



# AUTOMATIC ENTRANCE SPECIALISTS

94 - 94V

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Manuale di installazione quadro elettronico per automazione BIS, TEN-REX e VOLO

Electric board installation handbook for BIS, TEN, REX and VOLO automations

Notice d'installation armoire électrique pour automatisme BIS, TEN, REX et VOLO

Installationsanleitung der Türsteuerung BIS, TEN, REX und VOLO

Manual de instalación del tablero eléctrico para automación BIS, TEN, REX y VOLO

Manual de instalação quadro eléctrico para automação BIS, TEN, REX e VOLO





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### **GENERAL SAFETY PRECAUTIONS**

This installation manual is intended for professionally competent personnel only. Installation, electrical connections and adjustments must be performed in accordance with Good Working Methods and in compliance with applicable regulations. Before installing the product, carefully read the instructions. Bad installation could be hazardous. Before installing the product, make sure it is in perfect condition. For repairs or replacements of products only original spare parts must be used.

### 1. TECHNICAL DATA

Refer to technical data and CE declaration of conformity contained in the manuals for BIS-TEN-VOLO-REX automations.

### 2. ELECTRICAL CONNECTIONS

WARNING: Link up all N.C. contacts (if not used) by means of jumpers. The terminal bearing the same number are equivalent.

#### 2.1 CONTROLS

| Control       |      | Function                         | Description   |  |
|---------------|------|----------------------------------|---|--|
| 12            | N.O. | AUTOMATIC CLOSING                | The automatic closing function is enabled by a permanent contact.<br>The selector ComH-ComK and ComE automatically selects the auto-<br>matic closing.  |  |
| 1 3A<br>1 3B  | N.O. | OPENING SIDE A<br>OPENING SIDE B | It starts the opening operation.  |  |
| 14            | N.O. | CLOSE                            | It starts the closing operation.  |  |
| 1             | N.C. | REVERSAL SAFETY<br>CONTACT       | Reverses movement (re-opens) during closing.  |  |
| 1 9           | N.C. | STOP                             | It stops any movement. When the contact is open, every normal and<br>emergency function is excluded. <i>Warning: when the contact is closed</i><br><i>again, the door will resume the interrupted manoeuvre.</i>  |  |
| 128           | N.O. | LOCKING EXCLUSION                | The closed contact puts off duty the door wing locker. With ComH-<br>ComK and ComE exclusion takes place automatically in bi-directional<br>total and partial opening positions.  |  |
|               |      | RESET ComE                       | Contact 1-28 also permits to cancel the operating mode set by ComE.<br>If ComE breaks down, and consequently the operating mode of the<br>door becomes impossible to modify, keep contact 1-28 closed for at<br>least 60 seconds, with ComE disconnected, and the electric board will<br>return to the bi-directional/total mode with DISABLED automatic clo-<br>sure (if 1-2 are not connected). |  |
|               |      | RESET REMOTE SETTINGS            | In addition, when keeping contact 1-28 closed for at least 60 s after having first disconnected and enabled the Dir, the electronic control panel goes back to the remote software settings.  |  |
| 1 29          | N.O. | RESET                            | It cancels all acquired data. After 3 s the automation can proceed with a new acquisition.  |  |
| 27 <u>3</u> A | N.O. | PARTIAL OPENING SIDE A           | It causes a partial opening.  |  |
| 27 <u>3</u> B | N.O. | PARTIAL OPENING SIDE B           |   |  |

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2.2 OUTPUT AND ACCESSORIES

| Output/Access. | Value               | Description   |
|----------------|---------------------|---|
| 1              | 24 V= / 0,5 A (max) | Accessories power supply. Output for powering of external accessories.  |
| 1              | 24 V= / 0,1 A       | General Purpose. See electronic hardware keys instructions.   |
| BAT            | 2x12 V / 2 Ah       | The battery is charged and kept charged only when the electric panel is powe-<br>red from the mains; the battery is used as a buffer or in case of power failure<br>and is cut out after voltage dropping to below 22V for 30 seconds. In order to<br>charge the battery, connect mains and battery to the electric board at least half<br>an hour before powering the installation. To power off the electric board, cut off<br>mains and disconnect the batteries. <i>Attention: Always ensure that the battery</i><br><i>is connected to the electric panel.</i> |
| BL             | 24 V= / 1 A         | Electric lock device. Output or powering of electric lock device.   |
| СОМ            |                     | This allows the connecting of any rearranged control devices for distances shorter than 50 m.   |
| DIR            |                     | It allows the direct connecting with Dir expanded connecting board.   |
| OPEN           |                     | Push button to activate the opening maneuver.   |
| RESET          |                     | Push button to activate the RESET. The first opening and closing to be made at low speed in order to learn the end-of-travel positions (acquisition phase).   |

#### 2.3 DIR CONNECTION

Remove the jumper [J] from the plug of electric board 94 and insert in Dir plug, as shown in Fig. 1.

Connect plug Dir to electric board 94. Use the cable supplied for this purpose.

Two or more boards of the Dir type can be connected in series by means of the cables supplied respectively and setting a jumper [J] on the last, not connected plug.

Warning: if more than one Dir is connected to the same electric board, fit the TeIRS on the first Dir (the one connected to the electric board). Moreover, trimmer and dip-switch settings are active only on the first Dir, i.e. the one connected to the electric board.

| Output/Access.         | Value/Function | Description   |
|------------------------|----------------|---|
|                        |                | Allows the application and use of a command-giving board to open the door (e.g. LAN4S,    |
|                        |                | LAN7S, BIXLR2 and LAB9).  |
| OPEN                   | OPENING        | - with OPEN card in make a jumper between 1-A-B.  |
|                        |                | - with OPEN card in and with COMH-K selector present connect Dir terminals 1-A-B to       |
|                        |                | their COMH-K selector respective terminals.   |
|                        | REVERSAL       | Allows the application and use of a safety board (0CEL1S). In order to insert the safety  |
| SAFETY                 | SAFETY         | card remove the relative jumper. It has the same function as control 1-8.                 |
|                        | CONTACT        |   |
| REMOTE Connec          |                | Connect any control devices (Computer) or other Electric Boards for distances longer than |
|                        |                | 50 m (by means of shielded cable).  |
| COM Connect any rea    |                | Connect any rearranged control devices for distances shorter than 50 m.                   |
|                        |                | A TelRS can be mounted on the Dir and connected to the COM terminal by means of the       |
|                        |                | cable provided. A PasM24 can then be connected to the TeIRS connector.                    |
| ENABLE To set trimmers |                | To set trimmers and dip-switches in the electric board and on the Dir, press the ENABLE   |
|                        |                | button for 3 seconds with automation powered and door stopped.                            |
|                        |                | Trimmer and dip-switch local settings made in this way prevail over the remote setting    |
|                        |                | obtained by RESET (1-28), by Tel2 DMCS.   |
|                        |                | Attention: The following individual remote selections and/or settings made via DMCS and/  |
|                        |                | or Tel2 prevail over local ones made manually in the board and on the Dir.                |

| ľ | 2.4 ADJUSTMENT TRIMMER |  |         |         |                             |  |
|---|------------------------|--|---------|---------|-----------------------------|--|
|   |                        | DESCRIPTION  | MIN.    | MAX.    | REMOTE<br>SETTINGS<br>RESET |  |
|   | R1                     | Thrust on obstacles (ODS). Adjust the thrust on the obstacles before the door      | 0%      | 100%    | see trimmer                 |  |
|   |                        | reopens and before the door stops against the obstacle itself. With heavy doors    |         |         |                             |  |
| 4 |                        | and/or doors with high friction, a low force setting may cause detection of a non- |         |         |                             |  |
| 6 |                        | existent obstacle.   |         |         |                             |  |
|   | тс                     | Automatic closure time. It adjusts the time that elapses between the ending of     | 0 s     | 30 s    | see trimmer                 |  |
|   |                        | opening control and the beginning of the automatic closing.                        |         |         |                             |  |
|   | RF                     | Motor force. Adjust the motor force.   | 60%     | 100%    | 90%                         |  |
|   | VA                     | Opening speed. Adjust the opening speed.   |         |         |                             |  |
|   |                        | BIS-TEN  | 0,3 m/s | 0,8 m/s | 0,6 m/s                     |  |
|   |                        | REX  | 0,1 m/s | 0,6 m/s | 0,4 m/s                     |  |
|   |                        | VOLO   | 0,1 m/s | 0,6 m/s | 0,4 m/s                     |  |
| ~ | VC                     | Closing speed. Adjust the closing speed.   |         |         |                             |  |
| Ë |                        | BIS-TEN  | 0,3 m/s | 0,8 m/s | 0,6 m/s                     |  |
|   |                        | REX  | 0,1 m/s | 0,6 m/s | 0,4 m/s                     |  |
|   |                        | VOLO   | 0,1 m/s | 0,6 m/s | 0,4 m/s                     |  |
|   | RP                     | Partial opening. Adjusts the passage spaciousness when the control is given        | 5%      | 90%     | 50%                         |  |
|   |                        | between 27-3A (3B). With the trimmer set to the minimum, the opening is equal      |         |         |                             |  |
|   |                        | to 5% of the normal passage, with the trimmer set to the maximum the opening       |         |         |                             |  |
|   |                        | is equal to 90% of the normal passage.   |         |         |                             |  |

#### 2.5 SELECTION DIP SWITCH

|     |      | DESCRIPTION                       | OFF                              | ON                              | REMOTE<br>SETTINGS<br>RESET |
|-----|------|-----------------------------------|----------------------------------|---------------------------------|-----------------------------|
|     | DIP1 | Selection of the movement di-     | Right opening for one wing doors | Left opening for one wing door. | see dip-switch              |
| 94  |      | rection.                          | and working for two-wing doors   |                                 |                             |
|     |      | The opening direction is intended |                                  |                                 |                             |
|     |      | by looking at the automated devi- |                                  |                                 |                             |
|     |      | ce from the inspection side.      |                                  |                                 |                             |
|     | DIP2 | Automation type                   | BIS-TEN-VOLO                     | REX                             | see dip-switch              |
| DIR | DIP1 | Batteries                         | Antipanic operation              | Continuous operation            | ON                          |
|     | DIP2 | Unloaded batteries                | Last closing operation           | Last opening operation          | OFF                         |
|     | DIP3 | Lock type                         | Normal lock                      | Antipanik lock                  | see dip-switch              |

#### 2.6 INDICATORS

| LED         | ON                 | FLASHING                    |
|-------------|--------------------|-----------------------------|
| POWER ALARM | Power on 24 V=     | Encoder / Automation fault. |
| SA          | Safety 1-8 is open | 1                           |

### 3. START UP

ATTENTION: Before performing any procedure, make sure that the device is not powered and that the batteries are disconnected.



The operations regarding point 3.4 are without safety devices.

The trimmer can only be adjusted with door not moving

- 3.1 Select proper direction by means of DIP1 and the automation type by means of DIP2 in the electronic control panel.
- 3.2 Set TC, VA, VC trimmers at minimum and R1, RF, RP at mid position.
- 3.3 Short circuit the safety devices (1-8) and the stop (1-9).
- 3.4 Power (mains and batteries). Keep contact 1-28 closed for at least 60 s. Press the ENABLE button for 3 s. Attention: Upon each turning on the electric board automatically RESETs so as to permit the first opening and closing to be made at low speed in order to learn the end-of-travel positions (acquisition phase). Check that door operates properly by sending several open and close commands and adjust with VA and VC the desired speeds.
- 3.5 Adjust with R1 the thrust on obstacles (on the electronic control panel) and the motor force with Dir RF trimmer.
- 3.6 Remove the jumpers and connect the safety devices (1-8) and the stop (1-9).
- 3.7 Set out with Dir DIP1 and 2 the working with battery.
- 3.8 Adjust the automatic closure with TC of electronic control panel (enabled by command 1-2).
- 3.9 If desired, set the partial opening time via RP (on the Dir).
- 3.10 Connect any accessories and check their function.
- 3.11 If the automated device encounters an obstacle while closing, it detects it and reopens. If it encounters an obstacle while



opening, it detects it and stops. If the obstacle is detected twice, this is considered to be the new stop position until it is removed.

Attention: check that the force from the movement and the bumping force between the wing and the obstacle is less than that provided for in the standard prEN 12650-1.

### 4. TROUBLE SHOOTING

| PROBLEM                         | POSSIBLE CAUSES                              | REMEDY  |
|---------------------------------|--|---|
| The door doesn't open, doesn't  | Selector switch ComE is broken               | Close contact 1-28 on electrical panel for at least |
| close, and doesn't perform pro- |  | 60 s. Attention: This operation may cancel any      |
| grammed functions               |  | remote settings previously made and restore         |
|                                 |  | factory settings.                                   |
|                                 | Selector switch ComE is not set correctly    | Check and correct ComE settings.                    |
| The door doesn't open and       | No power                                     | Check that electrical panel is powered (POWER       |
| doesn't close                   |  | ALARM LED must be steadily on).                     |
|                                 | Accessories in short circuit                 | Disconnect all accessories from terminals 0-1 (24   |
|                                 |  | V=must be present) and reconnect them one at        |
|                                 |  | a time.   |
|                                 | Line fuse blown                              | Replace fuse on transformer.                        |
|                                 | STOP contact is open                         | Check terminals 9 on electrical panel and position  |
|                                 |  | of function selector (if present).                  |
|                                 | The door is locked by bolts and locks        | Check that wings move freely.                       |
| The door opens but doesn't      | Safety contacts are opens (Led SA light on). | Check terminal 8 on electrical panel.               |
| close                           |  | Check jumper at Dir (if provided) or on electrical  |
|                                 |  | panel.  |
|                                 | Photocells are on (Led SA light on).         | Check that photocells are clean and work cor-       |
|                                 |  | rectly.   |
|                                 | Radars are on.                               | Check that the radar is not subject to vibration,   |
|                                 |  | does not perform false detections, or presence of   |
|                                 |  | moving bodies in its field of action.               |
|                                 | Automatic closure not working.               | Check jumper 1-2 and position of function se-       |
|                                 |  | lector (if present).                                |
| External safeties don't trip    | Wrong connections between photocells         | Connect N.C. safety contacts in series and remo-    |
|                                 | and electrical panel.                        | ve any jumpers.                                     |
| The door opens by itself        | Radars unstable or detect bodies in motion.  | Check that the radar is not subject to vibration,   |
|                                 |  | does not perform false detections, or presence of   |
|                                 |  | moving bodies in its field of action.               |
| The door opens/closes a short   | Encoder broken (POWER ALARM LED flash-       | Replace encoder.                                    |
| distance and then stops         | es).   |   |
|                                 | Motor wires inverted (POWER ALARM LED        | Check motor wires.                                  |
|                                 | flashes)                                     |   |
|                                 | Friction present.                            | Manually check that the wings move freely and       |
|                                 |  | adjust wing height by lifting it.                   |

# 5. EXAMPLE OF APPLICATION WITHOUT SELECTOR

The automation opens with Radar's controls 1-3A, 1-3B, it closes automatically with a 1-2 bridge. It carries out the security function over the passage way by means of Cel photocells.

The switch between 1-9 stops the automation where it is and no other standard or emergency function can be allowed.

Contact 1-4 can be connected to a button to achieve a closing control.

Contact 1-29 can be used to RESET the electronic control panel.



## 6. EXAMPLE OF APPLICATION WITH ComH-ComK SELECTOR

The automation opens with Radar's controls 1-3A, 1-3B, it closes automatically according to the function chosen on the selector. It carries out the security function over the passage way by means of Cel photocells.

With selector in STOP position every normal and emergency working is cut off.

Contact 1-4 can be connected to a button to achieve a closing control.

As contact 1-8 is independent from the selector, it will be necessary to make a jumper if it is not used.

Contact 1-29 can be used to RESET the electronic control panel.



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## . EXAMPLE OF APPLICATION WITH COME SELECTOR

The automation opens with Radar's controls 1-3A, 1-3B, it closes automatically according to the function chosen on the selector.

It carries out the security function over the passage way by means of Cel photocells.

With selector in STOP position every normal and emergency working is cut off.

Contact 1-4 can be connected to a button to achieve a closing control.

As contact 1-8 is independent from the selector, it will be necessary to make a jumper if it is not used.

As contact 1-9 is to be considered in series to the STOP, set by the selector, it will be necessary to make a jumper if it is not used.

Contact 1-29 can be used to RESET the electronic control panel



## 8. PARALLEL OF TWO AUTOMATIONS



Parallel management of two automations [DRIVE 1] and [DRIVE 2] is possible by making the connections shown in fig 8.1 with ComH - ComK selectors or those shown in fig 8.2 with electronic selector ComE.

NB: to obtain simultaneous wings closing and opening, adjust automatic closing trimmer (TC) and opening (VA) and closing (VC) speed trimmers in the same position in both automations.





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