop resistance: >135 / >73 Ω /km	1,500 m (4921 ft)	600 m (1970 ft)
Capacity: 100 nF/km (30.5 nF/1000 ft)		

The indicated max. line length is valid for versions with loudspeaker (8 W, 8 Ω)

System requirements

- GE 300 (min PRO 800 1.3)
- GE 800 (min PRO 800 1.3)
- GE 200/GE 700 (min Pro 6.2)
- Download of station firmware: Configuration software CCT 800 1.3

Extent of supply

- Station for EX zones
- EX blanking or cable glands for loudspeaker and handset entry points
- Transport plugs for bottom side cable entry points
- Short reference

Precautions

The stations may only be opened by authorised service engineers.

Series EX 200

Technical Specifications

ATEX certification

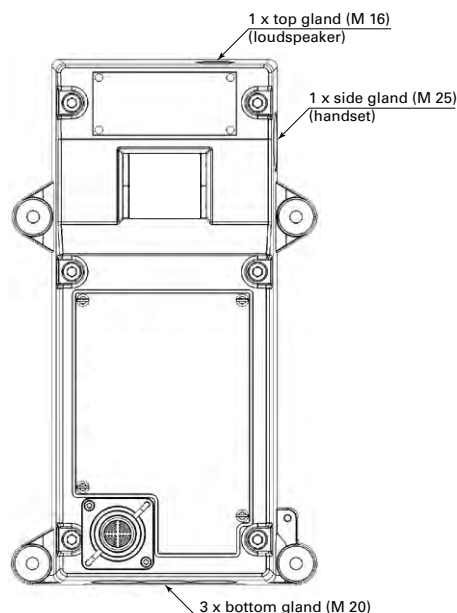
-  II 2G Ex e ia mb IIC T6 Gb
(applies to all EX 200 versions)
-  II 2D Ex tb ia IIIC T80°C Db
(applies only to EX 200 versions without loudspeaker)

Label fields

Label fields made of stainless steel are available. These are not supplied in the extent of supply of the EX 203. According to the number of keys, the article EX200Label1 has to be ordered separately. The labels can be printed or engraved. Is not recommended to engrave the labels when the unit is exposed to sea water environment, because it can lead to corrosion.

Cable glands

- Only suitably rated and approved Ex e (increased safety) tb IP66 cable glands shall be used.
- The cable glands for the bottom side cable entry points have to be ordered separately.
- The following image gives an overview of cable gland positions and dimensions.



Emergency operation

No pre-configuration in CCT 800 necessary. The device automatically switches to emergency mode in the case of a main power supply fail. This results in a decrease of volume of –15 dB, relative to the maximum volume. Therefore in emergency mode, the device is limited to maximum volume level 4.

Planning tips for emergency operation: In order to guarantee the emergency operation at failure of the main power supply of the station, a maximum of 10 EX 200 can be operated with a GE 300 Intercom Server and a maximum of 20 EX 200 can be operated with a GE 800 Intercom Server.

Note: It is recommended to activate "line monitoring" (The corresponding instructions for configuration can be found in the manual "PRO 800").

The following instructions apply to the station series EX 200, certified under certificate TRAC11ATEX21273X. The format and the wording may be changed providing the technical content remains the same.

1. Special condition of safe use

- Only suitably rated and approved Ex e (increased safety) to IP66 cable glands shall be used.
- For mains connection of the equipment the size of the protective cable shall be at least the same size as the phase cables.

2. Aggressive substances

E.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent adverse effects, thus ensuring that the type of protection provided by the equipment is not compromised.

3. Electro-static discharge precautions (ESD)

Electro static discharge precautions – (ESD) need to be undertaken, as components fitted on the Printed Circuit Board will be affected by static electricity. Ensure appropriate PPE is worn.

If any damage has occurred to the enclosure, DO NOT attempt to re-energise the unit.

Contact Commend Technical Support for further advice.

It is recommended that you have all the relevant damage details to hand when you phone, this may avoid unnecessary delays in the re-use or replacement of the station series EX 200.

4. Suitable precautions

E.g. regular checks as part of routine inspections or establishing from the materials data sheets that it is resistant to specific chemicals.

4.1 Installation

To be carried out by suitably trained personnel.

- Check casting is not damaged.
- Ensure bracket to station series EX 200 is secure and fixings are in place and tight.
- Power connection is to be made through an appropriate ATEX certified cable glands in-line with manufacturer's instructions, via the cable entries within the base.
- Check security of any terminated cabling at gland entry point.
- Check all unused gland entry points are fitted with an approved ATEX certified blanking plug.
- Check integrity of gland at appropriate entry point.
- Where fitted check gland protection covers for tears or signs of damage.

4.2 Blanking and transport plugs

- Using an appropriate tool, remove the blanking and transport plug from the gland entry, (taking care as to not damage the thread) and place in a secure area
- Lift the lid away from the base ensuring that you do not damage the light pipe, and over stress the cables from the barrier to the keypad or microphone.

4.3 Cable glands

- Roll back gland protection taking care not to damage.
- Using an appropriate tool, loosen the locking nut located at the rear of the gland, (this is the cable entry point) as far as possible.
- Loosen off the next nut and pull cable free from the gland.

4.4 Re-assembly of a station series EX 200

- Ensure all metal faces are clean and are not damaged.
- Ensure 'O' ring is seated in the 'O' ring groove in the base.
- Ensure no debris is inside the unit.
- Align the lid to the base. And take care not to damage the light pipe. Ensure the light pipe is aligned with the hole in the centring plate.
- Bolt together with 6 x socket head bolts, ensuring that no cables are trapped.

4.5 Connecting cables to the Ex e terminals

This applies to the IS barriers and the main PCB. Where ferrules are used, the cables should be stripped to within 1 mm of the terminal throat.

4.5.1 Main PCB terminals (screw connection)

Tightening torque:	min 0.4 Nm / max 0.5 Nm
Cable cross section solid min.:	0.2 mm ²
Cable cross section solid max.:	2.5 mm ²
Cable cross section stranded min.:	0.2 mm ²
Cable cross section stranded max.:	2.5 mm ²
Cable cross section stranded, with ferrule without plastic sleeve min.:	0.25 mm ²
Cable cross section stranded, with ferrule without plastic sleeve max.:	1.5 mm ²
Cable cross section stranded, with ferrule with plastic sleeve min.:	0.25 mm ²
Cable cross section stranded, with ferrule with plastic sleeve max.:	1.5 mm ²
Cable cross section AWG/kcmil min.:	24

4.5.2 I.S. barriers type 4 and 5 (spring caged)

Solid / stranded [mm²]:	0.2 – 4 / 0.2 – 2.5
Solid / stranded AWG:	24 – 14 / 24 – 12
Type of insulation material / group of insulation material:	PA / I

5. Putting into service

The station series EX 200 is designed to be used with variable options in terms of configuration both internally and with ancillary equipment. Issue controlled data sheets are supplied which detail up to date certification and optional availability. For further information please contact the Commend Technical Support.

6. Compliance to EHSR 1.0.6

TO BE ISSUED IN CONJUNCTION WITH INSTRUCTIONS

Commend International GmbH declares that the station for EX zones EX 200, when installed and maintained correctly, has been designed so as to:

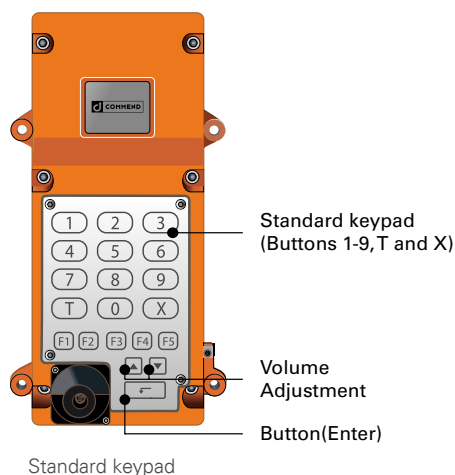
- Avoid physical injury which might be caused by direct or indirect contact.
- Assure that surface temperatures of the accessible parts, or radiation which would cause a danger, are not produced.
- Eliminate non-electrical dangers which are revealed by experience.
- Assure that foreseeable conditions of overload do not give rise to dangerous situations.

Series EX 200

Installation Instructions

Button configuration

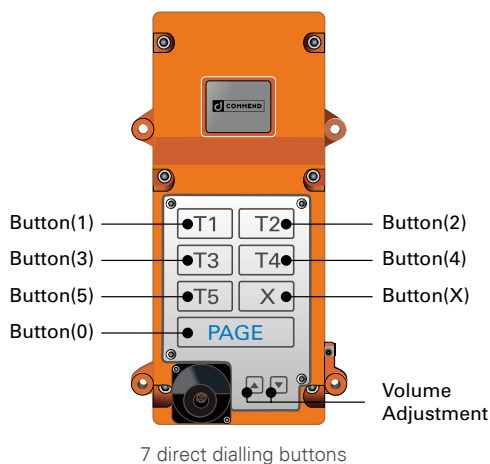
Series EX 220:



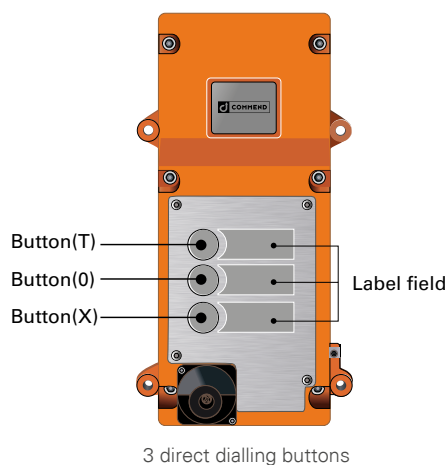
Attention:

The function buttons F1 – F5 are without any function.

Series EX 200P:



Series EX 203:



Note:

The buttons "0", "1", "2", "3", "4", "5", and "T" can be configured as direct dialling buttons in CCT 800 at "Subscribers Direct dialling". The button "X" can **not** be configured as direct dialling button, it is only possible to use the button "X" as "cancel" button.

Configuration CCT 800

Use of 2 relay outputs with GE 800 / GE 300:

- To be able to use both relay outputs with a GE 800/GE 300 Intercom Server, the station type "EX 200" has to be configured for the EX 200 via the configuration software CCT 800 at "Station properties".
- Thus, the relay outputs "OUT 1" and "OUT 2" can be activated at "Station properties" – "Ex stations". The output "OUT 1" is a voltage controlled relay output e.g. to switch a warning light. "OUT 2" is a potential-free output.

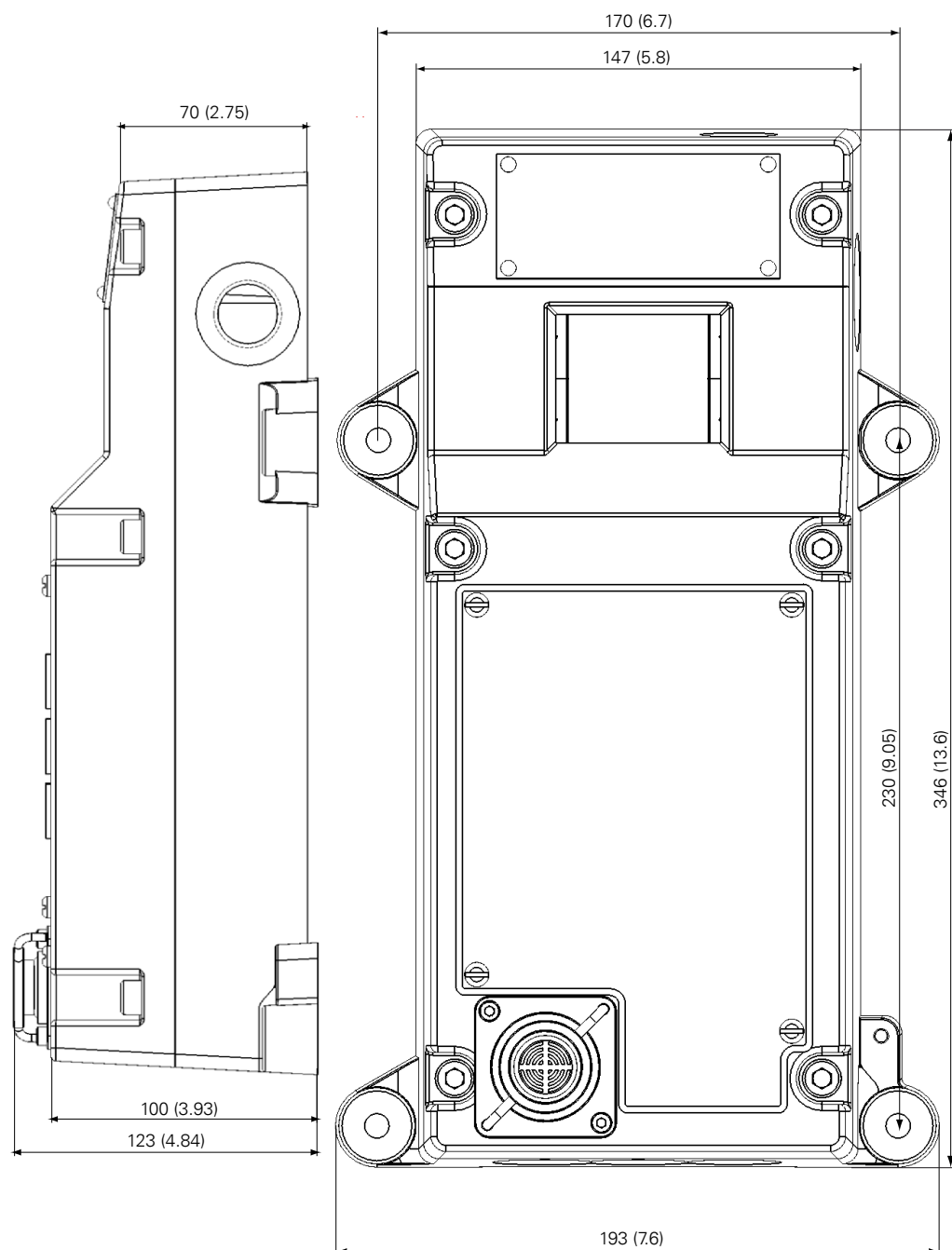
Party line, single calls, I/O control, etc.

- For the configuration of the several Intercom feature please see manual "PRO 800".

Dimensions

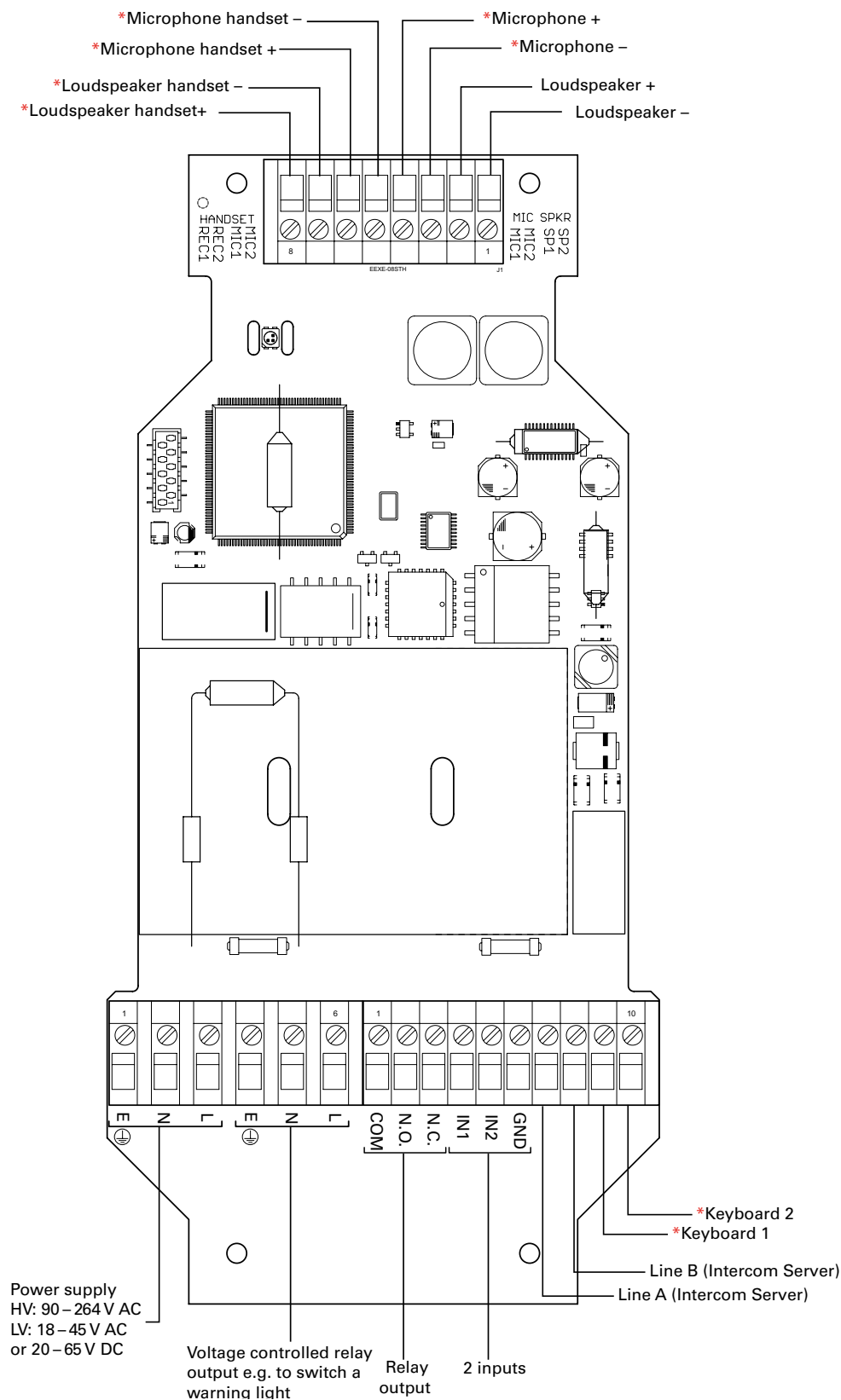
Measuring units: mm (inch), not to scale!

Total width with handset: 248 (9.76)



Connection

*Default wired connections, depending on version



Quality tested. Reliable. Smart.

COMMEND products are developed and manufactured by Commend International in Salzburg, Austria.

The development and manufacturing processes are certified in accordance with **EN ISO 9001:2008**.



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A strong worldwide network

COMMEND is represented the world over by local Commend Partners and helps to improve security and communication with tailored Intercom solutions.

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