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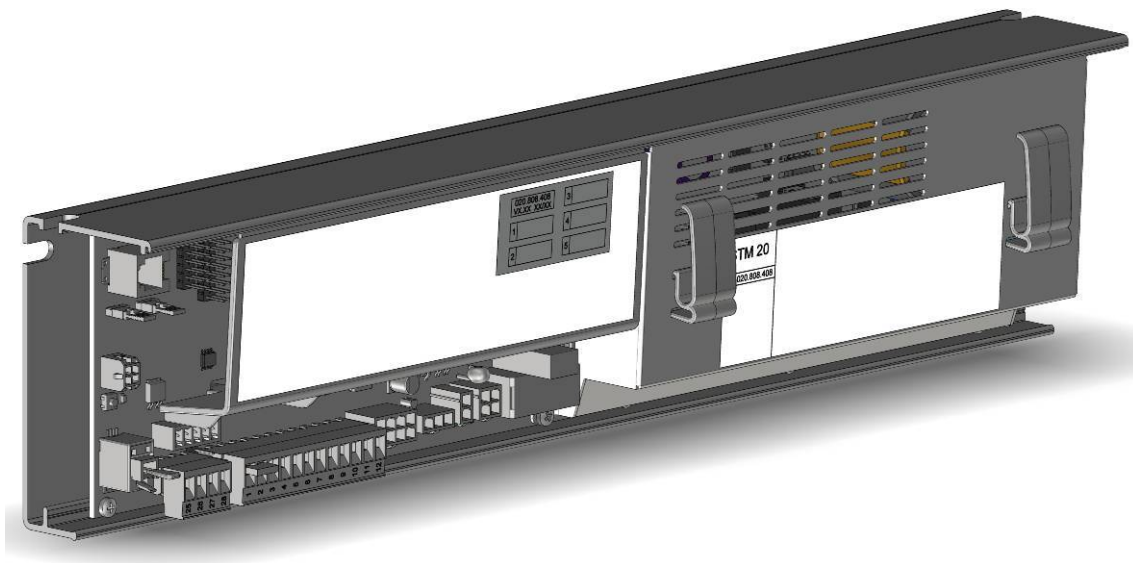


021-44929013

Control

09123036082

Sliding door system 20



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B6

Manufacturer

agtatec ag
Allmendstrasse 24
CH-8320 Fehraltorf

Service-Hotline

Distributer

Art. Nr. 102-020401135

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1. General

1.1. Document identification

Name: B6_Control_SYS20_EN_V1.2.doc
Version: V1.2
Serial no.: 102-020401135

1.2. Structure of the documentation

The documentation of the system 20 is divided into different manuals, in order to reduce file size and to simplify the handling.

The structure of the document is as follows (B1 =book 1):

B1_General

B2_Assembly STA

B3_Assembly TSA

B4_Assembly TOS

B5_Options

B6_Control

B7_Commissioning

B8_Annex

B9_Assembly and Start-Up FTA/FBO

1.2.1. Overview of each chapter

Chapter	Content
B1_General	General Safety instructions Preparations Technical data General plans
B2_Assembly STA	General Installation drive module D-STa/E-STa Installing running gear D-STa/E-STa Installing door leale D-STa/E-STa Installation of the drive unit D-STa/E-STa
B3_Assembly TSA	General Floor tracks / Door leaf guides Profile system D-TSA/E-TSA – Overview Attaching and adjusting carriages Installing slow running plane D-TSA / E-TSA Installing fast running plane D-TSA / E-TSA Attaching drive unit set D-TSA / E-TSA Profile system D-TSA/E-TSA – Overview Installing fast running plane D-TSA / E-TSA

B4_Assembly TOS	- General - TOS installations – for escape and rescue routes - Mounting profile and tracks - Mounting and setting the side leaves - Locking - Electrical connections
B5_Options	- General - Locking - Installation of CO48 - Extended function module - Battery / Accumulator - Operator casing - Fanlight - Protective screen
B6_Control	General Control module STM 20 Control module STM 20 RED / DUO Control module STM 21 Control module STM 21 RED Control module STM 22 RED / DUO
B7_Commissioning	- General - Principles for commissioning - The CAN-bus - BDE-D Operating unit - Operating instructions Easy-Programmer EPC 903 - Start-Up - Commissioning of systems - Parameter explanations
B8_Annex	- General - Module types cladding height 200 mm - Drive module - Drawings - Article list
B9_Assembly and Start-Up FTA/FBO	- General - Technical Data - Elevation/drawing of header FTA/FBO - Installation FTA/FBO 20 - Parameter - Options

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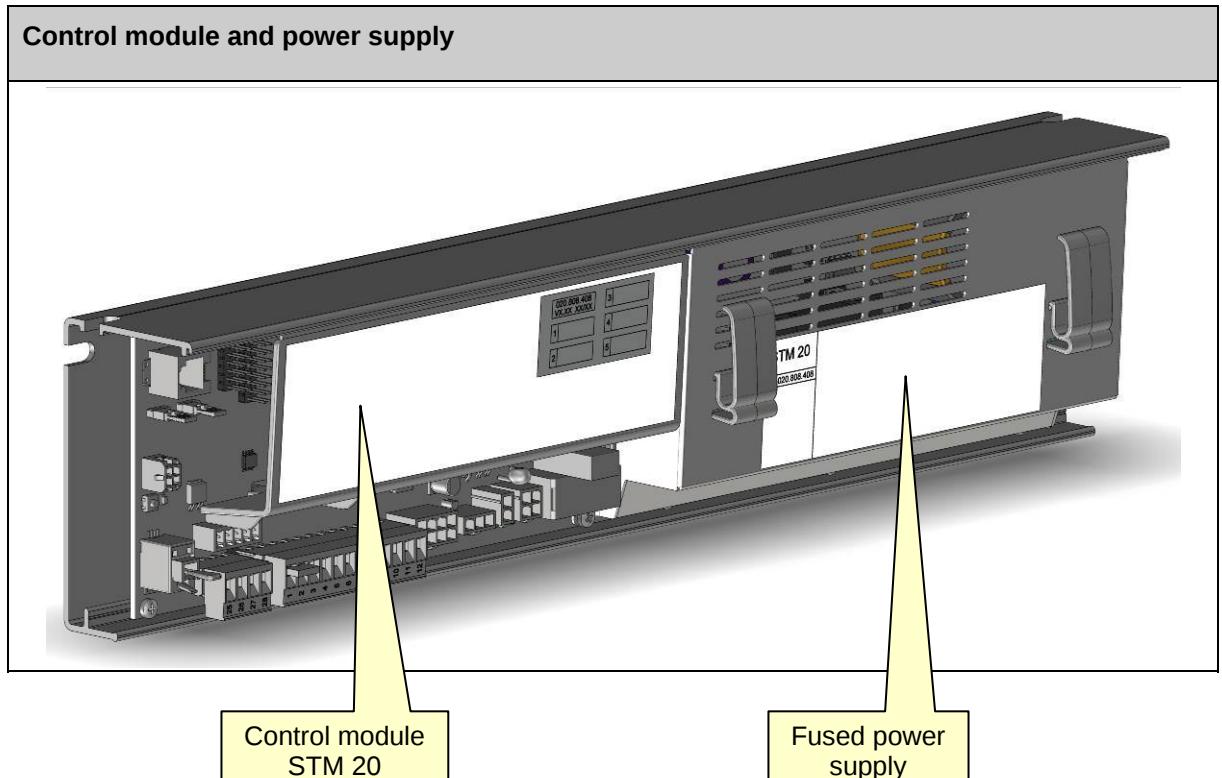
1.3. Instruction manual

After the system installation, the instructions have to be stored in an accessible and dry place.

2. Control module STM 20

2.1. Controlling elements on STM 20

Control module STM 20 works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Safety functions of inputs are activated in case of interruption. 0V is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 2 (red) comes on.



DANGER



ELECTRIC SHOCK

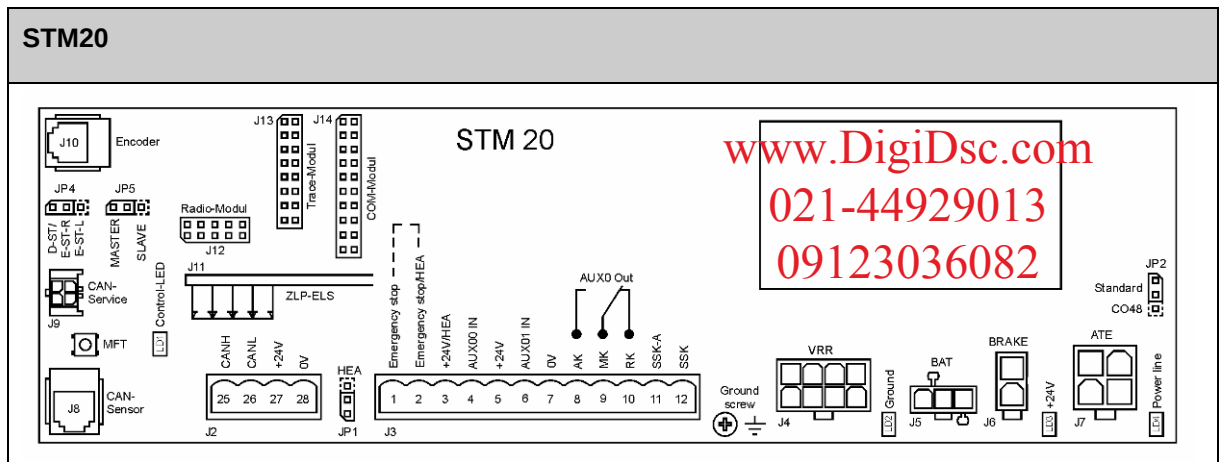
- Electric shock, combustion, death when touching the power supply without protection cover
 - Before opening the metallic cover of the power supply unit, disconnect it from the mains
 - The installation may only be connected to the mains again, **after** the protection cover has been closed again

NOTE



The STM 20 control module has been tested after ISO standard 13849-1:2006, category 2 PLc.

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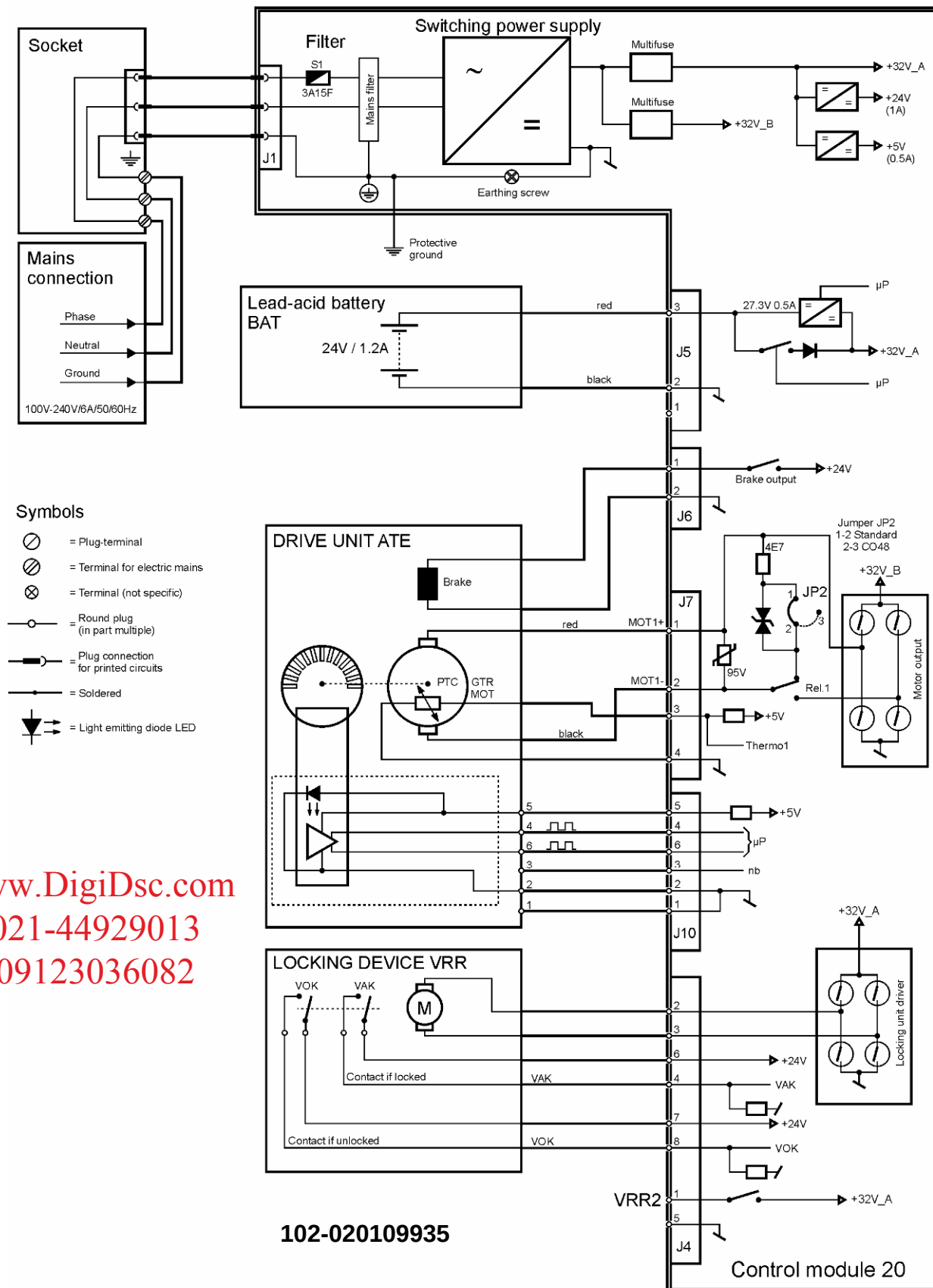
2.2. Type plate STM 20

Jumper		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series: - HEA → 3-2 - Emergency stop → 2-1
JP2	Standard / CO48	Influences motor-driven braking function in case of power failure (weaker with CO48)
JP3	Syst.-conditioned, internal	Not visible – reserved for future applications
JP4	Standard D-ST & EST L	Change plugging to reverse rotational direction (EST-R) – The resetting of the control is required
JP5	Standard master mode	Slave – only in case of two STM 20
Light-emitting diode		Meaning
LD1	Red control-LED	For MF button S1 – blinking, when button is pressed
LD2	Ground – Red control-LED	- Must light up, if protective earth screw is withdrawn - Otherwise grounding is on
LD3	green + 24 V	- Is on, if 24 volt circuit is OK - Comes off in case of short-circuit in 24 volt
LD4	green + 32 V	Is on, if system connected to mains voltage
Multifunctional key		Function, after impulses have been given
1 pulse		Releases an opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		- Battery emergency reaction, as long as system is disconnected from mains - Battery test in case of mains connection
8 pulses		Loads default values of door type selected

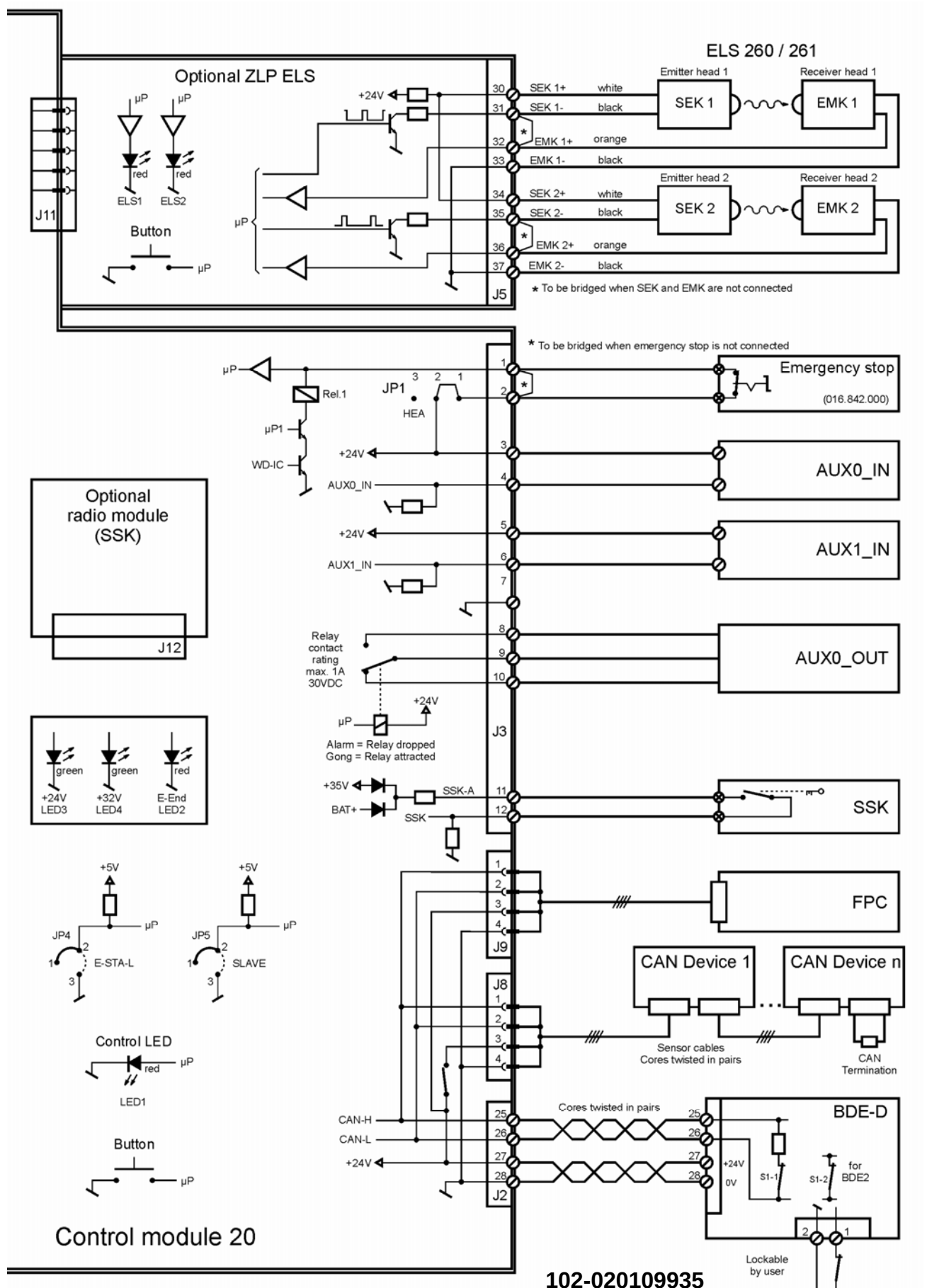
9 pulses	Back to factory settings (afterwards an emergency stop or a reset must be actuated within 10 seconds) The function emergency-stop with reset can only be actuated if the INPUT/OUTPUT parameter Emergency-Stop with Reset is active!!
14 pulses	Hardware-Reset will be done after approx 12 sec.
Connector designation	Connections
J1	Mains plug
J2	Terminals 25 - 28 → for BDE-D
J3	Terminals 1 - 12: Functions according to wiring diagram 102-020109934
J4	Locking device
J5	Battery
J6	Motor brake
J7	ATE motor
J8	CAN bus
J9	CAN bus plug for FPC-servicing
J10	Encoder motor
J11	Extra printed circuit board ELS (ZLP ELS)
J12-14	Reserved for future modules

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2.3. Wiring diagram control module STM 20



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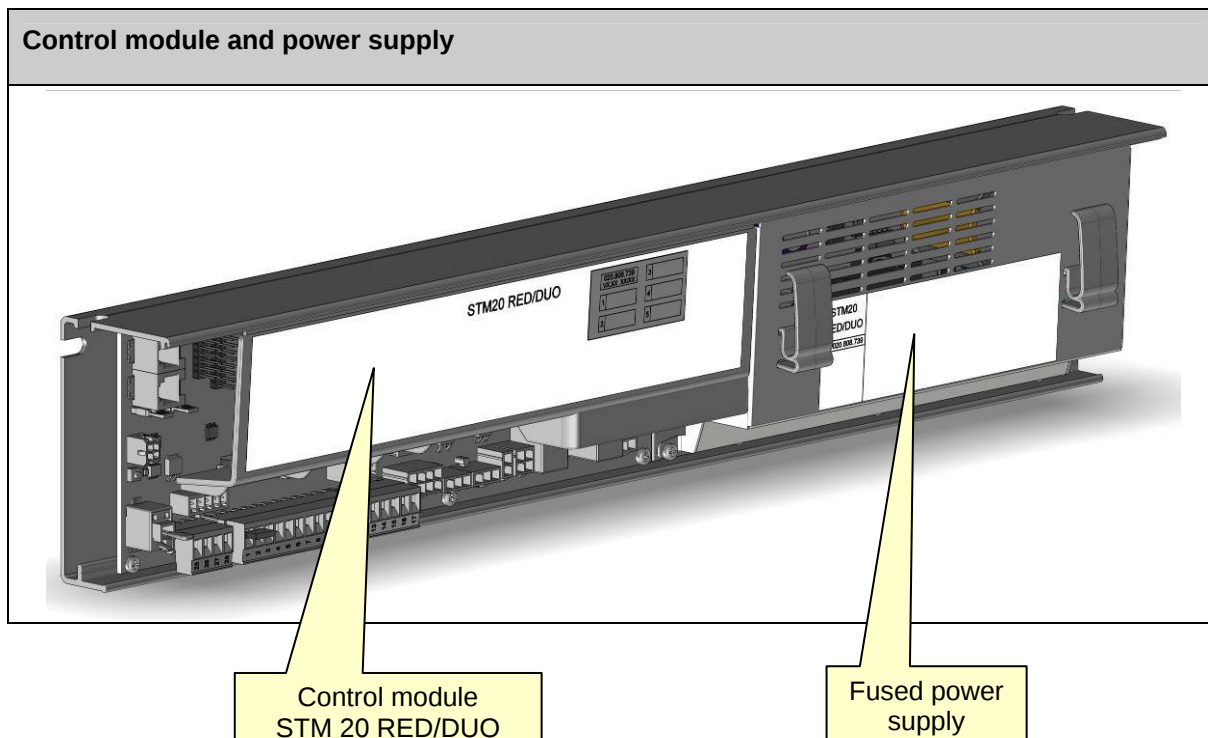


102-020109935

3. Control module STM 20 RED/DUO

3.1. Controlling elements on STM 20 RED/DUO

Control module STM 20 RED/DUO works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Protective inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 1 (red) comes on.



DANGER



ELEKTRIC SHOCK

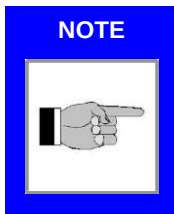
- Electric shock, combustion, death when touching the power supply without protection cover
 - Before opening the metallic cover of the power supply unit, disconnect it from the mains
 - The installation may only be connected to the mains again, **after** the protection cover has been closed again.

3.2. Applications

Control module STM 20 RED/DUO is – according to the software implemented and the appropriate authorization – used for the installations below.

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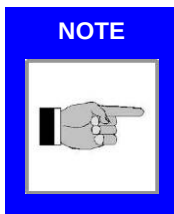
3.2.1. Escape and rescue routes as RED installation



Control module STM 20 RED/DUO **with RED software** has been tested according EN 13849-1:2006, **category 3 PLd**.

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3.2.2. Heavy door leafs as DUO installation

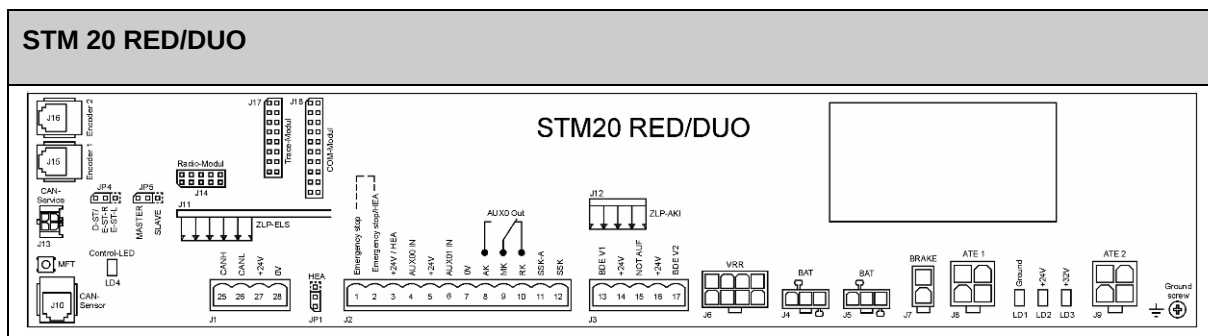


Control module STM 20 RED/DUO **with DUO software** has been tested according EN 13849-1:2006, **category 2 PLC**.



- STM 20 RED/DUO is **usually delivered with a RED software!**
- In the event of applications as DUO-operators (heavy doors), the appropriate DUO-software must be installed on CPU 1 and CPU 2!
→ FPC flash → manual installation (both CPU's!)

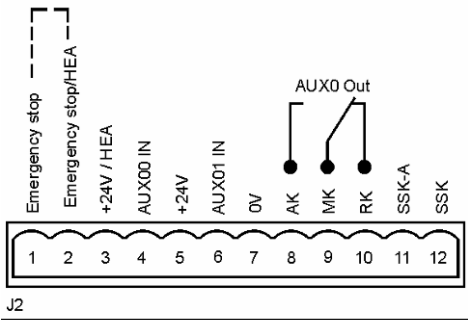
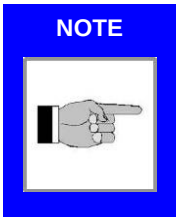
3.3. Type plate STM 20 RED/DUO



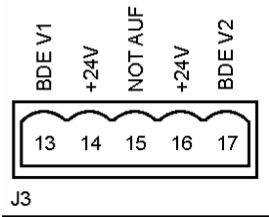
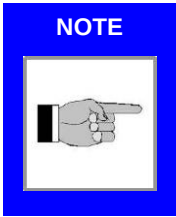
Jumper		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series • HEA → 3-2 • Emergency stop → 2-1
JP2		Not printed
JP3	Syst.-conditioned, internal	Not visible – required for VRR2 (MPV 16)

JP4	On RED and DUO installation	
	D-ST & EST-R	Factory setting
	EST-L	Fixing connecting clamp to upper part of toothed belt - Shunt position remains unchanged !
JP5	Standard Master operation mode	Slave – only in case of two STM 20
Light-emitting diodes		Meaning
LD1	Ground – red control-LED	• Ground – must light up, if protective earth screw is withdrawn • Otherwise grounding is on
LD2	green + 24 V	• Is on, if 24 volt circuit OK • Comes off in case of by-pass in 24 volt circuit
LD3	green + 32 V	• Is on, if system connected to mains voltage
LD4	red control-LED	For MF key S1 – is blinking, if button is pressed
Multifunctional key		Function, after pulses have been given
1 pulse		Releases an opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		RED • Redundancy test, if system connected to mains voltage DUO • Battery emergency reaction, as long as system disconnected from mains • Battery test in case of mains connection
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards emergency stop must be actuated within 10 seconds)
14 pulses		Hardware reset is performed after approx. 12 seconds
Connector designation		Connections
J1		Terminals 25 – 28 → for BDE-D
J2		Terminals 1 – 12: Functions according to wiring diagram 102-020110534
J3		Terminals 13 – 17 (only used with RED applications): With DUO-applications the terminals 13 – 17 are used as additional inputs Functions according to wiring diagram 102-020110534
J4		Battery 1 (used for DUO and RED applications)
J5		Battery 2 (only used for RED applications)
J6		Locking
J7		Motor brake
J8		ATE motor 1 (The DUO-application can be driven with 1 motor only)
J9		ATE motor 2
J10		CAN bus / CAN sensors

J11	Extra printed circuit board ELS (ZLP-ELS)
J12	Extra printed circuit board AKI (ZLP-AKI)
J13	CAN bus plug for FPC-servicing
J14	Reserved for future modules
J15	Encoder motor 1
J16	Encoder motor 2 (not necessary for DUO-applications)
J17	Reserved for future modules
J18	Reserved for future modules



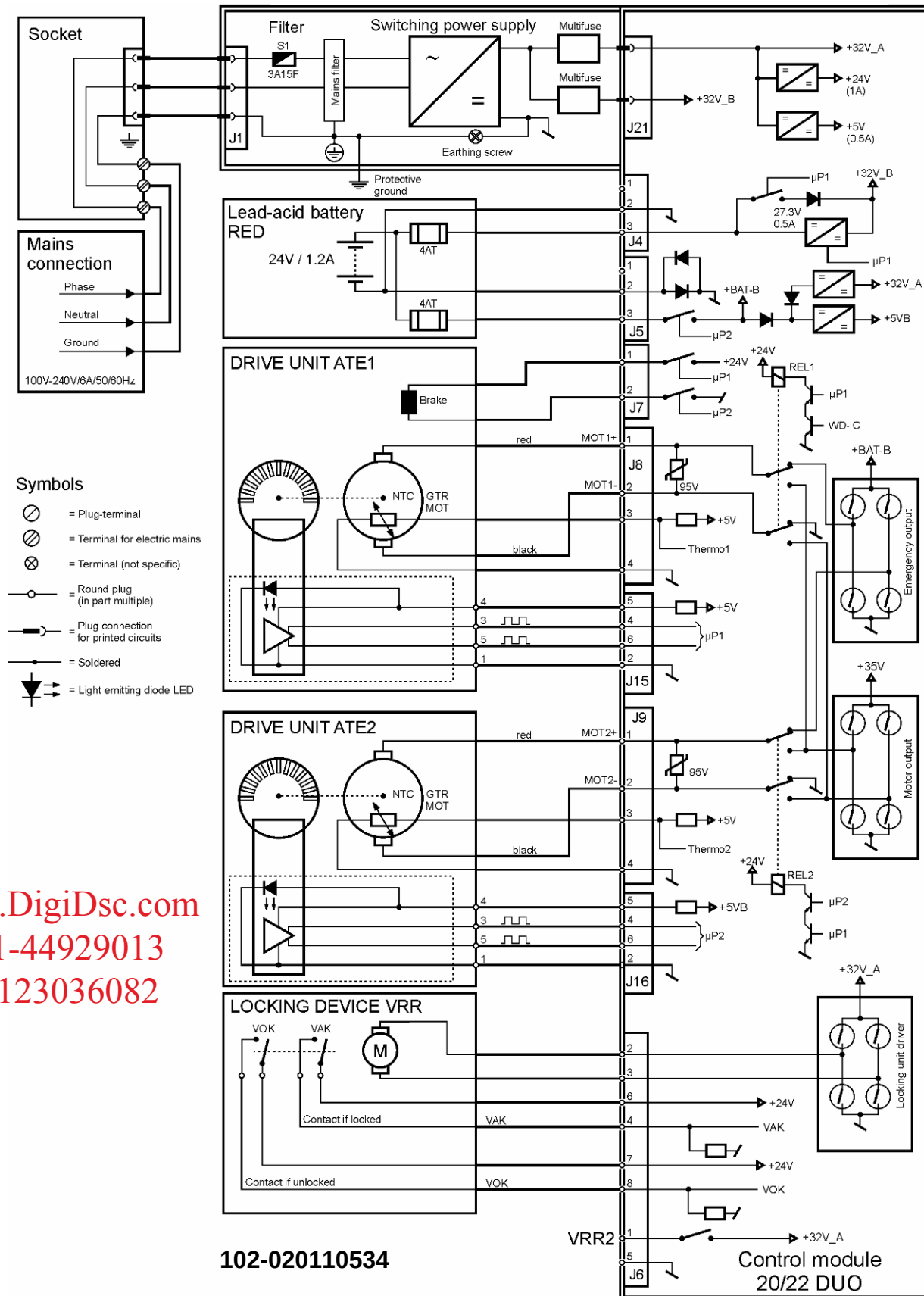
- Emergency stop:
- Cuts the motor off the amplifier
 - Door can be moved manually
 - Only for DUO-applications
 - Inapplicable for RED-applications



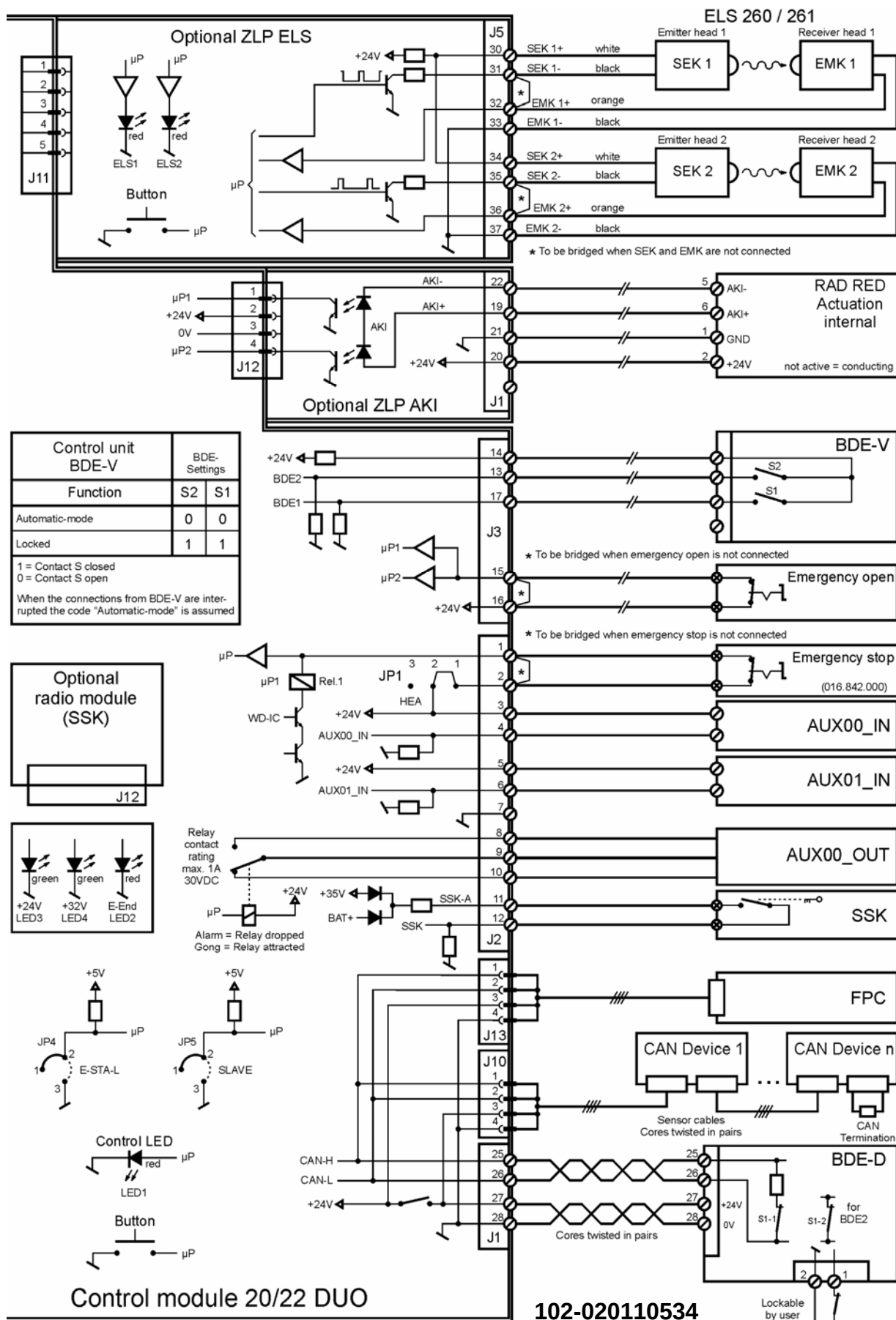
- Emergency open:
- Opens the door if not locked
 - Only for RED-applications

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3.4. Wiring diagram control module STM 20 RED/DUO



Control module STM 20 RED/DUO 3



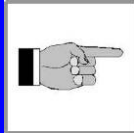
3.5. Components RED/DUO system

MS Power set DUO • Control module STM 20 RED/DUO • 2 pc. ATE 20 • Socket • Cable and installation material	102-020808749 www.DigiDsc.com 021-44929013 09123036082
BAT 20 RED	102-020808835

In the two above mentioned assembly kits, there are all the necessary components included for a standard complying RED installation.

Mechanically there is no difference between a pure DUO system and a RED system (with certification for escape and rescue routes). On a RED installation there is a special RED-software for CPU1 and CPU2 loaded on the control module STM 20 RED/DUO. This software complies with the standard: EN 13849-1:2006 Category 3 PLd.

NOTE

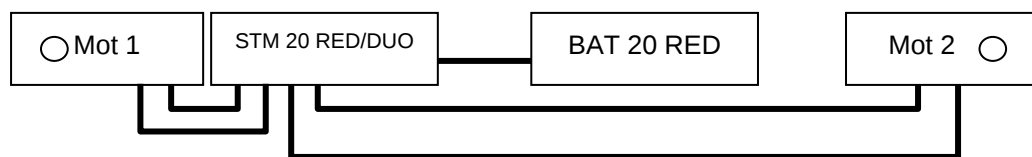


On RED system the Encoder cable must be also connected on the 2nd Motor.

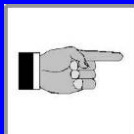
3.5.1. Overview of the additional components

Basically, the components will mounted and wired analogue to a normal sliding door.

Below we refer to the necessary additional components for a RED system.



NOTE



Note that STM 20 RED/DUO will be positioned next to MOT 1 (short Encoder connection cable)

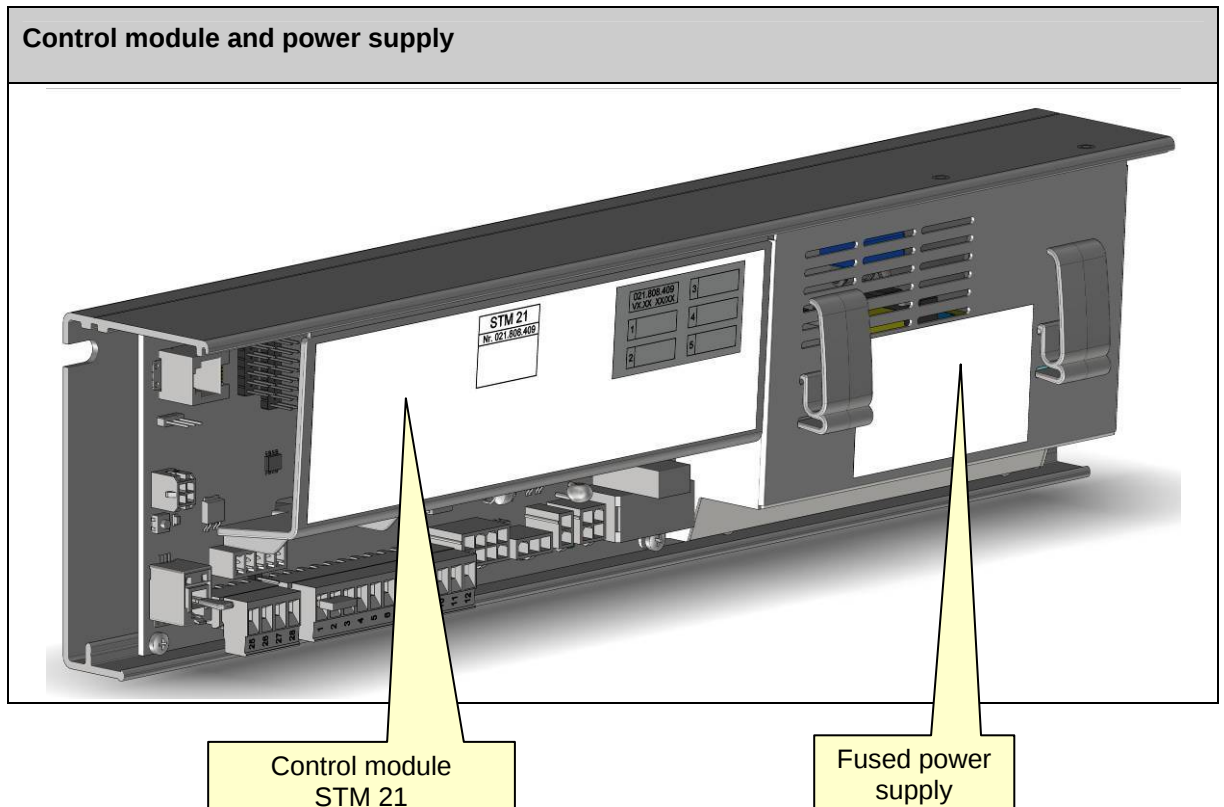
The BDE – V for the night closure must be procured locally. There are 2 closing contacts necessary.

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4. Control module STM 21

4.1. Controlling elements on STM 21

Control module STM 21 works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Protective inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 2 (red) comes on.



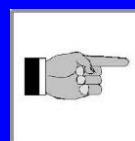
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ELECTRIC SHOCK

- Electric shock, combustion, death if touching the power supply without protection cover
 - Before opening the metallic cover of the power supply unit, disconnect it from the mains
 - The installation may only be connected to the mains again, **after** the protection cover has been closed again

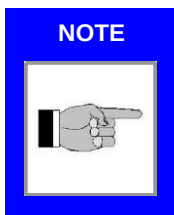
NOTE



The STM 21 control module has been tested after ISO standard 13849-1:2006, category 2 PLc.

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4.2. Application field of control module STM 21



Control module STM 21 is exclusively used in combination with a weaker drive unit featuring restricted functional requirements and limited door weight.

4.2.1. Typical range of applications

- Low-cost door installations with limited possibilities of upgradability
- Inside and outside applications

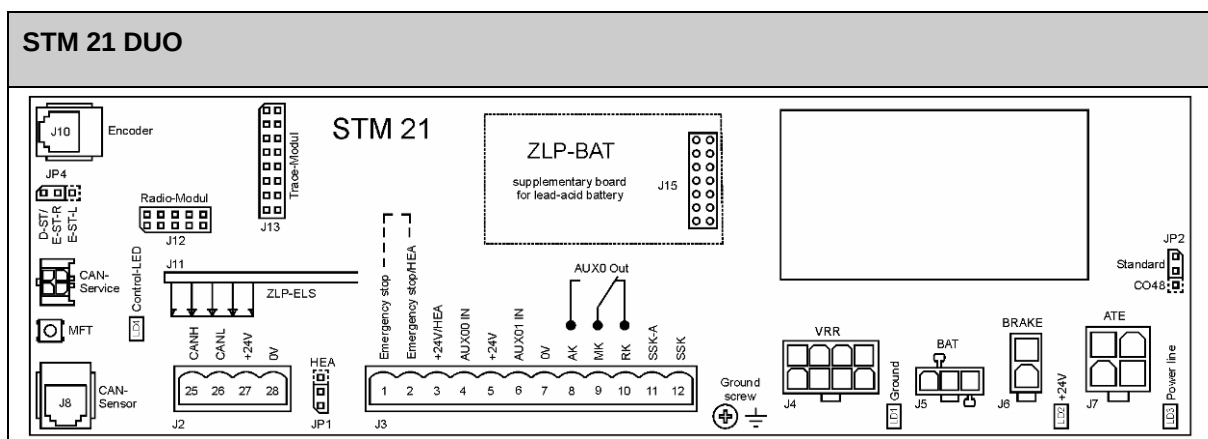
4.2.2. Unavailable applications

The following applications are **not** available with control module STM 21:

- No RED installation (redundant for escape and rescue routes)
- No DUO installation (heavy doors)
- No TOS installation (sliding/swivelling doors)
- No MPV (multipoint locking device)
- No FEM1 application (interlock function)

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4.3. Type plate STM 21

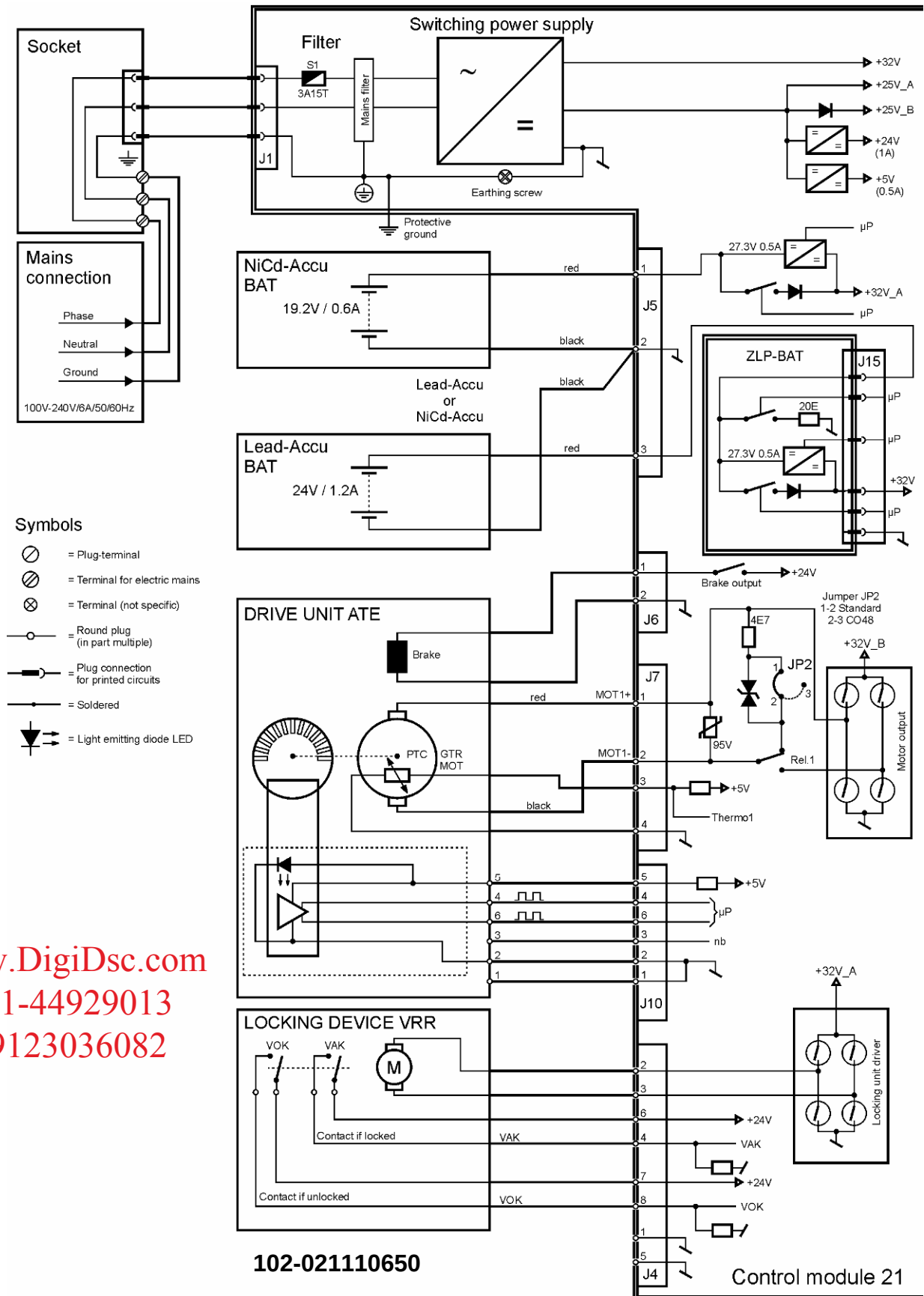


Jumper		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series:: • HEA → 3-2 • Emergency stop → 2-1
JP2	Standard / CO48	Influences motor-driven braking function in case of power failure (weaker with CO48)
JP3	Syst.-conditioned, internal	Not visible – reserved for future applications

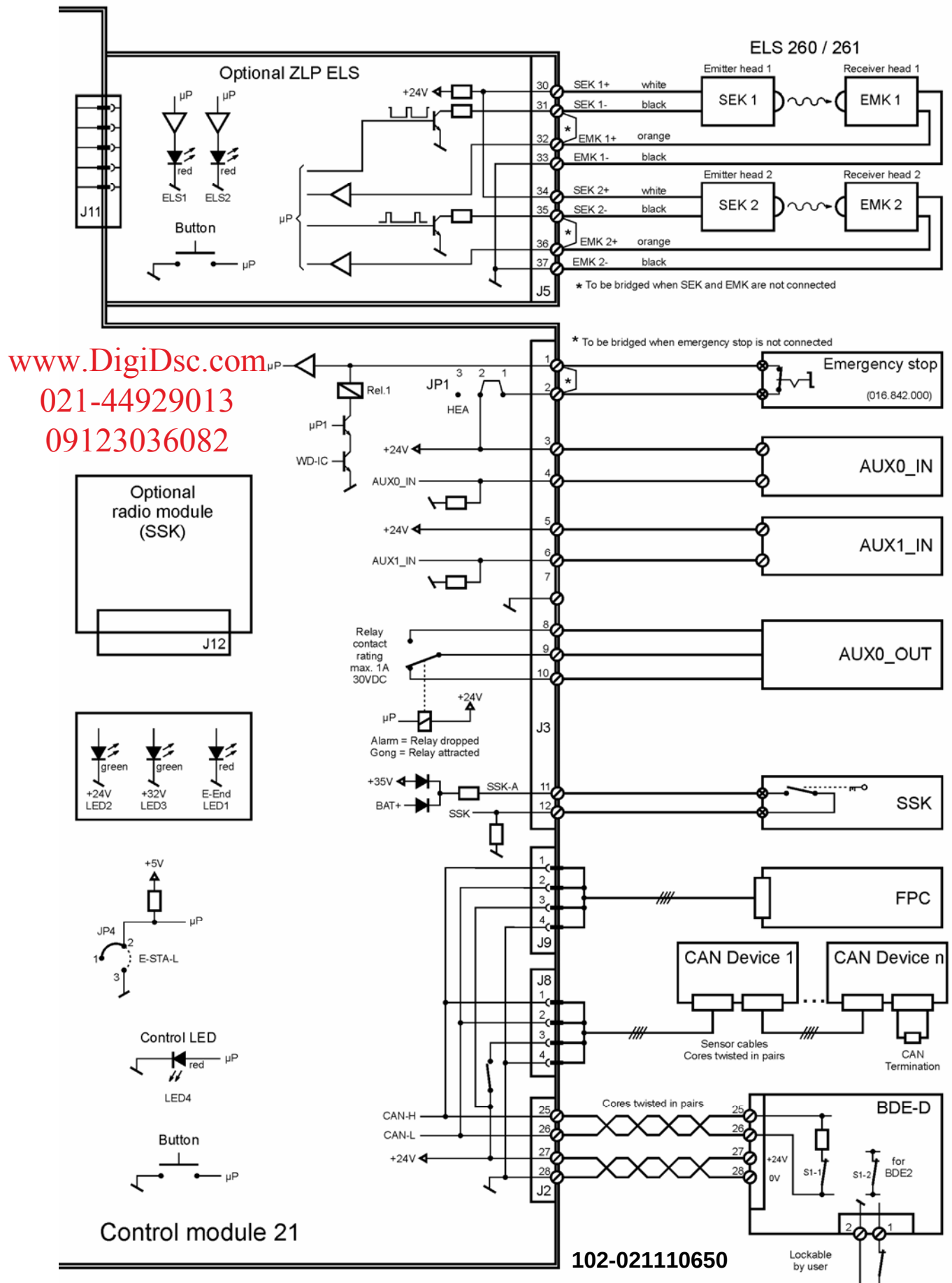
JP4	Standard D-ST & EST L	Re-plugging for monitoring devices EST R – subsequently reboot of control necessary
Light-emitting diode		Meaning
LD1	Red control-LED	For multifunctional key S1 – blinks when key is pressed
LD2	Red	• Change plugging to reverse rotational direction (EST-R) • Then resetting STM 20 is required
LD3	Green + 24 V	• Is on, if 24 volt circuit OK • Comes off in case of by-pass in 24 volt circuit
LD4	Green + 32 V	• Is on, if system connected to mains voltage
Multifunctional key		Function, after impulses have been given
1 puls		Activates an opening function (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		• Battery emergency reaction, as long as system is disconnected from mains • Battery test in case of mains connection
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards an emergency stop or a reset must be actuated within 10 seconds) The function emergency-stop with reset can only be actuated if the INPUT/OUTPUT parameter Emergency-Stop with Reset is active!!
14 pulses		Hardware reset is performed within ca. 12 seconds
Connector designation		Connections
J1		Mains plug
J2		Terminals 25 – 28 → für BDE-D
J3		Terminals 1 - 12: Functions according to wiring diagram 021.110.649_D
J4		Locking device
J5		Battery
J6		Motor brake
J7		ATE Motor
J8		CAN-bus
J9		CAN bus plug for FPC-servicing
J10		Encoder motor
J11		Extra printed circuit board ELS (ZLP-ELS)
J12 - 13		Reserved for future modules
J15		Extra printed circuit board BAT (ZLP-BAT) for lead-acid battery

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4.4. Wiring diagram control module STM 21



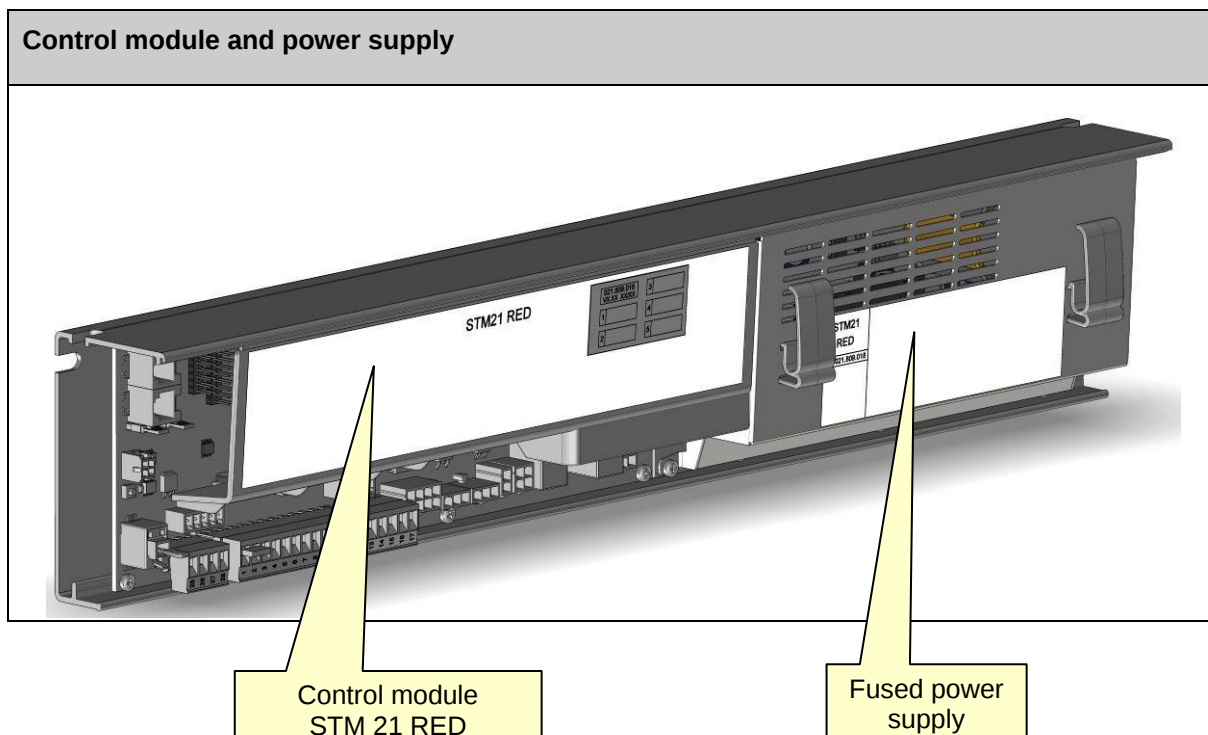
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5. Control module STM 21 RED

5.1. Controlling elements on STM 21 RED

Control module STM 21 RED works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Protective inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 1 (red) comes on.



DANGER



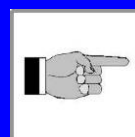
ELEKTRIC SHOCK

- Electric shock, combustion, death when touching the power supply without protection cover
 - Before opening the metallic cover of the power supply unit, disconnect it from the mains
 - The installation may only be connected to the mains again, **after** the protection cover has been closed again.

5.2. Applications

Control module STM 21 RED is – according to the software implemented and the appropriate authorization – used for the installations below.

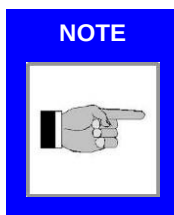
NOTE



The installations with the control module STM 21 RED work with a reduced functionality

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5.2.1. Escape and rescue routes as RED installation



Control module STM 21 RED with RED software has been tested according EN 13849-1:2006, category 3 PLd.

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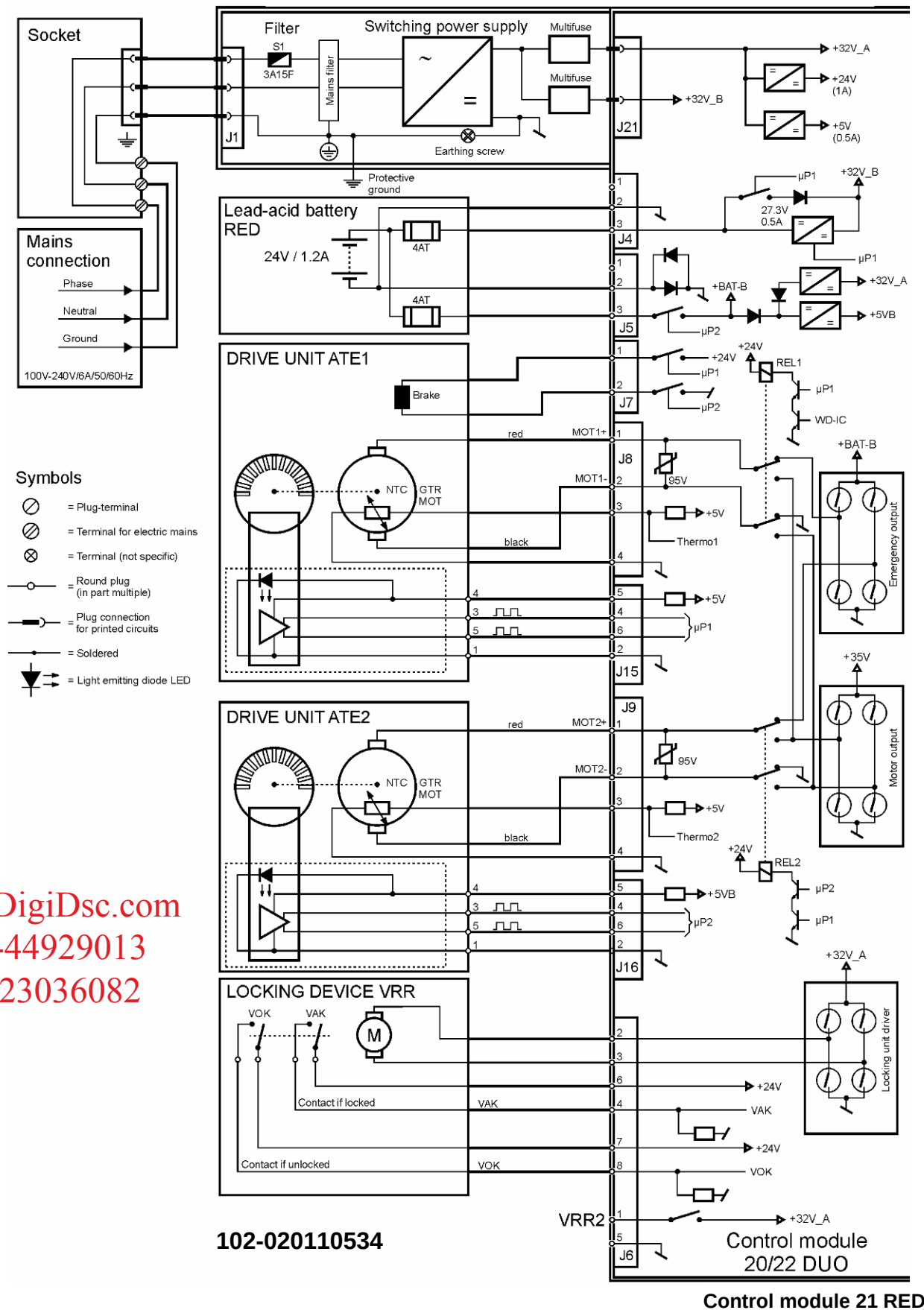
5.3. Type plate STM 21 RED

STM 21 RED		
Jumper		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series - HEA → 3-2 - Emergency stop → 2-1
JP2		Not printed
JP3	Syst.-conditioned, internal	Not visible – required for VRR2 (MPV 16)
JP4	On RED and DUO installation	
	D-ST & EST-R	Factory setting
	EST-L	Fixing connecting clamp to upper part of toothed belt - Shunt position remains unchanged !
JP5	Standard Master operation mode	Slave – only in case of two STM 20
Light-emitting diodes		Meaning
LD1	Ground – red control-LED	- Ground – must light up, if protective earth screw is withdrawn - Otherwise grounding is on
LD2	green + 24 V	- Is on, if 24 volt circuit OK - Comes off in case of by-pass in 24 volt circuit
LD3	green + 32 V	Is on, if system connected to mains voltage
LD4	red control-LED	For MF key S1 – is blinking, if button is pressed

Multifunctional key	Function, after pulses have been given
1 pulse	Releases an opening movement (AKI)
2 pulses	Calibrating ELS
3 pulses	Calibrating door parameters
4 pulses	Entering programming level
5 pulses	RED - Redundancy test, if system connected to mains voltage DUO - Battery emergency reaction, as long as system disconnected from mains - Battery test in case of mains connection
8 pulses	Loads default values of door type selected
9 pulses	Back to factory settings (afterwards emergency stop must be actuated within 10 seconds)
14 pulses	Hardware reset is performed after approx. 12 seconds
Connector designation	Connections
J1	Terminals 25 – 28 → for BDE-D
J2	Terminals 1 – 12: Functions according to wiring diagram 102-020110534
J3	Terminals 13 – 17 (only used with RED applications): Functions according to wiring diagram 102-020110534
J4	Battery 1 (used for DUO and RED applications)
J5	Battery 2 (only used for RED applications)
J6	Locking
J7	Motor brake
J8	ATE motor 1
J9	ATE motor 2
J10	CAN bus / CAN sensors
J11	Extra printed circuit board ELS (ZLP-ELS)
J12	Extra printed circuit board AKI (ZLP-AKI)
J13	CAN bus plug for FPC-servicing
J14	Reserved for future modules
J15	Encoder motor 1
J16	Encoder motor 2
J17	Reserved for future modules
J18	Reserved for future modules

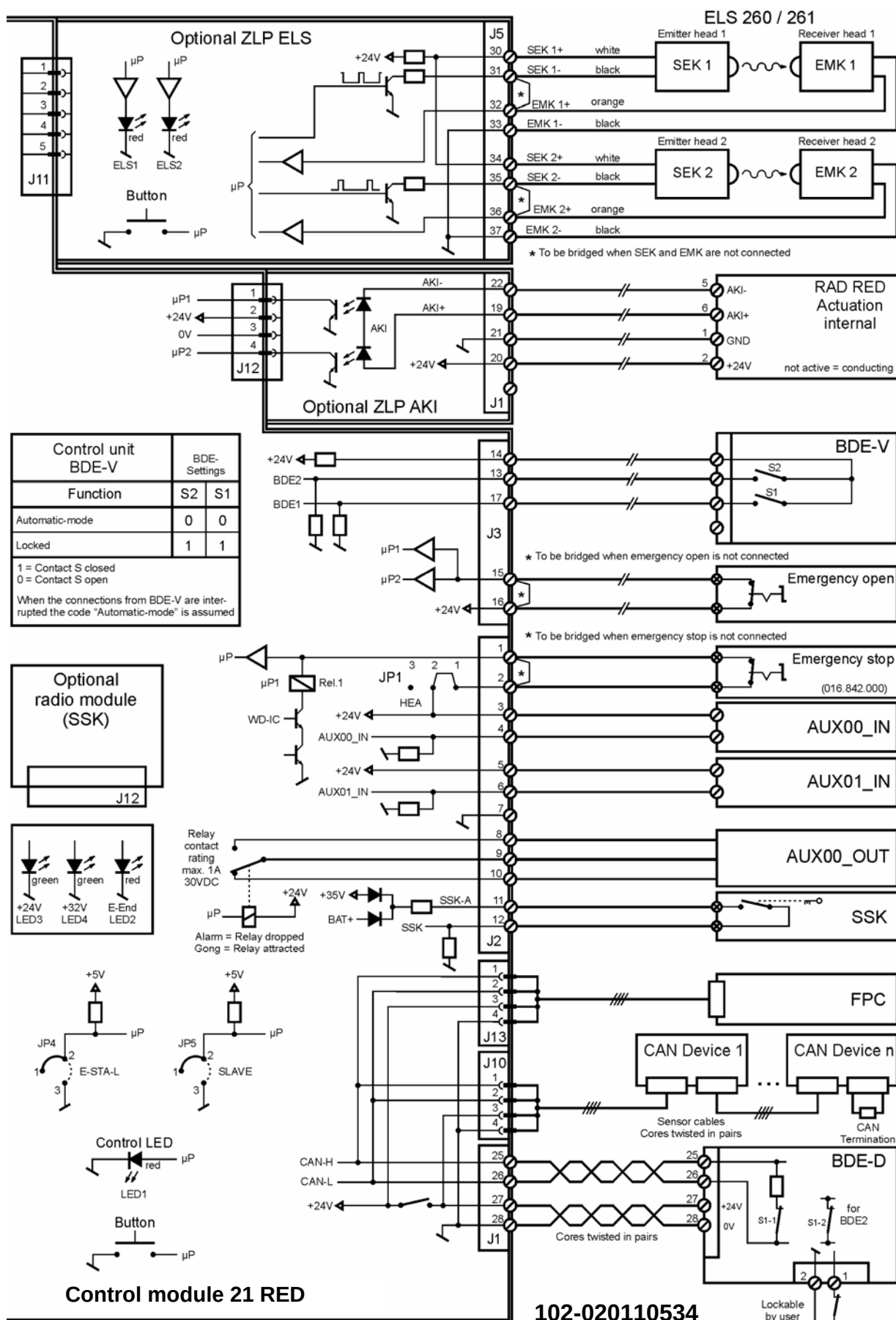
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5.4. Wiring diagram control module STM 21 RED



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Control module STM 21 RED 5



5.5. Components RED system

MS Power set STM 21 RED - Control module STM 21 RED 1 pc. ATE 21 (Linux) 1 pc. ATE 21 - Socket - Cable and installation material	102-021808964 www.DigiDsc.com 021-44929013 09123036082
BAT 20 RED	102-020808835

In the two above mentioned assembly kits, there are all the necessary components included for a standard complying RED installation.

Mechanically there is no difference between a pure DUO system and a RED system (with certification for escape and rescue routes). On a RED installation there is a special RED-software for CPU1 and CPU2 loaded on the control module STM 21 RED. This software complies with the standard: EN 13849-1:2006 Category 3 PLd.

NOTE

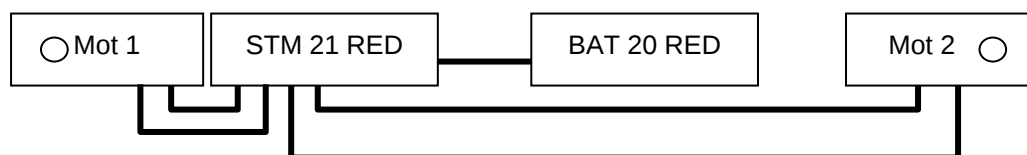


On RED system the Encoder cable must be also connected on the 2nd Motor.

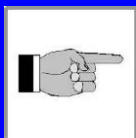
5.5.1. Overview of the additional components

Basically, the components will be mounted and wired analogue to a normal sliding door.

Below we refer to the necessary additional components for a RED system.



NOTE



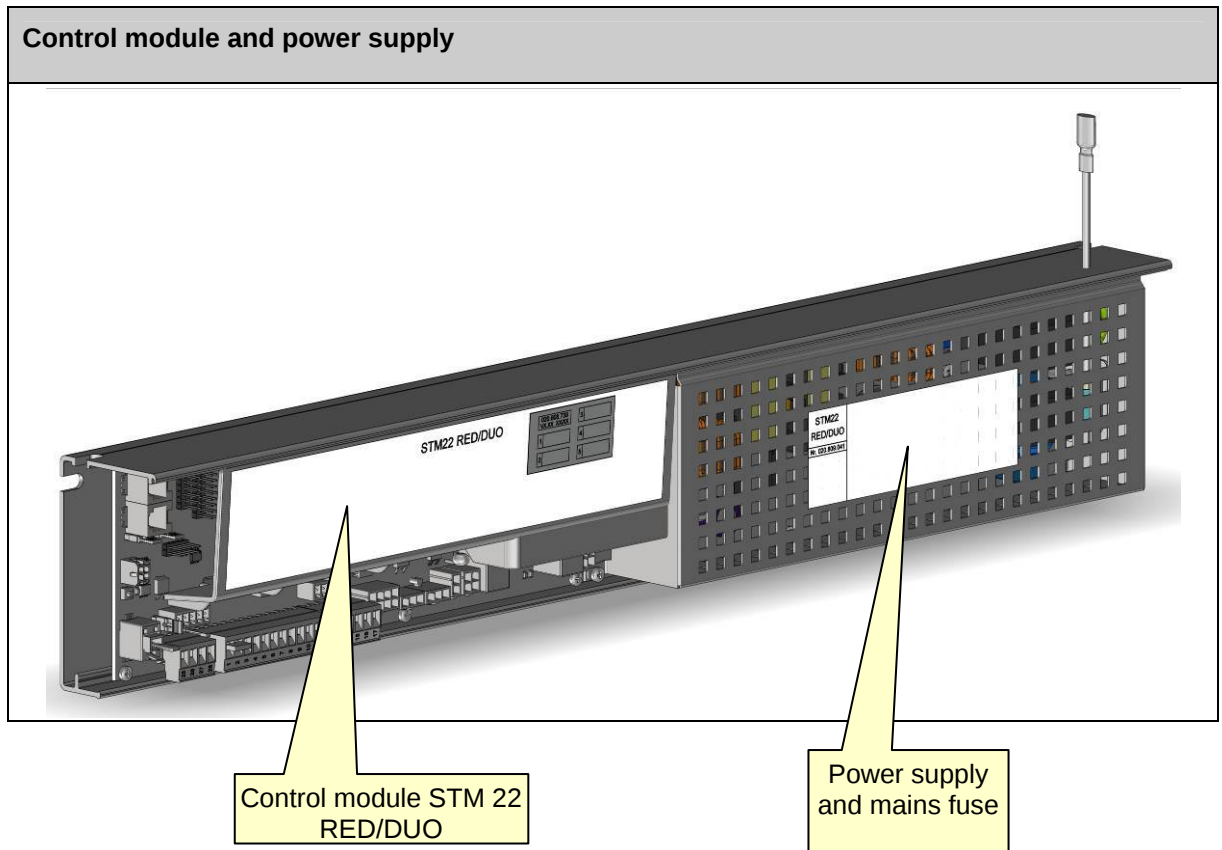
Note that STM 21 RED will be positioned next to MOT 1 (short Encoder connection cable)

The BDE – V for the night closure must be procured locally. There are 2 closing contacts necessary.

6. Control module STM 22 RED/DUO

6.1. Controls on STM 22 RED/DUO

The control module STM 22 RED/DUO works with an active HIGH level. To activate the function +24V must be present. Safety inputs will be activated by an interruption. The basic signal 0V is connected to the protective earth. This compound could be separated with ground screw for testing – LED1 (red) light.



DANGER



ELECTRIC SHOCK

- Electrical shock, burns, death if you touch the power supply without protective cover.
 - Before removing the metal cover disconnect the drive from the main.
 - Installation only reconnects to the network after the protection cover is closed.

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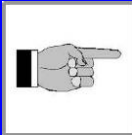
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6.2. Applications

The control module STM 22 RED/DUO will be – depending on the implemented software and corresponding admissions – used for the following installations.

6.2.1. Escape and rescue routes as RED installation

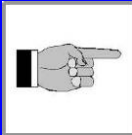
NOTE



The STM 22 RED/DUO control module **with RED Software** complies with EN 13849-1:2006, **Category 3 PLd**.

6.2.2. Heavy door leafs as DUO installation

NOTE



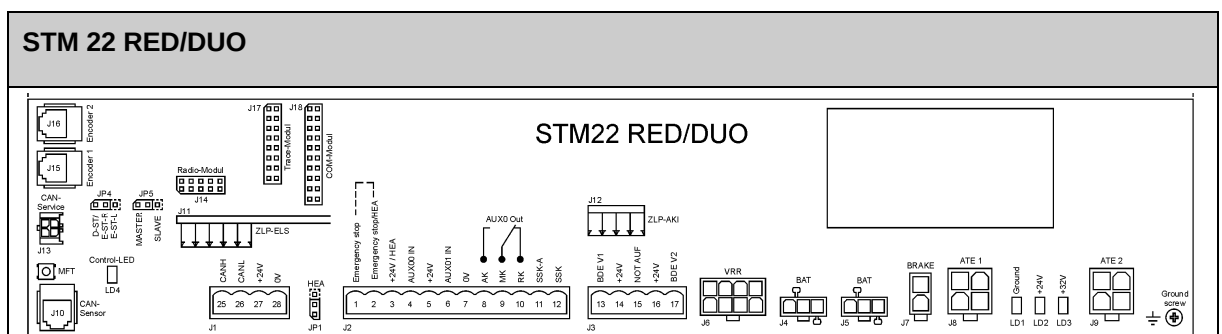
The STM 22 RED/DUO control module **with RED Software** complies with EN 13849-1:2006, **Category 2 PLc**.

ATTENTION



- The STM 22 RED/DUO is usually delivered **with RED software**!
- For applications as DUO drive (heavy doors) the corresponding DUO software on CPU1 and CPU2 need to be installed!
→ FPC menu Flash-programmer → update manual (both CPU's!)

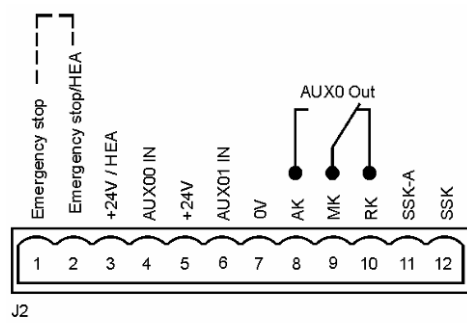
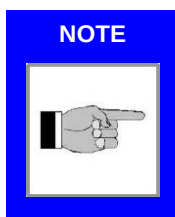
6.3. Type plate STM 22 RED/DUO



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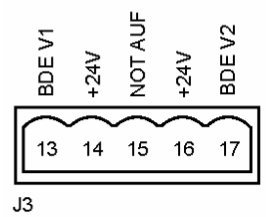
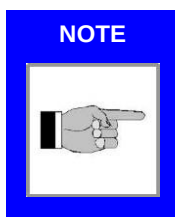
Jumper		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series:: - HEA → 3-2 - Emergency stop → 2-1
JP2		Not equipped
JP3	Syst.-conditioned, internal	Not visible – reserved for future applications
JP4	If used as RED+DUO-installation	
	D-ST & EST-R	Factory setting
	EST-L	Mounting of the belt clamp at the upper belt torsion – the jumper-position remains unchanged!
JP5	Standard master mode	Slave – only used with two STM 20
Light-emitting diode		Meaning
LD1	Ground – Red control-LED	- Must light with distant ground screw - Otherwise, there is ground present
LD2	green + 24 V	- Is on, if 24 volt circuit OK - Comes off in case of by-pass in 24 volt circuit
LD3	green + 32 V	Is on, if system connected to mains voltage
LD4	Red control-LED	For multifunctional key S1 – blinks when key is pressed
Multi function key		Function, after impulses have been given
1 puls		Triggering the opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		RED - Redundancy test with existing mains power DUO - Battery emergency reaction, if no mains power available - Battery test with existing mains power
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards an emergency stop or a reset must be actuated within 10 seconds) The function emergency-stop with reset can only be actuated if the INPUT/OUTPUT parameter Emergency-Stop with Reset is active!!
14 pulses		Hardware reset is performed within ca. 12 seconds
Connector designation		Connections
J1		Terminals 25 – 28 → for BDE-D
J2		Terminals 1 - 12: Functions according to wiring diagram 102-020110533
J3		Terminals 13 – 17 (only used with RED applications): With DUO-applications the terminals 13 – 17 are used as additional inputs Functions according to wiring diagram 102-020110534
J4		Battery 1 (use for DUO- and RED-applications)

J5	Battery 2 (just use for RED-applications)
J6	Locking
J7	Motor brake
J8	ATE motor 1 (The DUO-application can be driven with 1 motor only)
J9	ATE Motor 2
J10	CAN-Bus / CAN Sensors
J11	Additional printed circuit board ELS (ZLP-ELS)
J12	Additional printed circuit board AKI (ZLP AKI)
J13	CAN-Bus service plug for FPC
J14	Reserved for future modules
J15	Encoder Motor 1
J16	Encoder motor 2 (not necessary for DUO-applications)
J17	Reserved for future modules
J18	Reserved for future modules



Emergency stop:

- Cuts the motor off the amplifier
- Door can be moved manually
- Only for DUO-applications
- Inapplicable for RED-applications

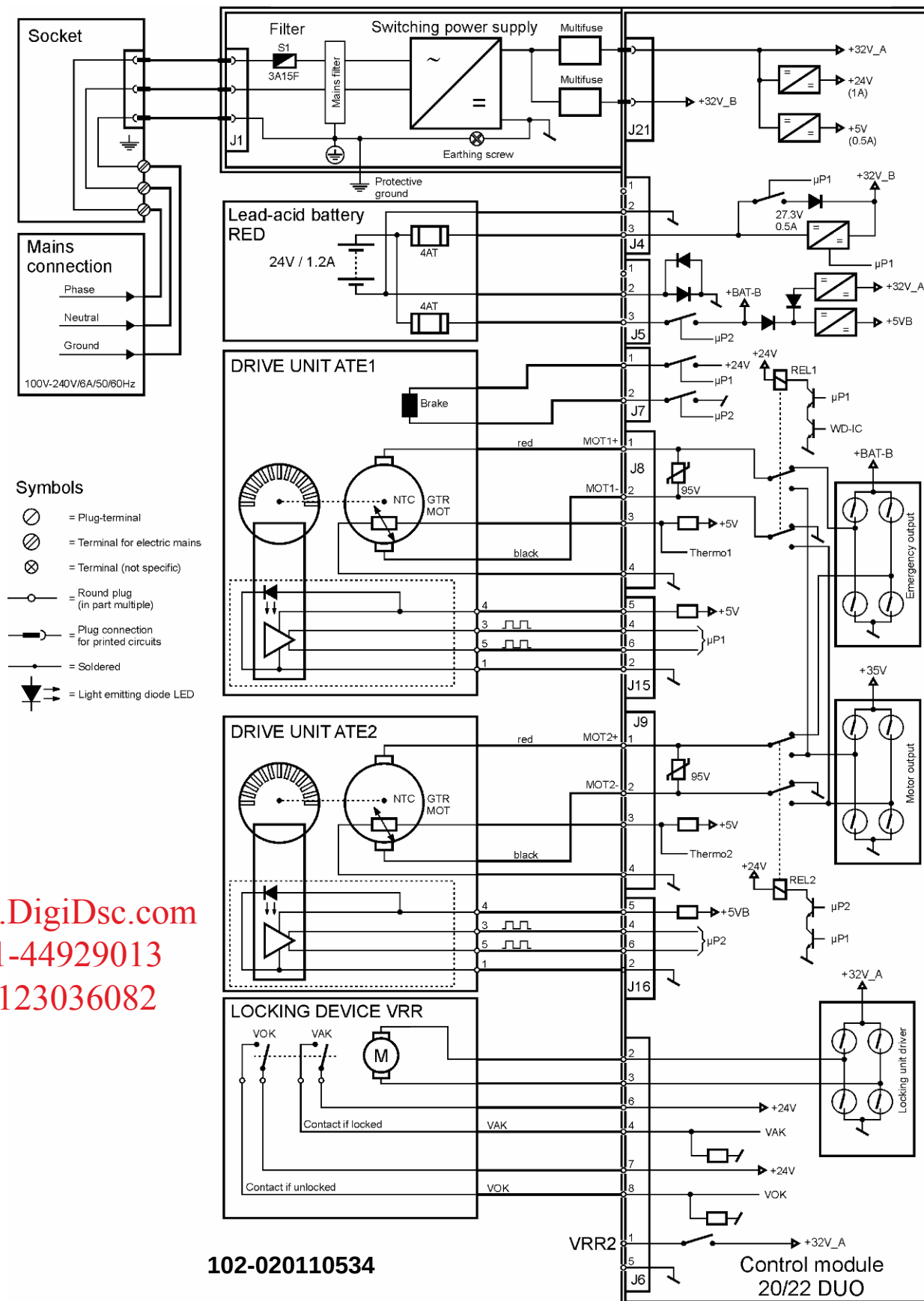


Emergency open:

- Opens the door if not locked
- Only for RED-applications

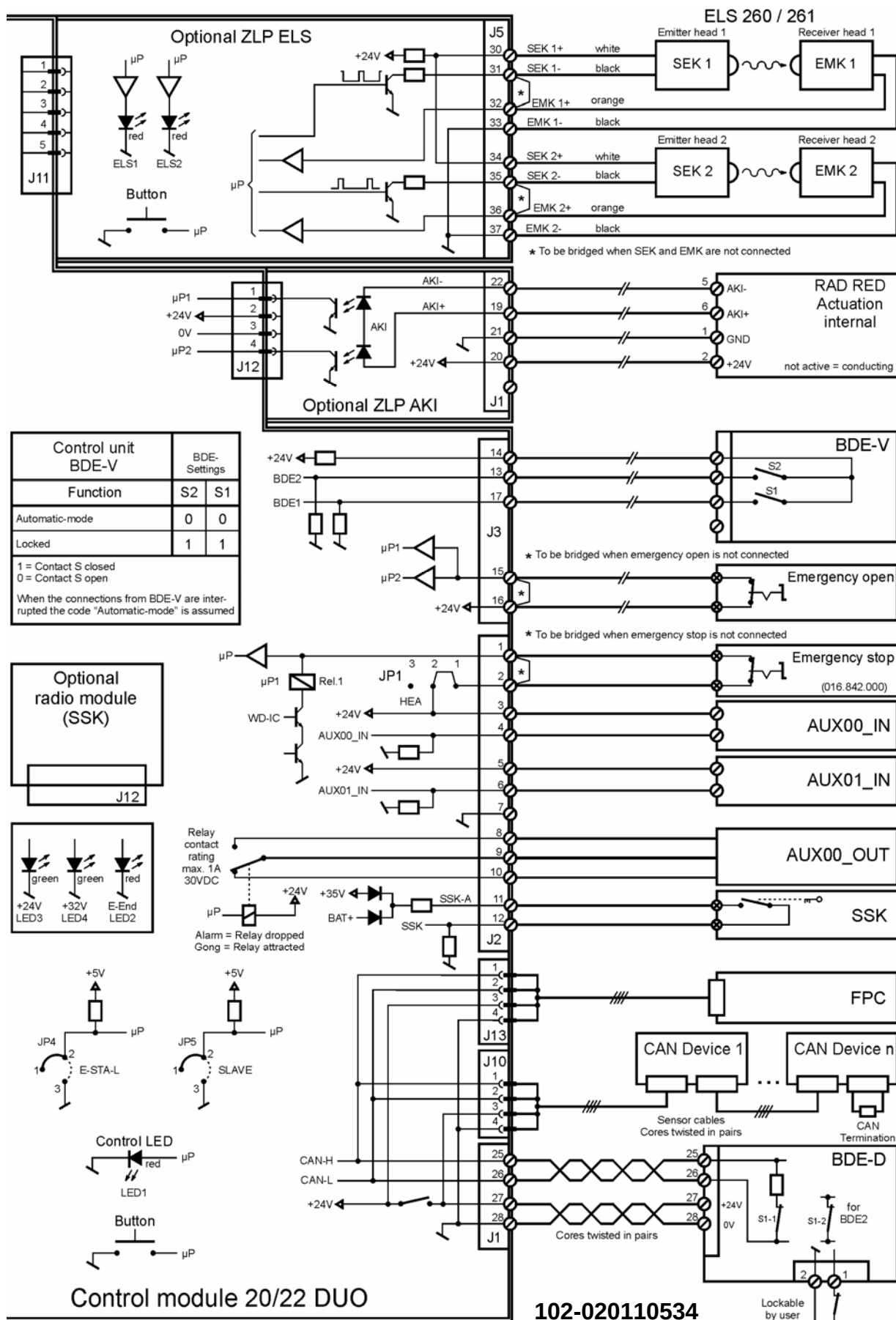
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6.4. Wiring diagram control module STM 22 DUO/RED



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Control module STM 22 RED/DUO 6



6.5. Components RED/DUO installations

MS Power set STM22 RED/DUO	102-020401204
- Control module STM 22 RED/DUO 2 pc. ATE - Cable and installation material	
BAT 20 RED	102-020808835

Basically, all the components for a RED-system installation are included in both above listed assembly kits.

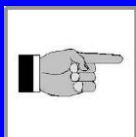
Mechanically there is no difference between a pure DUO system and a RED system (with certification for escape and rescue routes). On a RED installation, a special RED-software for CPU1 and CPU2 is installed on the control module STM 22 RED/DUO. This software complies with the standards: EN 13849-1:2006 Category 3 PLd.

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NOTE

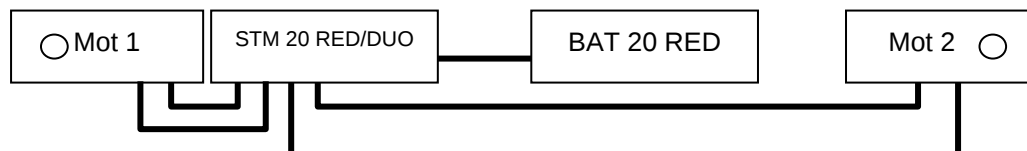


On RED system the Encoder cable must be also connected on the 2. Motor.

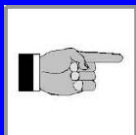
6.5.1. Overview of the additional components

Basically, the components will be mounted and wired analogue to a normal sliding door.

Below we refer to the necessary additional components for a RED installation.



NOTE



Note that STM 22 RED/DUO will be positioned next to MOT 1 (short Encoder connection cable)

The BDE – V for the night closure must be supplied locally. There are 2 closing contacts necessary.