Interlock Control System with Central Controller - Overview

The interlock control system with central controller RJ has especially been designed for installations with up to 5 doors. It can be extended to 8 doors. The central interlock control system is the ideal solution for small systems where all doors are located close to each other. The maximum cable length between terminal and central controller RJ is 15 m.

The control circuit boards being placed in the control terminals in the peripheral system, here are located in the central controller. The basic version of the central controller RJ provides control boards for 2 doors. If the interlock system consists of more doors, the controller RJ will be supplied with the corresponding number of control boards.

Basic Set-up

In the central interlock control system RJ all terminals and locking devices on the doors are directly connected to the central controller RJ.

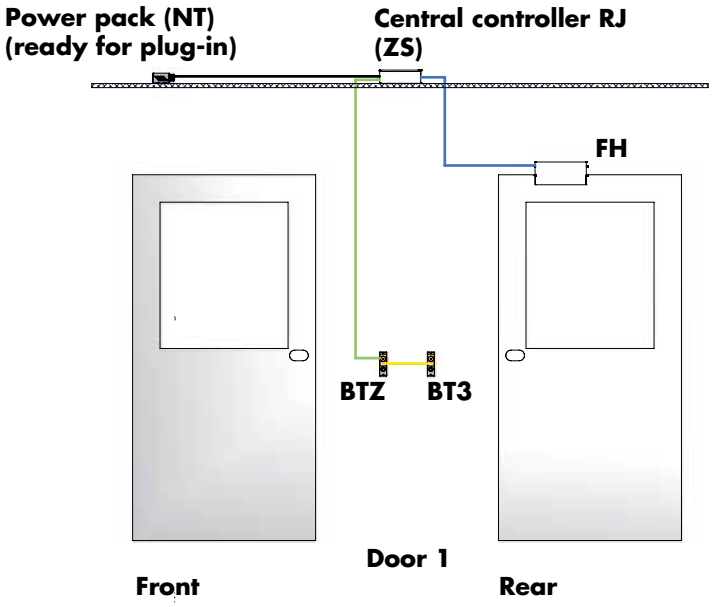
On both sides of the doors are mounted operating terminals without controlling function. The operating terminal BTZ which is connected to the central controller RJ only has two RJ45 sockets:
Green: control cable from the central controller RJ.
Yellow: connection cable to second operating terminal (BT3) on the rear side of the door.

The second operating terminal is identic to the one of the peripheral system.

The locking device is also directly connected to the central controller RJ. The blue marked cable is plugged in the central controller RJ in the designated RJ45 socket. The other end of the cable has 4 leads of different colours to connect the locking device.

The power is provided by the power pack ready for plug-in. Its safety plug simply has to be plugged in a socket provided on site. In the central controller RJ also a socket for the power cable of the power pack is provided.

All control cables, also the cable to the locking device, are simple flat cables with RJ45 connectors. An additional power cable to the operating terminals as with the peripheral system is not required.



Legend:

BTZ = operating terminal with 2 RJ45 sockets
BT3 = operating terminal
FH = bar magnet/locking device

green = *connection cable ZS - BTZ*
black = *power cable NT - ZS*
yellow = *connection cable BTZ - BT3*
blue = *connection cable ZS - FH*

Central Interlock Control System - Components

The DICTATOR interlock control system with central controller consists of a few main components. They can be mounted and "programmed" with extremely little effort.

Beside the basic functions many additional requirements can be met by the central controller RJ of the DICTATOR interlock control system. For some standard components can be used, for others an additional LAN module has to be used.

Mounting accessories can be found on page 08.035.00 and the following.

System Components

Central controller RJ
Each installation requires one central controller RJ. Usually this can control up to 5 doors. But it is possible to enlarge the system. The following options are available:
- Connection of a second central controller RJ. This allows to enlarge the system to up to 8 doors (4 doors per central controller RJ).
- Connection of a distribution box of the peripheral interlock system (see page 08.015.00). This allows to control 8 doors in total: 5 doors by the central controller RJ and 3 more doors by the distribution box of the peripheral system. Each of these 3 doors needs a control terminal of the peripheral system and if necessary, an operating terminal BT3 - see page 08.013.00 and following.
- Direct connection of a control terminal of the peripheral system (see page 08.013.00), i.e. there is added 1 door to the system to make it 6 doors in total.

Operating terminal BTZ
On every door an operating terminal BTZ has to be mounted. It is available either with operating key or with RFID system for transponder chip (integrated access control).
The operating terminal BTZ provides 2 sockets for RJ45 connectors:
- green socket: connection cable to the central controller RJ,
- yellow socket: connection cable to an operating terminal BT3 on the rear side of the door.

Operating terminal BT3
The operating terminal BT3 is also used for the peripheral interlock control system. It completes the operating terminal BTZ on the rear side of the door. The only difference is that the terminal BT3 has only one (yellow) socket.
It is available either with operating key or with RFID system for transponder chip.

Connection cables
All doors are easily connected to the central controller RJ by flat cables with RJ45 connectors. The cables and their corresponding sockets are clearly marked by different colours (green, yellow, blue).

Central power pack
The 24 VDC power supply of the terminals and the locking devices is provided by a central power pack. It is available either with 2.7 A or 5 A power. The power pack is furnished ready for mounting with a mains cable with safety plug and a 2 m long 24 VDC cable with 6-pin connector to the central controller RJ of the installation, i.e. it doesn't have to be opened for connection.

Locking devices
For locking the doors is available a large choice of bar magnets and electric strikes (see page 08.047.00 and the following). It is essential that the used locking devices dispose of a potential-free feedback contact.

Additional components
- Emergency exit terminal according to EltVTR (see page 08.043.00)
- Time control unit (see page 08.044.00)

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Central Interlock Control System - Central Controller RJ

The central controller RJ is the core of the central interlock control system. All control boards are placed in the central controller RJ contrary to the peripheral system where they are located in the respective control terminals. The standard version provides 2 control boards for 2 doors. In case the interlock control system consists of more doors, the central controller RJ will contain the necessary number of control boards.

The main advantage of the central interlock control system is it requires even less connection cables to the doors and all relations can be adjusted in the central controller RJ.

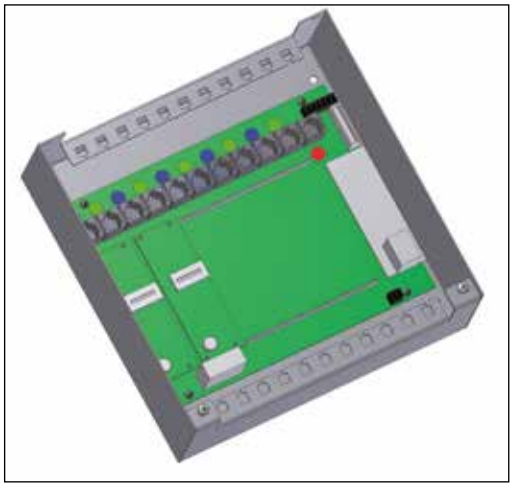
Structure

The central interlock control system has been designed for systems with up to 5 doors. If necessary, it can be used for up to 8 doors.

The central controller RJ consists of a basic circuit board on which are plugged the control boards of the different doors. Above each control board are 2 sockets:

- green socket for green connection cable to the operating terminal BTZ on the door.
- blue socket for the connection cable to the locking device of this door.

The power cable of the power pack is plugged in the 2-pin socket down in the right corner.



Options

Beside the basic functions several additional options can be achieved. The most important ones are listed below, with the necessary accessories.

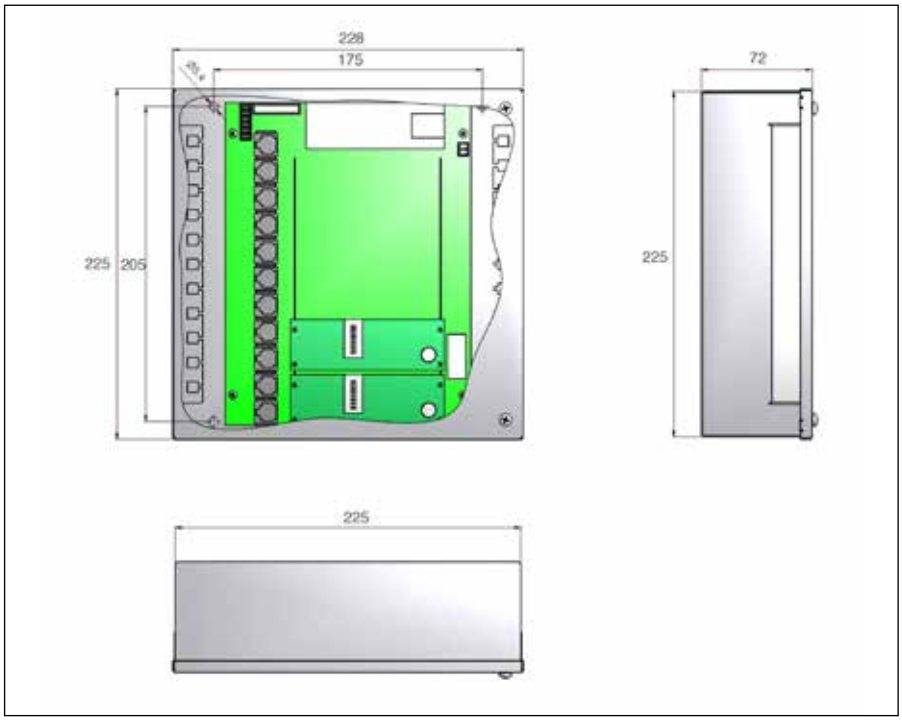
- ***Global emergency-open GNA***
  In case all doors of the interlock system should open once the emergency-open switch on one of the operating terminals has been pressed (global emergency-open), this can easily be achieved - also later - by adding a relay (part no. 710953) to the central controller RJ. This relay is simply plugged in the provided socket.
- ***LAN module***
  It is possible to transmit status information and errors from the central controller RJ to a facility mangement system. For this purpose the central controller RJ can be upgraded in production with an additional circuit board (part no. 710954). This allows the facility management system e.g. to trigger an alarm, to pass an information to the ventilation system etc.
  The LAN module is not included in the standard version!
- ***Achieving special functions as e.g. the discretion circuit***
  For this purpose an 8-pin screw-type terminal is provided in the central controller RJ.
- ***Time-delayed opening***
  In case it should be possible to reopen some doors only with a time delay, this can be adjusted by a jumper on the respective control board.
- ***Integration of door operators***
  It is also possible to integrate door operators on (some) doors of the interlock system. In this case the terminals on the respective doors have to be without emergency-open and for the operator a separate emergency-open switch has to be mounted.

Central Interlock Control System - Central Controller RJ - continuation

For systems with up to 8 doors the central controller RJ can be upgraded in several ways:

- Connection of another central controller RJ: max. 8 doors.
- Connection of a distribution box of the peripheral system. This also allows to control 8 doors in total.
- Direct connection of a control terminal of the peripheral system. This enlarges the system by 1 door to a total of 6 doors.

Dimensions



The strain relief of the incoming and outgoing cables is achieved by fixing the cables with tie wraps to the two cable support brackets. The cable inlets are sealed dust proof by cellular material.

For fixing 4 borings of Ø 5.4 mm are provided in the casing of the central controller RJ.

Technical Data

Voltage	24 VDC +/-15 %
Power consumption basic version 2 doors	100 mA
Power consumption per additional door	50 mA
Power consumption relay for global emergency-open	30 mA
Power consumption LAN module	100 mA
IP rating	IP 20
Operating temperature	-10 °C up to +40 °C
Material casing	hot-dip galvanized sheet steel
Max. cable length to terminals/locking devices	15 m

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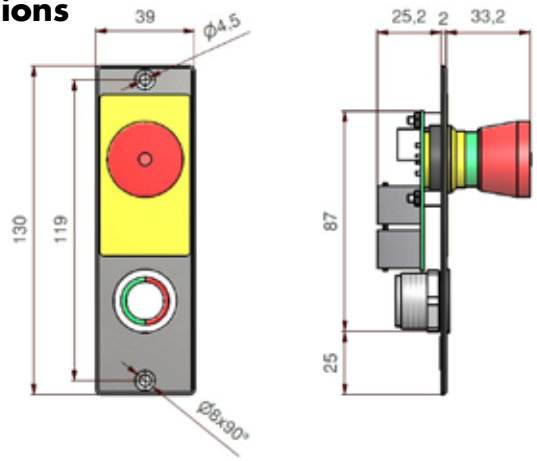
Central Interlock Control System - Operating Terminal BTZ

For the DICTATOR central interlock control system only simple operating terminals are mounted on the doors.

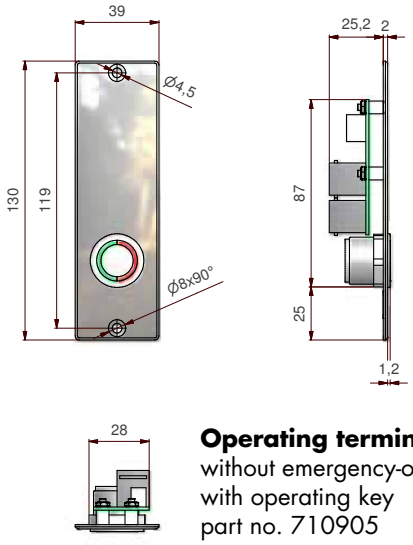
The operating terminal BTZ is connected by a flat cable with RJ45 connectors (green) directly to the central controller RJ. Usually on the rear side of the door an operating terminal BT3 (also used for the peripheral system) is connected to the operating terminal BTZ. The only difference between the two terminals is, that the BTZ has two sockets for flat cable (one for the cable from the central controller RJ and one for the cable to the operating terminal BT3).

Dimensions



Operating terminal BTZ
with emergency-open,
with operating key
part no. 710904

RFID system for transponder
(integrated access control)
part no. 710984



Operating terminal BTZoN
without emergency-open,
with operating key
part no. 710905

RFID system for transponder
(integrated access control)
part no. 710985

The DICTATOR terminals meet the requirements of clean rooms. The operating terminal BTZ is available with and without emergency-open switch.

For unlocking the operating terminal it is furnished either with a piezo-type key (stainless steel) or with the RFID system for transponder (integrated access control).

The operating terminal BTZ can directly be connected to an external access control (integrated in the terminal with RFID system) or a large surface switch, for example.

The flat cable (green) for the connection to the central controller RJ is available in 4 different lengths: 3, 5, 10, 15 m (for part numbers see page 08.026.00).

Technical Data

Power consumption	24 VDC +/-15 %
with emergency-open	max. 30 mA
without emergency-open	max. 15 mA
IP rating	IP 20* (operating key/emergency-open: IP 65)
Operating temperature	-10 °C to +40 °C
Operation	piezo-type key with red/green circle illumination or transponder in case of RFID system
Emergency-open switch	mushroom-type push-to-lock, illuminated
Emergency-open contact set (capacity)	1 make contact (NO): 500 mA
Material front plate	AISI 304

*IP rating when not built in. The final IP rating depends on the mounting situation.

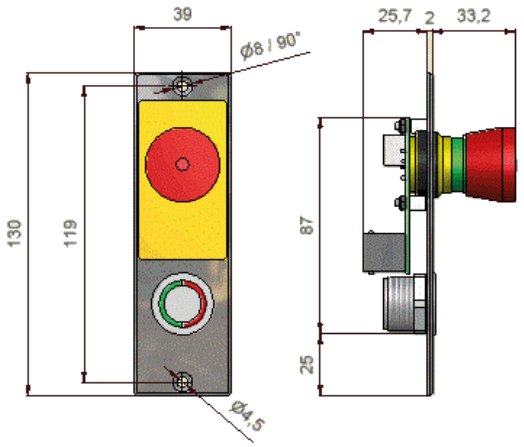
Central Interlock Control System - Operating Terminal BT3

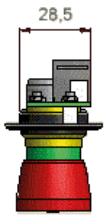
Normally the doors of an interlock system are used from both sides. Therefore, the additional operating terminal BT3, connected to the operating terminal BTZ, is required on the other side of the door.

The operating terminal BT3 is available with and without emergency-open switch.

The front plates of all terminals have been designed for their mounting in hollow profiles. On demand, there are available front plates with differing measurements and with the customer's logo.

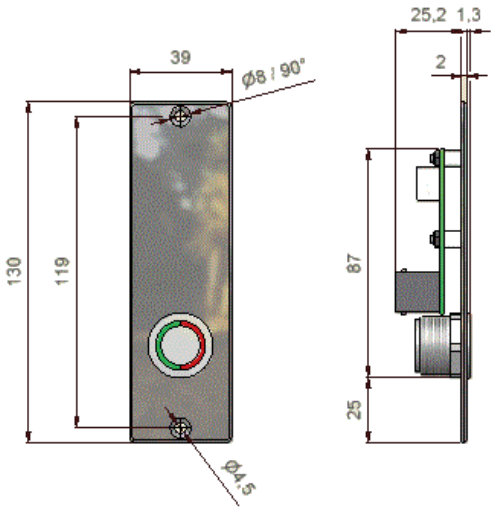
Dimensions

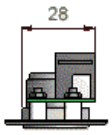




Operating terminal BT3
with emergency-open,
with operating key
part no. 710901

RFID system for transponder
(integrated access control)
part no. 710982





Operating terminal BT3oN
without emergency-open,
with operating key
part no. 710903

RFID system for transponder
(integrated access control)
part no. 710983

The operating terminal BT3 is connected to the operating terminal BTZ by the connection cable with RJ45 connector (marked yellow). The cable has to be ordered separately. By default two lengths are available:
- 500 mm (part no. 710926)
- 1000 mm (part no. 710937).

The operating terminal BT3 can directly be connected to an external access control (integrated in the terminal with RFID system) or e.g. a large surface switch.

Technical Data

Power consumption	24 VDC +/-15 %
with emergency-open	max. 30 mA
without emergency-open	max. 15 mA
IP rating	IP 20* (operating key/emergency-open: IP 65)
Operating temperature	-10 °C to +40 °C
Operation	piezo-type key with red/green circle illumination or transponder in case of RFID system
Emergency-open switch	mushroom-type push-to-lock, illuminated
Emergency-open contact set (capacity)	1 make contact (NO): 500 mA
Material front plate	AISI 304

*IP rating when not built in. The final IP rating depends on the mounting situation.

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Central Interlock Control System - Connection Cables

The components of the central interlock control system are connected by simple flat cables with colour marked RJ45 connectors.

This significantly reduces the mounting costs and the danger of errors when connecting the single components.

Connection Cables

Connection cable central controller RJ - operating terminal BTZ (1)

The connection cable between central controller RJ and the operating terminals BTZ on the respective doors is a flat cable with RJ45 connectors on both ends. The connectors as well as the corresponding sockets are marked **green**.
Standard lengths: 3 m, 5 m , 10 m and 15 m

Connection cable operating terminals BTZ - BT3 (2)

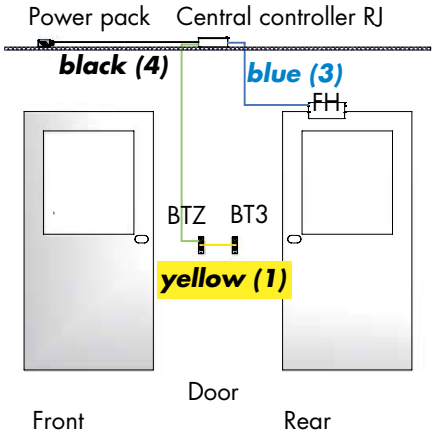
The connection cable between the operating terminals BTZ and BT3 is also a flat cable with RJ45 connectors on both ends. The connectors as well as the corresponding sockets are marked **yellow**.
Available lengths: 500 mm and 1 m

Connection cable for door locking device or door operator (3)

As the DICTATOR interlock control system can be combined with a multitude of locking devices the connection cable for the locking device or door operator is furnished only on one end with a RJ45 connector (**blue** colour). This is plugged in the central controller RJ. On the other end of the cable are 4 free leads which are marked explicitly (2 leads for the feedback contact and 2 leads for the power supply).
Standard lengths: 500 mm, 2 m, 4 m and 15 m

Power cable (4)

The standard version of the central interlock control system RJ does not require power cables to the door terminals. The power pack is provided with a 2 m long, pluggable power cable which has just to be plugged in the corresponding socket of the central controller.



Connecting a second central controller RJ

If a central system is upgraded by a second central controller RJ, two cables are needed to connect the two central controllers RJ:

- control cable red
- 6 core power cable

Details about these two types of cables are to be found on page 08.017.00.

Connecting a distribution box VK3 of the peripheral system

For controlling 8 doors also two cables are needed to connect the distribution box:
- control cable red
- 6 core power cable

Details about these two types of cables are to be found on page 08.017.00.

Connecting external components

Additional components as access controls or large surface switches have to be connected to the interlock control system by the customer. The operating terminals BTZ and BT3 dispose for their connection of a pluggable 3-pin screw terminal.

Central Interlock Control System - Order Information

On this page you will find a summary of the part numbers of all components of the DICTATOR central interlock control system.

Other accessories:

- Flush and surface mounting boxes for the terminals	page 08.035.00
- Emergency exit terminal	page 08.033.00
- Time control unit	page 08.034.00
- Power packs	page 08.057.00 et sqq.
- Locking devices	page 08.037.00 et sqq.

Order Information Terminals
(see page 08.023.00 and following)

Operating terminal BTZ		part no. 710904
Operating terminal BTZoN, without emergency-open		part no. 710905
Operating terminal BTZT RFID		part no. 710984
Operating terminal BTZToN RFID, without emergency-open		part no. 710985
Operating terminal BT3		part no. 710901
Operating terminal BT3oN, without emergency-open		part no. 710903
Operating terminal BT3T RFID		part no. 710981
Operating terminal BT3ToN RFID, without emergency-open		part no. 710983

Central Controller RJ
(see page 08.021.00 and following)

Central controller RJ basic version for 2 doors		part no. 710920
Central controller RJ for 3 doors		part no. 710920-3
Central controller RJ for 4 doors		part no. 710920-4
Central controller RJ for 5 doors		part no. 710920-5
Additional relay for global emergency-open, retrofittable, for central controller RJ		part no. 710953
Additional circuit board (LAN module) for connection to facility management system, to be retrofitted in production		part no. 710954

Connection Cables
(see page 08.025.00)

Connection cable operating terminals BTZ - BT3, yellow	500 mm	part no. 710926
Connection cable operating terminals BTZ -BT3, yellow	1 m	part no. 710937
Connection cable central controller RJ - BTZ, green	3 m	part no. 710947
Connection cable central controller RJ - BTZ, green	5 m	part no. 710948
Connection cable central controller RJ - BTZ, green	10 m	part no. 710949
Connection cable central controller RJ - BTZ, green	15 m	part no. 710952
Connection cable locking/door operator, blue	500 mm	part no. 710927
Connection cable locking/door operator, blue	2 m	part no. 710938
Connection cable locking/door operator, blue	4 m	part no. 710928
Connection cable locking/door operator, blue	15 m	part no. 710946
Connector for flat cable with RJ45 connector		part no. 710943

Transponders for RFID Terminals
(see page 08.005.00)

Transponder black		part no. 710850
Transponder red		part no. 710851
Transponder yellow		part no. 710852
Transponder green		part no. 710853
Kit of administration transponders (one red, yellow, green each		part no. 710854

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