# SCD MINI V7 WITH GRAPHICS DISPLAY

# UNIVERSAL DOOR CONTROLLER


SCAN ME

## MANUAL

SCD mini V7 standard manual V1.1.2

WWW.DOORCONTROL.EU

# Table of contents:

# INTRODUCTION

## DESCRIPTION

The Speed Commander mini control panel has been specifically designed for industrial doors and gates. The panel provides inverter speed adjustment and control as well as monitoring and responding to external inputs.
The Speed Commander mini incorporates a comprehensive range of configurable parameters that allows the door/gate manufacturer and installer to configure for optimal performance. In addition, live fault diagnosis is provided for the installer and end user allowing for quick resolve of any issues the door so that the door or gate can continue operation with a minimum of delay.

## DISCLAIMER

Whilst every effort has been made to ensure that the details in this manual are correct and up to date.
Doorcontrol cannot be held liable for any equipment damage or personal injury due to any error or omission.

## WHO IS THIS MANUAL INTENDED FOR ?

This manual is intended for installers and door and gate manufacturers.

## SAFETY NOTICE

It is necessary to follow these regulations when installing this device:

- EN12453 - Safety in use of power operated doors - Requirements
- EN12445 - Safety in use of power operated doors - Test methods

## SAFETY WARNINGS

**Use of the device:**

- The door controller is to be kept in sound condition in regard to safety and health related matters.
- The door controller must be used exclusively for the purpose of opening and closing of industrial doors.
- External devices may only be connected to the terminals intended for those specific devices.
- The door controller must not be used unless all safety components are undamaged/in working order.
- The door controller must not be used if there exist any doubts about that it's responsible to do so.
- The door controller must not be used if there's damage to any wires connected to the device.
- Only operate with appropriate coverings and protective devices. Ensure that gaskets are fitted correctly and that all cable glands are tightened. Use external buttons to control menu / setup. See section EXTERNAL BUTTON - MENU CONTROL
- Children are not allowed to play with the controller.
- The controller must not be used by person with reduced physical, sensory or mental capabilities or other untrained persons, unless they have been given instruction or is supervised.

**Installation:**

- During installation the mains switch must be disconnected.
- Installation must be performed only by qualified/educated technicians with solid knowledge about electricity and the relevant standards.
- Connection of the mains must only be performed by an authorized electrician.
- The installation must be performed in regard to the relevant personal protection applicable to the nature of the work.
- The installation must not be performed unless the relevant sections in this manual has been read and understood by the installer.
- It is not permitted to operate the controller without a connected protection earth. The absence of a protection earth will result in hazardous voltages inside the controller housing.
- During configuration of the parameters all personnel must stay clear of the door and away from the path of its travel.
- The door controller must be installed in an appropriate enclosure intended for the environment of the installation.
- Do not install the door controller on moving parts. Non-vibrating and not moving only.
- The door controller must not be installed in direct or directly reflected sunlight.
- A proper shielded cable must be used to connect the door controller to the motor as shown in manual.
- The controller must never be operated without the CEE-plug or an all pole disconnector for the mains supply.
- The mains switch or the CEE-plug must be within easy reach.
- The control panel will not operate if the internal +24V power supply is short-circuited. The display shows an error message and an alarm will sound.
- Do not operate or turn on the controller if condensation is present.
- Door must be designed so it can withstand the mechanical forces occurring during emergency stop.

**Cleaning & service:**

- During service, cleaning and repair of the installation the mains power must have been disconnected for at least 5 minutes prior to servicing the unit in any way.
- The door controller must not be subjected to any steam or humidity while cleaning, if necessary use a cloth damp with soapy water or rubbing alcohol to wipe the exterior.

**Maintenance, inspection & repair:**

- Repairs must only be performed by qualified and skilled technicians with in-depth knowledge about the system.
- The door controller is to be kept in sound condition in regard to safety and health related matters.
- Use only original spare parts for repair of the installation.
- If the connecting lead is damaged, it must be changed by the manufacturer or qualified person.
- During repair and service of the installation the mains must be disconnected.
- The terminals can provide lethal voltages up to 5 minutes after the mains has been disconnected.

**Environmental:**

- The door controller must not be installed in an enclosure that meets IP class 65 or higher.
- The door controller must not be installed outdoor.
- The door controller must not be installed in explosion hazardous areas.
- The door controller must be kept clean and clear of any dust and dirt.

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**Other:**

- Any technical modifications to the door controller are not allowed.
- The door controller must not be used before the entire installation is declared in accordance with the relevant directives, including 2006/42 / EC Machinery Directive
- The installer has the responsibility for the CE marking of the door/gate. The installer must inform / advise the end user on how to use the door/gate.
- Mechanical forces must be checked / adjusted so it complies with relevant norms.

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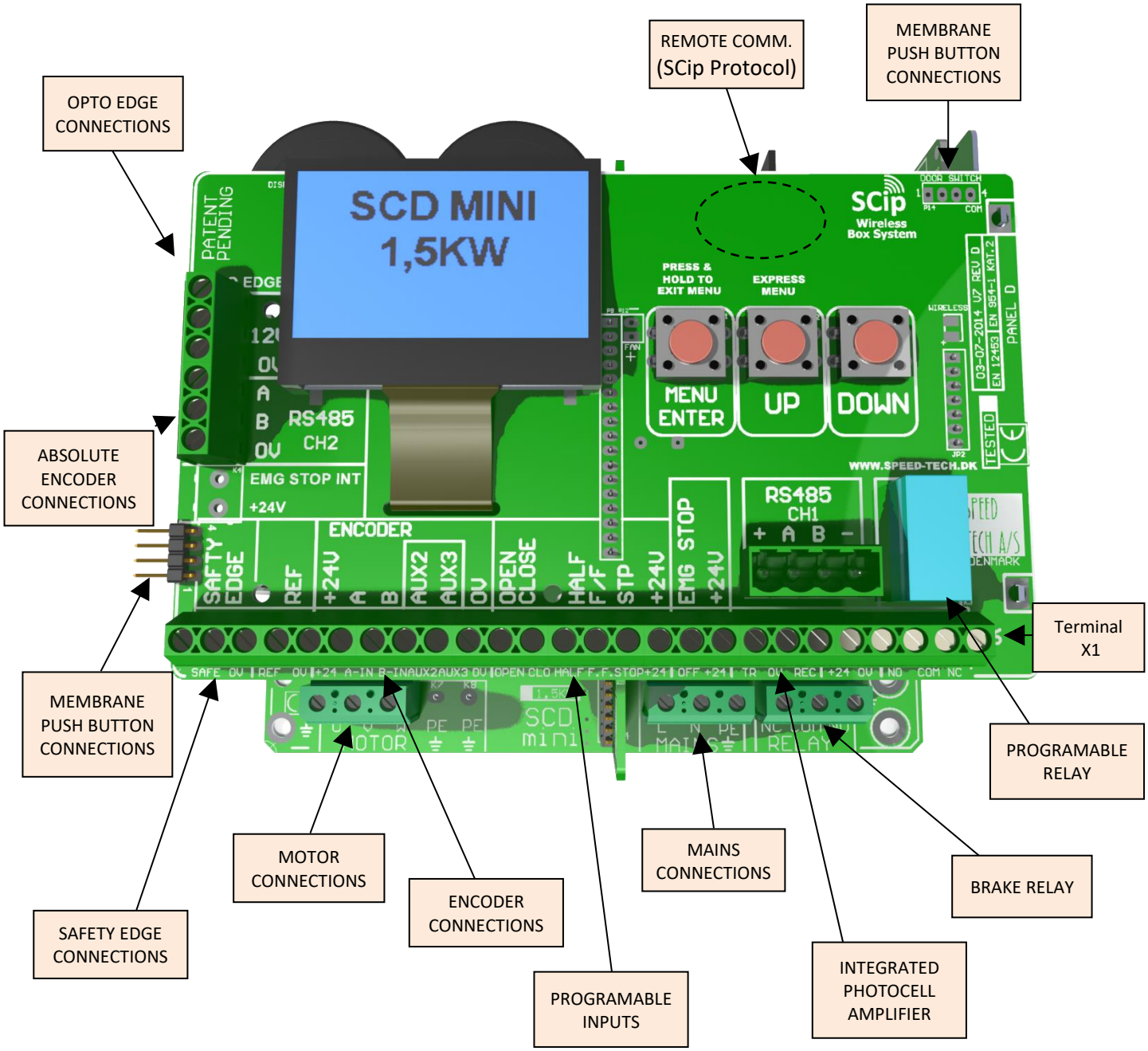
This is the originally manual, written in English, all others copies are translated from this.

## CONTROLLER OVERVIEW



# BASIC WIRING

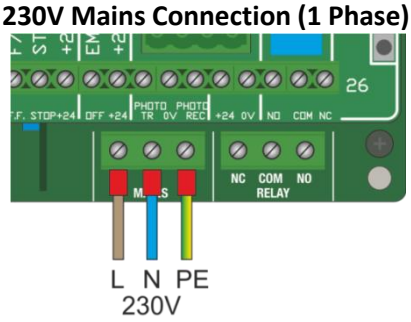
**WARNING! ELECTRICAL HAZARD:**

**Always disconnect mains supply and wait for 5 minutes before servicing the high voltage connections of the installation or the door controller.**

## MAINS CONNECTION

**Mains supply must be fitted with a CE plug otherwise there must be an all pole disconnector (overvoltage category III.) fitted within easy reach of the controller.**

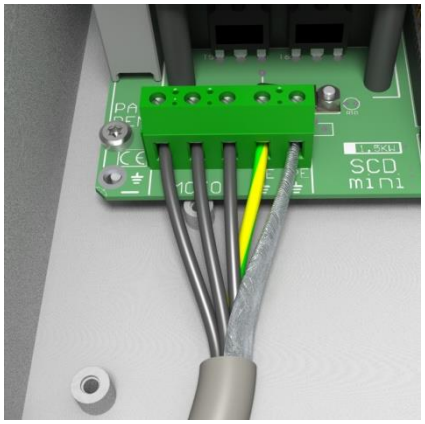
**230V Mains Connection (1 Phase)**




## MOTOR CONNECTION

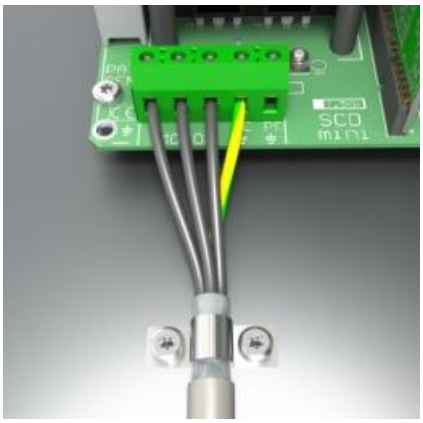
**Controller side**

Mounted in plastics enclosure



Shield connected to earth terminal.

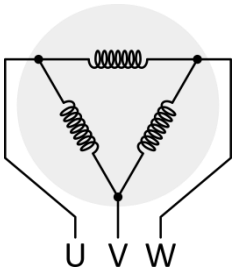
Installed in earthed metal chassis



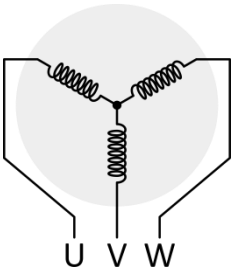
Shield clamped to chassis earth.

**Motor side**

**Delta connection**
230VAC (100-400V)

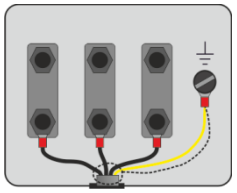


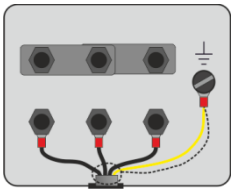

**Star connection**
400V (690V)




**IMPORTANT:**
Proper grounding practice is mandatory when installing frequency converter drives. Not only because of personal safety, but also to ensure reliable operation.

- *Always terminate both motor earth and motor chassis to a common earth point using lowest possible impedance option available.*
- *Always use shielded, correctly rated cable.*
- *Do **never** route the motor cable in parallel with the encoder cable.*
- *Ensure that the shielding on the motor cable is properly connected in both controller and motor end.*
- *Do not separate or damage the cable in any way. The cable must be in one piece throughout the entire length, and all connections unbroken.*





## SAFETY EDGES

**IMPORTANT**

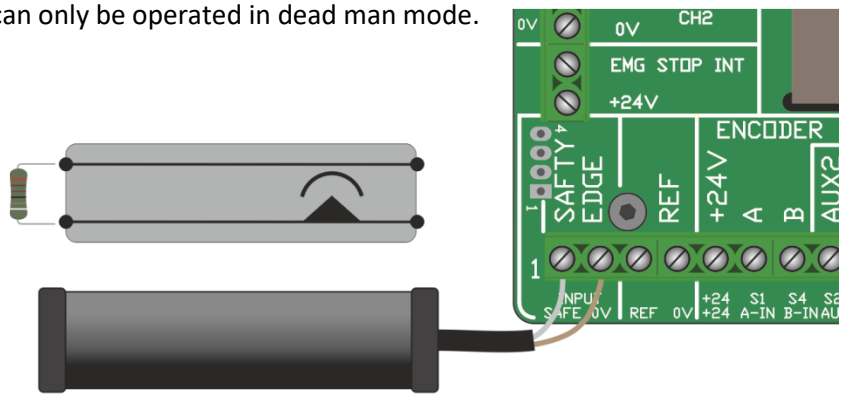
***It is essential that safety edges are used in conjunction with the SCD mini.***
***The safety edge should comply with EN 12978.***
***Use only the dedicated safety edge inputs on terminals 1 and 27.***

### CONDUCTIVE 8K2

Connect front edge to terminal 1 and 2. The terminating resistor must be 8K2 Ohms.
If no safety edge is connected, the door can only be operated in dead man mode.

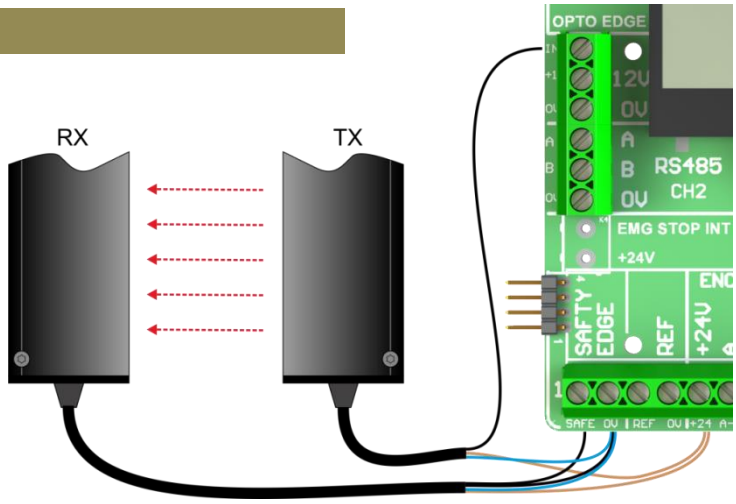
*Set the type of connected safety edge under:*
***System Config ▸ Safety edges***

*While the door is closing, the safety edge is disabled from the "safety edge disable" position to the "fully closed" position.*




## LIGHT CURTAINS

**Telco Light Curtain SG14:**




**Receiver:**

| SCD mini terminal: | Color: | Signal: | |
|---|---|---|---|
| 5 | **Brown** | +24V | Supply |
| 2 | **Blue** | 0V | Ground |
| 27 | **Black** | TR1 | Test Input |

**Transmitter:**

| SCD mini terminal: | Color: | Signal: | |
|---|---|---|---|
| 5 | **Brown** | +24V | Supply |
| 2 | **Blue** | 0V | Ground |
| 1 | **Black** | R1 | SGR Output |
| 2 | **Black** | 0V | SGR Output |
| 2 | **White** | 0V | Blanking Control (0V if used) |

*To meet safety level Cat 2. / P.L. D - NPN2 is used for performing self-test of the light curtain before each close cycle.*

**Cedes Gridscan/Mini:**

***Important!***
***The output type must be O.S.E.: GRS/Mini-xx-xxxx-xx,xx,FS,x,x***

| SCD mini terminal: | Color: | Signal: | |
|---|---|---|---|
| 5 | Brown | +24V | Supply |
| 5 or 2 | White | +24V or 0V* | Test input |
| 27 | Black | FSS | Output |
| 32 | Blue | 0V | GND |
| Not used | Gray | | |
| Not used | Green | | |

*If the test input is active "low" (Type: GRS/Mini-xx-xxxx-xx,xx,x,**L**,x) connect this to +24V.

If the test input is active "HIGH" (Type: GRS/Mini-xx-xxxx-xx,xx,x,**H**,x) connect this to 0V/GND.

## PHOTOCELLS

The photocell input of the controller is able to interface with different types of photocells, the terminals 19 thru 22 are used for connecting either NPN, N/C switch, D.O.T. or Telco LS100 series photocells.
For safety critical operation, integrity check of the photocell system is required and therefore the photocell system must be connected to terminals 27 thru 29.

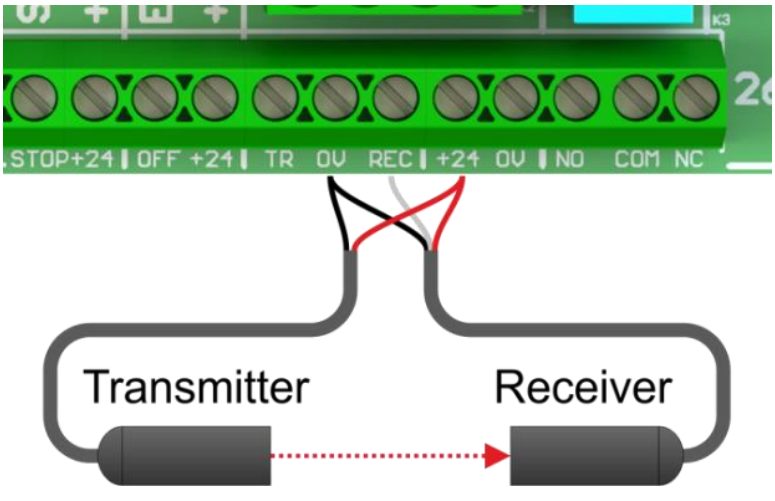
**WARNING**

***To avoid damage to the system, set up the correct photocell type to avoid damage to transmitter under:***
***System Config ▸ Safety Devices ▸ Photocell***

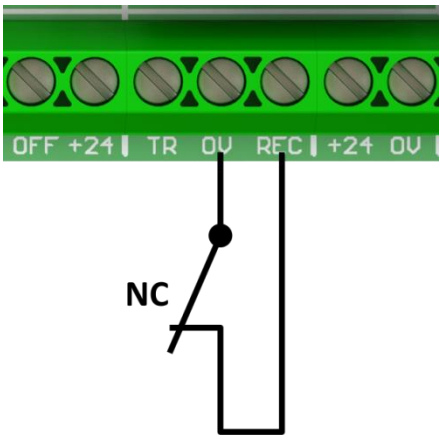
### NPN OR NC SWITCH TYPE

See photocell menu section for configuration.

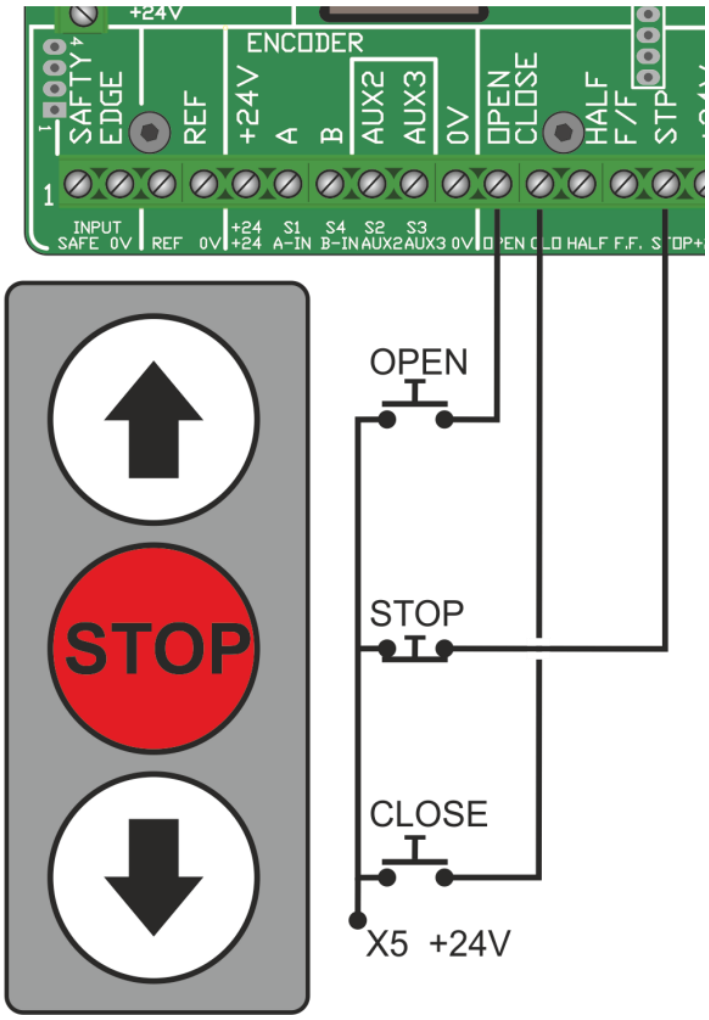
**NPN NC type:**
The photocell input is compatible with a standard NPN NC type photocell output. This must be connected as illustrated below to 0V, REC (input) and +24V.




**NC Switch type:**
The photocell input is compatible with a standard NC switch type output, such as a relay contact. This must be connected between 0V and the REC input as illustrated below.



## CONTROL SIGNALS




The **function** and **level** of each input can set up by parameter.
This way the control interface can be programmed only to have the necessary inputs for the specific application.
*All inputs are 12-24V DC compatible.*
***Function** and **level** (NO / NC) are programmable.*

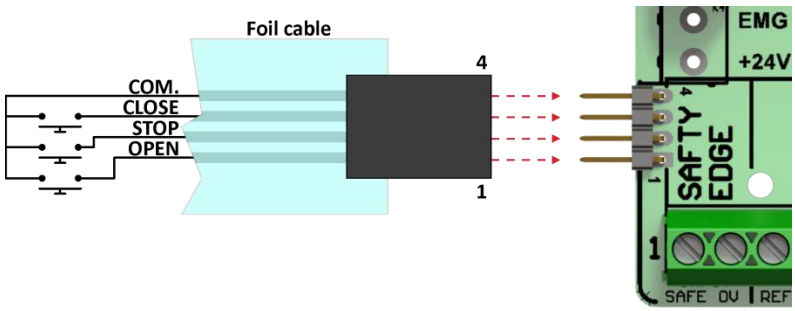
**Emergency stop must be located close to the door and in a way so it can be operated by persons in the door way.**

**List of configurable inputs:**

| Terminal: | Default function: |
|---|---|
| 6* | Encoder input A |
| 7* | Encoder input B |
| 8* | Motor stop |
| 9* | Photocell NPN |
| 11 | Open |
| 12 | Close |
| 13 | Half |
| 14 | Flip / Flop |
| 15 | Stop |
| 16 | Common (+24V) |

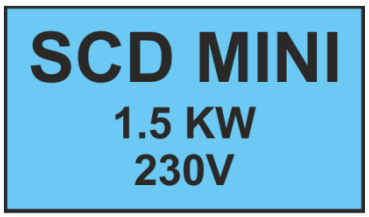
**Reserved when using some encoder types.*

## FOIL BUTTONS



# POWER UP SEQUENCE

When power is switched on, the display will show the model information i.e. power, voltage rating, serial number, software version and active profile.




Type / Power range / Mains supply

***If wireless modules are installed then these will be detected and shown during the start up sequence.***

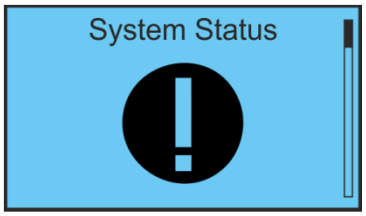

Product serial number


Firmware version

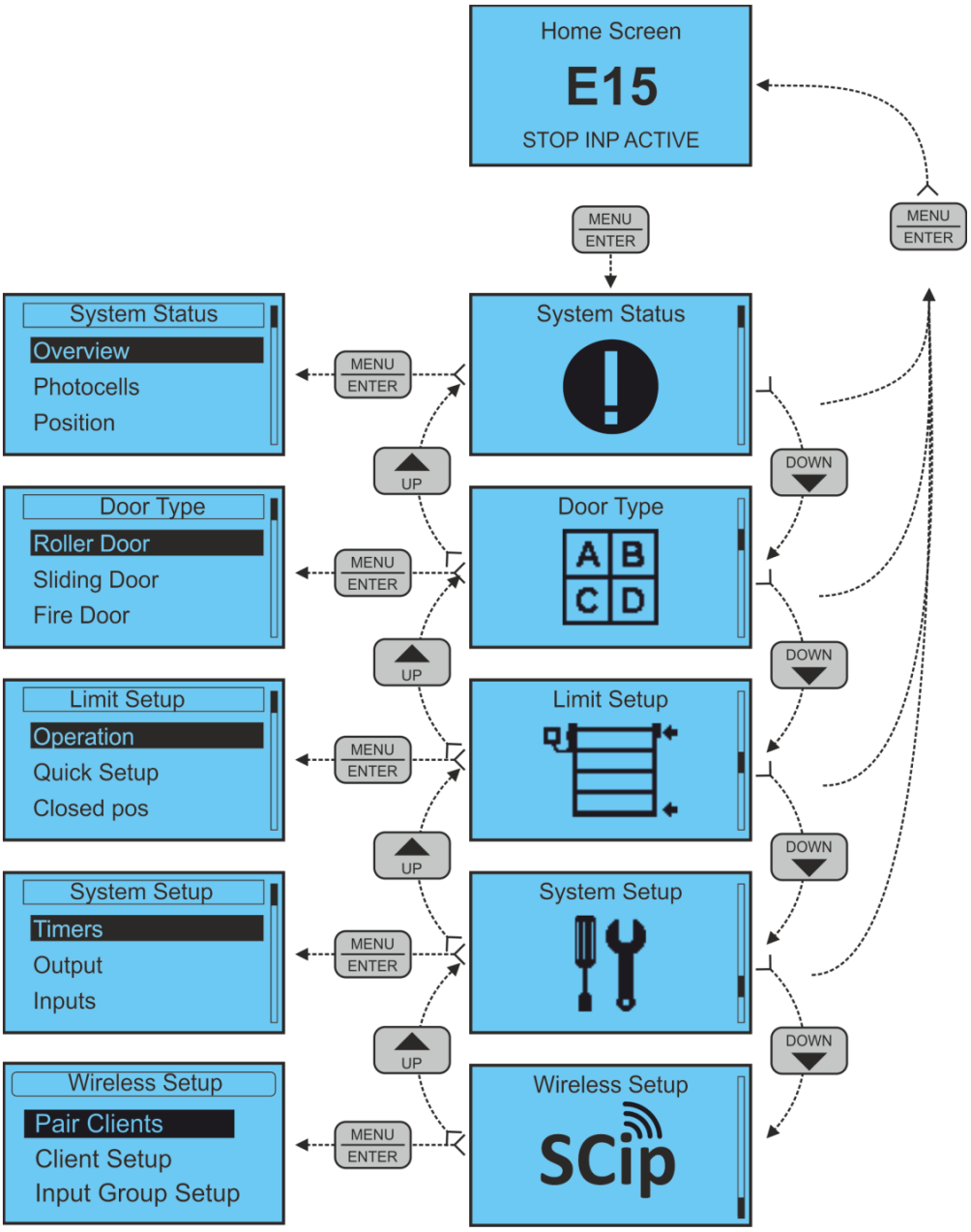

Active door profile

# MENU SYSTEM

## MAIN MENU

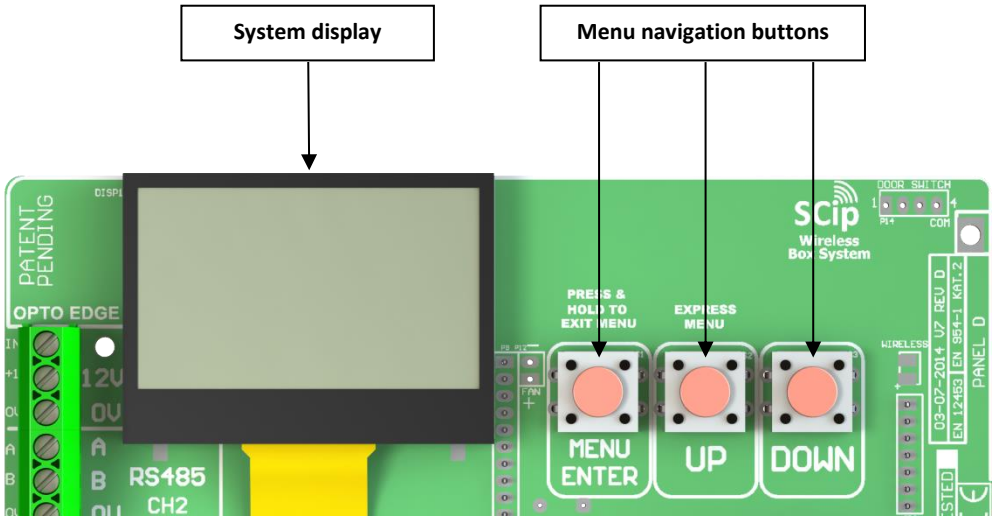



The main menu is displayed as graphic icons on the display.
Enter the menu by pressing a short press at the MENU/ENTER button.
Now navigate in the menu using the UP/DOWN buttons.
Make a short press at MENU/ENTER to enter the selected submenu.



## NAVIGATION

The door controller has a graphics display and 3 buttons for setting up the controller to the desired functions.




## BUTTON FUNCTIONALITY

| Button: | Short press Function | Long Press Function (> 2 seconds) |
|---|---|---|
| MENU / ENTER | Enter selected menu | Exit Select menu / Repeat exit after 2 seconds |
| UP | Navigate one step UP | Scroll UP |
| DOWN | Navigate one step DOWN | Scroll DOWN |

## ACCESS LEVEL

Please note that some menus require a code to be entered in order to gain access.
This is used to prevent unauthorized changes to the controller that could result in be potentially dangerous situations. When a menu is protected by access code a request is prompted.
Enter the correct code to get access o menu.


| Code: | Description: |
|---|---|
| 15 | End user |
| | Installer |
| | Installer plus |
| | Service |

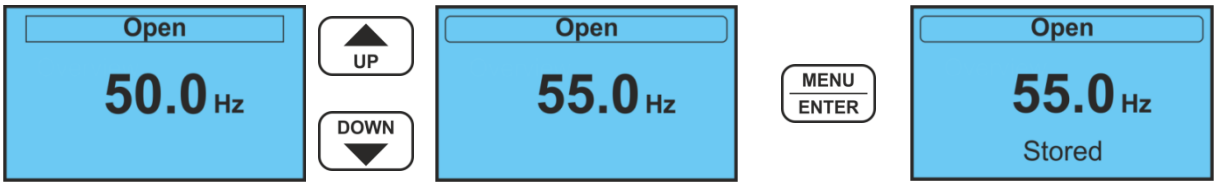
## EXTERNAL BUTTON - MENU CONTROL

Press and hold the 3 buttons in the front of the controller and a bar will show up in the lower segment of the screen. Press and hold until the progress bar is filled. A message on screen will tell that menu is operated from external buttons. Now stop is equal to MENU/ENTER and UP is UP and DOWN is DOWN.
If not used for 30 sec then it automatically goes back to normal button operation.

## VALUES AND FUNCTIONS

**Changing values:**

When configuring the controller parameters such as speed positions and values in % will be encountered, below is an example of speed displayed in Hz.
Use the UP or DOWN buttons to change the value.




Store the changed value by a pressing MENU/ENTER.
The display shows “Stored” in the bottom line.
To exit without storing the changed value press and hold MENU/ENTER.

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**Selecting function:**

If you enter a menu with different options, such as the settings for a relay output, you will see a text list based menu.
Use the UP or DOWN buttons to change the selection.
Then store the value by a short press at MENU/ENTER.
The inverted text illustrates the current selection, and if MENU/ENTER is pressed the box next to this is checked, marking the change.

# MENU DESCRIPTION

## HOME SCREEN


The "home screen" is displayed during normal operation and if no menu is accessed.
The display is divided into the 3 following sections:

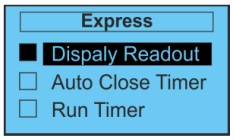
| | |
|---|---|
| **Top** | **Icons:**<br>Displays status information about peripherals such as battery status and wireless operation. |
| **Middle** | **Controller status:**<br>Displays information about the current status of the controller, if an error is present the error code will be shown here. See section Troubleshooting for description of faults. If door is operating normal it will display one of the messages shown in table below. |
| **Bottom** | **Event messages:**<br>when an external event occurs the source will be shown here for a short period or the duration of the event. I.e. if a stop input is active it will be displayed “Stop Active”. |

## OPERATION MESSAGES

| Display: | Description |
|---|---|
| **OFF** | Door controller is off. |
| **MID T.** | Door is outside "fully open / closed" position. |
| **FIND REF** | Door must make a reference run in order to find its "0" position |
| **LOCKED** | Door is locked. Door cannot move before lock signal removed. |
| **MAUNAL** | Door is in manual operating mode. Door can only run in dead man mode. |
| **CLOSED** | Door is in its "fully closed" position. |
| **CLOSING** | Door is closing. |
| **OPEN** | Door is in it "fully open" position. |
| **OPENING** | Door is opening. |
| **PART 1** | Door is open at "Part open position 1" |
| **PART 2** | Door is open at "Part open position 2" |
| **BREAK** | Door is in breakout mode. Reset breakout to return to normal operation. |

Enter the express menu by pressing UP button while the controller is in "idle mode".
The Express menu provides a quick method for a user to edit commonly used parameters.
Enter the menu by pressing the UP button from the idle menu.
Navigate the menu with the UP or DOWN buttons.
To exit press and hold the MENU/EXIT button.

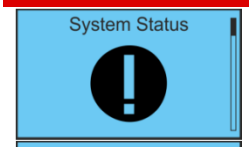
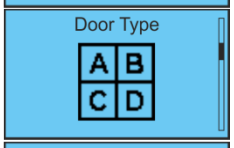
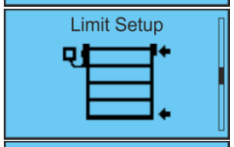
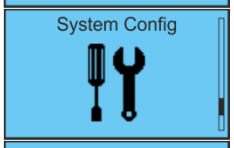
## EXPRESS MENU



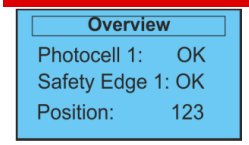
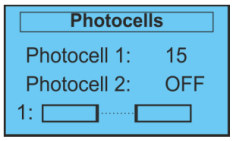
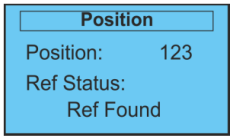
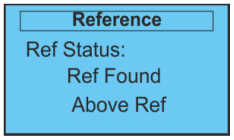
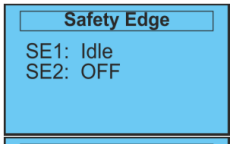
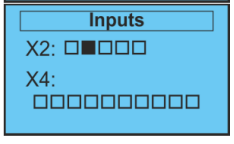

| | | Description: |
|---|---|---|
| **Auto Setup** | | Starts automatic setup of the open/closed position of the door. See section Auto setup for detailed description. Press Menu/Enter to start setup. |
| **Display Readout** | **Normal** | Displays the actual status of door in text. Open/Close and displays if an error is present. |
| | **Motor Current** | Displays actual motor current measured by the controller. This can be a useful tool for troubleshooting motor configuration. |
| | **DC Link** | Displays the internal DC Link voltage. |
| | **Motor Slip** | Displays the difference between the frequency put out to the motor and the frequency read from the encoder. |
| | **Measured Frequency** | Displays the measured frequency calculated from the encoder signal. |
| | **Output Frequency** | This is the frequency output to the motor from the controller. |
| | **Safety Edge 1** | The analog input value of the Safety Edge Input 1 (terminal 1). |
| | **Safety Edge 2** | The analog input value of the Safety Edge Input 2 (terminal 27). |
| | **Position mm** | Current position in mm. |
| **Auto Close F.** | | The time delay after which the door will close automatically from the position "fully open". |
| **Auto Close P.** | | The time delay after which the door will close automatically from the position Part open. |
| **Auto Close O.** | | The time delay after which the door will close automatically from position other than Part open or "fully open" |
| **Run Timer** | | The maximum time a door travel can take before a timeout error is set. The value should be 5 seconds longer than the time required to close the door/gate. During a 'reference run' the value is 3 times the normal run time used. |
| **Dead man Move** | | While in this menu the controller will operate in dead man mode controllable with the UP and DOWN buttons. Any connected safety inputs will be ignored to allow unrestricted movement of the door. |
| **Reset** | | This menu is used to reset the controller. Controller will act as if the mains power was cycled. |
| **Update Firmw.** | | Used to set the controller in “Boot” mode for updating the firmware. (same as press and holding UP button while power is applied) |

**The main menu is entered by pressing the Menu/Enter button from the Idle menu**

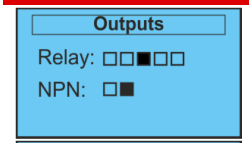
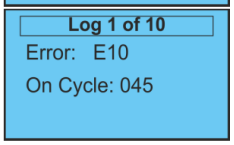
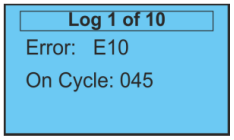
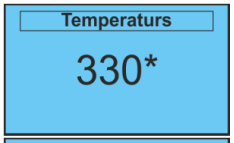
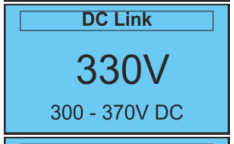
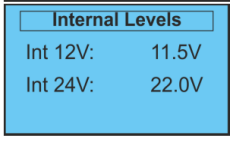
## MAIN MENU

| | Main menus: | Description: |
|---|---|---|
|  | **System Status** | Overview of controller input, outputs and internal information |
|  | **Door Type** | Select which profile to load to the active parameters.<br>This will reset to default settings of the selected door type. |
|  | **Limit Setup** | Set up the door positions. Adjust positions already set. |
|  | **System Config** | Change the door controller settings for motor, peripherals, speed / ramps etc. |
|  | **Wireless Setup** | Connect/add and configure wireless devices. |

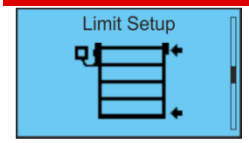
## SYSTEM STATUS

| | | Description: |
|---|---|---|
|  | **Overview** | See the status of the photocells, safety edges and the current position.<br>Change between photocell 2 / safety edge 2 by pressing the UP button. |
|  | **Photocells** | Displays the analog value of the received signal strength and graphic illustration of the actual photocell status.<br>Change view to channel 2 by pressing the UP button.<br>Use this function when aligning photocells.<br>Adjust to maximum value for best performance. |
|  | **Position** | Displays the internal door position count.<br>If an incremental encoder is used information about the reference status is also shown here. |
|  | **Reference** | Displays information about the current reference status.<br>If reference position found or not.<br>Reference switch connection error.<br>If door is Above or below reference switch. |
|  | **Safety Edge** | Displays the current status of the safety edges |
|  | **Inputs** | Quick overview of the controllers digital inputs.<br>Box is marked if input is active.<br>Useful tool for diagnosing external connection faults. |

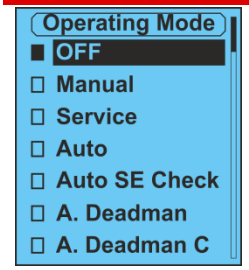
## SYSTEM STATUS (CONTINUED)

| | Description: |
|---|---|
|  | **Outputs** — Quick overview of the controllers outputs. Box is marked if output is active. |
|  | **Fault Log** — Log showing the last 10 faults. Displays the Error code and the door operation cycle it occurred on. Use the UP or DOWN buttons to navigate through the present errors |
|  | **Input Log** — Log showing the last 10 activated inputs. Displays the Input and the door operation cycle it occurred on. Use the UP or DOWN buttons to navigate through the log. Press UP + DOWN for 3 seconds to clear |
|  | **Cycle Counter** — Displays the number of operating cycles the door has preformed. Open / Close = 1 Cycle. The display will cycle between Total no. of cycles (cannot be reset) and the no. of cycles since last service. |
|  | **Temperature** — Displays the internal temperature of the controller. Note this is a raw analog value from inside of the controller, **not shown as °C / °F.** |
|  | **DC Link** — Displays the current internal DC Link voltage and the range it should be within. |
|  | **Internal Levels** — Displays the internal controls supply voltages. Should display around 12V - +/- 1V for internal 12V and around 20-24 for internal 24V. |
| | **Input Diagnostic** — Plays a sound and shows in display when an input is activated. |

## LIMIT SETUP

| | Description: |
|---|---|
|  | |
| **Operation Mode** | Select the operating mode. See section Operating Mode for description. |
| **Quick Setup** | Initiates the "Quick Setup". Using the quick setup you can easily set up limit positions, travel direction etc.<br><br>Please see the section Quick Setup for further details. |
| **Closed**<br>**Pre Closed**<br>**Pre Open**<br>**Open**<br>**Open Part 1**<br>**Open Part 2**<br>**Rev Edge OFF**<br>**Photocell OFF** | Manually set the door positions. Move the door with the UP/DOWN button and store or the external foil buttons.<br><br>Store position by pressing MENU/ENTER button when finished. Display will show "stored" and return to the previous menu. |
| **High Torque** | This function is provided for sliding doors, gates where high torque is needed in the first and final part of the opening and closing.<br><br>This enables the “High boost” value from "fully closed" position plus the set “position distance” in this parameter and also in the "fully open" position minus the distance in this parameter. Set to 0 to disable. |

## OPERATING MODES



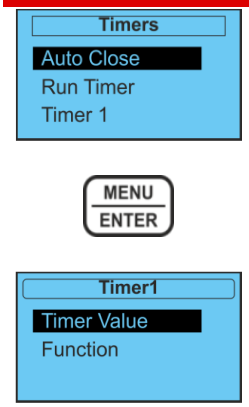

By default operating mode is set to **Auto** after quick setup is performed.

| | Description: |
|---|---|
| ☐ **OFF** | OFF - no output the motor. |
| ☐ **Manual** | It is possible to run the motor in dead man operation with no limits.<br>This is done at dead man speed. |
| ☐ **Service** | N/A |
| ☐ **Auto (default)** | Automatic operations – the door runs in full speed to the programmed positions.<br>The safety edge is checked before each close and is |
| ☐ **Auto SE Check** | Similar to "Auto" mode but requires that the safety edge is activated during each "fully closed" event.<br>Used mainly with pneumatic safety edges). |
| ☐ **A. Dead man** | Runs within limits with the same ramps and speeds as in "Auto" mode.<br>But operable in dead man mode. |
| ☐ **A. Dead man C.** | Automatic open / dead man close.<br>Door travels within limits at the same ramps and speeds as in "Auto" mode |

## SYSTEM SETUP


| | Description: |
|---|---|
| **Timers** | Set up the door control timers |
| **Outputs** | Set up the door control outputs |
| **Inputs** | Set up the door control inputs |
| **Position Sensor** | Set up the door control position sensor |
| **Reference** | Select the reference for the door positioning |
| **Safety Devices** | Set up Safety edges / Photocells / light curtain |
| **Motor Config** | Set up motor related settings |
| **Door Speeds** | Set up door speeds in the different states |
| **Ramps** | Set up door ramps – Acceleration / Deceleration |
| **Specials** | Special Custom functions – Move assist / Delta Slip |
| **System** | System settings |

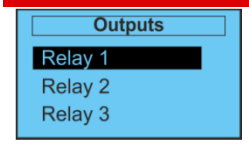
## TIMERS




| | Description: |
|---|---|
| **Auto Close F.** | Set the value for the Auto close timer that is used when the door is in the "fully open" position. |
| **Auto Close P.** | Set the value for the Auto close timer that is used when the door is in the "part open" position. |
| **Auto Close O.** | Set the value for the Auto close timer that is used when the door is not in the "fully open" or "part open" position. |
| **Run Timer** | The maximum time a door travel can take before a timeout error occurs. The value should be set to 5 seconds longer than the time required to close the door/gate. During a "reference run" the time is 3 times the normal run time used. |
| **Timer 1** | **Timer Value:** |
| **Timer 2** | Set the time value for the following timers. |
| **Timer 3** | Time base is 1/10 seconds.<br><br>**Timer Functions**: Set the function for the timer see table below; |

| TIMER FUNCTIONS | Description: |
|---|---|
| **No Function** | Timer has no function |
| **Auto Close Timer Part1** | Auto close from part open 1 |
| **Auto Close Timer Part2** | Auto close from part open 2 |
| **Safety Close** | If safety edge or photocell has been activated the auto close time is changed to this Safety Close time instead. |
| **Pre Warn Time** | Used in combination with output function. Timer starts when the auto close timer reaches the set pre-warn time. |
| **Air curtain** | Delayed open. The door open is delayed by the timer. Relay function Air curtain is active when the timer starts. |
| **Delay To Close** | Open command is delayed with the set time before the door closes |
| **Auto Ref. Timer** | The door will start an automatic reference run after power up after the timer runs out. |
| **Open Alarm** | Activates output function when door has been open longer than the time set. Timer start when door position > fully closed |
| **Delayed Door Closed** | Starts when door is fully closed – Activates output function Delayed Door Closed when it runs out. |
| **Auto Open Timer** | Opens door automatically when door is fully closed and timer runs out. Used for Cycle test. |

## OUTPUTS



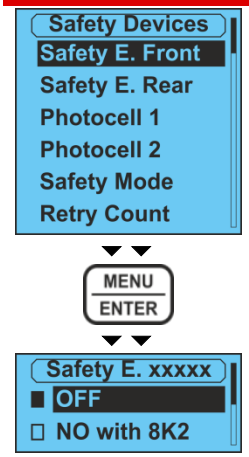

| | Description: |
|---|---|
| **Relay 1** | Relay outputs max.<br>1A @ 24V DC<br>0.5A @ 120V AC<br>Resistive loads only. |
| **Power Relay** | Power relay output max. 5A @ 240V AC - Resistive loads only. |

| OUTPUT FUNCTIONS | Description: |
|---|---|
| ☐ **No Function** | Relay not active. |
| ☐ **Door Moving** | Active when output frequency is > 0,5Hz. |
| ☐ **Door idle** | Active when output frequency is < 0,5Hz. |
| ☐ **Door Open** | Active when door is above "fully open" position. |
| ☐ **Door Closed** | Active when door is below "fully closed" position. |
| ☐ **Door Not Closed** | Active when door is above "fully closed" position. |
| ☐ **Open Partial** | Active if door is opened to "part open 1" position. |
| ☐ **Door Opening** | Active while door opening. |
| ☐ **Door Closing** | Active while door closing. |
| ☐ **Delay To Close** | Active while delay to close timer is > 0 |
| ☐ **Air Curtain** | Active when the air curtain timer starts and is not active when the door reaches the "fully closed" position. Used for air curtains. |
| ☐ **Auto Close Active** | Active while Auto close timer is > 0. |
| ☐ **System Error** | Active if there is an error present. |
| ☐ **Pre-Warn** | Active if pre-warn time is > Auto close timer. |
| ☐ **Open Alarm** | Active if door has been open longer than the open alarm timer. |
| ☐ **Service Counter** | Active if "Operation Counter" has exceeded the "Service Counter" value. |
| ☐ **Brake After Run** | Active at half the timeout of After Run Pressure – For mechanical brake.<br>(For sliding doors with seals). |
| ☐ **Delayed Door Closed** | Activates when the door is fully closed and the timer runs out. Timer is started when door is "fully closed". Used for mechanical lock. |
| ☐ **System OK** | Function optimized for door open light signal. |
| ☐ **Closed Light** | Function optimized for door "fully closed" light signal. |
| ☐ **Part open Light** | Function optimized for door "Part Open 1" light signal. |
| ☐ **Door Locked** | Active when door is locked from Lock input. |
| ☐ **1 sec pulse Opn** | Active 1 seconds when the door is "fully open". |
| ☐ **1 sec pulse Clo** | Active 1 seconds when the door is "fully closed". |
| ☐ **1 sec Active** | Active for 1 seconds when an open input is activated. |

## SAFETY DEVICES


| | | Description: |
|---|---|---|
| **Safety Edge Front** | | Select the type of connected safety edge. |
| **Safety Edge Rear** | | |
| **Photocell 1** | | Select the type of connected photocells. |
| **Photocell 2** | | |
| **Safety Mode** | ☐ **Normal** | When activated the door stops, opens fully and then retries with normal speed. |
| | ☐ **Slow Retry** | When activated the door stops, opens fully and then retries with dead man speed until it reaches past the point it was activated. |
| | ☐ **Stop** | When activated the door stops. |
| **Retry Count** | | Set the number of retries the door makes before it stops.<br>**Options:** No retry / 1 / 2 / 3 / 4 / 5 / 10 / Unlimited retries |

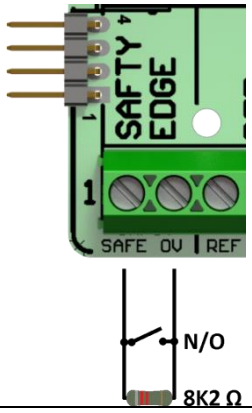
## SAFETY E. XXXXX



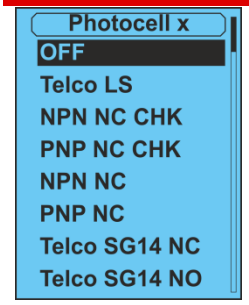

| Safety edge setup: | Description: |
|---|---|
| ☐ **OFF** | No safety edge connected |
| ☐ **NO with 8K2** | Normally Open with 8K2 resistor |

**WARNING**

***Operation without safety edge is not recommended. Please note that the installer must make sure that the system complies with the safety related standards in the specific location of installation.***




## PHOTOCELL TYPES




| | Description: |
|---|---|
| **OFF** | Photocell disabled. |
| **D.O.T.** | The integrated opto amplifier is used when system is selected.<br>See section D.O.T. system for connection. |
| **NPN NC** | NPN NC type Photocell is used.<br>See section NPN NC/switch type for connection. |
| | |
| | |
| | |
| | |
| | |

# QUICK SETUP

If the display shows E15 then press and hold the down button. This will enter the quick setup menu. Otherwise locate it at the menu Limit Setup -> Quick Setup.
The quick setup makes it easy to setup the door positions, please be aware that the below procedure differs with the type of encoder used.

| Step: | Display: | Action: | |
|---|---|---|---|
| 1 | **Check encoder direction:**<br>Quick Setup<br>Press & Hold<br>UP To Open Door<br>0mm | Use **UP** button to move door in the open direction.<br>Now check that the count is counting positive and door is moving against open position.<br>The door stops automatically, release the button and if the direction is **OK** press **UP**, if **WRONG** press **DOWN.**<br><br>Pressing **DOWN** will change the direction at this point. | UP<br>or<br>DOWN |
| 2 | **"fully open" position:**<br>Open Limit<br>Move Door To<br>Open Limit<br>0mm | Move the door to the "fully open" position using the **UP** or **DOWN** button.<br><br>Store this position by pressing<br>**MENU / ENTER** | UP<br>or<br>DOWN<br>MENU ENTER |
| 3 | **"fully closed" position:**<br>Closed Limit<br>Move Door To<br>Closed Limit<br>0mm | Now move the door to the fully closed position using the **UP** or **DOWN** button.<br><br>Store the position by pressing<br>**MENU / ENTER**<br><br>**Incremental encoder:**<br>If you are using an incremental encoder the controller will now perform a reference run to calculate the position values to be stored. | UP<br>DOWN<br>MENU ENTER |
| 4 | **Finished:**<br>Quick Setup<br>Done | Quick setup is done.<br>The calculated are now stored.<br><br>The operation mode is set to “Auto” | **Error:**<br>Quick Setup<br>Aborted<br>If something went wrong the error code E17 will show. Limits are reset. **Go to step 1 and try again.** |

# SPECIFICATIONS

## PRODUCT LABEL

**Exterior label:**


This label informs you of the model/type of the enclosed controller.

**Internal PCB assembly label:**


This label informs you of the controller type number, serial number, test at factory date and relevant electrical/environmental specifications.

## MODEL IDENTIFICATION

| | I out | | Mains input | | Mains filter | Brake chopper |
|---|---|---|---|---|---|---|
| | 3 x 4A | 3 x 10A | 120VAC (1 Phase) | 230VAC (1 phase) | | |
| SCD mini 750G-120 | ● | | ● | | ● | ● |
| SCD mini 750G | ● | | | ● | ● | |
| SCD mini 1500G | | ● | | ● | ● | ● |

## TECHNICAL SPECIFICATIONS

| | | | |
|---|---|---|---|
| **IP class rating:** | | 54 | |
| **Cooling:** | | Internal fan | |
| **Altitude:** | | Contact supplier for installations in high altitude locations (> 1000) | |
| **Humidity:** | | RH <90% (Non-condensing) | |
| **Ambient Operating Temperature:** | | -10°C to +40°C | |
| **Noise levels:** | | 47dB (A) | |
| **Mains power no load** | | 5W (No load) | |
| **Mains Input:** | | **110V model:**<br>Mains voltage: 100 to 117VAC<br>Frequency: 50/60hz<br>Max fuse: 20A - *Curve C 6kA* | **230V model:**<br>Mains voltage: 207 to 244VAC<br>Frequency: 50/60hz<br>Max fuse: *16A - Curve C 6kA*<br>Min. wire dia. 1.5mm2 if in free space / air. |
| **Internal power supply:** | | +24V – 0.5A – Fused – Monitored<br>+12V – 0.2A – Current limited - Monitored | |
| **Outputs:** | 28 | 12V output for O.S.E. safety edge | |
| | 19 | Exclusively used for signals to photo transmitter | |
| | 24, 25, 26 (Relay) | Max: 1A - 24V DC / 0.5A - 120V AC | |
| | Power relay | Max: 5A - 240V AC | |
| **Inputs digital:** | 11 to 15 | 12 -24V DC compatible. | |
| | 6, 7 | Quadrature inputs for encoder or standard digital inputs | |
| **Inputs analog:** | 21 | Exclusively used for analog signals from photo receiver | |
| **Safety Inputs:** | 1, 2 | Safety Edge input for 8K2 terminated edge. N.O. – Cat. 2 / P.L.d | |
| | 27, 28, 29 | O.S.E. Safety edge (opto edge terminal) | |
| | 19, 20, 21 | Photocell / Light Curtain Input – Cat 2 /P.L. d | |
| | 17 | Emergency stop | |
| **Communications:** | RS485 CH1 | RS485 communications. Terminated with 120 Ohms | |
| | 30, 31 (RS485 CH2) | RS485 communications for encoder communications. Terminated with 120 Ohms | |

## TROUBLESHOOTING

| Error Code: | Cause: | Check: |
|---|---|---|
| **UU** | The mains voltage is too low | Check mains voltage and cabling |
| **OV** | Over voltage.<br>Either the mains voltage is too high or the deceleration is too fast | Check mains voltage and System Config -> Ramps Deceleration. If deceleration is too fast the controller cannot dissipate the excess voltage quickly enough. |
| **OH** | Over heating inside the panel, the inverter is too hot. check ventilation. | |
| **OC1** | The drive is overloaded.<br>The motor current exceeds the Inverter rating by 210% | Check motor connections and for mechanical obstructions. |
| **OC2** | The motor current has exceeded the inverter rating by 150% for more than 30 seconds. | Check for mechanical obstructions. |
| **OC3** | Over current whilst accelerating, the acceleration curve is too steep. | Check System Config -> Ramps |
| **OC4** | Over current event while dc brake is active. | The dc braking is too aggressive, Motor Config ->DC Brake |
| **OC5** | Severe overload, possibly permanent damage to the controller. | Check for a short, or the motor is stalled, brake not releasing, or Motor Config -> Boost too high |
| **HE1** | Low internal 12V supply. | Check I/O wiring for short or overload. |
| **HE2** | Low internal 24V supply. | Check I/O wiring for short or overload. |
| **E01** | Mechanical overload (slip monitoring) or missing signal from the encoder. | Check the encoder wiring and possible mechanical obstruction. |
| **E02** | Direction error. | Check encoder wiring.<br>Confirm that the pulses count up while opening and down when closing the door. |
| **E03** | No signal from the encoder - (only during installation). | Check the wiring related to the encoder, and any possible mechanical obstruction. |
| **E04** | Another input than expected has been activated. | Check the position of the reference point and the reference setup. |
| **E05** | The reference switch is shorted or broken. | Check the reference switch. |
| **E06** | The reference switch input is activated at an unexpected/wrong position. | If using an incremental encoder the reference switch has activated at the wrong position, or if using limit switches, the pre-close limit switch is open circuit. |
| **E07** | Run time exceeded. | Check the run timer setting |
| **E08** | The safety edge test has failed. | Check the connections to the safety edge. |
| **E09** | Connection fault on safety edge 1. | Check the connections to safety edge 1. |
| **E10** | The safety edge 1 has been activated. | Check if there is a mechanical obstruction. |
| **E11** | Connection fault on safety edge 2. | Check the connections to safety edge 2. |

| Error Code: | Cause: | Check: |
|---|---|---|
| **E12** | The safety edge 2 has been activated. | Check if there is a mechanical obstruction in the door opening/closing. |
| **E14** | Communications error with the absolute limit switch | Check the wiring of the absolute limit switch. |
| **E15** | Reset limit positions failed | Redo the quick setup |
| **E17** | Fire signal present | Check input for fire signal |
| **E18** | X-net - Wireless airlock failed to authorize opening | |
| **E19** | X-net - Wireless - No response | |
| **E21** | SCip Wireless - Remote timeout | |
| **E22** | SCip Wireless - Edge timeout | |
| **E23** | SCip Wireless - Edge connection fault | |
| **E24** | SCip Wireless - Host connection fault | |
| **E25** | Safety Device test fault Ch1 | Check that test signals are connected correctly |
| **E26** | Safety Device test fault Ch2 | Check that test signals are connected correctly |
| **E27** | Critical input active during power up | Make sure that Inputs are not activated during power up |
| **E28** | Internal self test failed - RAM / ROM / EEPROM | Reload door profile – If problem consists contact supplier |
| **E30** | Test of safety critical inputs failed | Make sure monitored input are connected to the monitored +12V supply at terminal 28 |

## SERVICE

All the safety functions must be tested at least 2 times a year in accordance with the regulation. This must be done so each safety photocell, safety edge and light curtain is checked for its functionality.

## REPAIR AND DISPOSAL

**WARNING! ELECTRICAL HAZARD:**

**Always disconnect mains supply and wait for 5 minutes before servicing the high voltage connections of the installation or the door controller.**

***Lethal voltages inside:***
***Do not take the controller apart in an attempt to repair it, this is related to serious danger and is a task for a qualified technician only.***

If you need technical support or if the product is damaged please contact your supplier.

The product should be disposed and treated as WEEE (Waste Electrical and Electronic Equipment) according to national rules.

## CHANGE LOG

| Revision: | Description: | Initials: | Date: |
|---|---|---|---|
| V1.0.0 | Initial version | ASN | 31-10-2013 |
| V1.0.1 | Updated Various – New Layout with colors | ASN | 09-09-2015 |
| V1.0.2 | Updated Various | ASN | 09-09-2015 |
| V1.0.3 | Corrected Declaration of conformity & minor layout | ASN | 22-09-2015 |
| V1.0.4 | Technical specifications section and other various updates | AEC | 03-12-2015 |
| V1.0.5 | Limit switches section updated, HW revision in footer updated | AEC | 08-02-2016 |
| V1.0.6 | Updated Various | AEC | 10-03-2016 |
| V1.0.7 | Limit switches section updated | AEC | 14-03-2016 |
| V1.0.8 | Control signal section | AEC | 15-04-2016 |
| V1.0.9 | Cedes light curtain connections added | AEC | 13-05-2016 |
| V1.1.0 | Cedes light curtain connections updated | AEC | 07-06-2016 |
| V1.1.1 | Limit switch update | ASN | 09-09-2016 |
| V1.1.2 | General Update | ASN | 08-12-2016 |