

# WIRING DIAGRAMS FOR GLOBAL / ESENSA AIR HANDLING UNITS



This wiring diagram is only an addition to our installation and operation manuals, available on our website for download.



All internal components (fans, controls, sensors, actuators...) to the control board are pre-wired.  
The power supply must be connected to the safety isolating switch by a qualified electrician. Earthing is obligatory.



All electrical connections must be made by a qualified electrician and in accordance with local rules and regulations.



Residual current circuit breaker 300mA type B

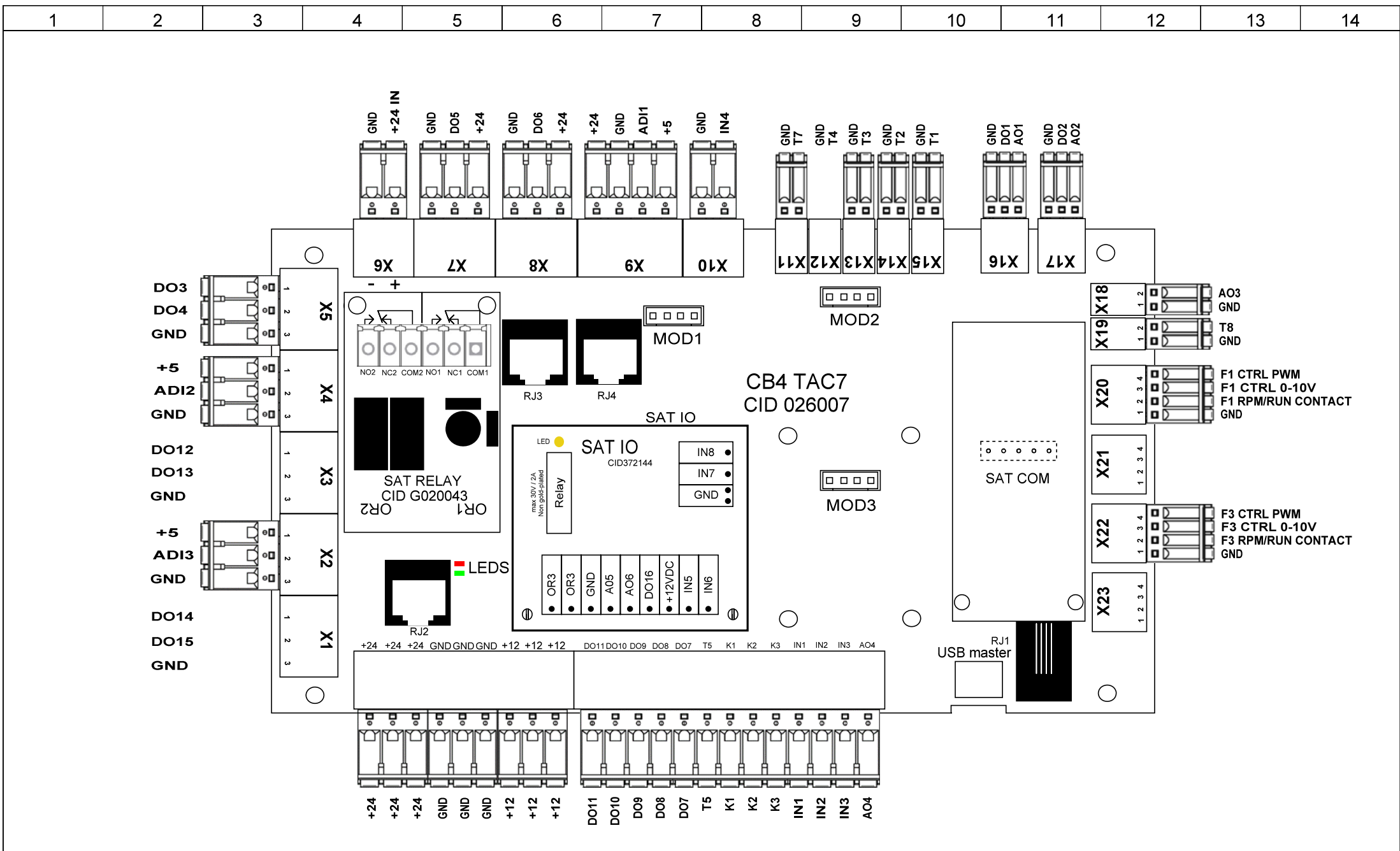


Fuse protection (D-type, "slow")  
D – 10.000 A – AC3



Electronic boards contains ESD sensitive components.  
Use antistatic bracket connected to protective earth in case it is necessary to manipulate them.  
In alternative, loose charges by touching the unit and handle boards at corners only.

Changes		Name	Date	Page
Name	Date	Draw.: msg	17/10/2024	1
		check.:		
		Norm:		
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		Application: General	of 63



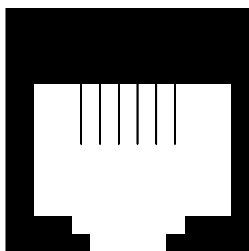
Changes		Name	Date	TAC7	Page	
Name	Date	Draw.:	17/10/2024		Application: Controller	2
		check.:		of		63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm.:				

AO1 - BA+ = output 0-10V for external waterborne reheater (option)  
 DO1 - KWout = output PWM for electric reheater power regulation (option - prewired)  
 DO2 - KWIn- PX = output PWM for electric preheater power regulation (option - prewired)  
 | RX SPEED PWM - RX (prewired)  
 AO2 - RX SPEED 0-10V - RX (option)  
 AO3 - BA- = output 0-10V for external waterborne recooler or reversible Heat/Cool (o  
 AO4 - NV = output 0-10V for internal hydraulic postheater (option - prewired)  
 DO3 - BYPASS OPEN- PX (with rotary actuator) (prewired)  
 DO4 - BYPASS CLOSE - PX (with rotary actuator) (prewired)  
 DO5 - DAMPER 1 (with or without spring return, I<sub>max</sub> = 0,5 A DC) (option - prewired)  
 DO6 - DAMPER 2 (with or without spring return, I<sub>max</sub> = 0,5 A DC) (option - prewired)  
 DO7 - HEAT CONTACT (open collector; V<sub>max</sub>=24 VDC; I<sub>max</sub>=0,1 A)  
 DO8 - COOL CONTACT (open collector; V<sub>max</sub>=24 VDC; I<sub>max</sub>=0,1 A)  
 DO9 - ALARM CONTACT (open collector; V<sub>max</sub>=24 VDC; I<sub>max</sub>=0,1 A)  
 DO10 - AL dPACONTACT (open collector; V<sub>max</sub>=24 VDC; I<sub>max</sub>=0,1 A)  
 DO11 - FAN ON CONTACT (open collector; V<sub>max</sub>=24 VDC; I<sub>max</sub>=0,1 A)  
 ADI1 - BYPASS POS - PX | RX SPEED FEEDBACK - RX (prewired)  
 ADI2 - FAN 1 dPa  
 ADI3 - FAN 3 dPa  
 T1 - outdoor air T° sensor (prewired)  
 T2 - extract air T° sensor (prewired)  
 T3 - exhaust T° sensor - PX (prewired)  
 T4 - BAin T° sensor  
 T5 - supply air T° (option)  
 T7 - BA+ frost protection T° sensor (option -prewired for internal battery)  
 T8 - BA- frost protection T° sensor (option)

IN1 + 12/24V - FIRE ALARM  
 IN2 + 12/24V - BOOST  
 IN3 + 12/24V - BYPASS ACTIVATION OVERRIDE  
 IN4 + GND - Drain pan full contact (for LP)

K1+ 12/24V - CA MODE: External speed 1 (N.O.)  
 LS / CP MODE: External start (N.O.)  
 K2+ 12/24V - CA MODE: External speed 2 (N.O.)  
 LS / CP MODE: 0-10V (Max. impedance: 1.500 Ohms)  
 K3+ 12/24V - CA MODE: External speed 3 (N.O.)  
 LS / CP MODE: 0-10V (Max. impedance: 1.500 Ohms)

NOT USED  
 GND  
 B+  
 A+  
 +24V DC  
 NOT USED  
 1 2 3 4 5 6



RJ12 PINOUT

F1 - FAN 1 (SUPPLY)  
 F2 - FAN 2 (additional fan for supply flow)  
 F3 - FAN 3 (EXHAUST)  
 F4 - FAN 4 (additional fan for exhaust flow)

RJ1: RJ12 connector for TACtouch (option)  
 RJ2: RJ12 connector for Modbus Pressure CP mode (option)  
 Modbus Air quality sensors for demand control mode (option)  
 Modbus Air quality sensors for BOOST in all modes (option)

RJ3: RJ12 connector for ESENSA or GLOBAL LP: free  
 for GLOBAL PX/RX: Modbus Pressure sensors kit CA (prewired)  
 and/or filters monitoring (option - prewired), on supply flow

RJ4: RJ12 connector for Modbus Pressure sensors kit CA (prewired)  
 and/or defrost detecting (option - prewired)  
 and/or filters monitoring (option - prewired)

NB: for GLOBAL PX/RX: sensor used for extract flow only

SAT IO OR3-OR3:BYPASS STATUS - (option)  
 SAT IO AO5: 0-10V OUTPUT (airflow / pressure) - (option)  
 SAT IO AO6: 0-10V OUTPUT (airflow / pressure) - (option)  
 SAT IO IN5: MASTER SELECTION - (option)  
 SAT IO IN6: HEAT OFF - (option)  
 SAT IO IN7: SUPPLY RUN IN FIRE ALARM (open) | dPa ALARM INPUT - (option)  
 SAT IO IN8: EXHAUST RUN IN FIRE ALARM (open) - (option)

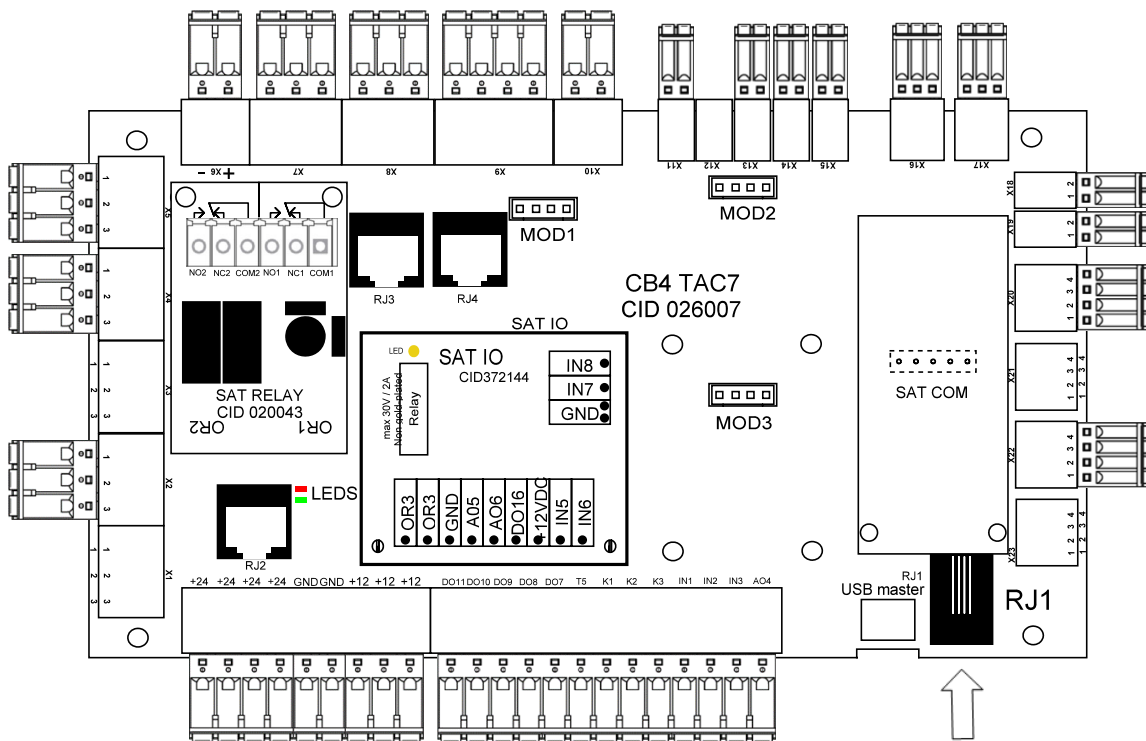
SAT COM - SAT MODBUS or SAT KNX or SAT ETHERNET or SAT WIFI - (option)

SAT RELAY: MANDATORY FOR GLOBAL LP, THEN PREMOUNTED AND PREWIRED.  
 For other models, output can be mapped thanks to dedicated function "IO mapping" on TACtouch  
 SAT RELAY OR1 - FOR GLOBAL LP LINEAR ACTUATOR FOR BYPASS - FORWARD (closed) (prewired)  
 For other models, NC/NO contact MAX 30VDC, 0,45A  
 SAT RELAY OR2 - FOR GLOBAL LPLINEAR ACTUATOR FOR BYPASS - BACKWARD (closed) (prewired)  
 For other models, NC/NO contact MAX 30VDC, 0,45A

GREEN LED ON: POWERED ON  
 RED LED ON: ALARM

+24 : +24V DC (min: +22V DC; max: +26V DC). 0,8 A max  
 +12 : +12V DC (min: +11,49V DC; max: +12,81V DC). 0,3 A max

Changes		Name	Date	Page
Name	Date	Draw.: msg	17/10/2024	3
		check.:		
		Norm.:		
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		Application: IO TAC7	of 63



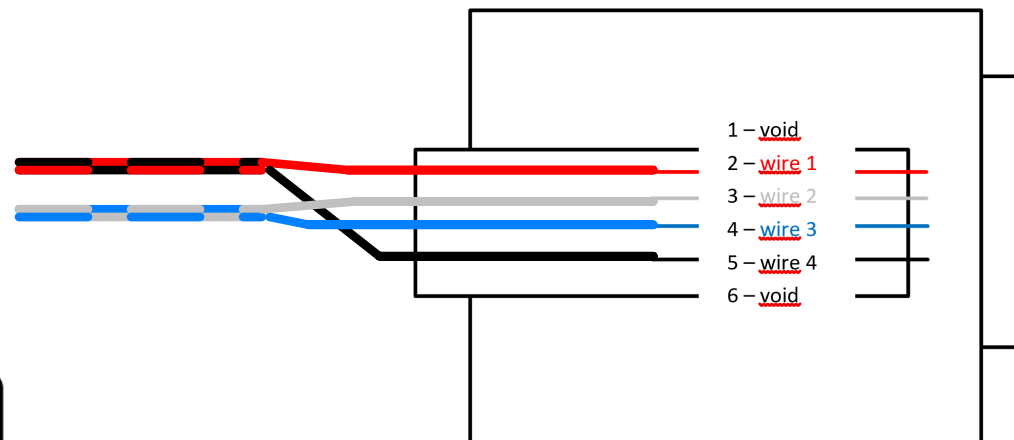
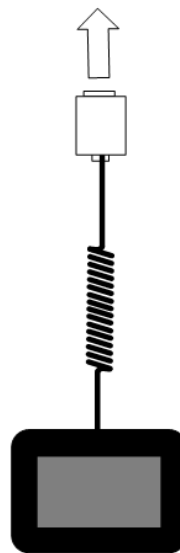
### Extender cable Wiring

In installation where an extender cable is necessary, this last one must conform to the RS-485 Standard with twisted pair conductors. The cable must be shielded. The conductor Area min 0.2 mm<sup>2</sup>. The total length must not exceed 100 meters. Maximum DC resistance on single wire: 8 Ohms straight wired, 2 pairs connected to RJ12 connectors at cable extremities. 1 pair to the middle pins, the other pair to the extremity pins:

Pinout for each connector as in figure below (colors are indicative for the wires of the extender cable):

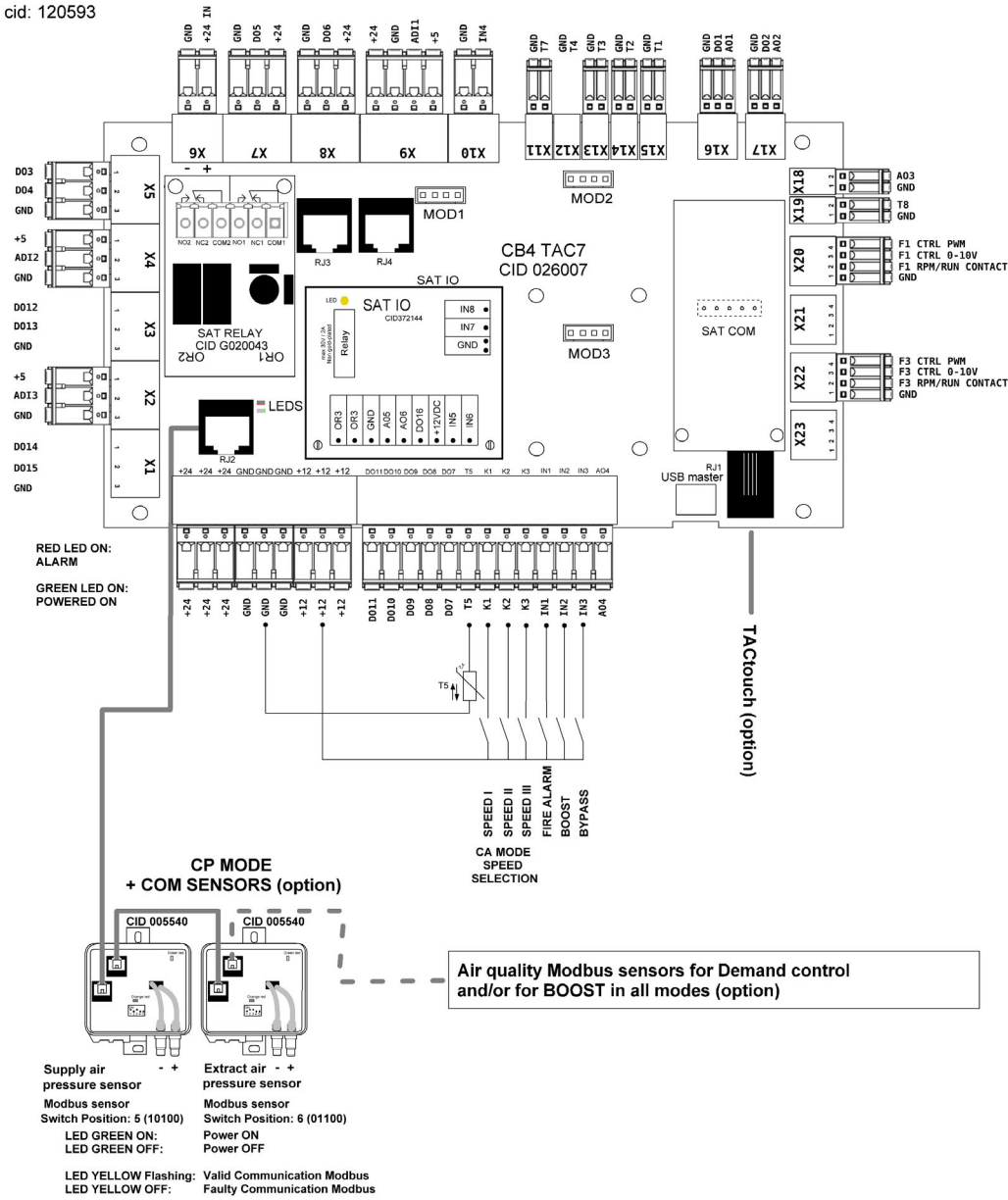
Standard cable

TACtouch



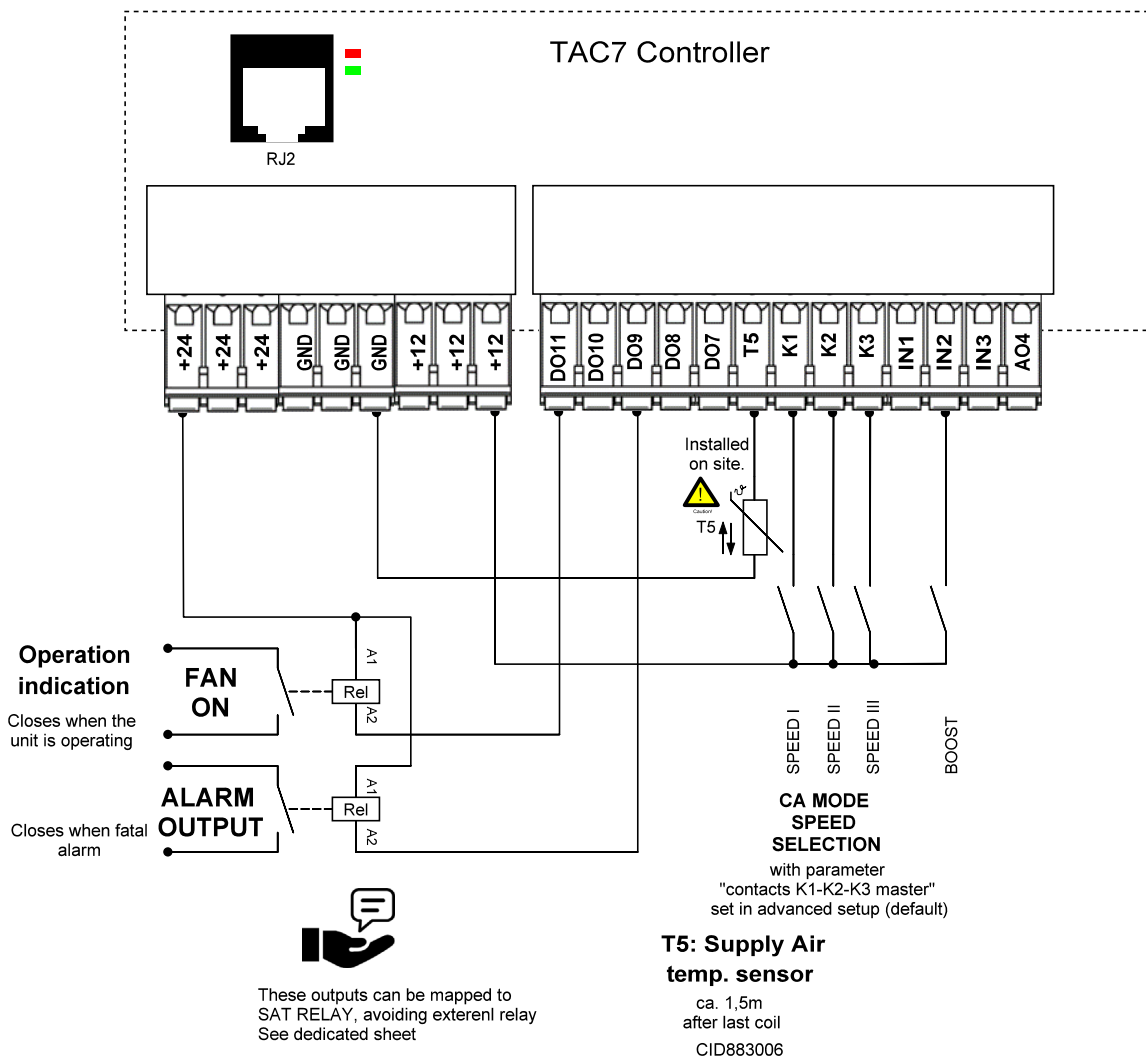
Changes		Name	Date	Page
Name	Date	Draw.: msg	17/10/2024	
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Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		Application: TACtouch	of 63

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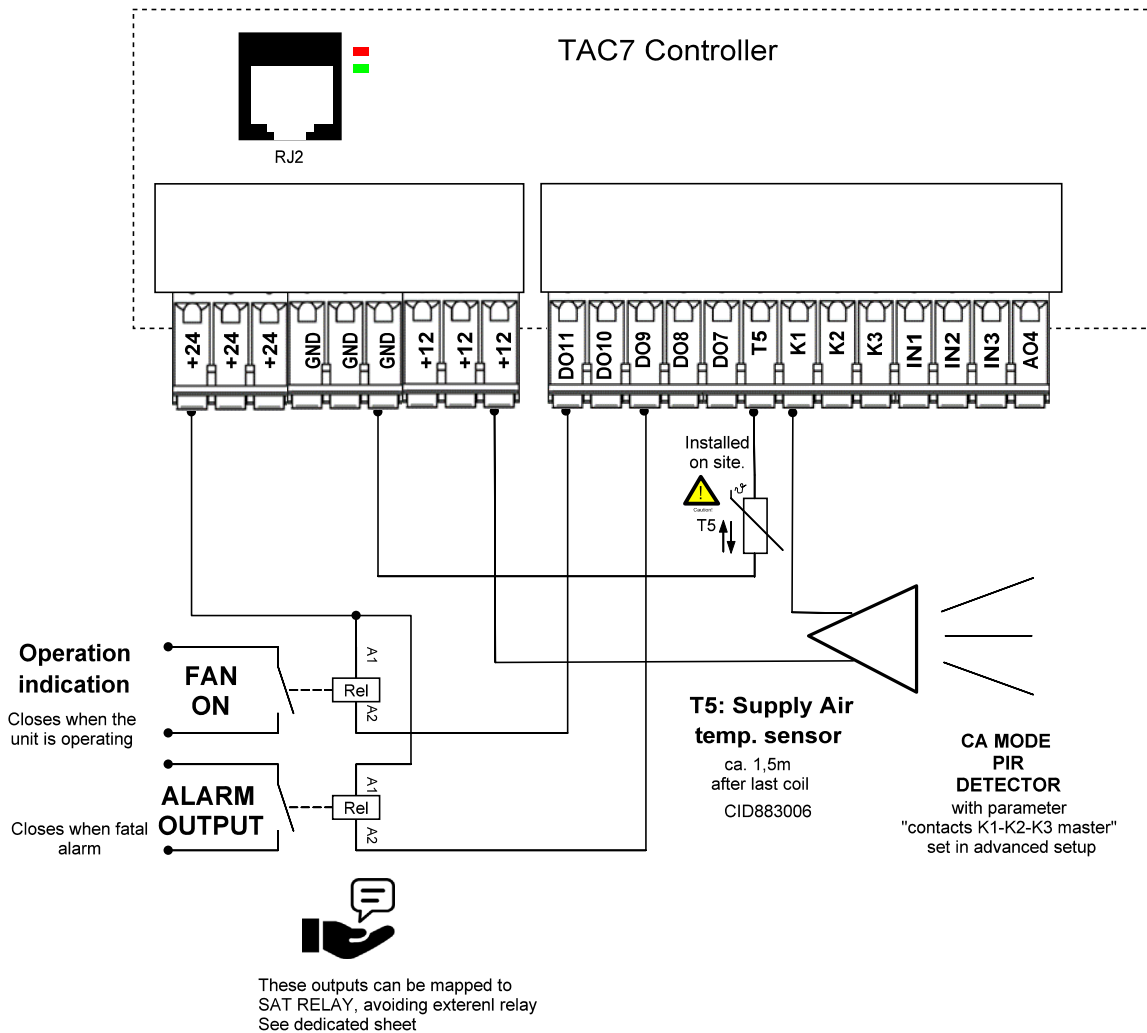


- OPERATION CONNECTIONS**
- IN1 - FIRE ALARM
  - IN2 - BOOST
  - IN3 - BYPASS ACTIVATION OVERRIDE
  - A04 - IBA= output 0-10V for internal waterborne reheater (option)
  - K1 - CA MODE: External speed 1 (N.O.)  
DEMAND/ CP MODE: External start (N.O.)
  - K2 - CA MODE: External speed 2 (N.O.)  
DEMAND / CP MODE: 0-10V (Max. impedance: 1.500 Ohms)
  - K3 - CA MODE: External speed 3 (N.O.)  
DEMAND / CP MODE: 0-10V (Max. impedance: 1.500 Ohms)
  - T5 - supply air T°
  - D07 - HEAT OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)
  - D08 - COOL OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)
  - D09 - ALARM OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)
  - D010 - AL dPa OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)
  - D011 - FAN ON OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)
- +12 : +12V DC (min: +11,49V DC; max: +12,81V DC) . 0,3 A max  
+24 : +24V DC (min: +22V DC; max: +26V DC) . 0,8 A max
- OPTIONS CONNECTIONS**
- X2 | ADI3 - EXTRACT FILTER dPa (option)
  - X3 | D012 - Cold Climate Preheater  
= output PWM for external electric preheater power regulation (option)
  - X4 | ADI2 - SUPPLY FILTER dPa (option)
  - X5 | D03 - BYPASS OPEN- PX (with rotary actuator - prewired)
  - X6 | D04 - BYPASS CLOSE - PX (with rotary actuator - prewired)
  - X7 | +24 IN - GND: +24 VDC power supply for the board (prewired)
  - X8 | D05 - DAMPER 1 (with or without spring return, Imax = 0,5 A DC) (option)
  - X9 | D06 - DAMPER 2 (with or without spring return, Imax = 0,5 A DC) (option)
  - X10 | ADI1 - BYPASS POS - PX | RX SPEED FEEDBACK - RX (prewired)
  - X11 | IN4 - Drain pan full contact (for LP)
  - X12 | T7 - IBA/EBA+ frost protection T° sensor (option)
  - X13 | T3 - Exhaust T° sensor - PX (prewired)
  - X14 | T2 - Extract air T° sensor (prewired)
  - X15 | T1 - Outdoor air T° sensor (prewired)
  - X16 | A01 - EBA+ = output 0-10V for external waterborne reheater (option)  
D01 - KMin = output PWM for electric reheater power regulation (option)
  - X17 | D02 - PX: KMin = output PWM for electric preheater power regulation (option)  
D02 - RX: ROTOR SPEED PWM (prewired)
  - X18 | A03 - EBA-/REVERSIBLE = output 0-10V for external waterborne recoler or reversible battery (option)
  - X19 | T8 - EBA-/REVERSIBLE frost protection T° sensor (option)  
T8 - DEFROST CONTACT FOR HEAT PUMP (option)
  - X20 | F1 - FAN 1 (SUPPLY)
  - X21 | F2 - FAN 2 (SUPPLY - additional fan)
  - X22 | F3 - FAN 3 (EXHAUST)
  - X23 | F4 - FAN 4 (EXHAUST - additional fan)
- FIELD BUSES**
- RJ1: RJ12 connector for TACtouch (option)
  - RJ2: RJ12 connector for Modbus Pressure sensors for CP mode  
Modbus Air quality sensors for demand control mode (option)  
Modbus Air quality sensors for BOOST in all modes (option)
  - RJ3: RJ12 connector for ESENSA or GLOBAL LP: free  
for GLOBAL PX/RX: Modbus Pressure sensors kit CA (prewired)  
and/or filters monitoring (option - prewired), on supply flow
  - RJ4: RJ12 connector for Modbus Pressure sensors kit CA (prewired)  
and/or defrost detecting (option - prewired)  
and/or filters monitoring (option - prewired);  
NB: for GLOBAL PX/RX: sensor used for extract flow only
- SATELLITES CONNECTIONS**
- SAT IO OR3-OR3: BYPASS STATUS - (option)
  - SAT IO A05: 0-10V OUTPUT (airflow / pressure) - (option)
  - SAT IO A06: 0-10V OUTPUT (airflow / pressure) - (option)
  - SAT IO IN5: MASTER SELECTION - (option)
  - SAT IO IN6: HEAT OFF - (option)
  - SAT IO IN7: SUPPLY RUN IN FIRE ALARM (open) (option)
  - SAT IO IN8: EXHAUST RUN IN FIRE ALARM (open) (option)
  - SAT COM - SAT MODBUS or SAT KNX or SAT SAT WIFI-ETHERNET or SAT WIFI-ETHERNET-MQTT - (option)
- SAT RELAY**
- FOR GLOBAL LP, THEN PREMOUNTED AND PREWIRED
  - SAT RELAY OR1 - LINEAR ACTUATOR FOR BYPASS - FORWARD (closed) (prewired)
  - SAT RELAY OR2 - LINEAR ACTUATOR FOR BYPASS - BACKWARD (closed) (prewired)
  - FOR ALL OTHER MODELS
  - SAT RELAY OR1 : Enable Heat Pump - (option)
  - SAT RELAY OR2 : Heat/Cool selection for Heat Pump/Chiller - (option)
  - relais SPDT (COM + NC/NO) - max 0,5A 30V AC/DC
  - In absence of a heat pump, these outputs can be configured as alternative for a function assigned by default to D07...D011.

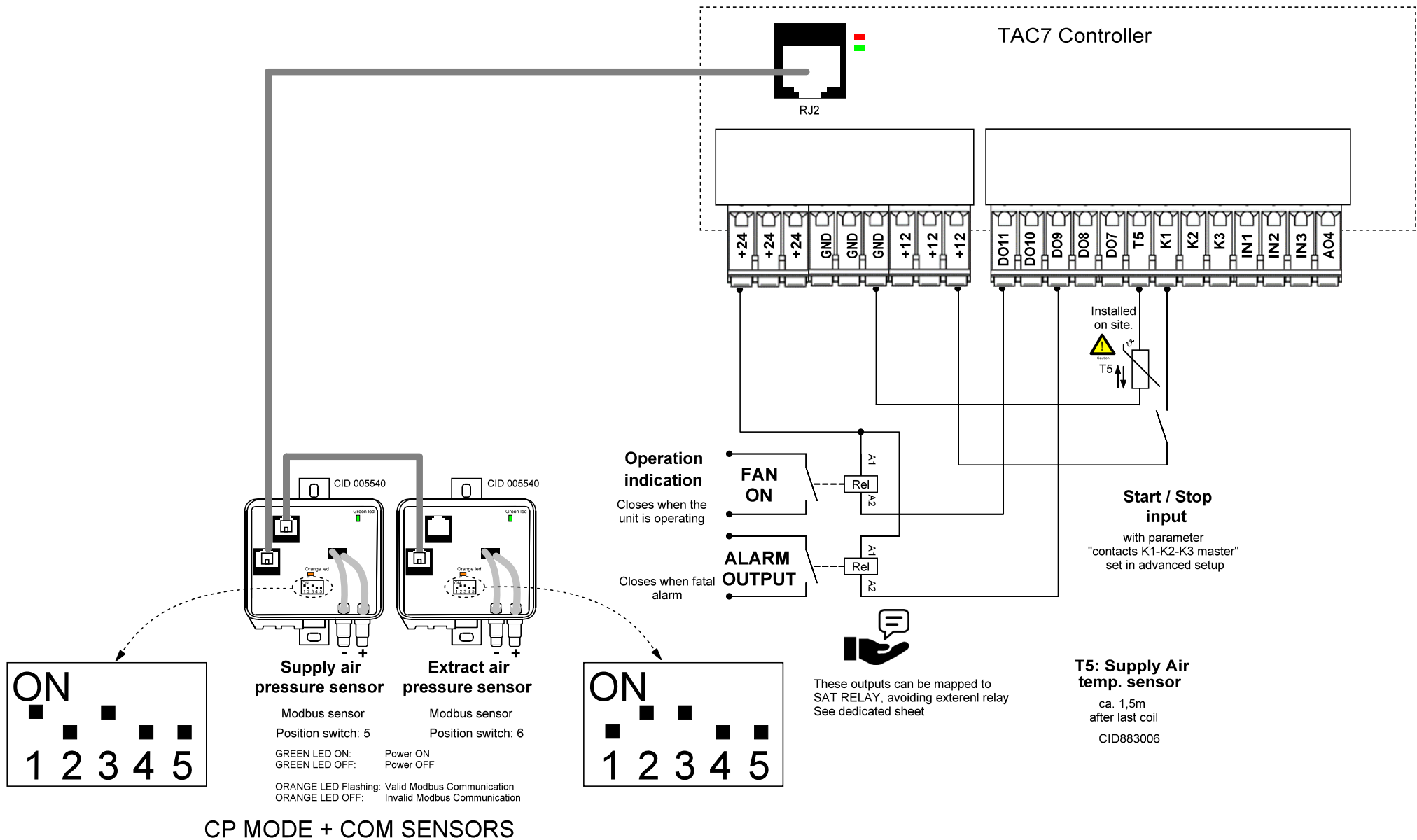
Changes		Name	Date	Page
Name	Date	Draw.:	msg	17/10/2024
		check.:		5
		Norm.:		
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			of 63
Application:				
Main Controller TAC7				



Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Constant Airflow</b>	Page
Name	Date	Draw.: ola	27/09/2024		6
		check.:			
		Norm.:		Application: <b>Constant airflow</b>	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				

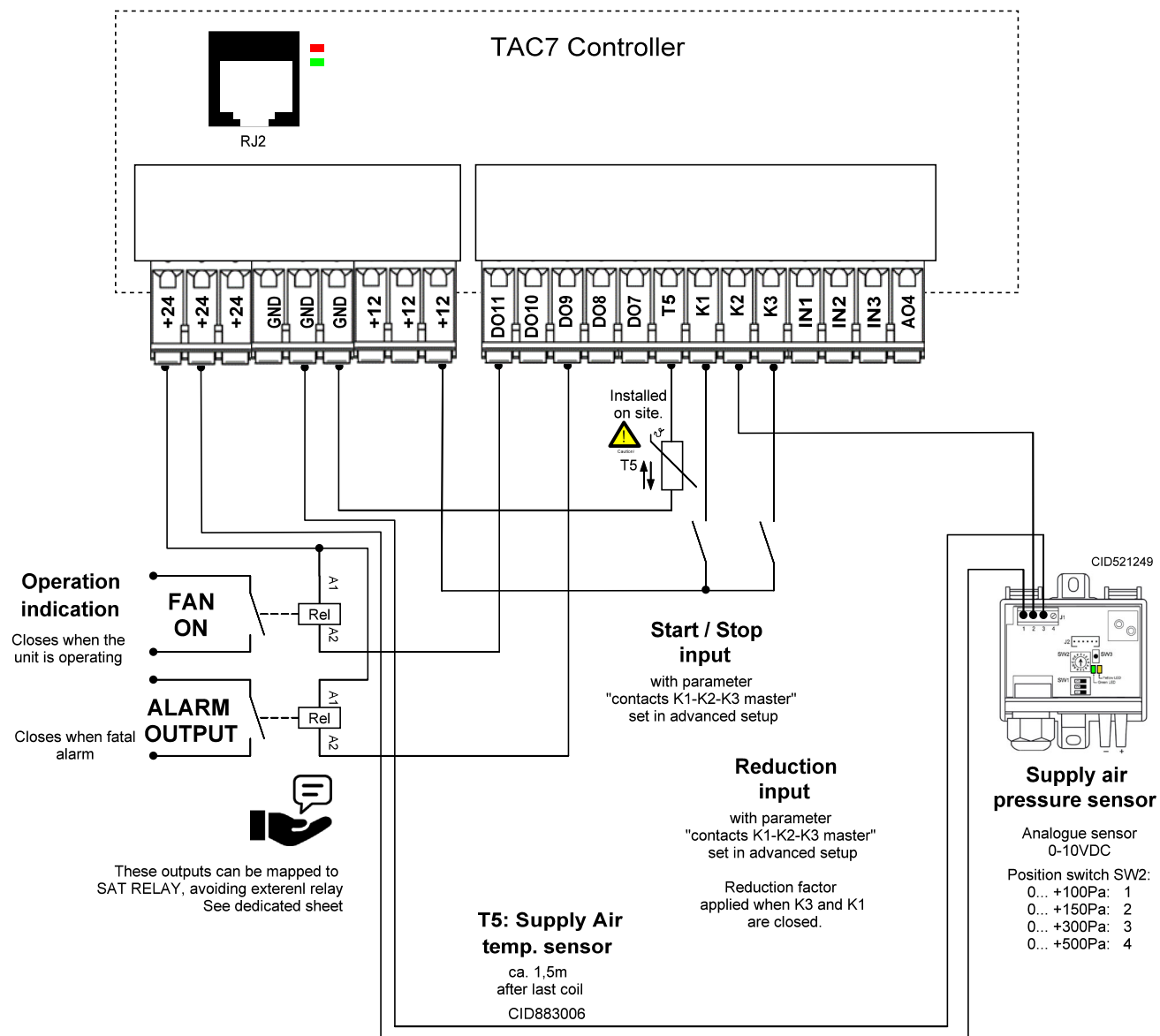


Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	27/09/2024	Function Regulation mode/ Constant Airflow	7
		check.:			
		Norm.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Application: Constant airflow - PIR	of 63



Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Constant Pressure</b>	Page	
Name	Date	Draw.: ola	27/09/2024		Application: <b>Constant pressure Modbus</b>	8
		check.:		of		63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		Norm.:			





## Changes

Name

Date

Draw.:

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Date

27/09/2024

check.:

Norm.:

Subject:

GLOBAL\_ESENSA\_Wiring TAC7 (1).spl7

Configuration of function:

Function Regulation mode/ Constant Pressure

Application:

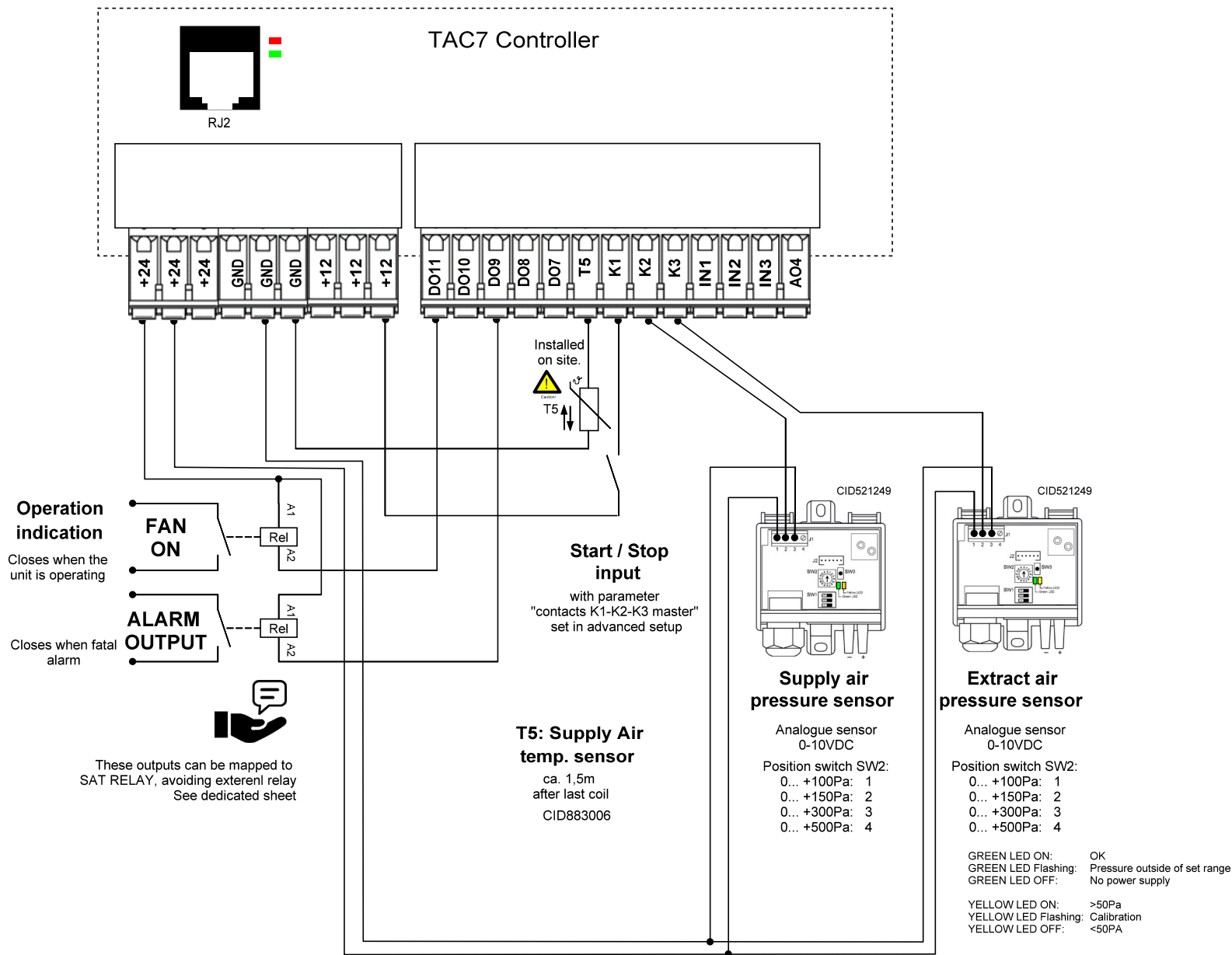
Constant pressure 1x 0-10V

Page

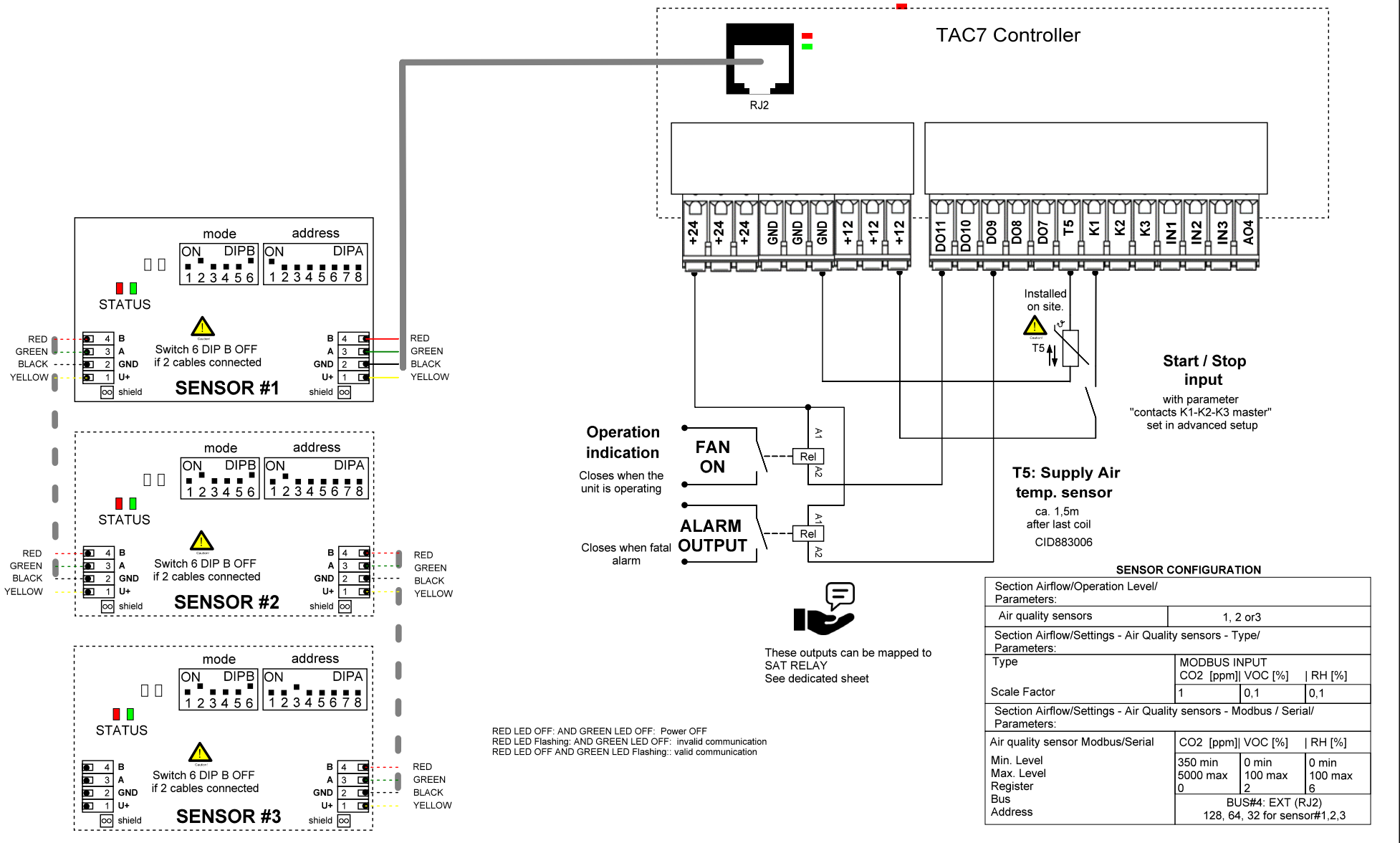
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of

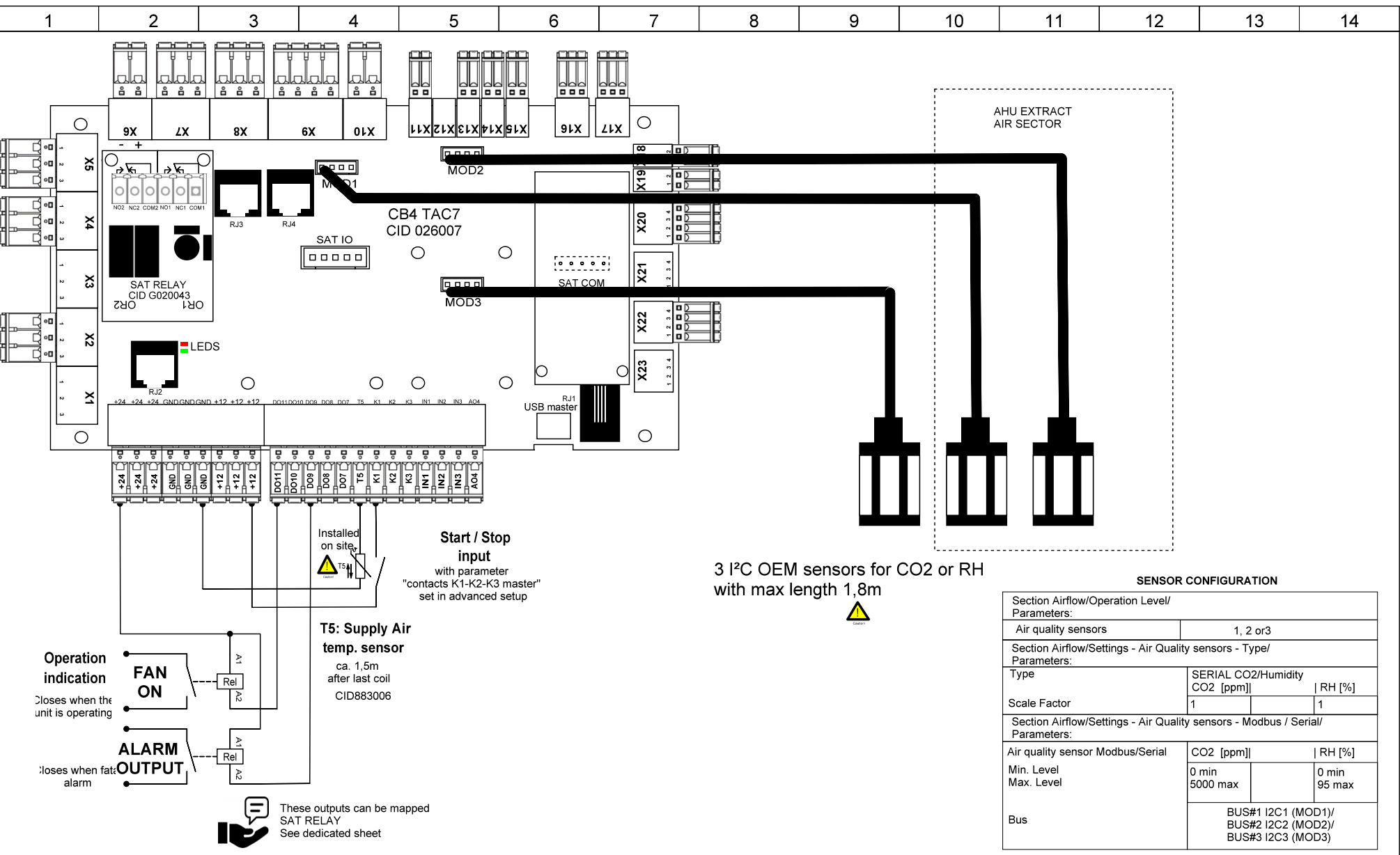
63



Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Constant Pressure</b>	Page	
Name	Date	Draw.: ola	27/09/2024		Application: <b>Constant pressure 2x 0-10V</b>	10
		check.:		of		63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:				



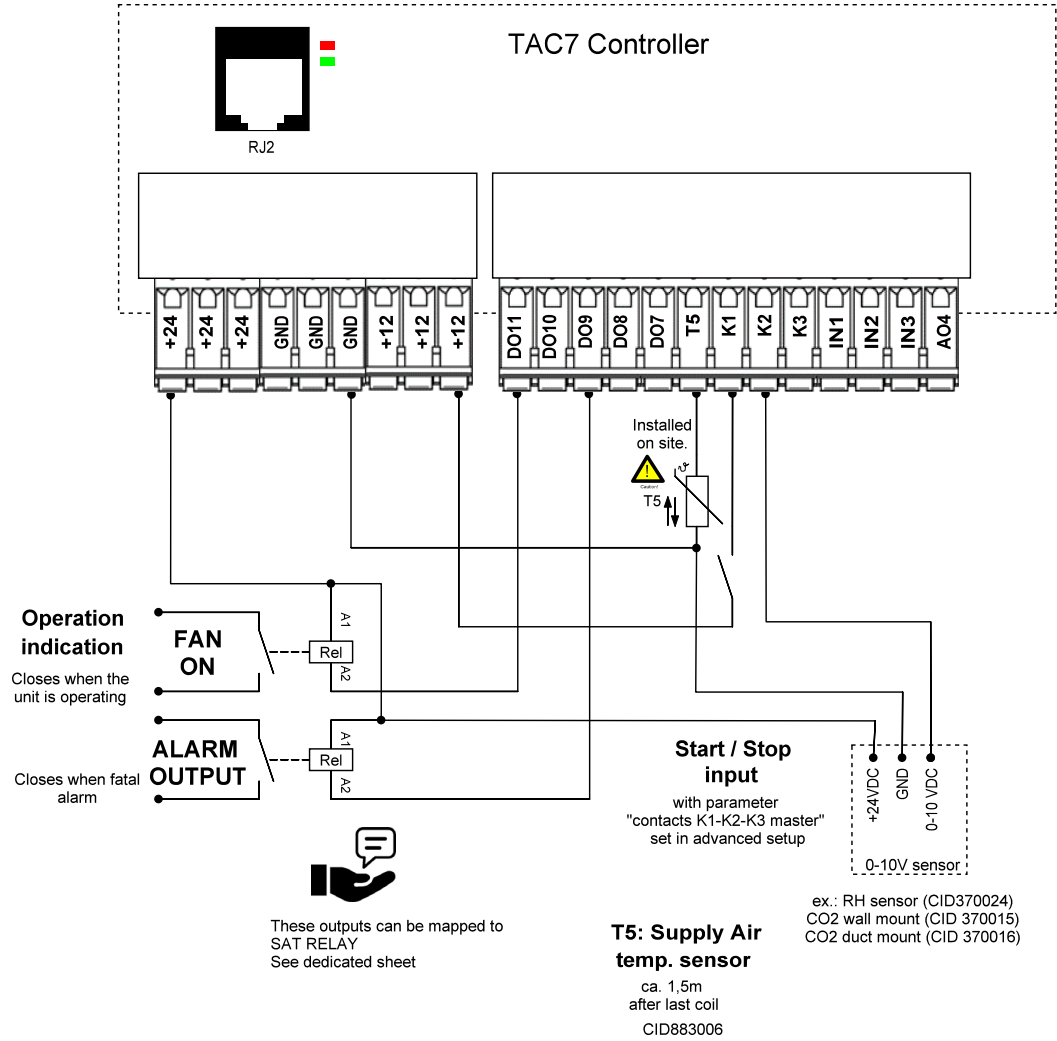
Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Demand control</b>	Page
Name	Date	Draw.: ola	27/09/2024		11
		check.:		Application: <b>Demand control IAQ Modbus (Indoor Air Quality)</b>	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



Changes		Name	Date	Configuration of function:	Page
Name	Date	ola	27/09/2024	Function Regulation mode/ Demand control	12
		check.:			
		Norm.:		Application: Demand control Serial COM (Indoor Air Quality)	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				

**SENSOR CONFIGURATION**

Section Airflow/Operation Level/ Parameters:		
Air quality sensors	1, 2 or 3	
Section Airflow/Settings - Air Quality sensors - Type/ Parameters:		
Type	Analogue 0-10V CO2 [ppm]	RH [%]
Scale Factor	20	1
Section Airflow/Settings - Air Quality sensors -Analogue/ Parameters:		
I/O	K2 or K3 if K2 not free and K3 well	
Vmin	0 V	
Vmax	10 V	
Minimum level	0	0
Maximum level	2000	100



These outputs can be mapped to SAT RELAY  
See dedicated sheet

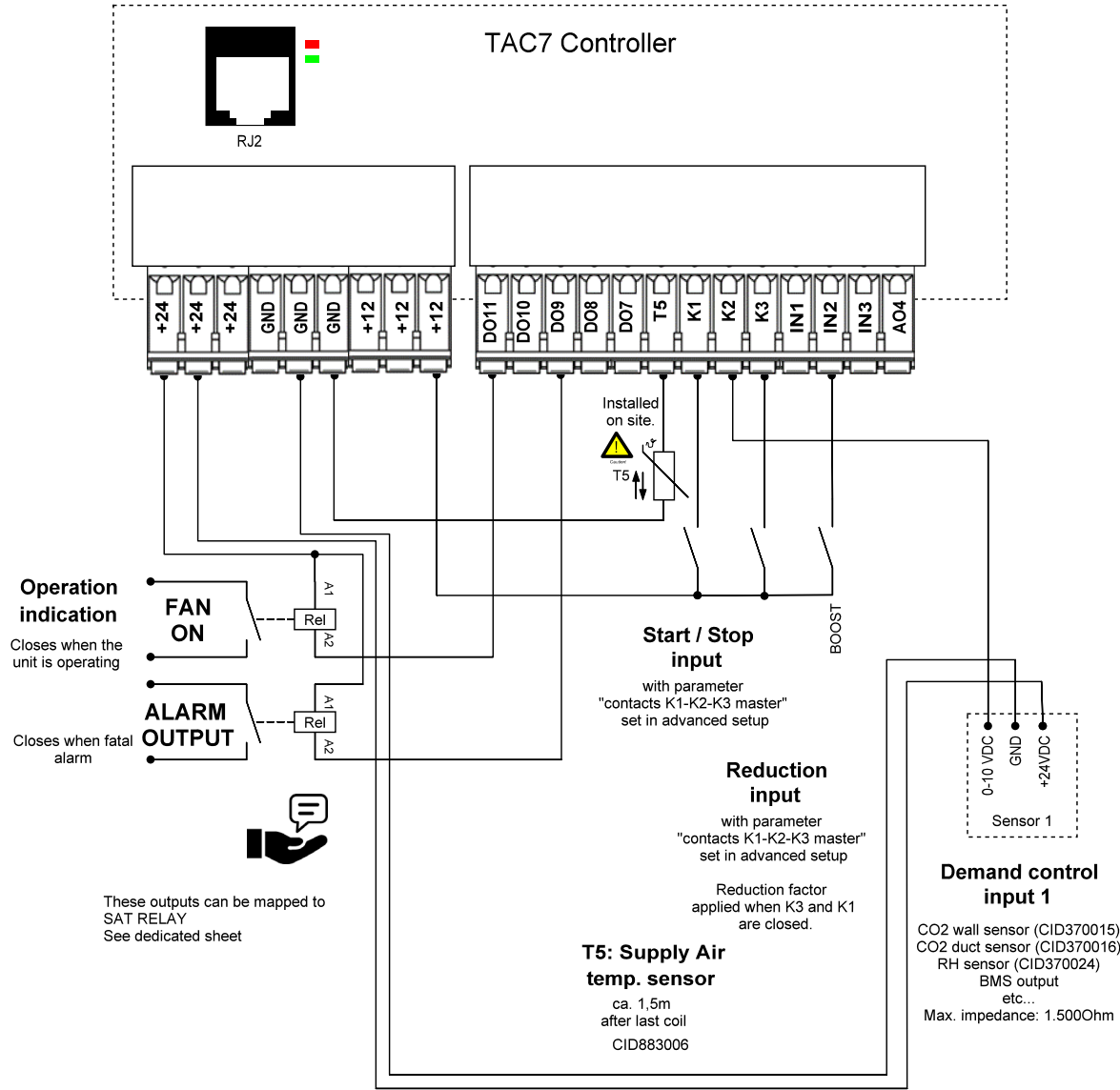
**T5: Supply Air temp. sensor**  
ca. 1,5m after last coil  
CID883006

ex.: RH sensor (CID370024)  
CO2 wall mount (CID 370015)  
CO2 duct mount (CID 370016)

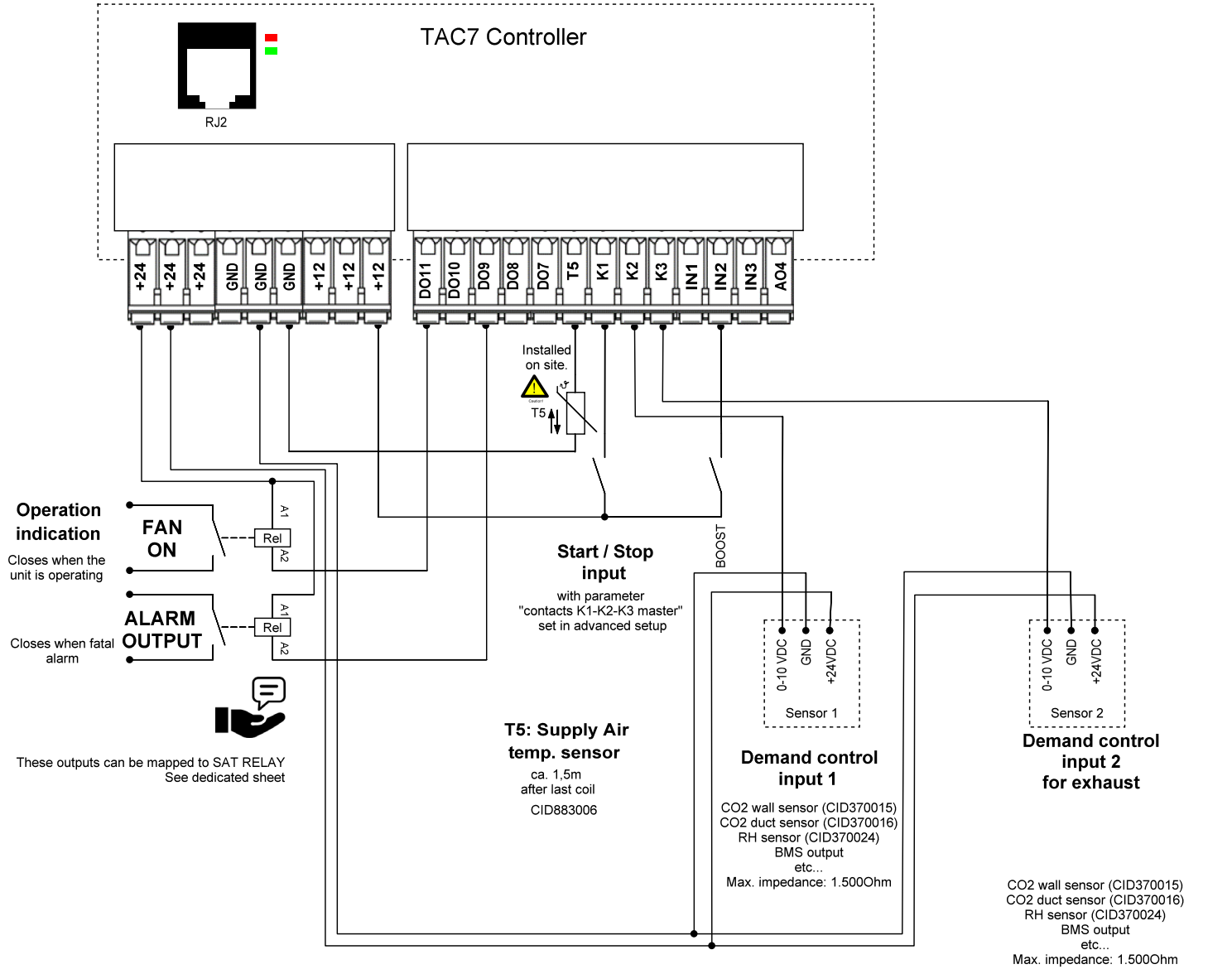
Changes		Name	Date
Name	Date	Draw.: ola	27/09/2024
		check.:	
		Norm:	
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		

Configuration of function:  
**Function Regulation mode/ Demand control**

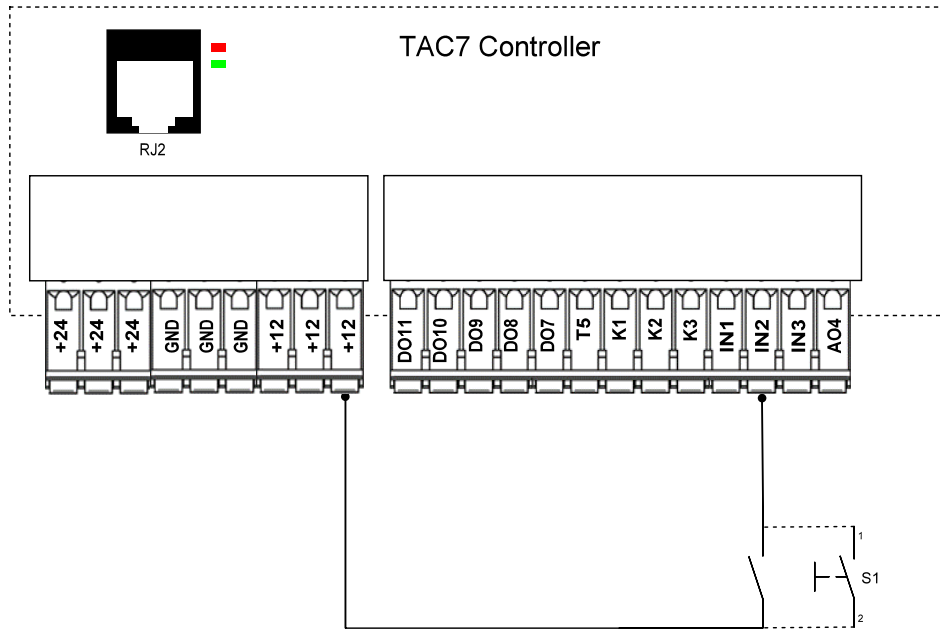
Application:  
**Demand control IAQ Analogue (Indoor Air Quality)**



Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Demand control</b>	Page
Name	Date	Draw.: ola	27/09/2024		14
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>Demand control 1x 0-10V</b>	of 63



Changes		Name	Date	Configuration of function: <b>Function Regulation mode/ Demand control</b>	Page
Name	Date	Draw.: ola	29/09/2024		15
		check.:			
Subject: GLOBAL_ESENSA_Wiring TAC7 (1).spl7				Application: <b>Demand control 2x 0-10V</b>	of 63



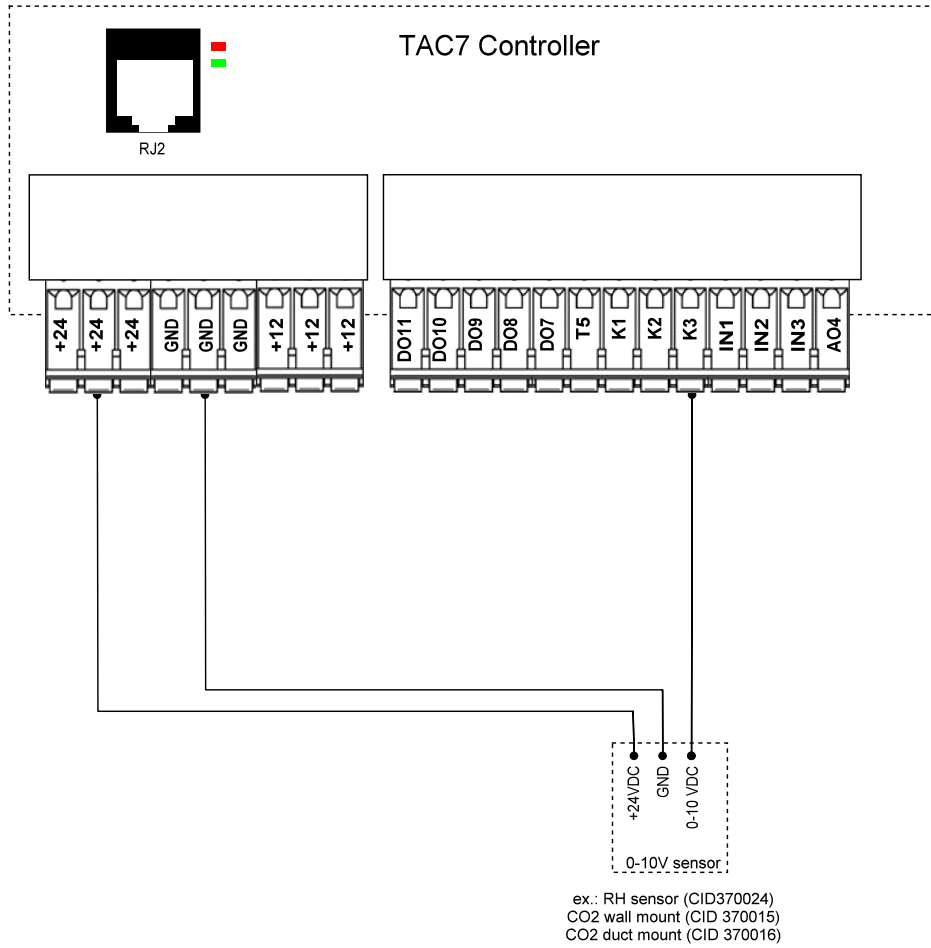
In case a push button is used instead of a switch, then configure parameter "BOOST duration" in Function Air flow/BOOST with a delay in minutes.

Changes		Name	Date	Configuration of function: <b>Function Air flow/BOOST</b>	Page
Name	Date	Draw.: ola	27/09/2024		16
		check.:		Application: <b>BOOST with contact</b>	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



**SENSOR CONFIGURATION**

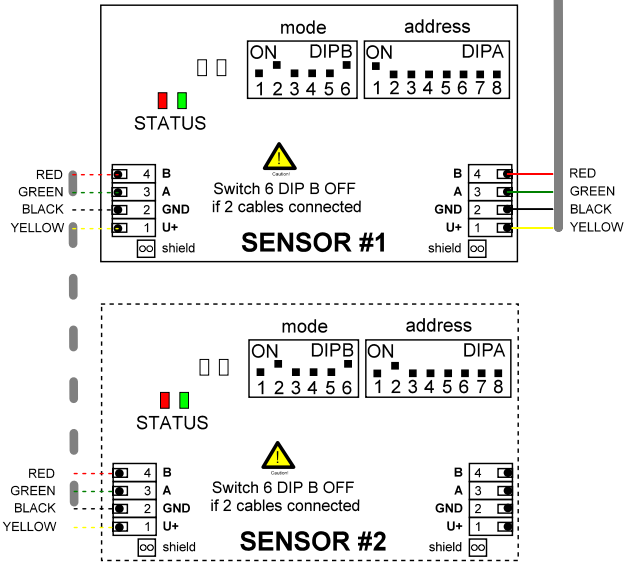
Section Airflow/BOOST/ Parameters:			
Air quality sensors		1 or 2	
Section Airflow/BOOST - Air Quality sensors - Type/ Parameters:			
Type	Analogue 0-10V	CO2 [ppm]   RH [%]	
Scale Factor	20		1
Section Airflow/BOOST - Air Quality sensors - Analogue/ Parameters:			
I/O	K2 or K3		
Vmin	0 V		
Vmax	10 V		
	CO2 [ppm]	RH [%]	
Low level BOOST off	100 min		5 min
High level BOOST on	1900 max		95 max



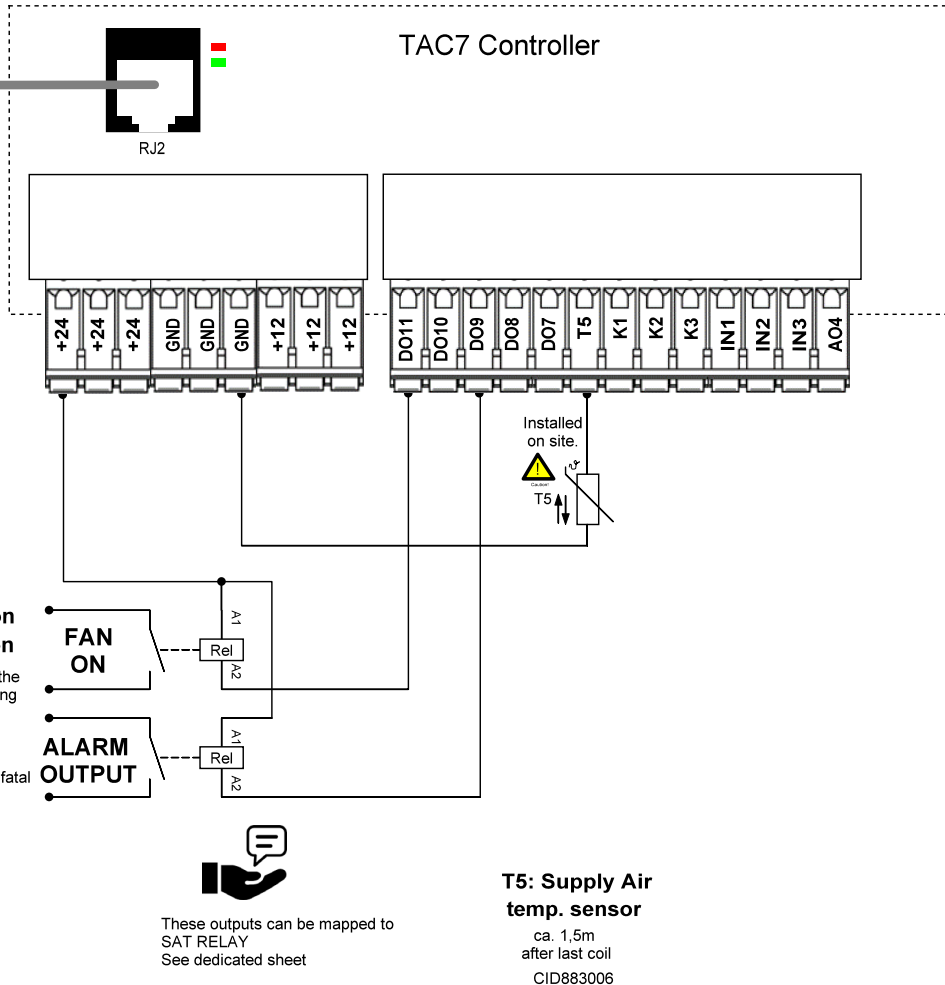
Changes		Name	Date	Configuration of function: <b>Function Air flow/BOOST</b>	Page
Name	Date	Draw.: ola	27/09/2024		17
		check.:			
		Norm:		Application: <b>BOOST with 0-10V sensor</b>	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63

**SENSOR CONFIGURATION**

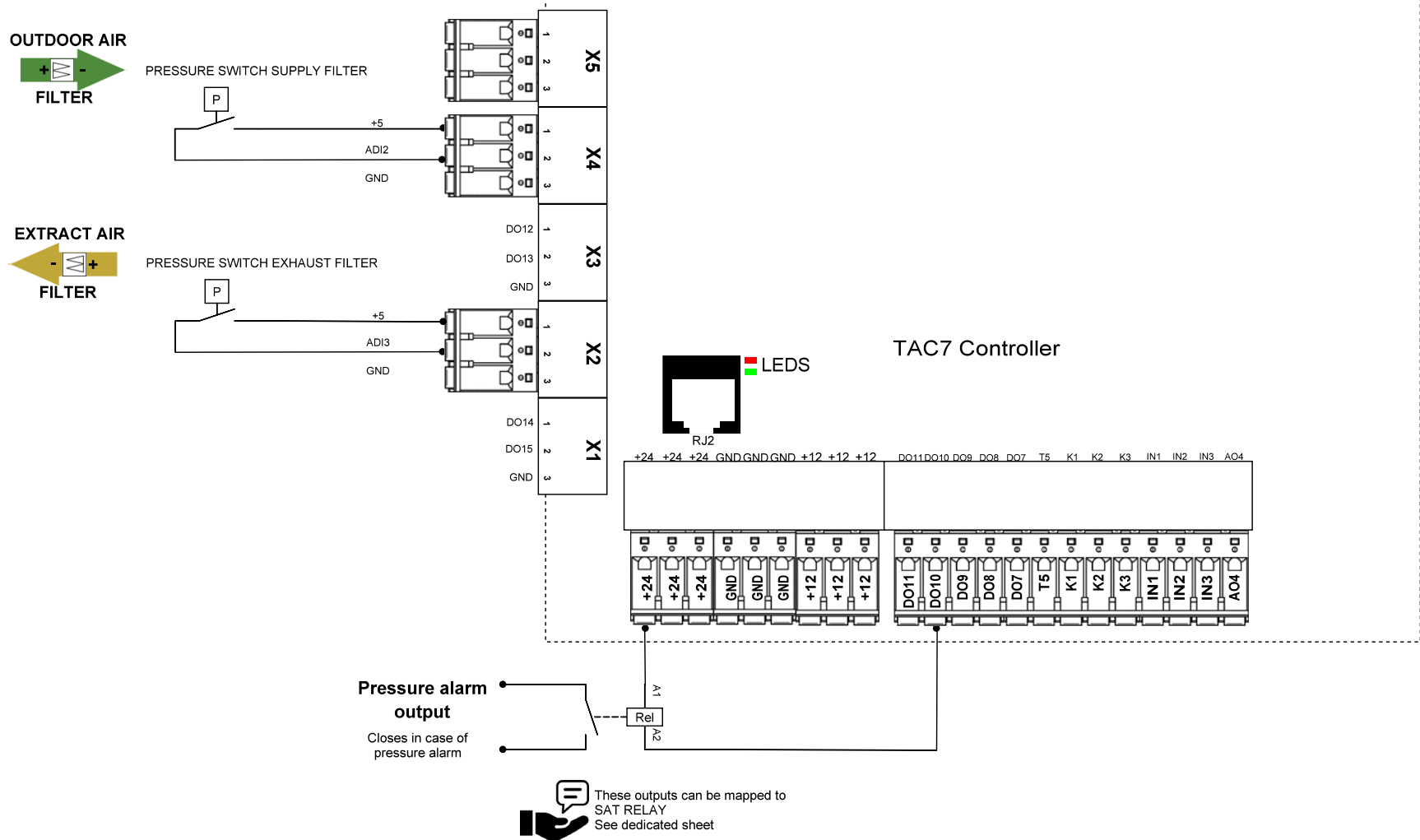
Section Airflow/BOOST/ Parameters:			
Air quality sensors	1 or 2		
Section Airflow/BOOST - Air Quality sensors - Type/ Parameters:			
Air quality sensor Type	MODBUS INPUT CO2 [ppm]   VOC [%]   RH [%]		
Scale Factor	1	0,1	0,1
Low level BOOST off	350 min	0 min	0 min
High level BOOST on	5000 max	100 max	100 max
Section Airflow/BOOST - Air Quality sensors - Modbus / Serial/ Parameters:			
Air quality sensor Modbus/Serial	CO2 [ppm]   VOC [%]   RH [%]		
Register	0	2	6
Bus Address	BUS#: EXT (RJ2) 128, 64 for sensor#1,2		



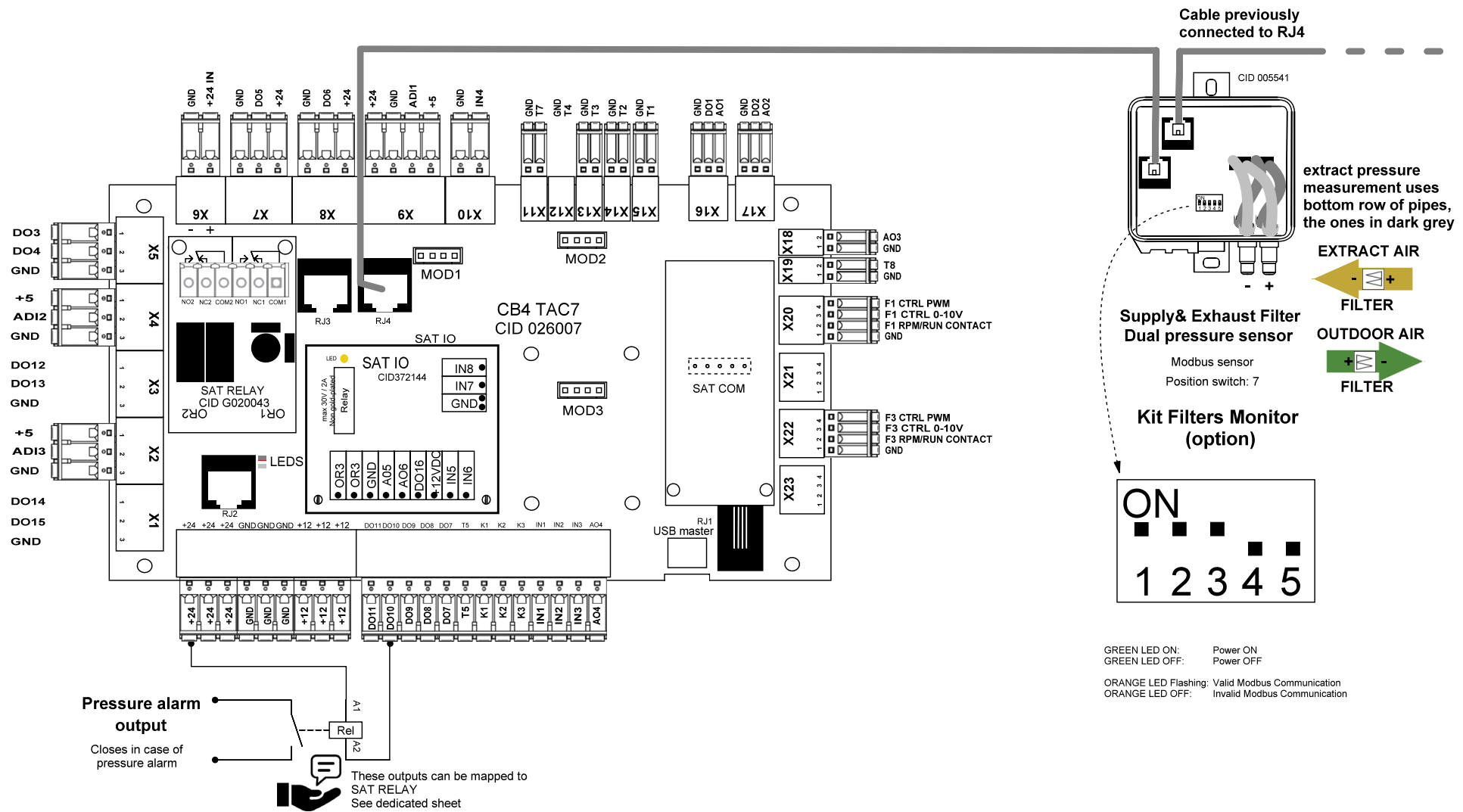
RED LED OFF; AND GREEN LED OFF: Power OFF  
 RED LED Flashing; AND GREEN LED OFF: invalid communication  
 RED LED OFF AND GREEN LED Flashing: valid communication



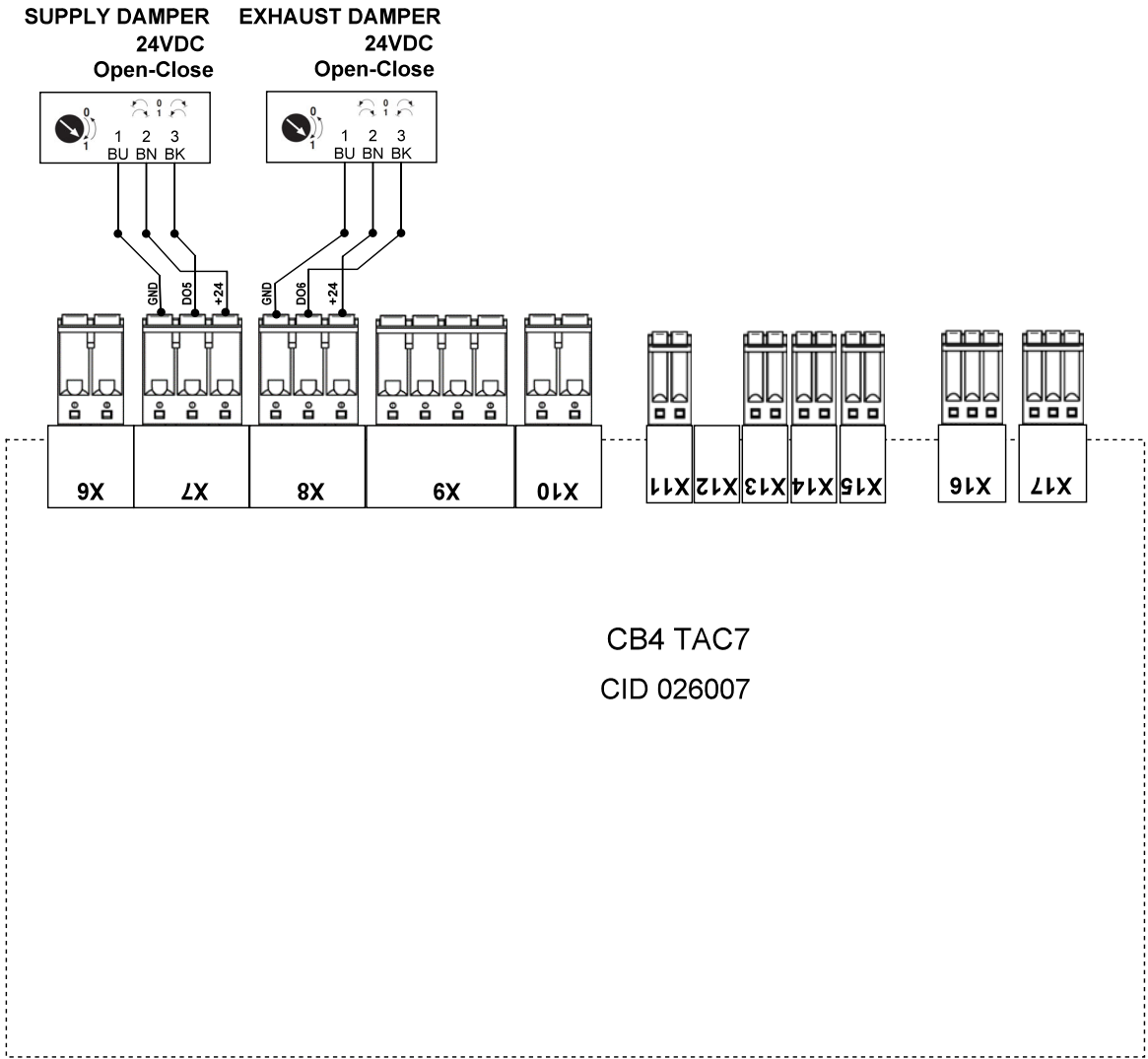
Changes		Name	Date	Configuration of function: <b>Function Air flow/BOOST</b>	Page
Name	Date	Draw.: ola	27/09/2024		18
		check.:		Application: <b>BOOST with IAQ sensors (Indoor Air Quality)</b>	of
		Norm.:			63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



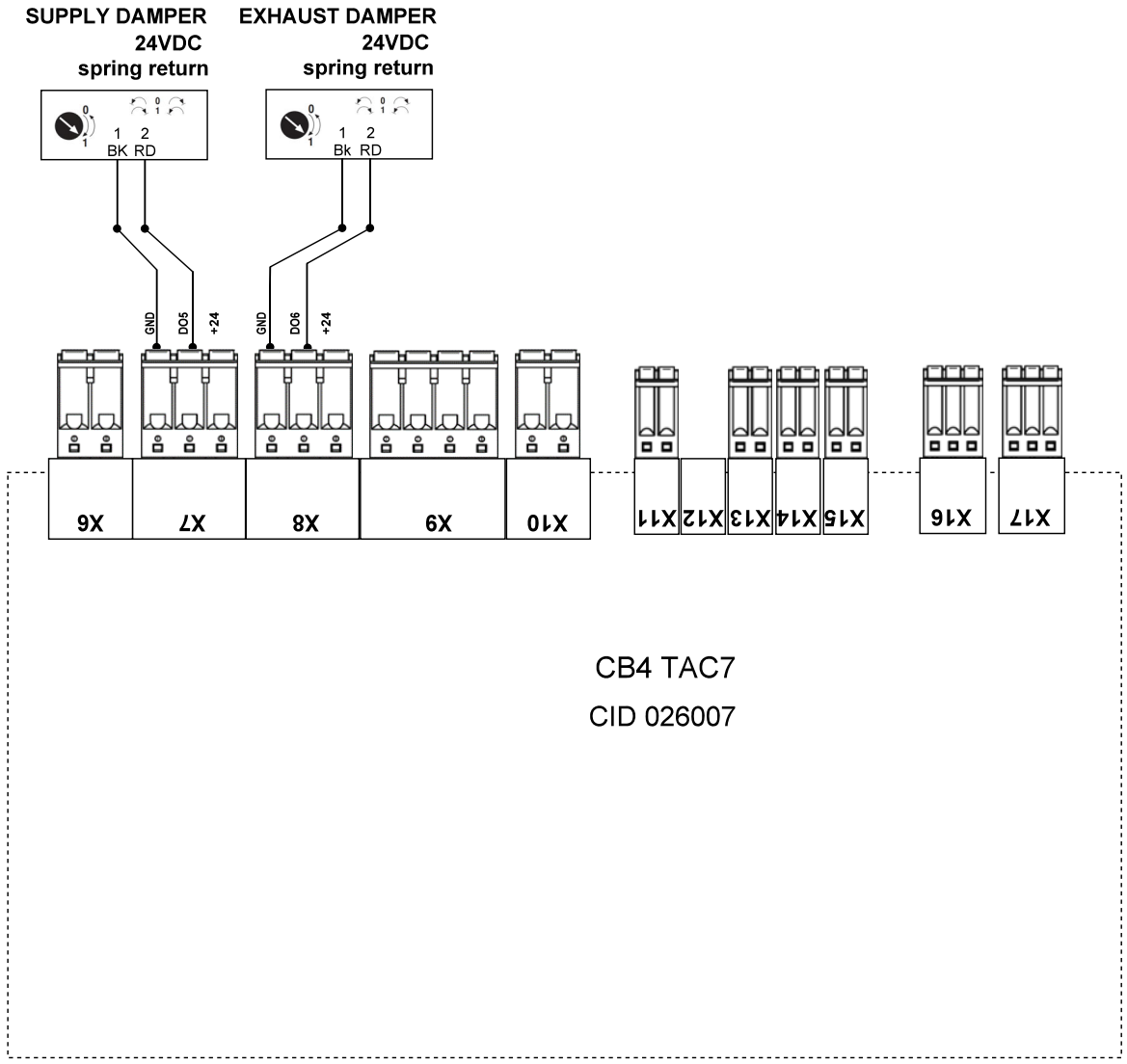
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	27/09/2024		Application: <b>Filters alarm - Pa switch</b>
		check.:		of	
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		63	



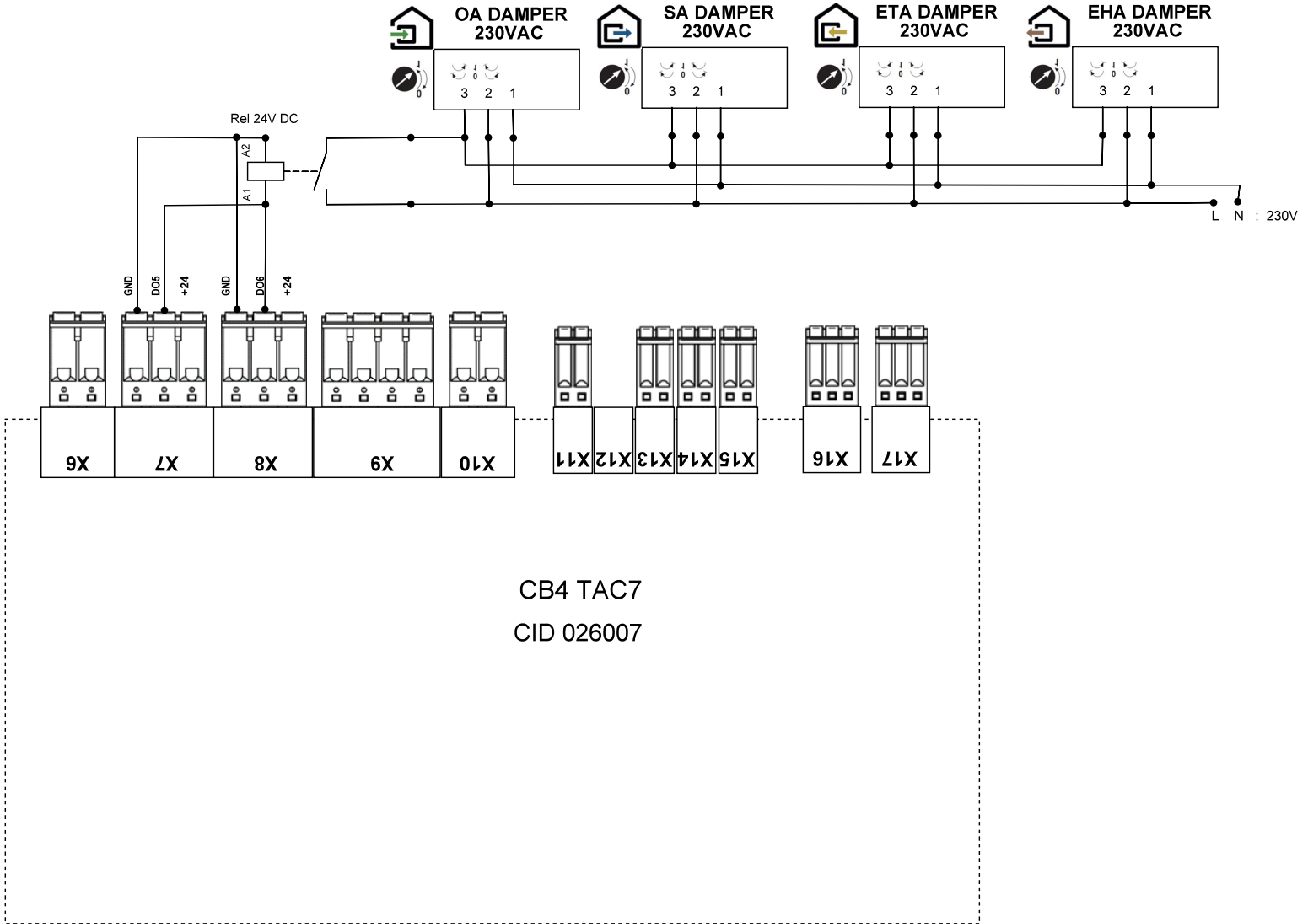
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	27/09/2024	Function Filters/Pressure alarm/Filters pressure revelation with sensors	20
		check.:			
		Norm.:		Application:	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			<b>Filters alarm &amp; monitor</b>	<b>63</b>



Changes		Name	Date	Configuration of function: <b>Function Air Handling Unit/Dampers</b>	Page
Name	Date	Draw.: ola	27/09/2024		21
msg	07/04/2023	check.:			
		Norm:		Application: <b>Motorised damper - standard</b>	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



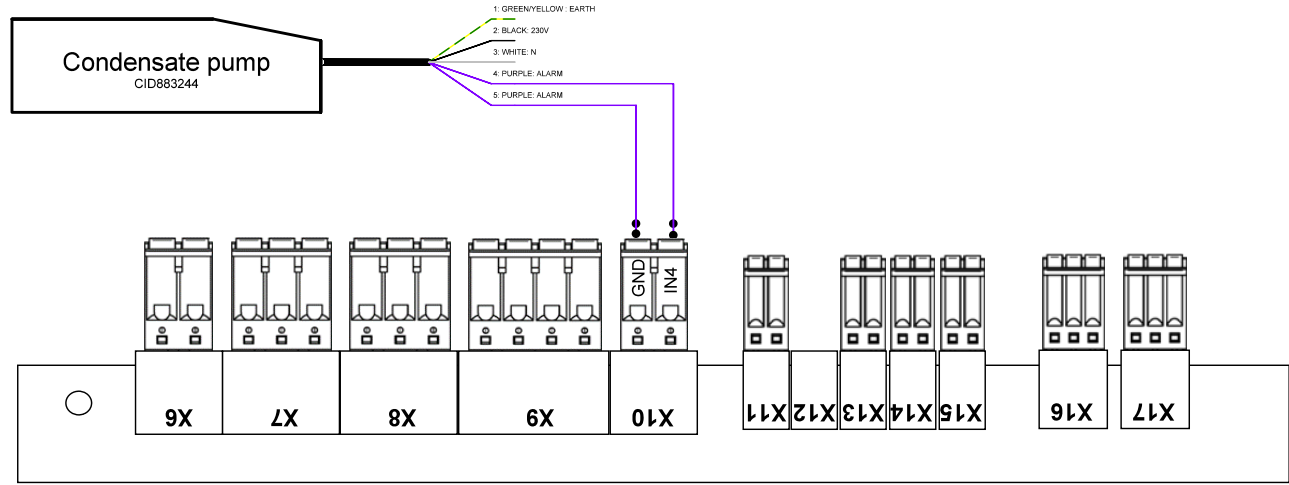
Changes		Name	Date	Configuration of function: <b>Function Air Handling Unit/Dampers</b>	Page
Name	Date	Draw.: ola	27/09/2024		22
		check.:			
		Norm:		Application: <b>Motorised damper - spring ret</b>	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



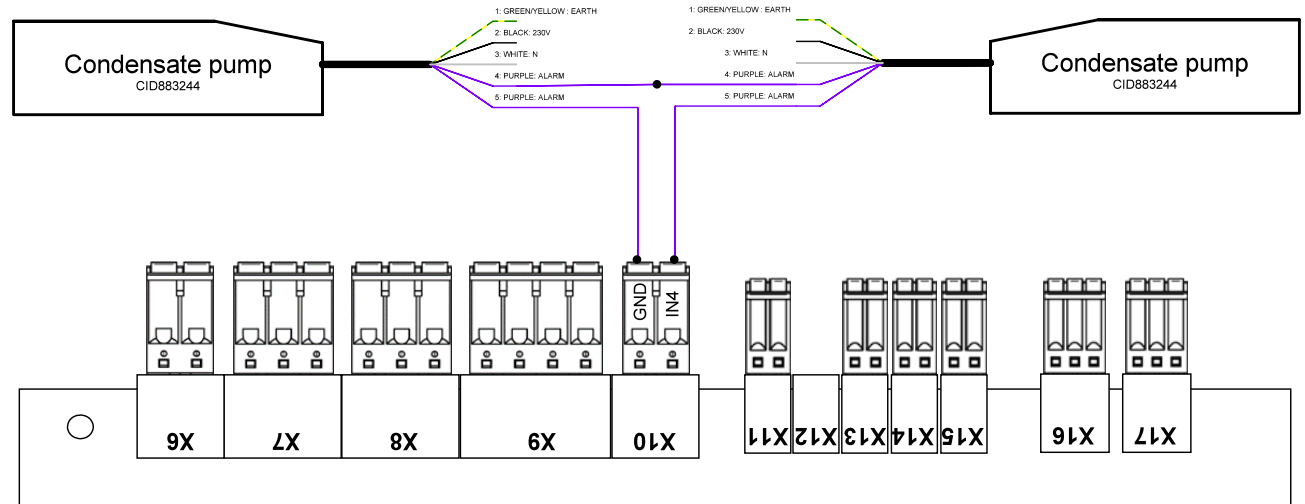
Changes		Name	Date	Configuration of function: <b>Function Air Handling Unit/Dampers</b> dampers move simultaneously in same direction (they all close or all open)	Page
Name	Date	Draw.: ola	27/09/2024		23
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>Motorised damper - 230 V AC</b>	of 63

1 device with drain pump  
(GLOBAL LP or postcooling coil)

The condensate pump contains an internal sensor that will automatically start the pump when the water level rises above approx. 15 mm and stop the pump when the water level has fallen to approx. 5 mm. The condensate pump is also fitted with a high water level alarm that will operate the alarm relay if the water level rises above approx. 25 mm. The pump will continue to run until the minimum water level is reached and the alarm will reset.

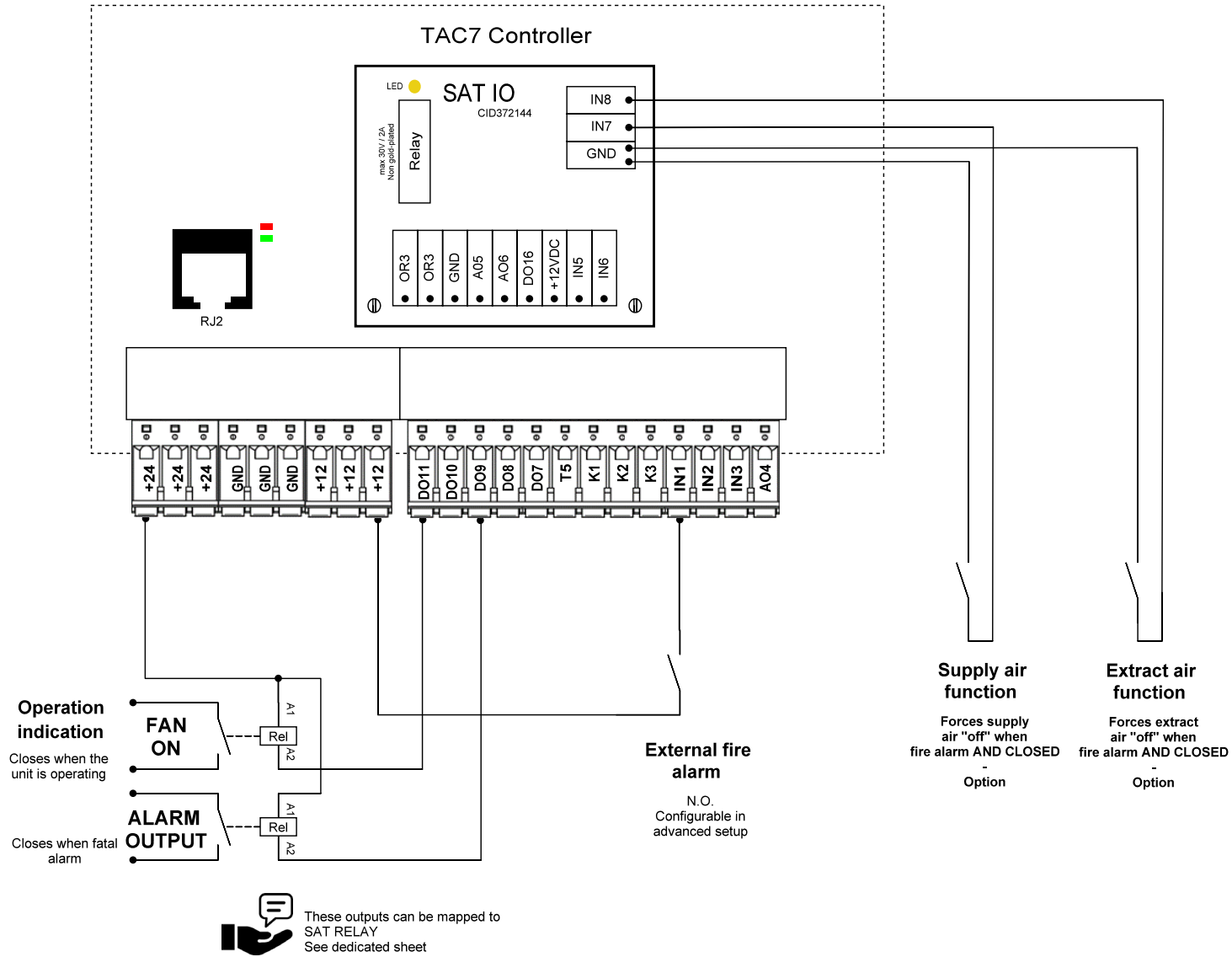


2 devices with drain pump  
(GLOBAL LP and postcooling coil)

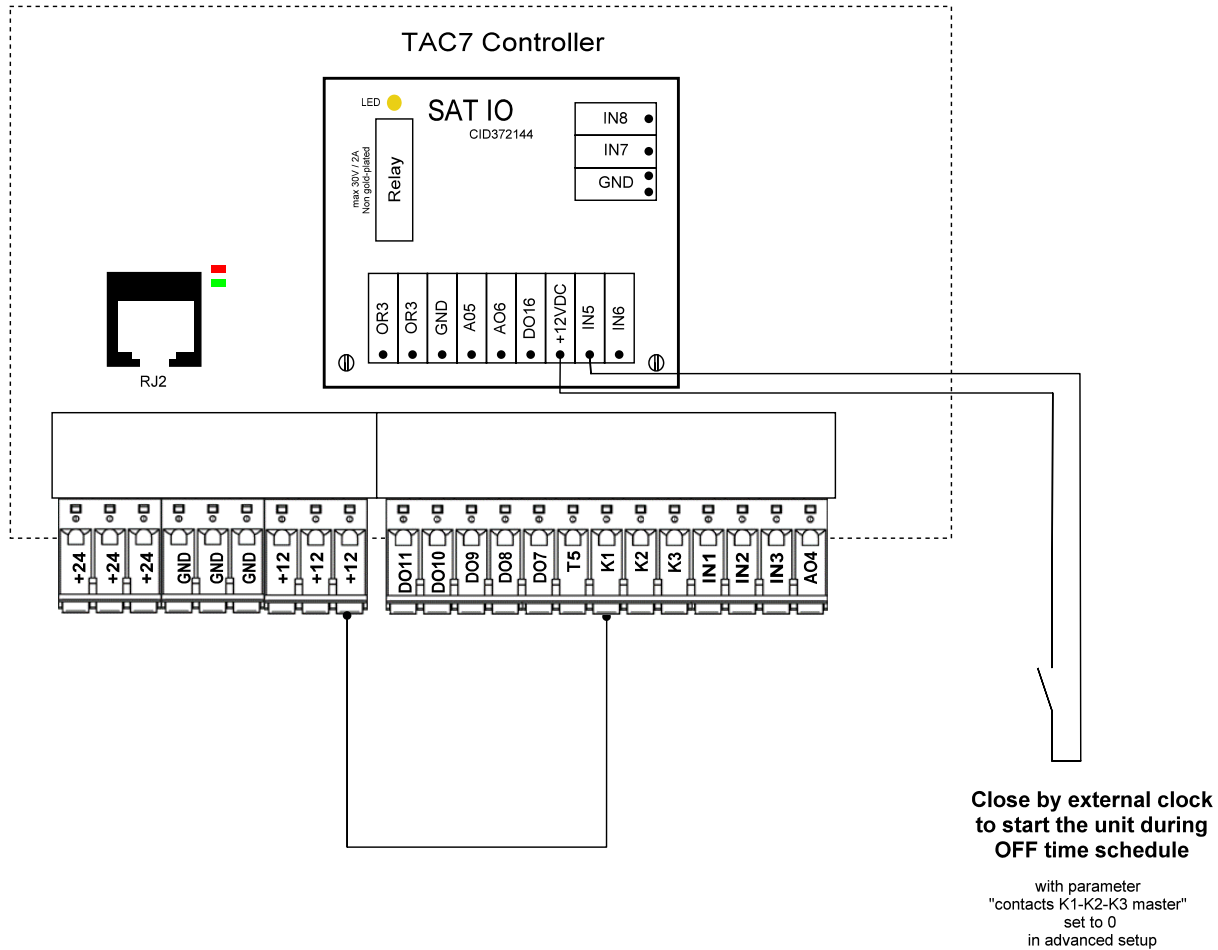


Changes		Name	Date	Application: Condense pump	Page
Name	Date	Draw.: ola	27/09/2024		24
		check.:			
		Norm:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				of 63

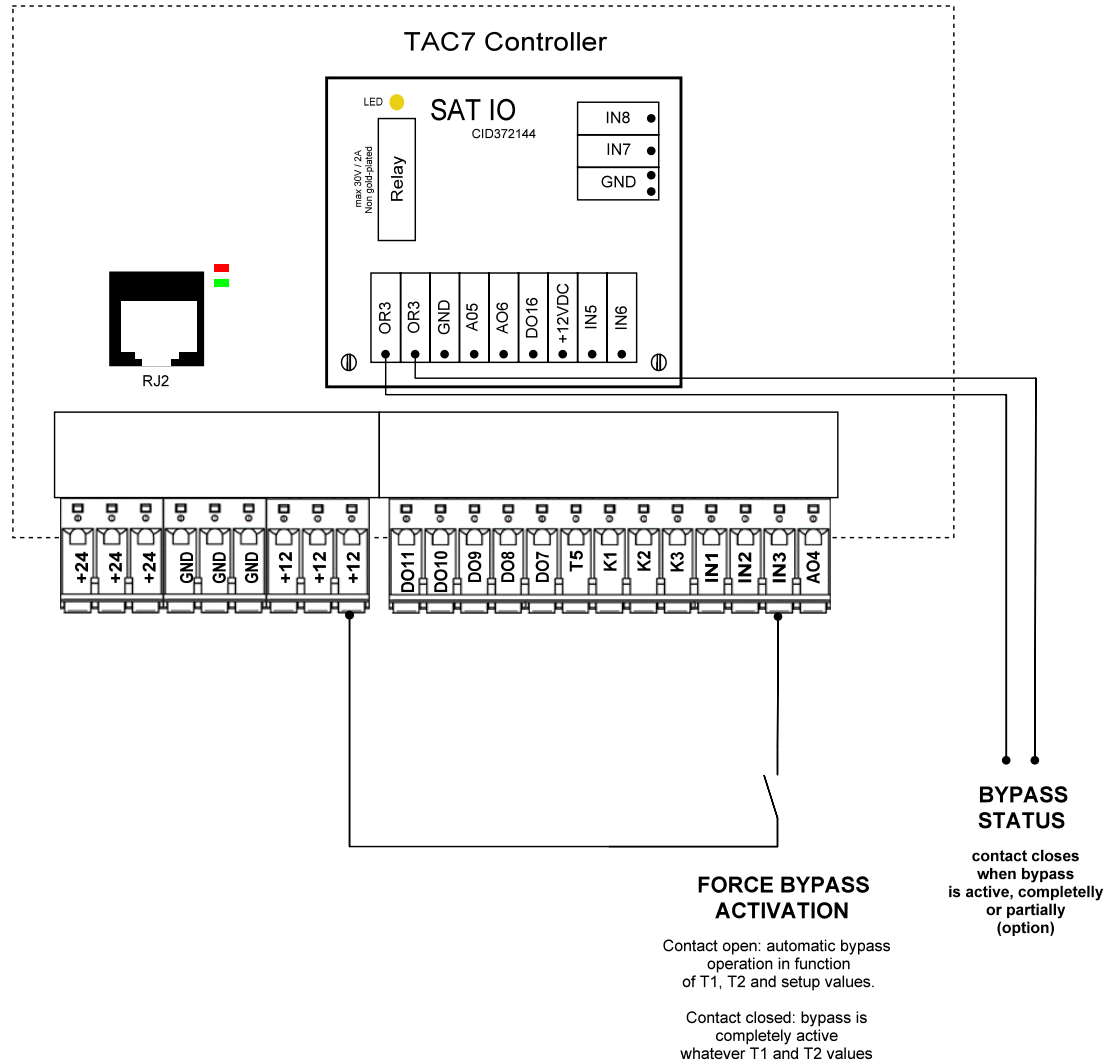




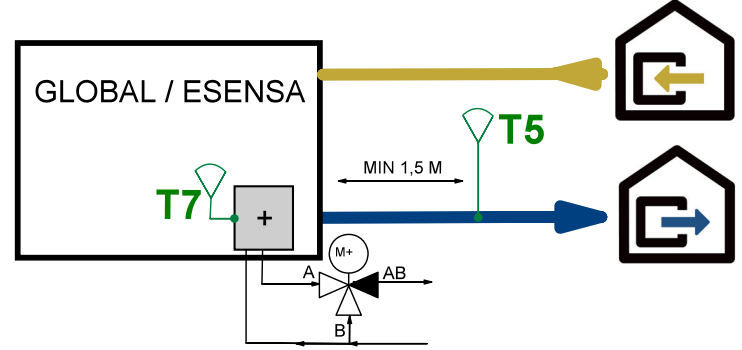
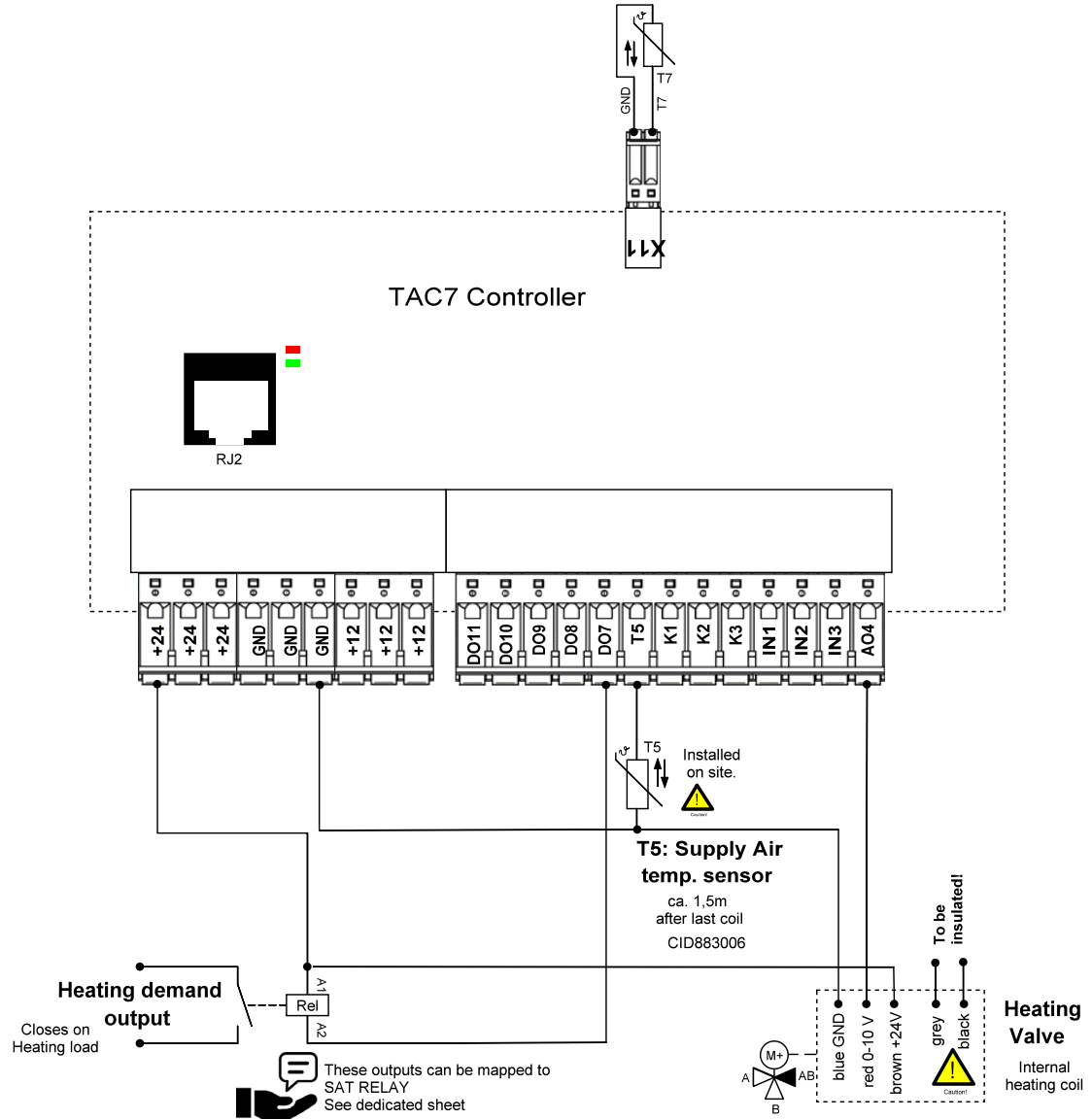
Changes		Name	Date	Configuration of function: <b>Function Alarm Settings</b>	Page	
Name	Date	Draw.: ola	30/09/2024		Application: <b>Fire alarm</b>	25
		check.:		of		63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7					



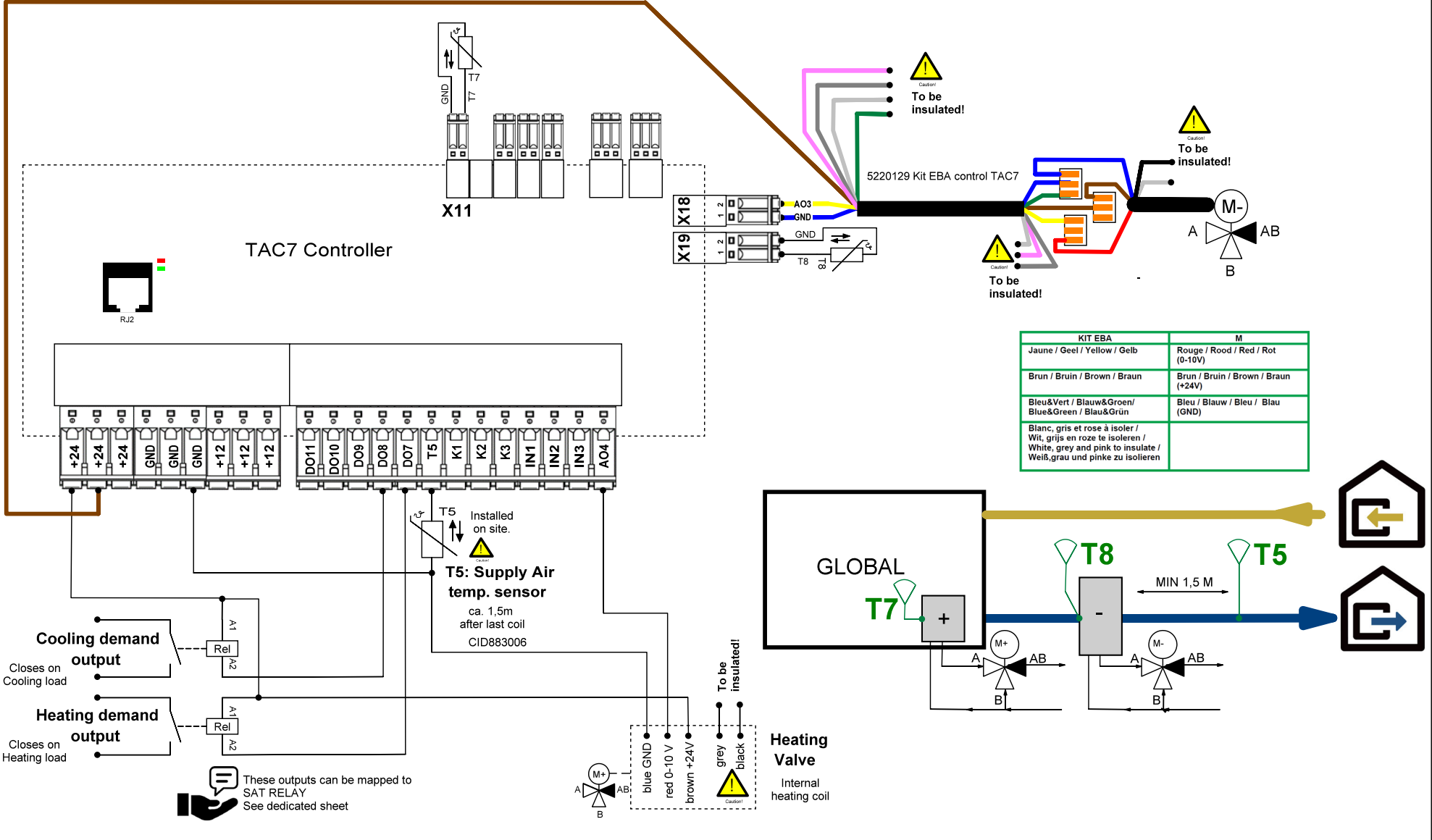
Changes		Name	Date	Configuration of function: <b>Timeschedules configured</b> Control screen of TACtouch: Speed selection on 'AUTO'	Page
Name	Date	Draw.: ola	30/09/2024		
		check.:		Application: <b>External Clock</b>	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



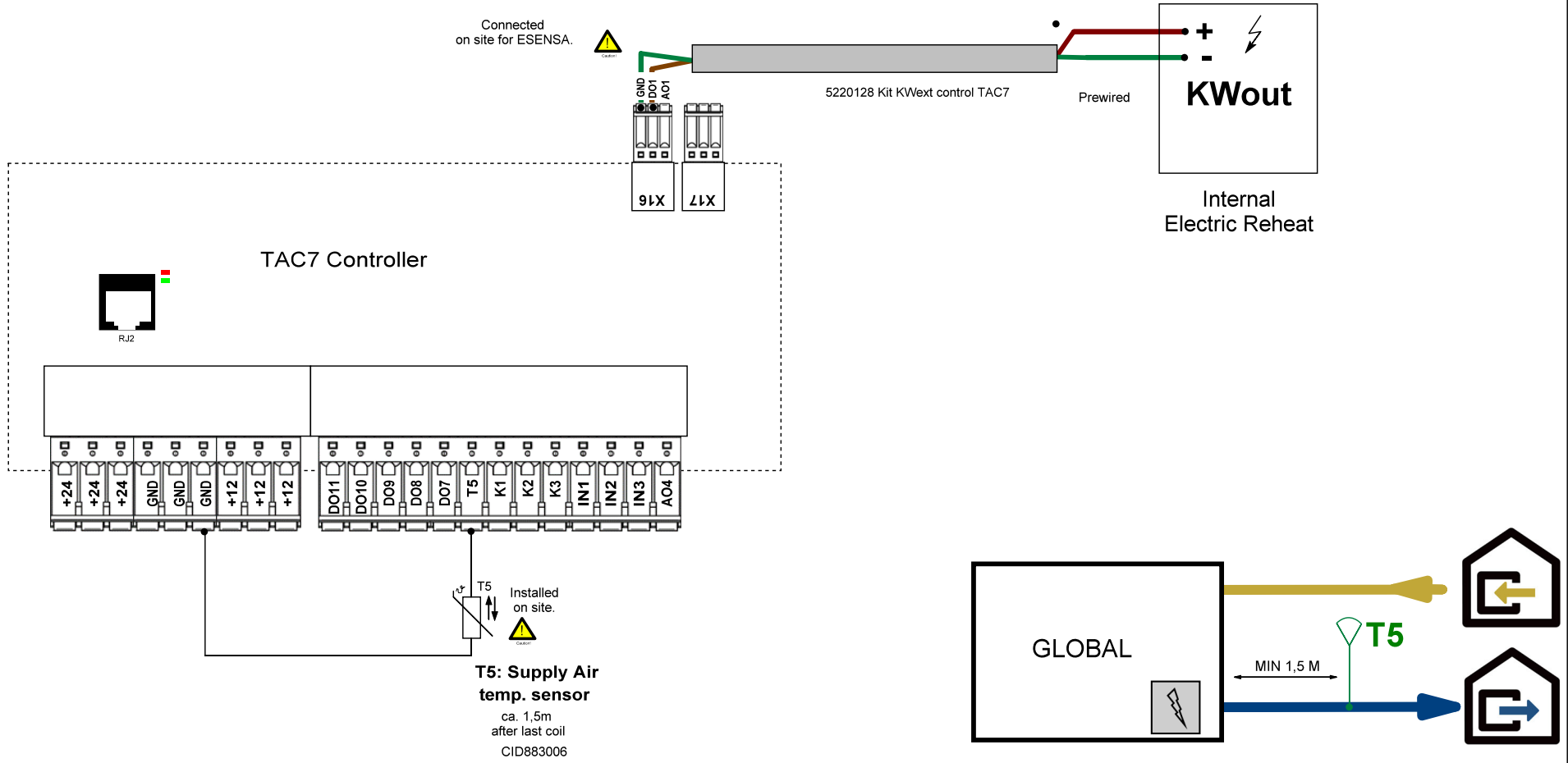
Changes		Name	Date	Configuration of function: <b>Function Temperature/Freecooling</b>	Page	
Name	Date	Draw.: ola	30/09/2024		Application: <b>Bypass</b>	27
		check.:		of		63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7					



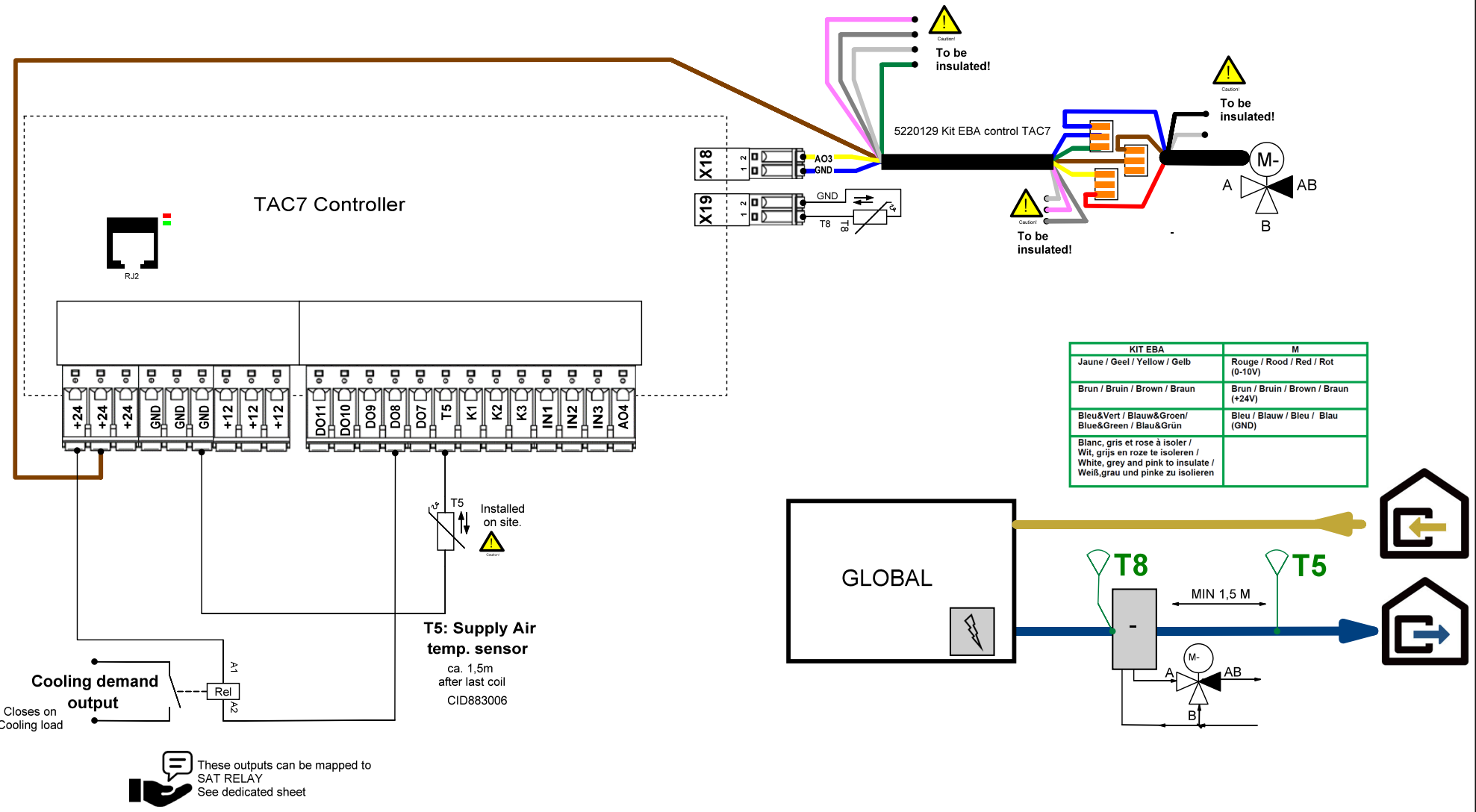
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	30/09/2024	Function Heat/Reheat/ Internal Waterborne Reheat (IBA)	28
		check.:			
		Norm.:		Application: IBA Internal Waterborne Reheat	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



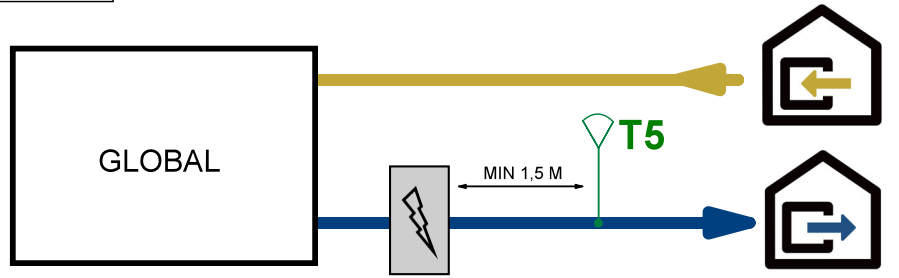
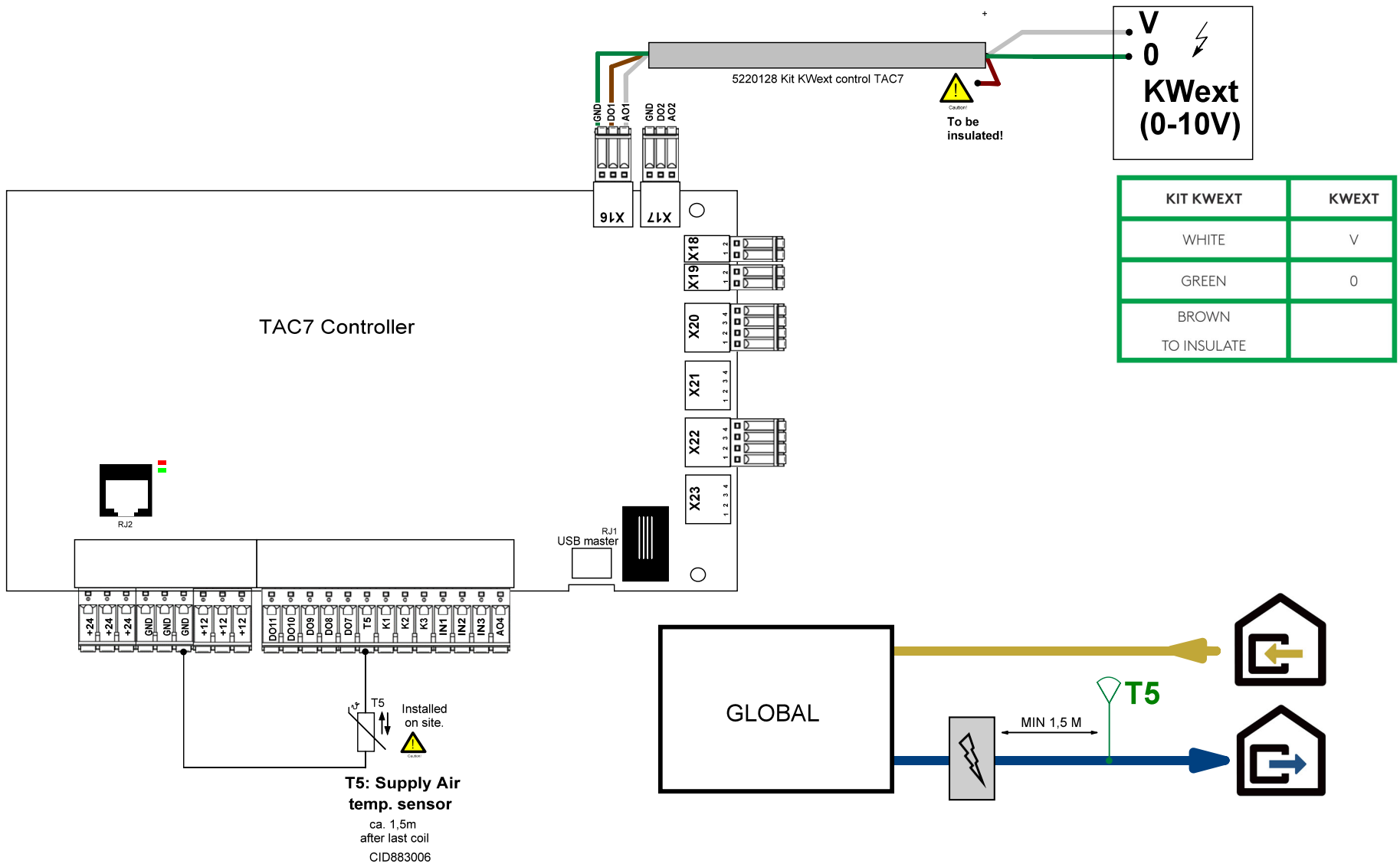
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	03/10/2024	Function Heat/Reheat/Internal Waterborne Reheater (IBA) & Function Cool/Settings/External Waterborne Recooler (EBA-)	29
		check.:		Application: Int. heating & Ext. cooling	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



Changes		Name	Date	Configuration of function: <b>Function Heat/Reheat/ Internal Electric Reheater (KWout)</b>	Page
Name	Date	Draw.: ola	30/09/2024		30
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>KWout Internal Electric Reheat</b>	of 63

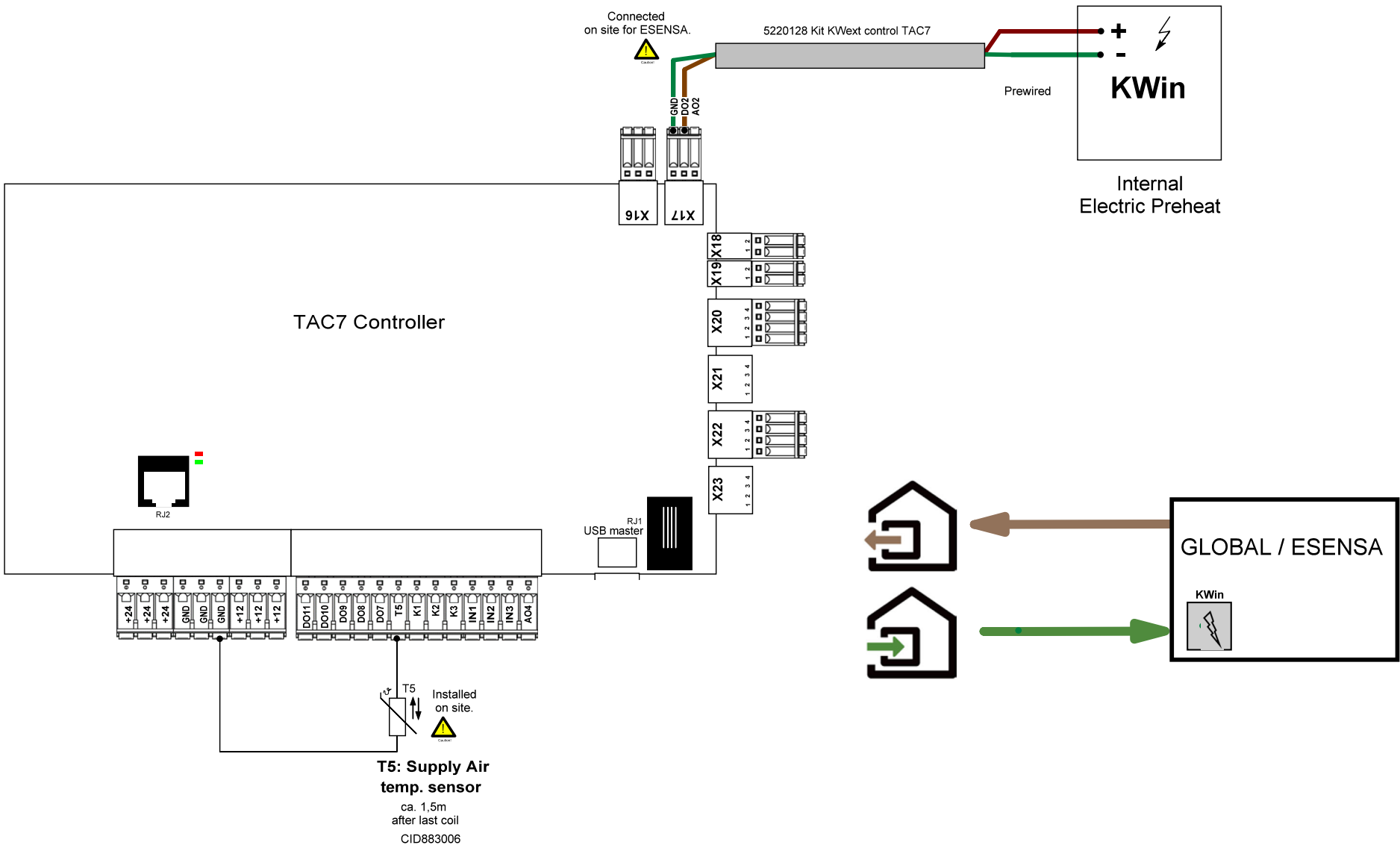


Changes		Name	Date	Configuration of function: Function Heat/Reheat/Internal Electric Rehater (KWout) & Function Cool/Settings/External Waterborne Recooler (EBA-)	Page
Name	Date	Draw.: ola	03/10/2024		31
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: Int. elec heating & Ext. cool	of 63

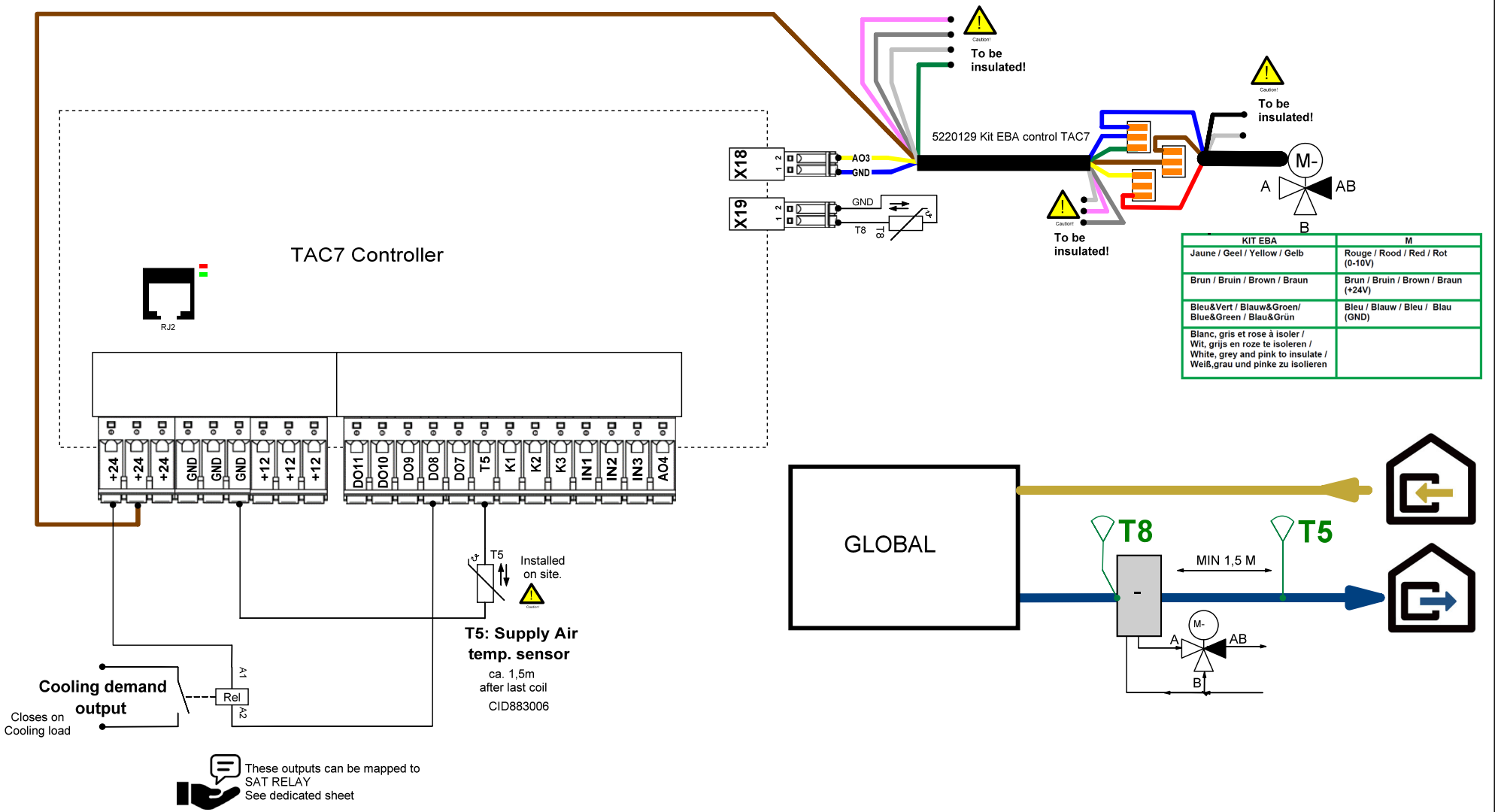


Changes		Name	Date	Configuration of function: <b>Function Heat/Reheat/ External Electric Reheater (KWext - 0-10V)</b>	Page
Name	Date	Draw.: ola	03/10/2024		32
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>External elec. heating 0-10V</b>	of 63

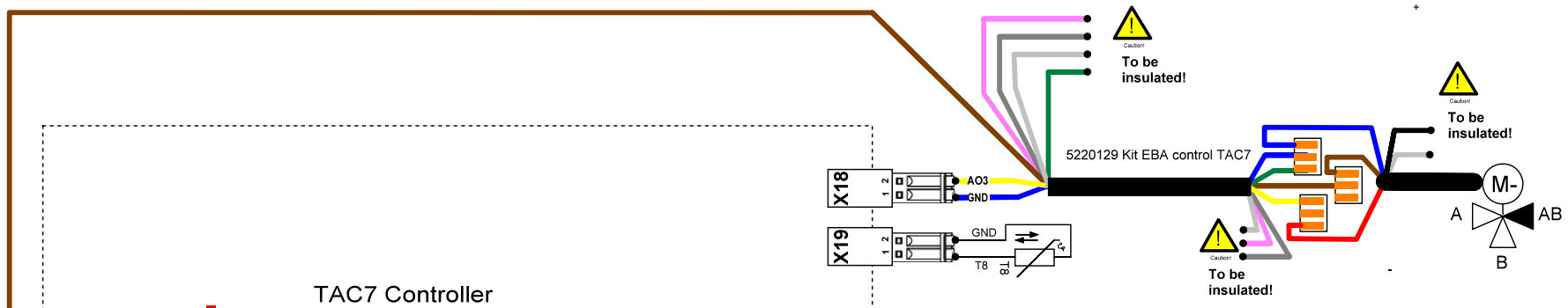




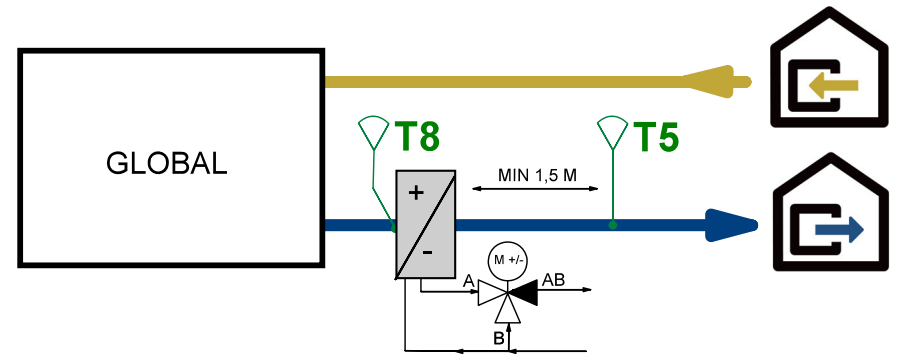
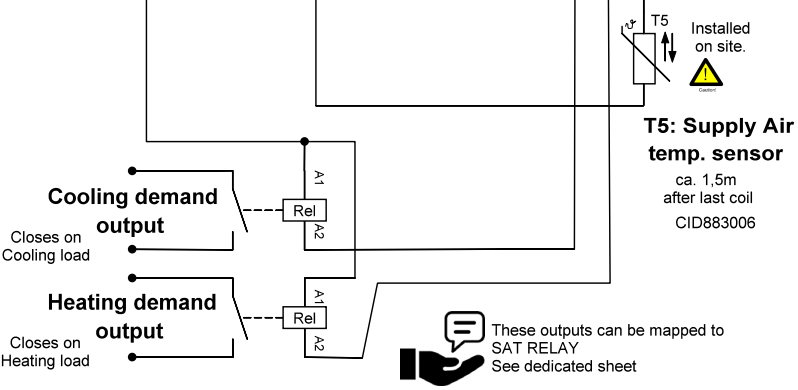
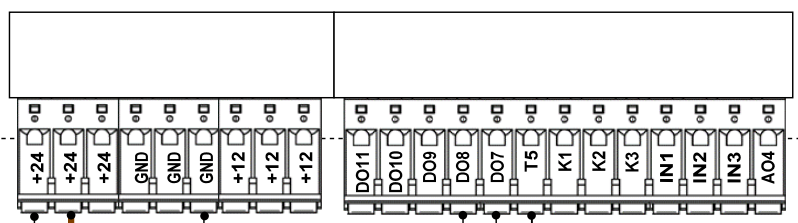
Changes		Name	Date	Configuration of function: <b>Function Heat/Preheat/ Internal Electric Preheater (KWin)</b>	Page
Name	Date	Draw.: ola	03/10/2024		33
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>KWin Internal Electric Preheat</b>	of 63



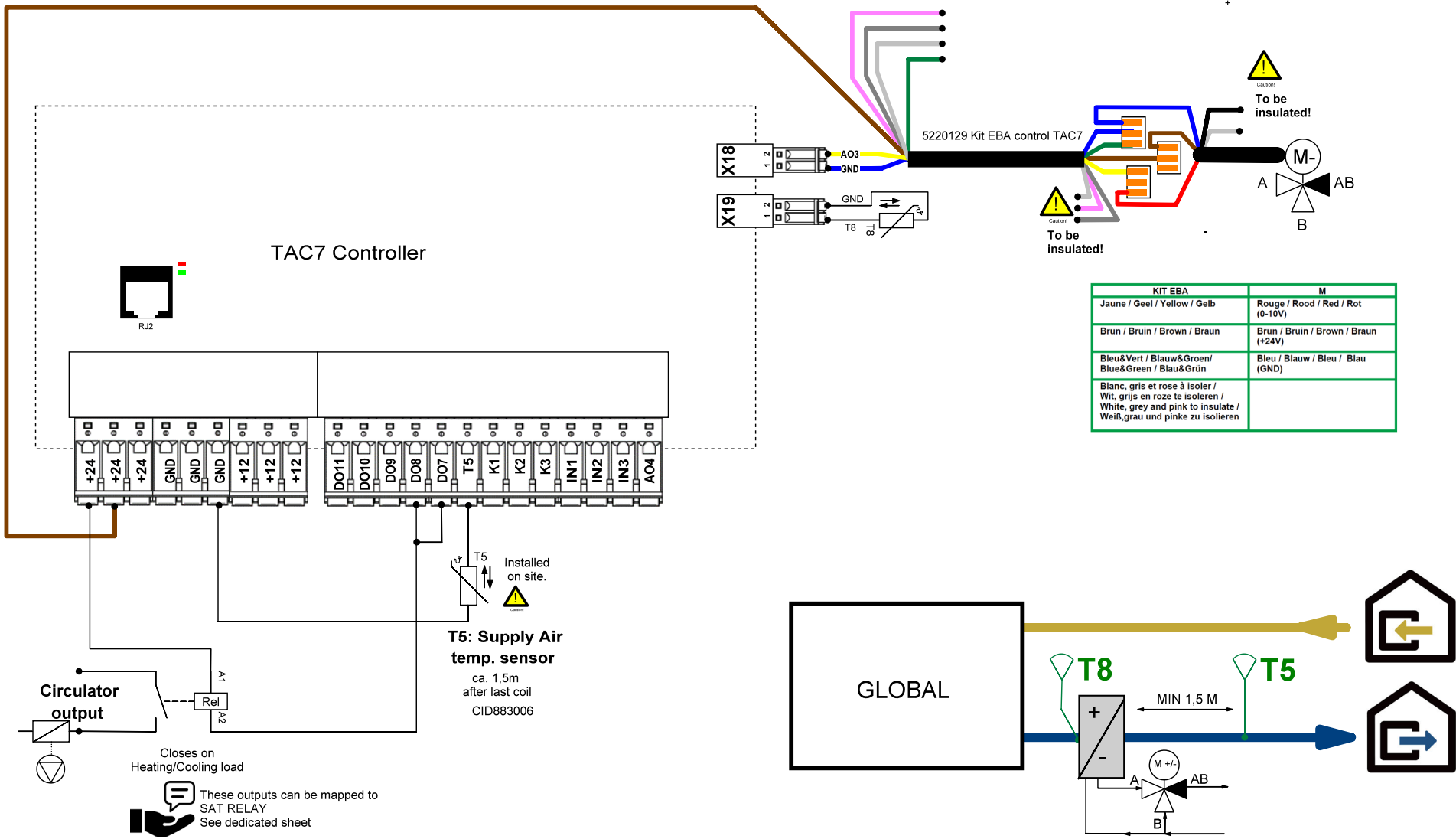
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	03/10/2024	Function Cool/Settings/ External Waterborne Recooler (EBA-)	34
		check.:			
		Norm:		Application:	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			External cooling coil	63



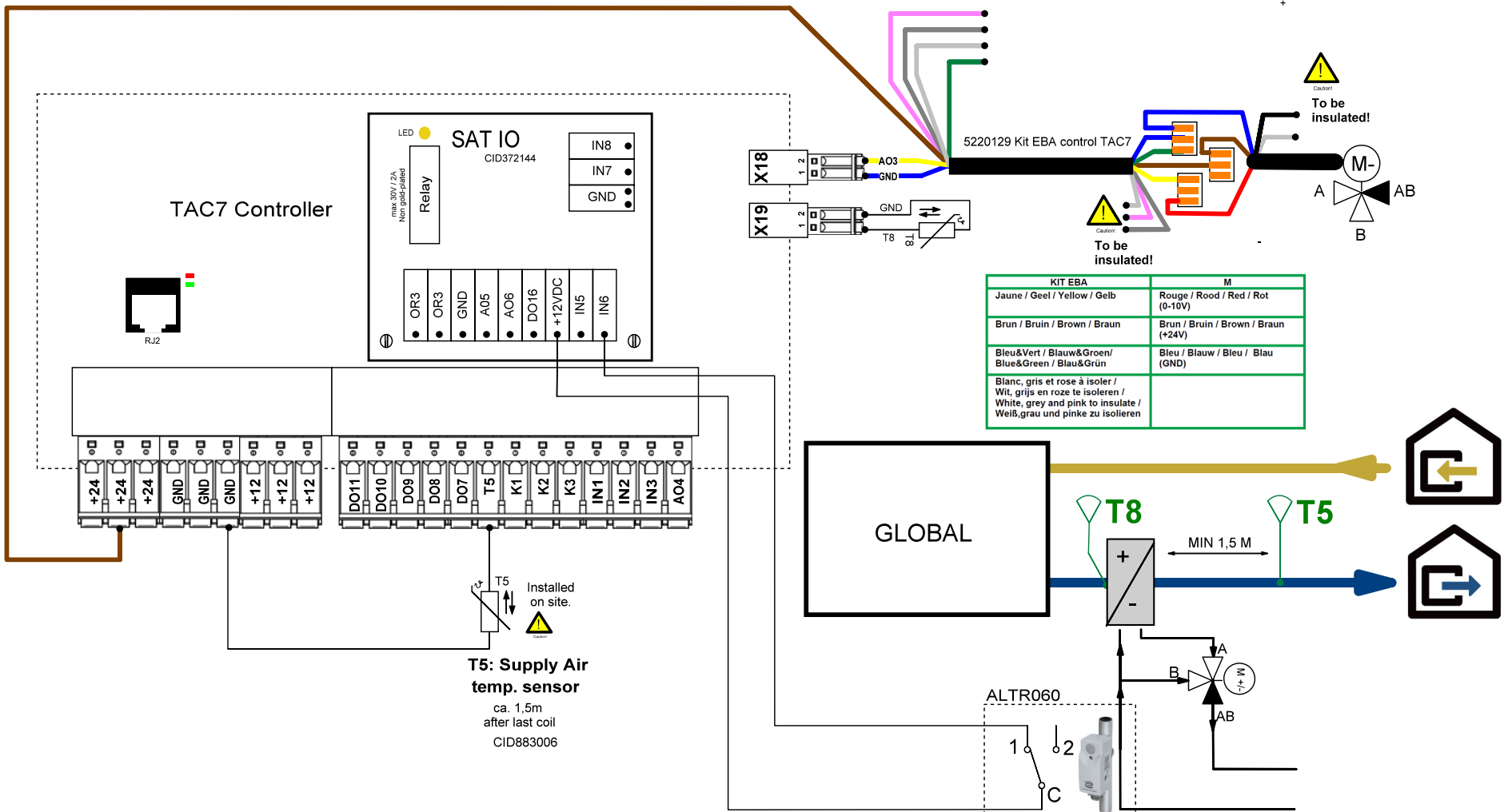
KIT EBA	M
Jaune / Geel / Yellow / Gelb	Rouge / Rood / Red / Rot (0-10V)
Brun / Bruin / Brown / Braun	Brun / Bruin / Brown / Braun (+24V)
Bleu&Vert / Blauw&Groen / Blue&Green / Blau&Grün	Bleu / Blauw / Bleu / Blau (GND)
Blanc, gris et rose à isoler / Wit, grijs en roze te isoleren / White, grey and pink to insulate / Weiß, grau und pinke zu isolieren	



Changes		Name	Date	Configuration of function: <b>Function Heat/Cool/ External Waterborne Reversible (EBA+-)</b>	Page
Name	Date	Draw.: ola	03/10/2024		35
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>Reversible battery</b>	of 63



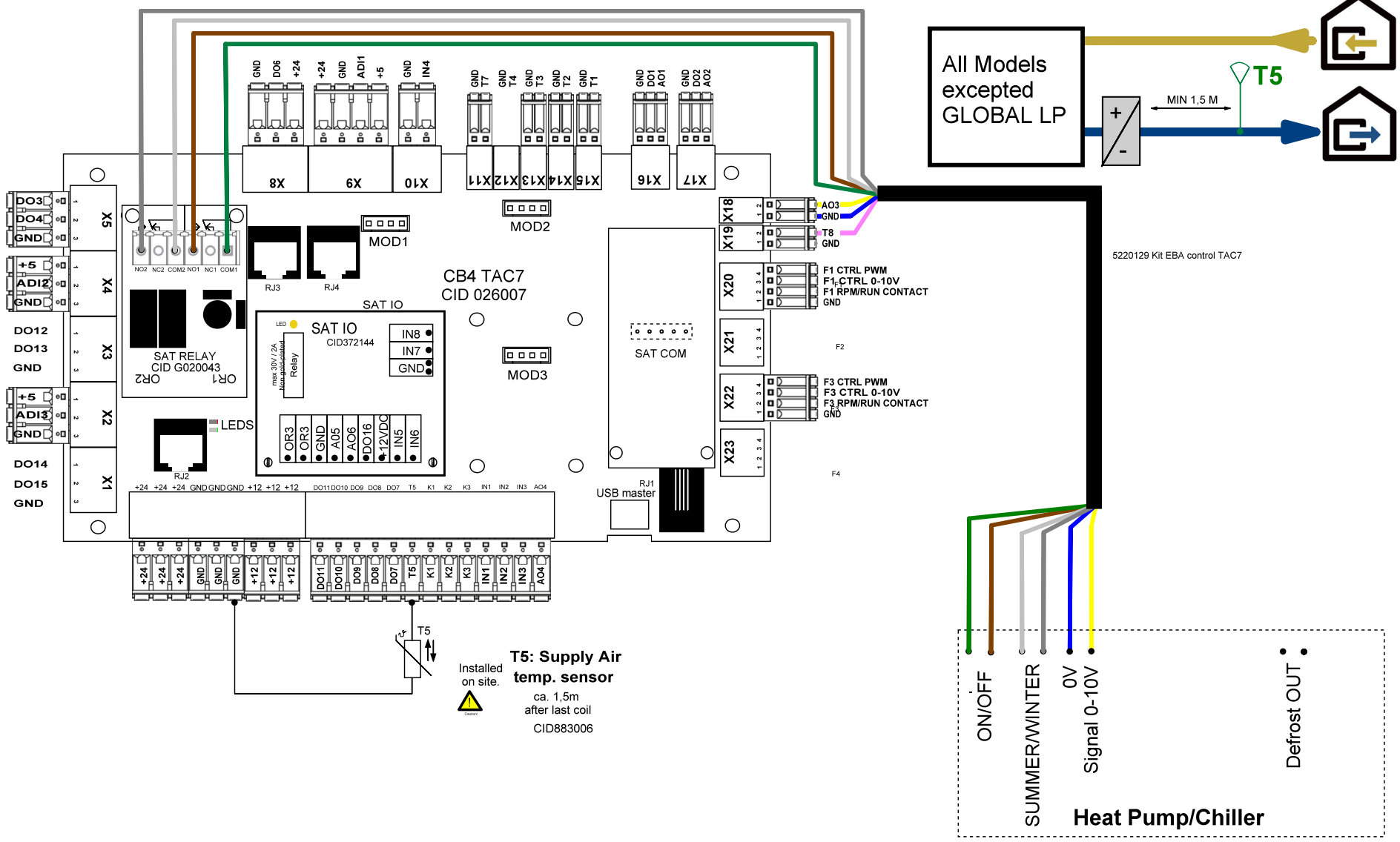
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	03/10/2024	Function Heat/Cool/ External Waterborne Reversible (EBA+-)	36
		check.:			
		Norm:		Application:	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Reversible battery with 1 circulator	63



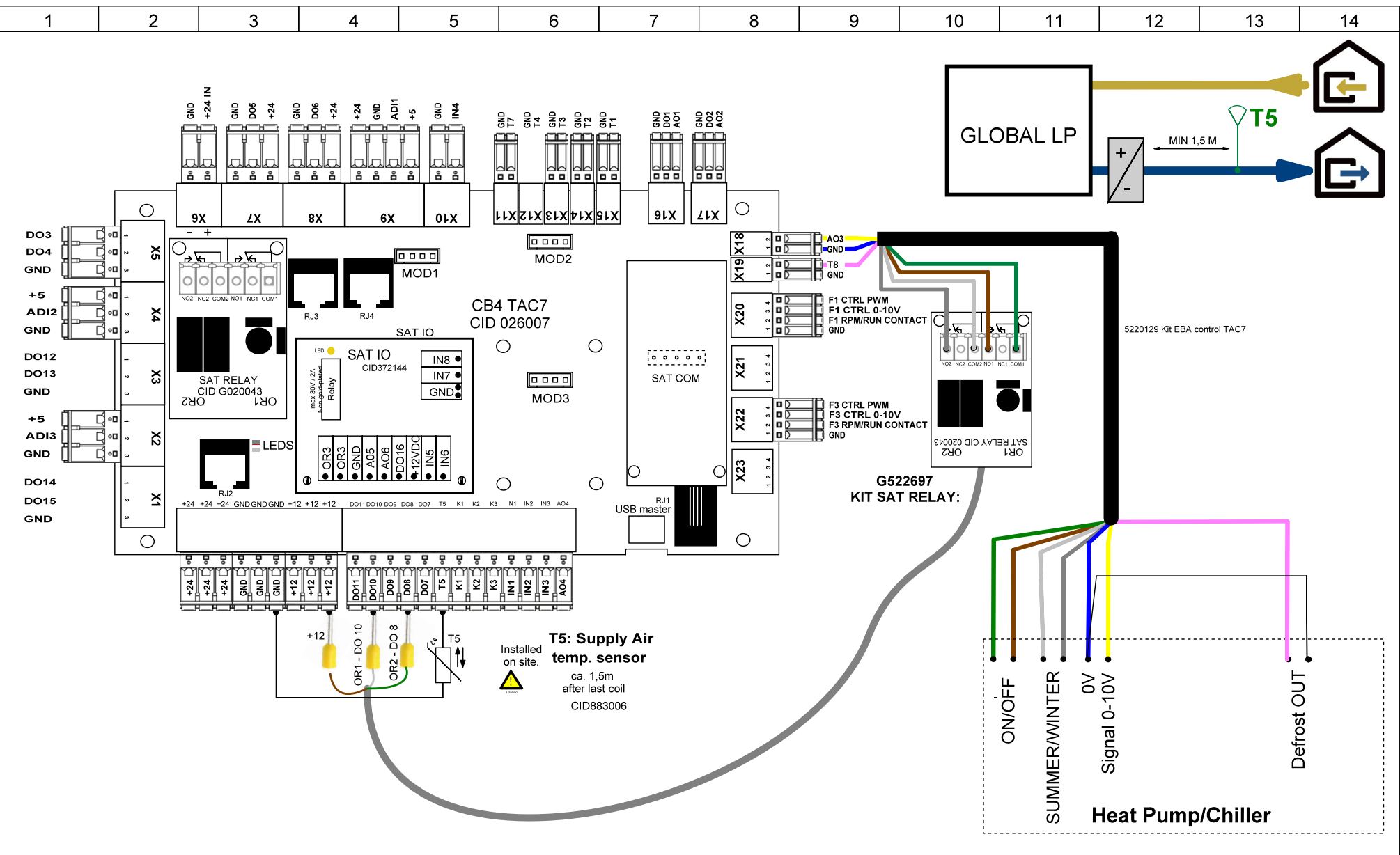
**T5: Supply Air temp. sensor**  
 ca. 1,5m after last coil  
 CID883006

C - 2 = Heating ON/ Cooling OFF  
 C - 1 = Cooling ON/Heating OFF

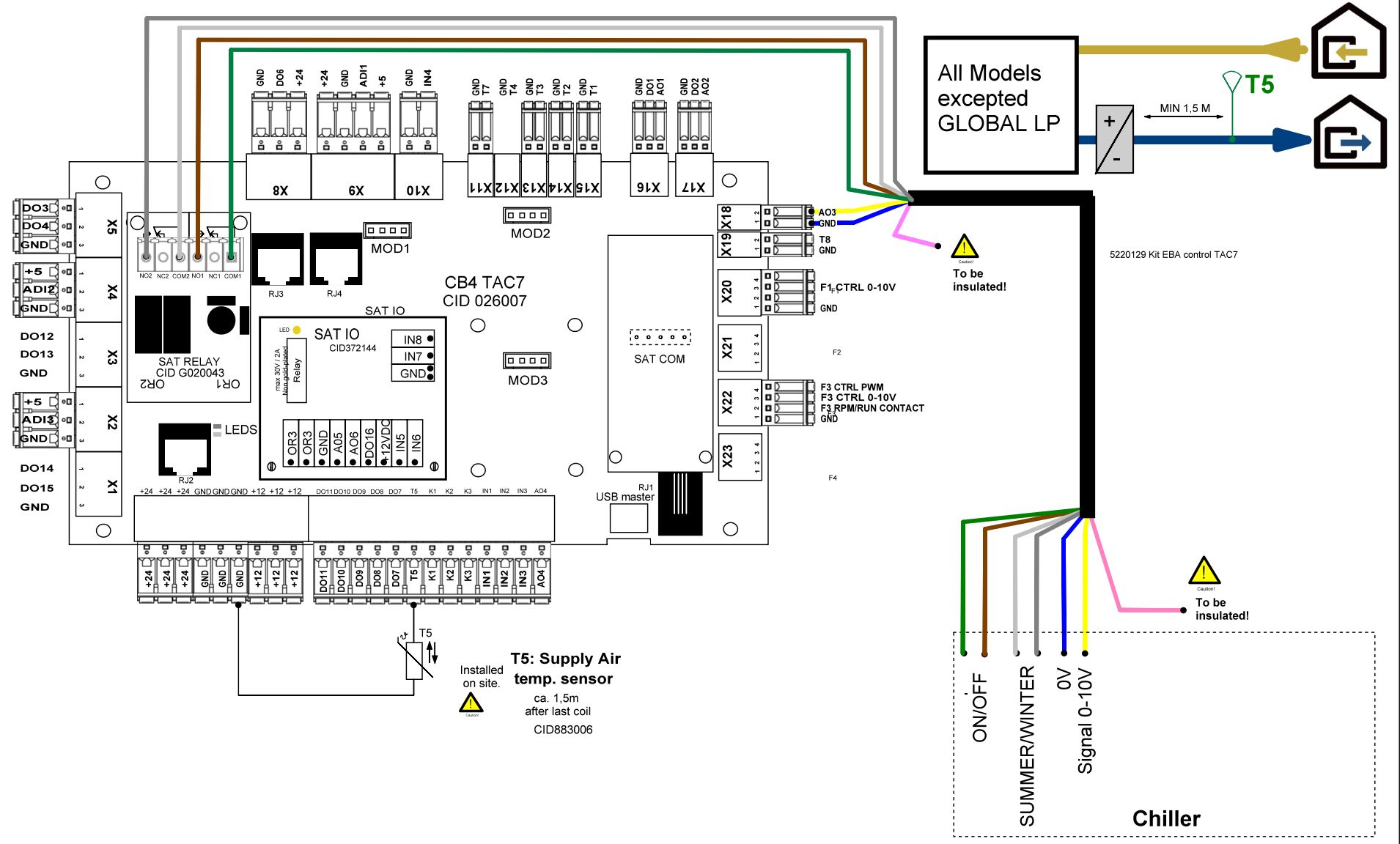
Changes		Name	Date	Configuration of function: <b>Function Heat/Cool/ External Waterborne Reversible (EBA+-)</b>	Page
Name	Date	Draw.: ola	03/10/2024		37
		check.:		Application: <b>Reversible battery with 1 surface contact thermostat</b>	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:			



Changes		Name	Date	Configuration of function: Function Heat/Re-heat/Heat pump Function Cool/Settings/Chiller Function Heat / Cool/Settings/Heat pump and Chiller	Page
Name	Date	Draw.: msg	22/10/2024		38
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm.:		Application: Heat pump/Chiller	of 63

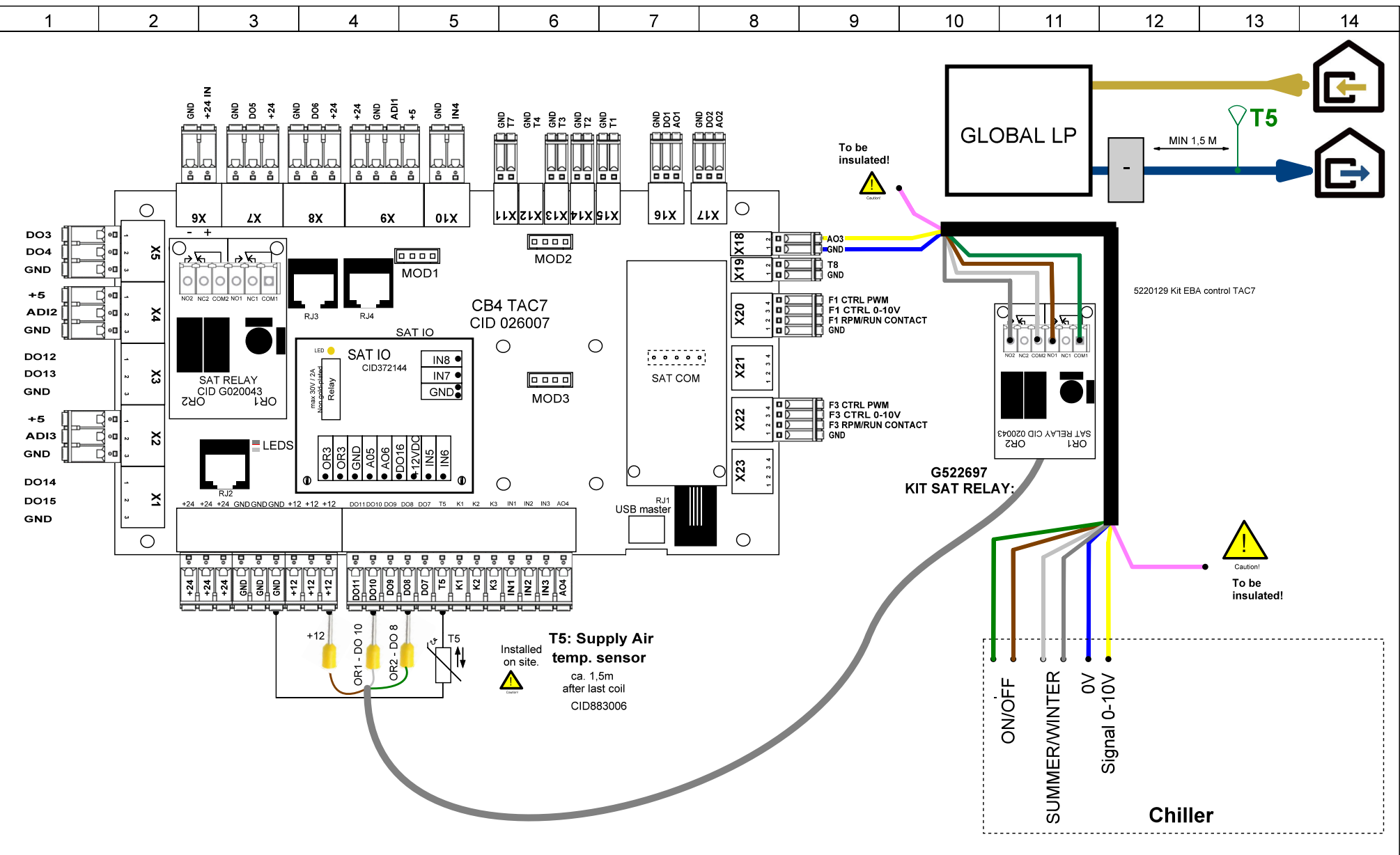


Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: msg	22/10/2024	<b>Function Heat / Cool/Settings/Heat pump and Chiller</b>	39
		check.:			of
		Norm.:			63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Application: Heat pump/Chiller	

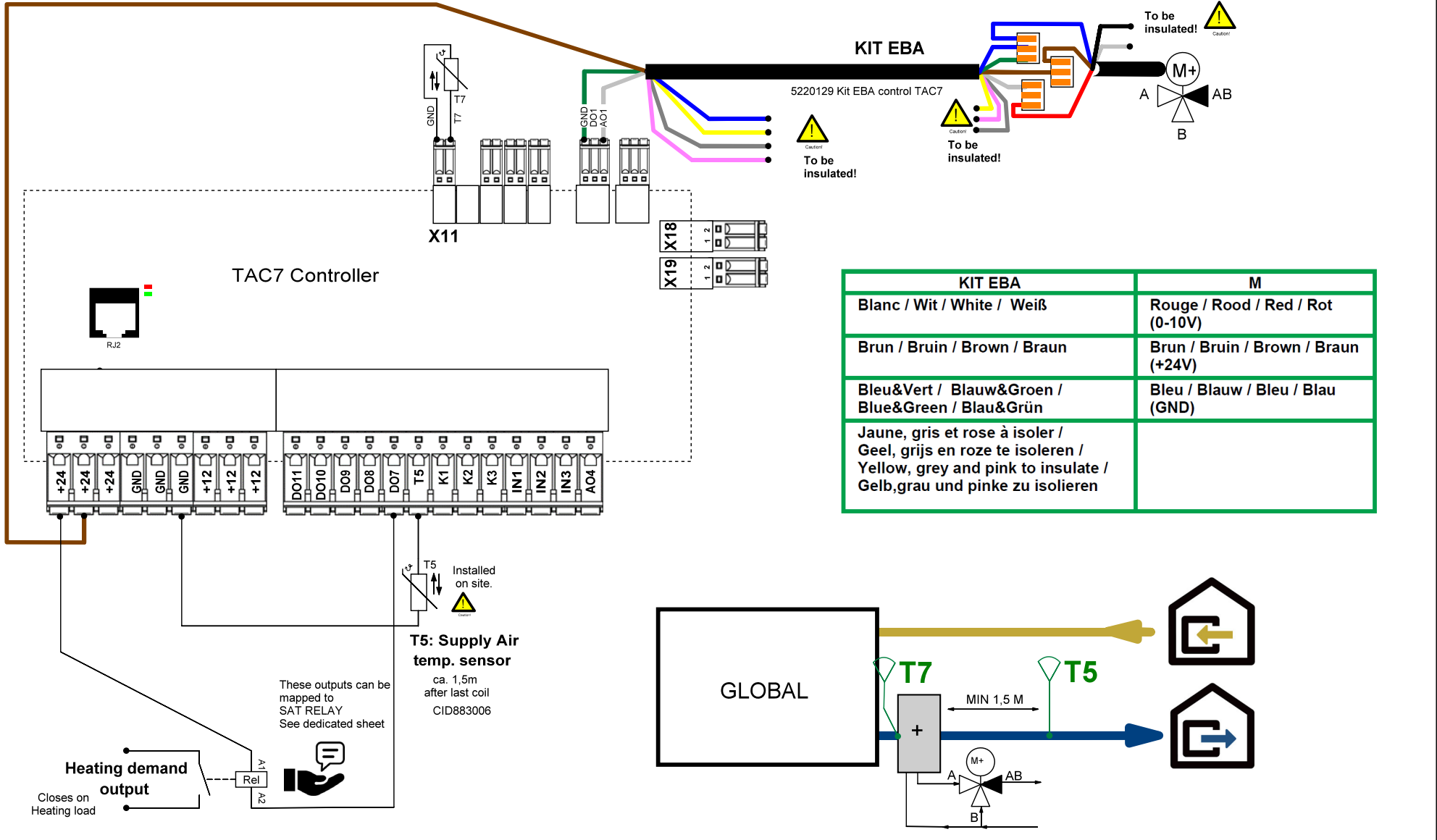


Changes		Name	Date	Configuration of function: <b>Function Cool/Settings/Chiller</b>	Page	
Name	Date	Draw.:	msg		22/10/2024	40
		check.:				
		Norm.:		Application: <b>Chiller</b>	of	
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63	

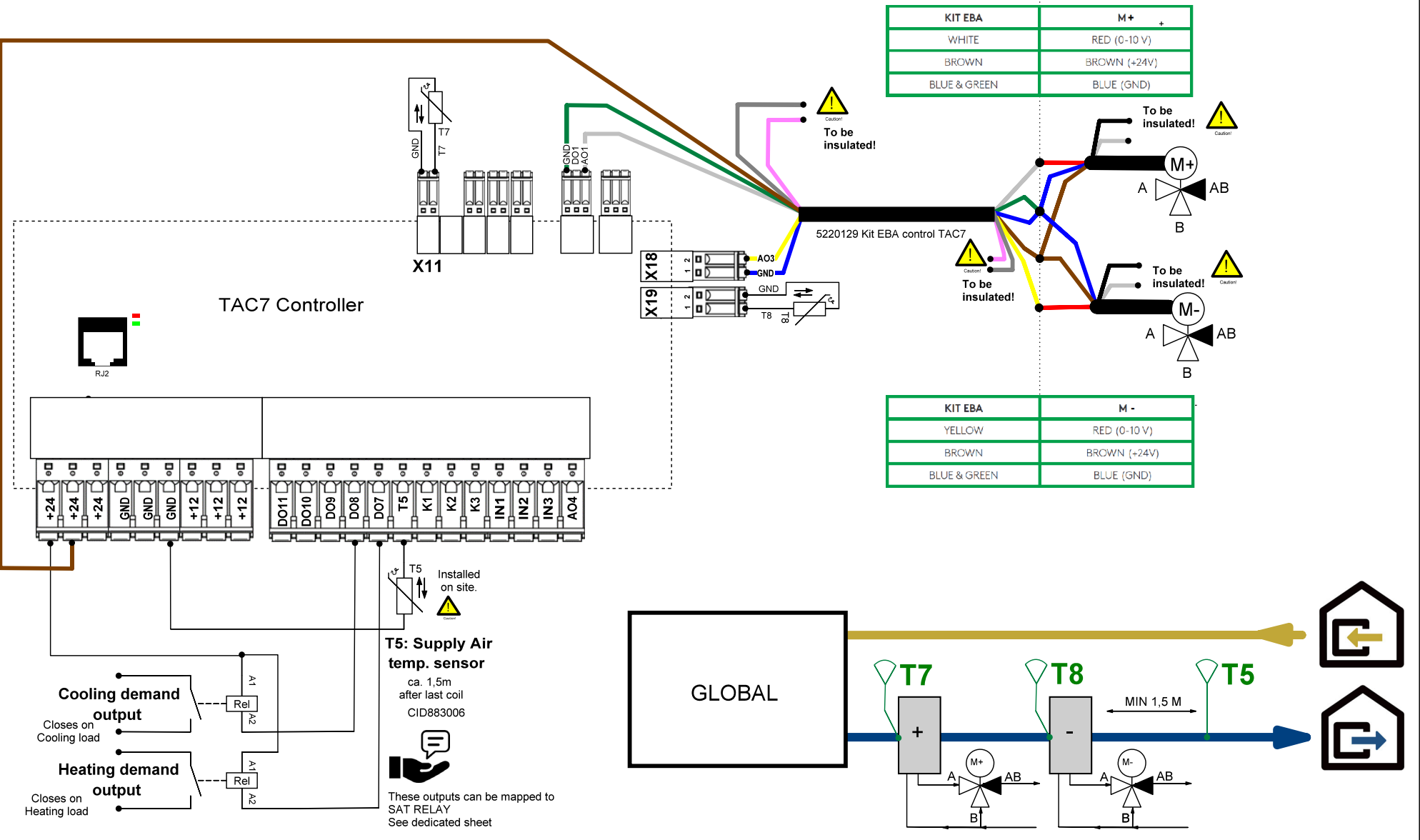




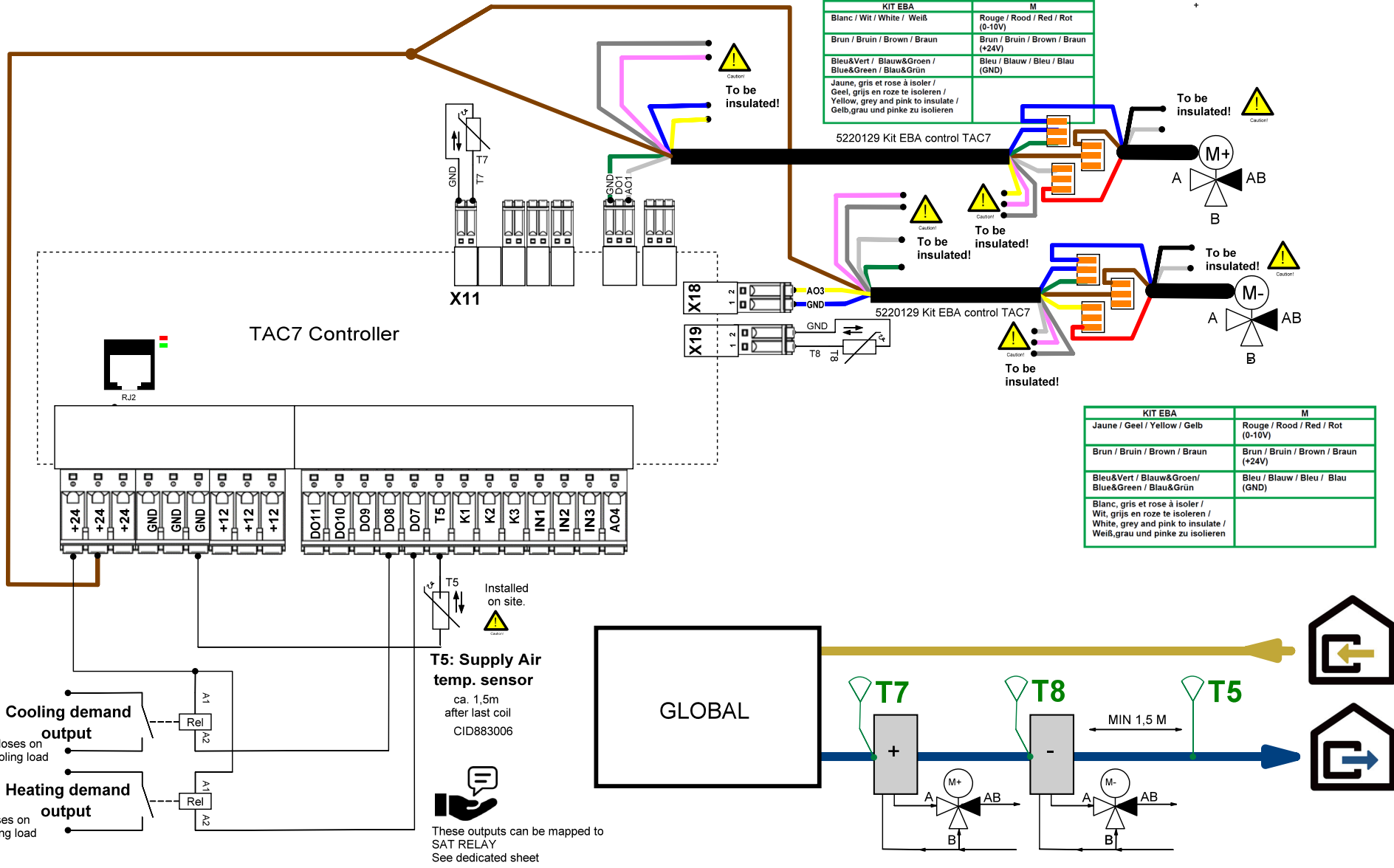
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: msg	22/10/2024	<b>Function Cool/Settings/Chiller</b>	41
		check.:			of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm.:		Application: <b>Heat pump/Chiller</b>	63



Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	03/10/2024	Function Heat/Reheat/ External Waterborne Reheater (EBA+)	42
		check.:			
		Norm:		Application:	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			External heating coil	63



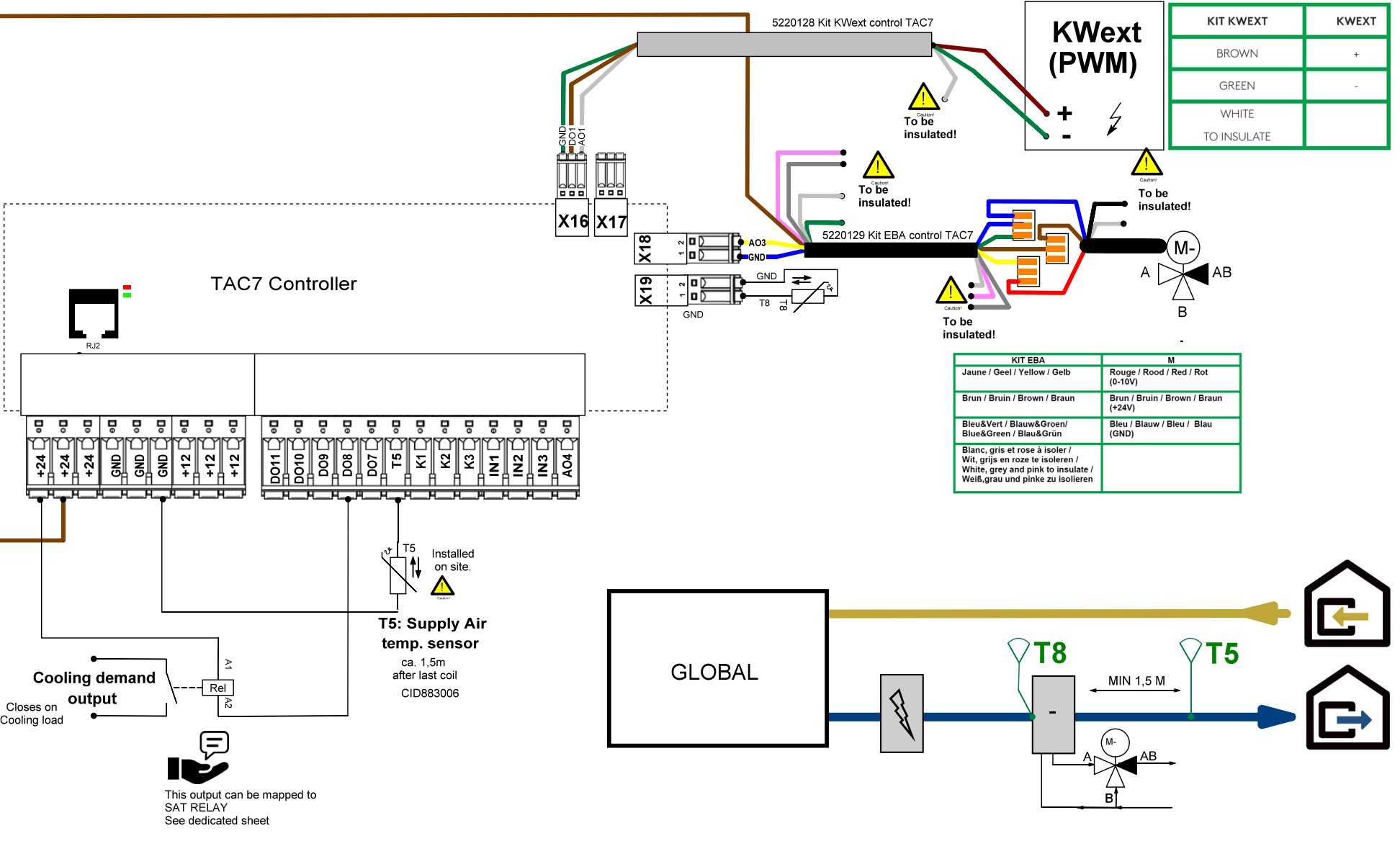
Changes		Name	Date	Configuration of function: Function Heat/Reheat/External Waterborne Rehater (EBA+) & Function Cool/Settings/External Waterborne Recooler (EBA-)	Page
Name	Date	Draw.: ola	03/10/2024		43
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm.:		Application: Ext. heating & Ext. Cooling 1 (use of 1 EBA cable)	of 63



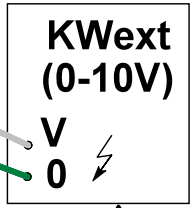
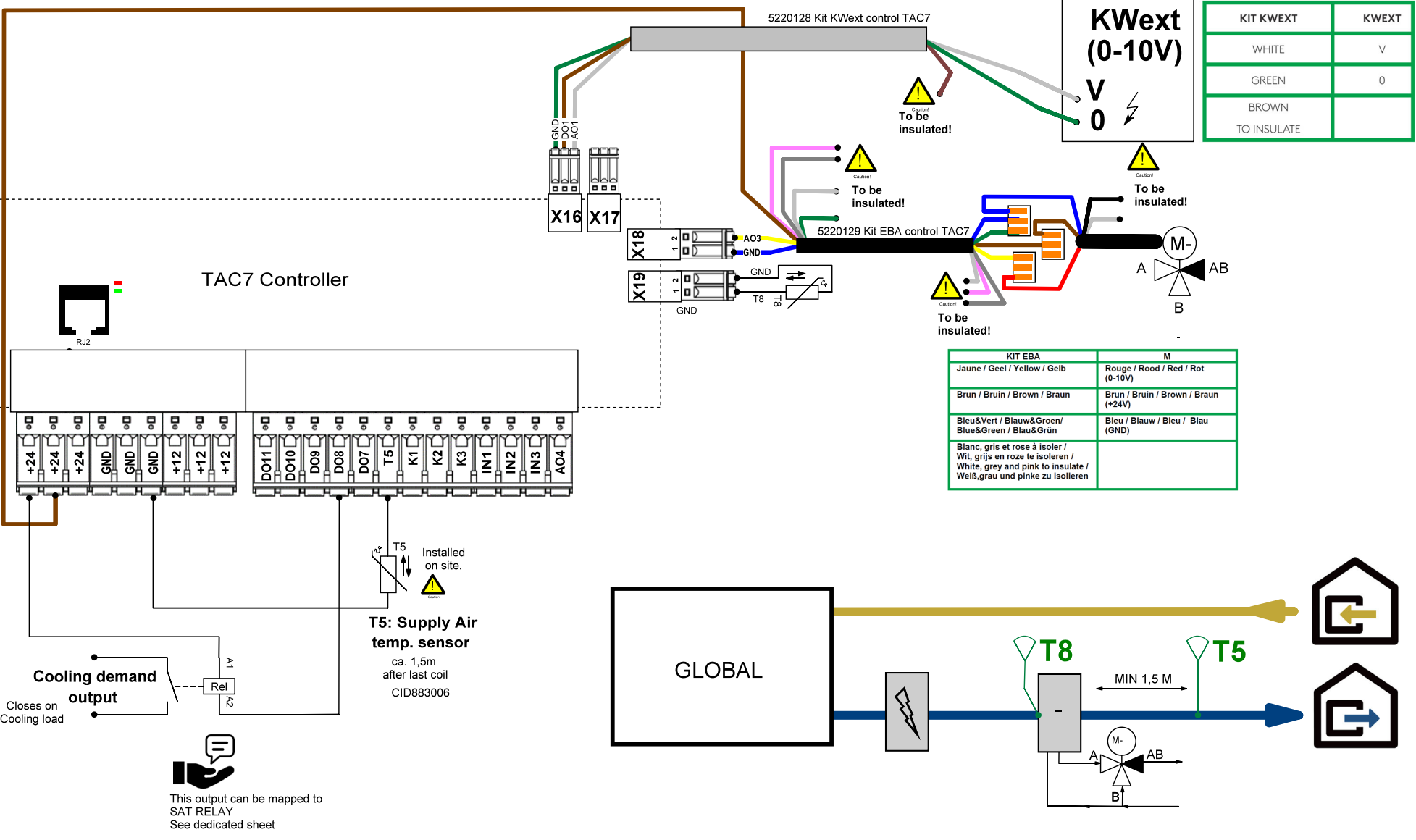
Changes		Name	Date
Name	Date	ola	03/10/2024
	Draw.:		
	check.:		
	Norm.:		
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		

Configuration of function:  
 Function Heat/Reheat/External Electric Reheater (KWext)  
 & Function Cool/Settings/External Waterborne Recooler (EBA-)

Application:  
 Ext. heating & Ext. Cooling 2 (use of 2 EBA cables)



Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	04/10/2024	Function Heat/Reheat/Internal Electric Reheater (KWout - PWM) & Function Cool/Settings/External Waterborne Recooler (EBA-)	45
		check.:			
		Norm.:		Application:	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Ext.elect. heating & Ext. Cool	63



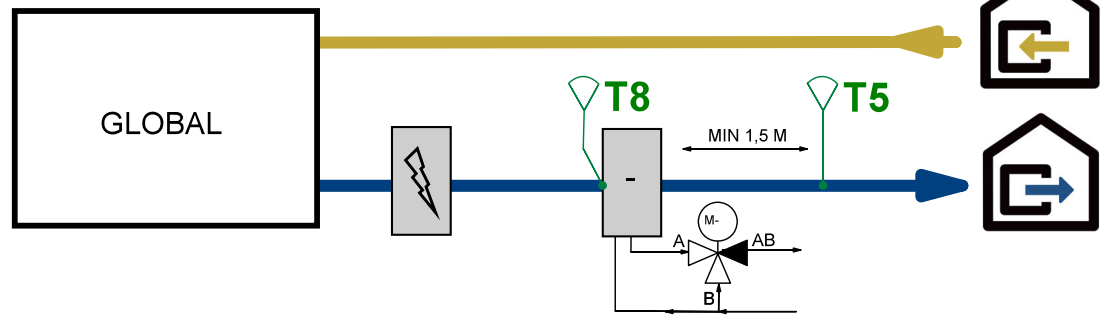
KIT KWEXT	KWEXT
WHITE	V
GREEN	0
BROWN	TO INSULATE

KIT EBA	M
Jaune / Geel / Yellow / Gelb	Rouge / Rood / Red / Rot (0-10V)
Brun / Bruin / Brown / Braun	Brun / Bruin / Brown / Braun (+24V)
Bleu&Vert / Blauw&Groen / Blue&Green / Blau&Grün	Bleu / Blauw / Bleu / Blau (GND)
Blanc, gris et rose à isoler / Wit, grijs en roze te isoleren / White, grey and pink to insulate / Weiß, grau und pinke zu isolieren	

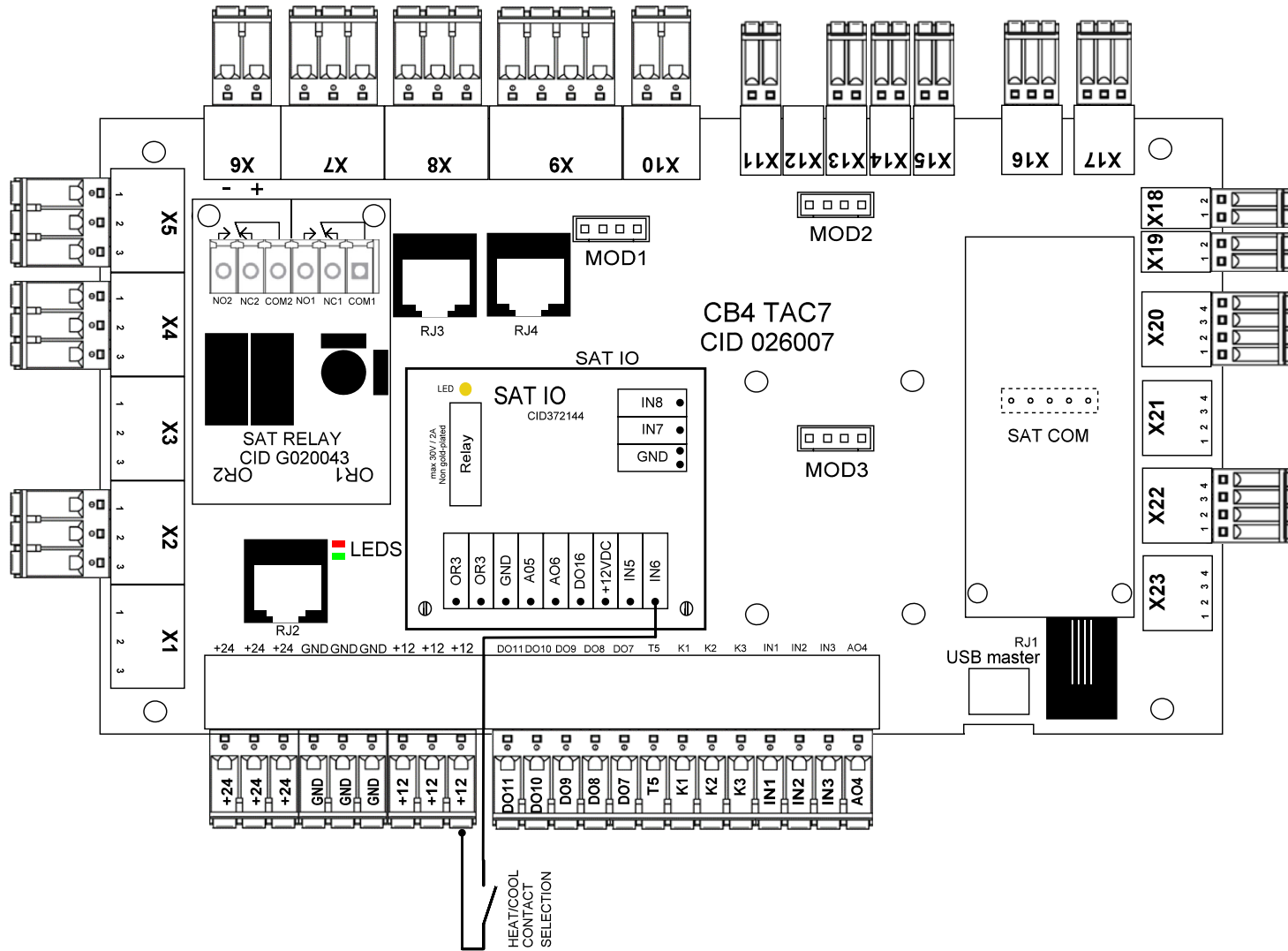
**T5: Supply Air temp. sensor**  
 ca. 1,5m after last coil  
 CID883006

**Cooling demand output**  
 Closes on Cooling load

This output can be mapped to SAT RELAY  
 See dedicated sheet

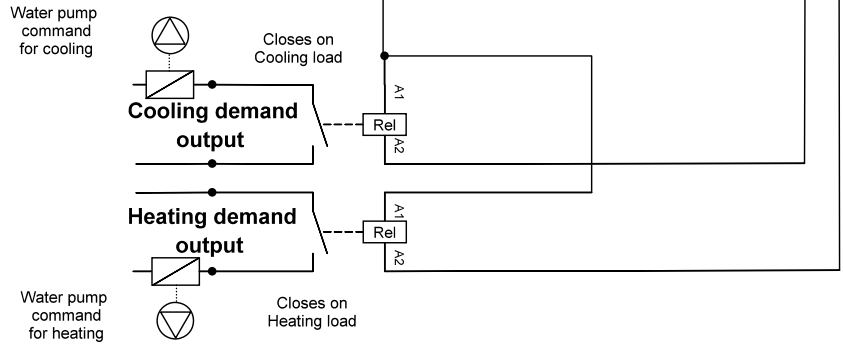
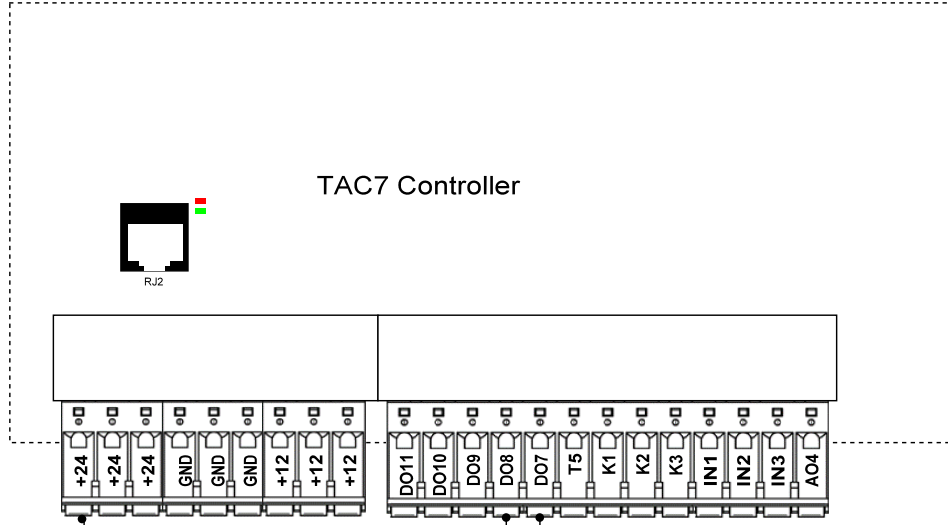


Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	04/10/2024	Function Heat/Reheat/Internal Electric Rehater (KWout - 0-10V) & Function Cool/Settings/External Waterborne Recooler (EBA-)	46
		check.:			
		Norm.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Application: Ext.elec. 0-10V & Ext. cool	of 63



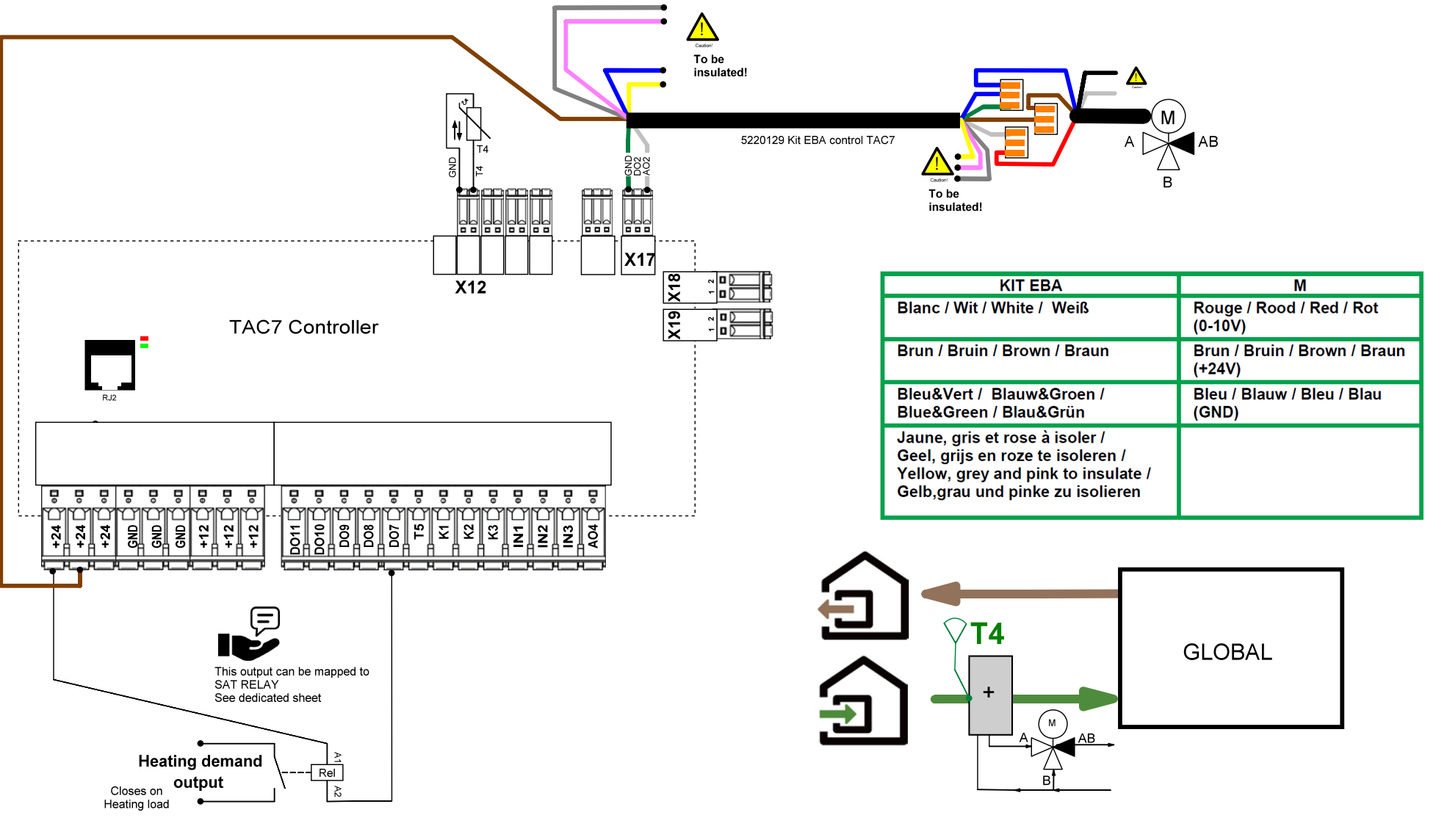
Open (0) = Heating ON/ Cooling OFF  
 Close (1) = Cooling ON/Heating OFF

Changes		Name	Date	Selection of heating/cooling in presence of postheater/postcooler. In alternative to heat/cool selection via: - TACTouch Function Temperature/Regulation mode - Automatic changeover - BMS heat/cool selection control	Page
Name	Date	Draw.: ola	04/10/2024		47
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: HEAT/COOL CONTACT SELECTION	of 63

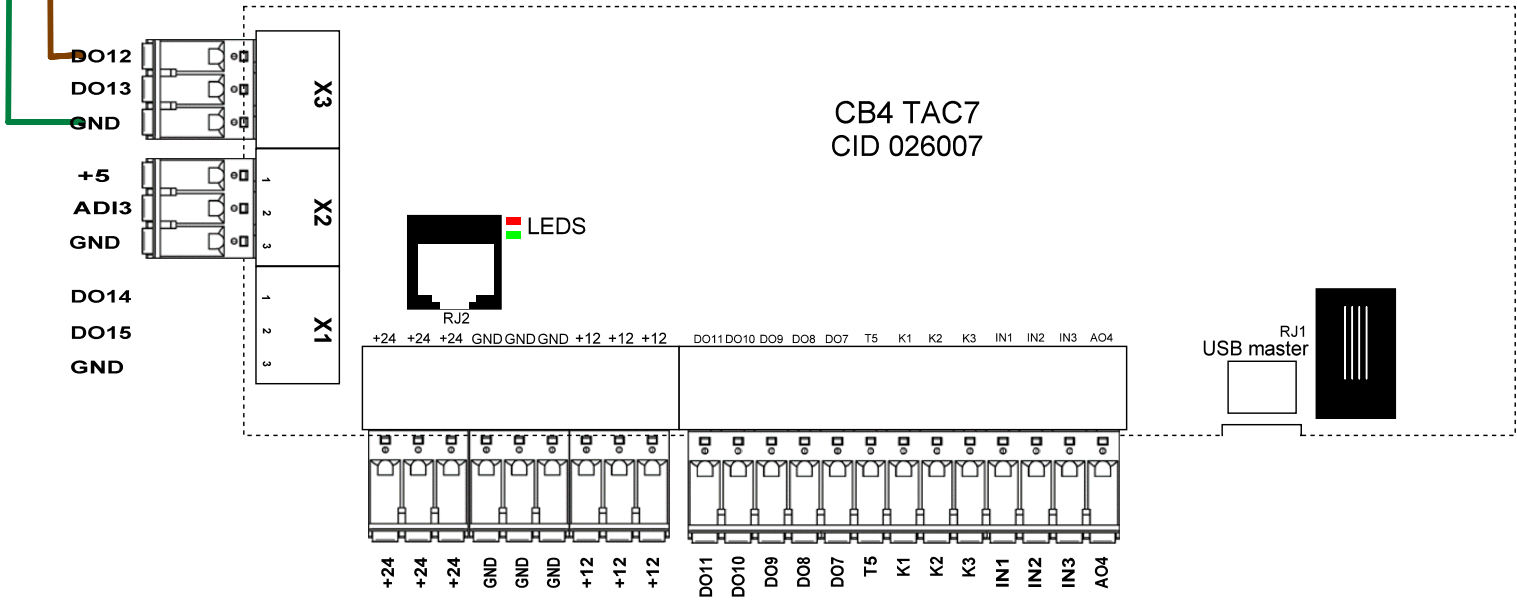
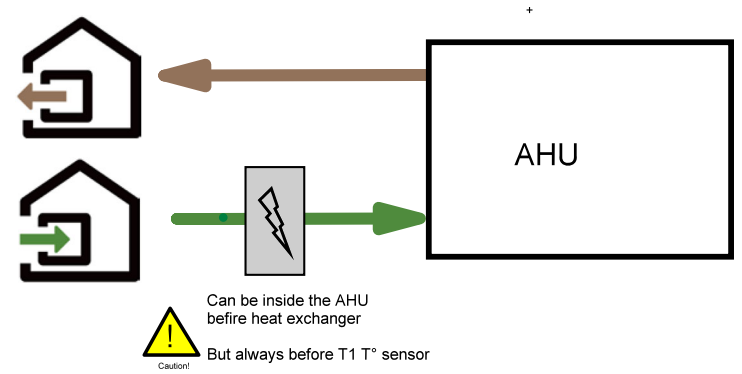
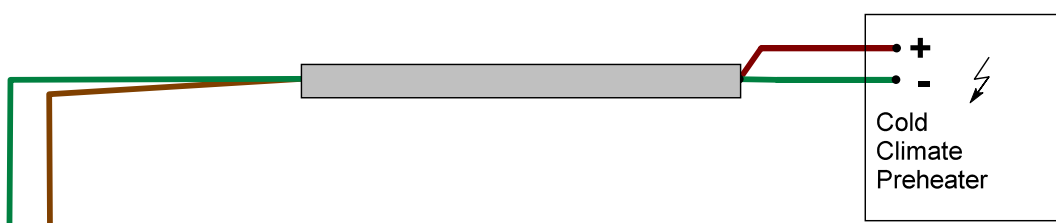


Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	04/10/2024		Application: Circulator pump (with hydraulic coils)
		check.:		of	
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			63	





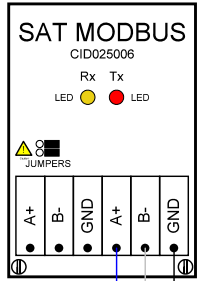
Changes		Name	Date	Configuration of function: Function Heat/Preheat/ External Waterborne Prehater (EBAin)	Page
Name	Date	Draw.: ola	04/10/2024		49
		check.:		Application: External Hydraulic Preheater	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



Changes		Name	Date	Configuration of function: <b>Function Heat/Cold Climate Preheater</b>	Page
Name	Date	Draw.: msg	17/10/2024		50
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>Cold Climate Preheater</b>	of 63

AHU1

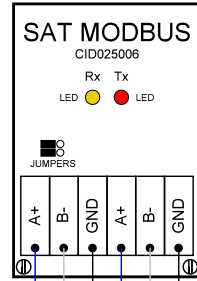
**Caution!** The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



Modbus RTU RS485

AHU2

**Caution!** The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .

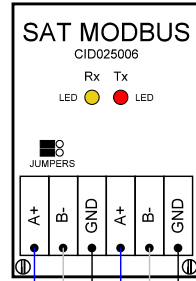


Modbus RTU RS485

Modbus RTU RS485

AHU3 ... AHU64

**Caution!** The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



Modbus RTU RS485

Modbus RTU RS485

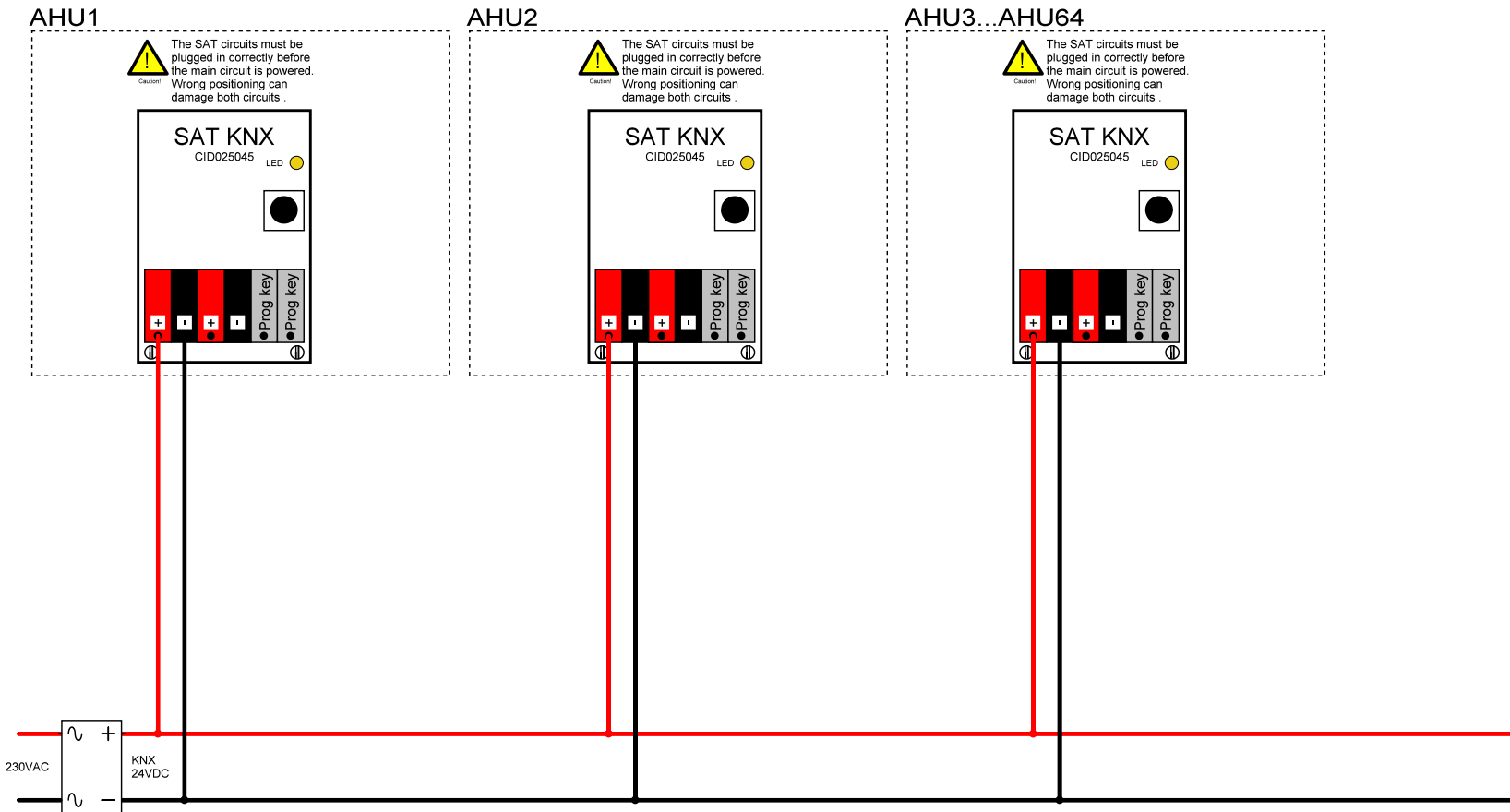
To BMS

The cables used in the network must conform to RS-485 Standard with twisted pair conductors. The cables must be shielded. Conductor Area 0.26 mm<sup>2</sup> to 0.50mm<sup>2</sup>. The total length must not exceed 1.000 meters.

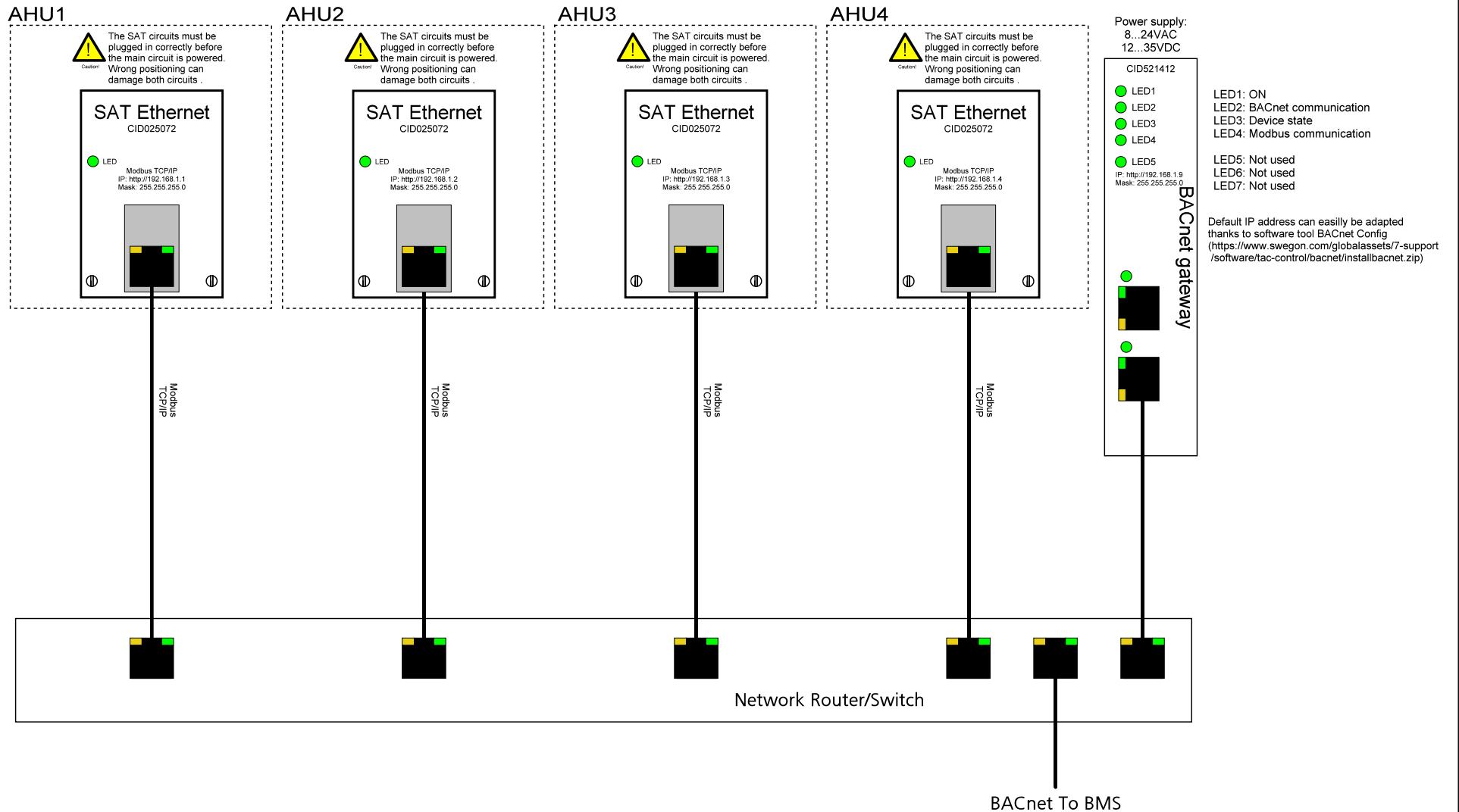
**Depending on Modbus Master device manufacturer, it may be necessary to invert A+ and B- wires on its connectors.**



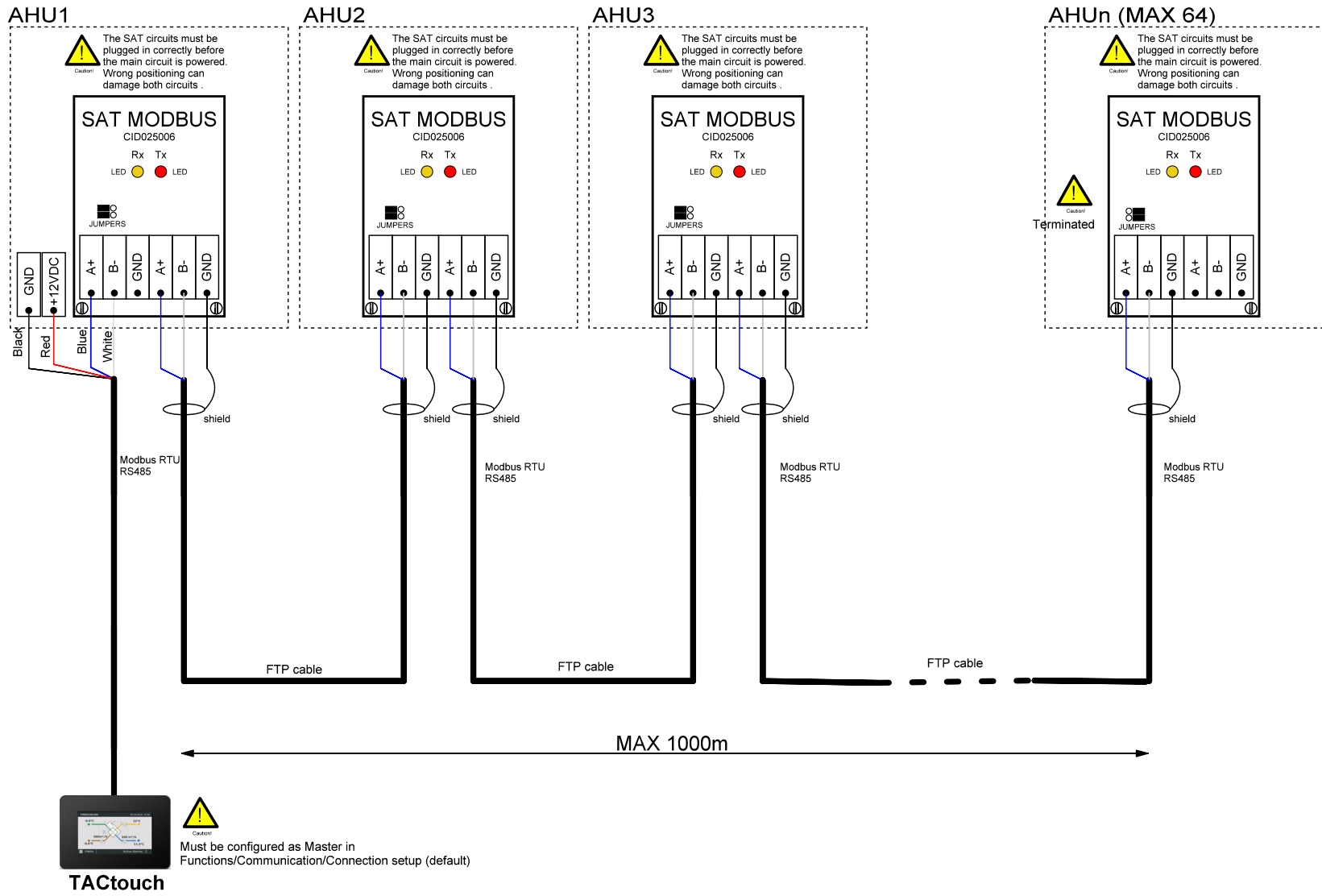
Changes		Name	Date	Configuration of function: Function Communication/SAT MODBUS configuration	Page
Name	Date	Draw.: msg	17/10/2024		51
		check.:			
		Norm:		Application: Modbus RTU	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



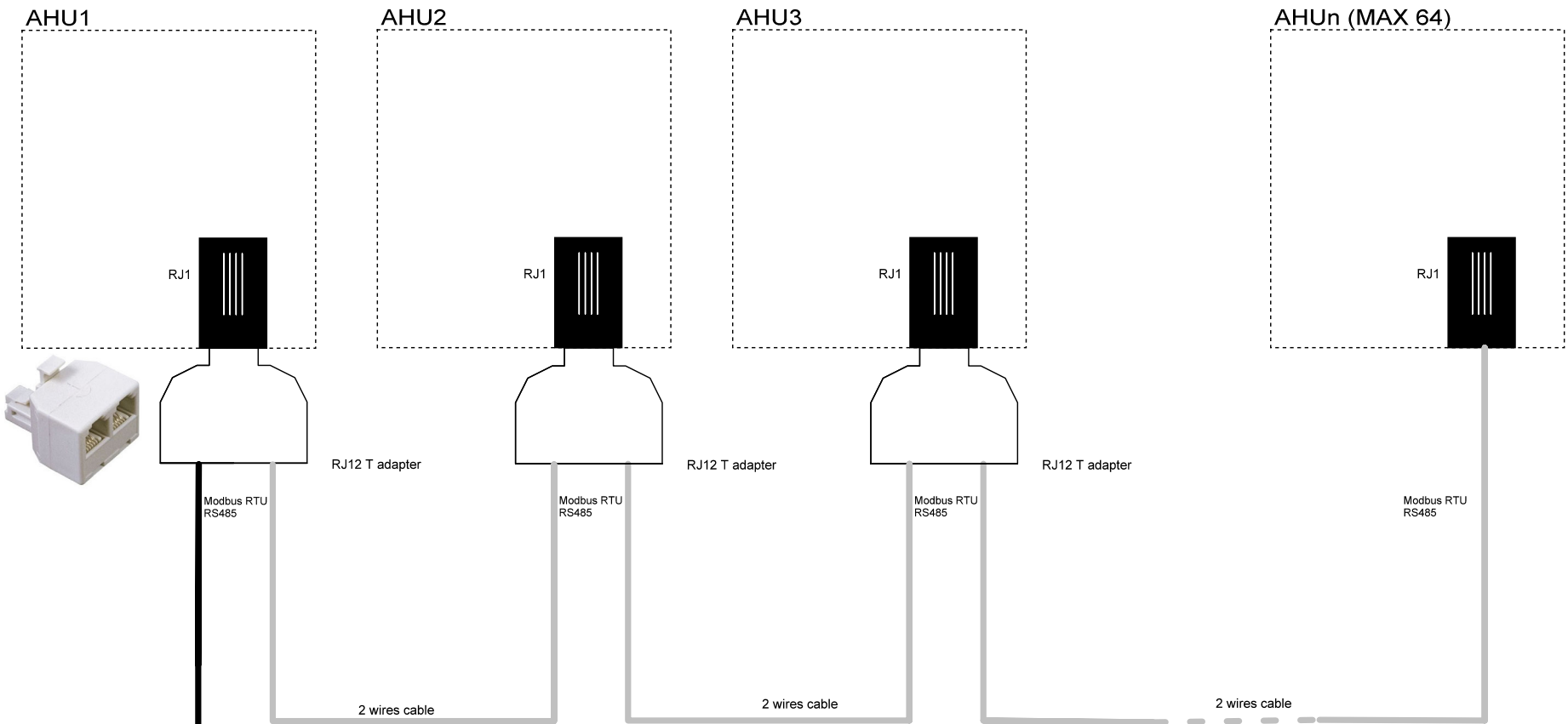
Changes		Name	Date	Configuration of function:	Page	
Name	Date	Draw.: msg	17/10/2024		Application: KNX	52
		check.:				of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63	



Changes		Name	Date	Configuration of function: <b>Function Communication/SAT LAN configuration</b>	Page
Name	Date	Draw.: msg	17/10/2024		53
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>BACnet</b>	of 63



Changes		Name	Date	Configuration of function: Function Communication/Connection Setup Function Network	Page
Name	Date	Draw.: msg	17/10/2024		
		check.:		Application: TACtouch centralised	of 63
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				



Must be configured as Master in Functions/Communication/Connection setup (default)

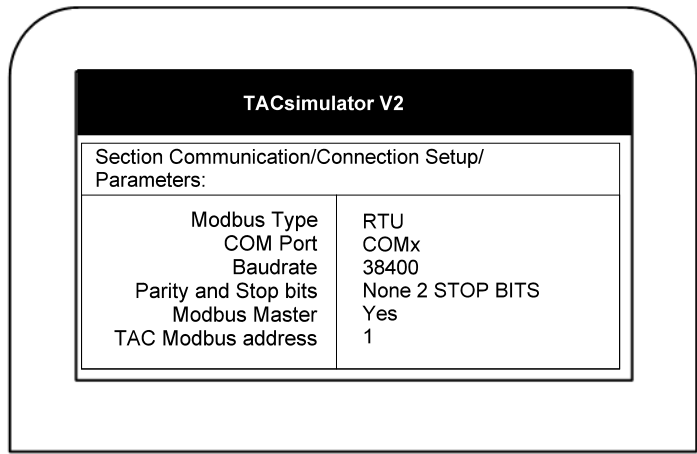
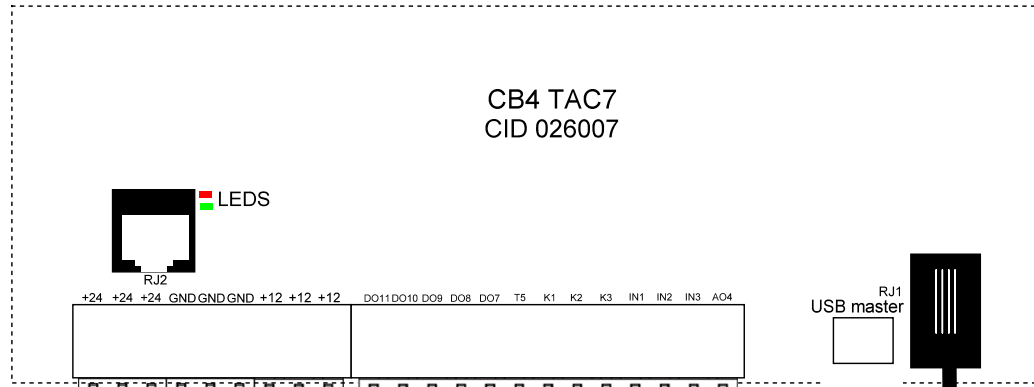


Pinout for RJ12/RJ11 plug:  
**ATTENTION!!!**  
**USE ONLY THE 2 PINS IN THE MIDDLE WITH WIRES ALWAYS ON SAME POSITION:**  
 1-void  
 2-void  
 3-wire 1  
 4-wire 2  
 5-void  
 6-void

**ATTENTION!!! DO NOT WIRE ALL OTHER PINS!!!**



Changes		Name	Date	Configuration of function: <b>Function Communication/Connection Setup</b> <b>Function Network</b>	Page
Name	Date	Draw.: msg	17/10/2024		55
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Application: <b>TACtouch centralised short</b>	of 63



**Caution!** Select the COM port to which the USB-RS 485 adapter cable is connected

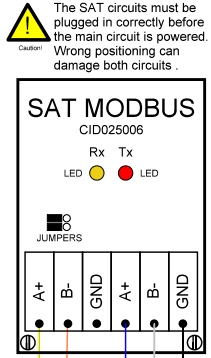
**Caution!** Once setup is changed, Press "RESET COM" at the end of this menu to validate the change



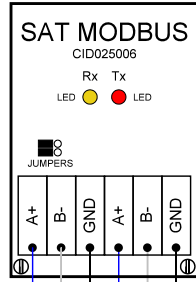
Changes		Name	Date	Page
Name	Date	Draw.: ola	04/10/2024	56
		check.:		
		Norm:		
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Application: Software HMI		of 63



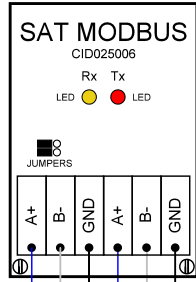
AHU1



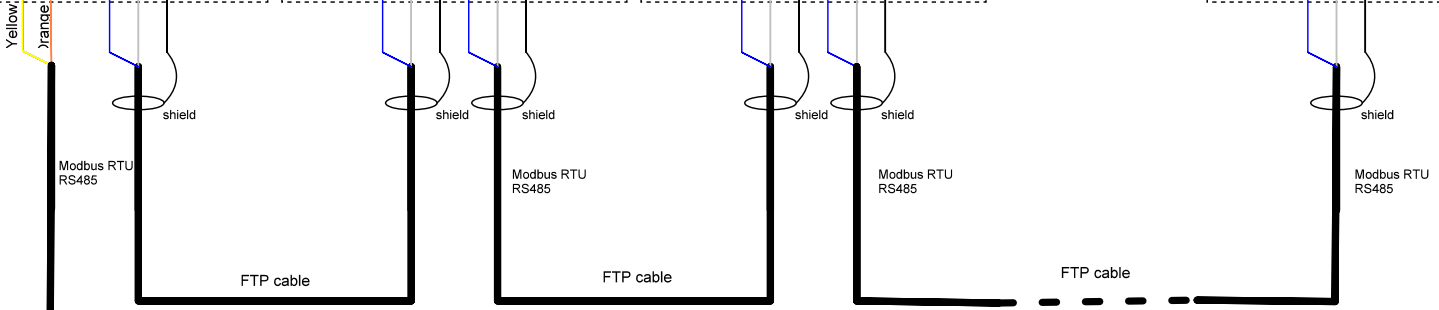
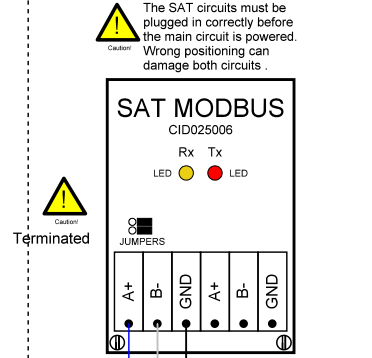
AHU2



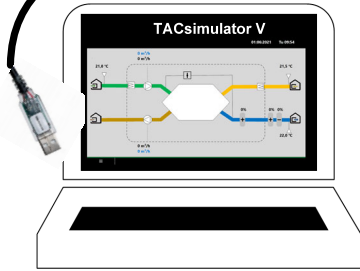
AHU3



AHUn (MAX 64)

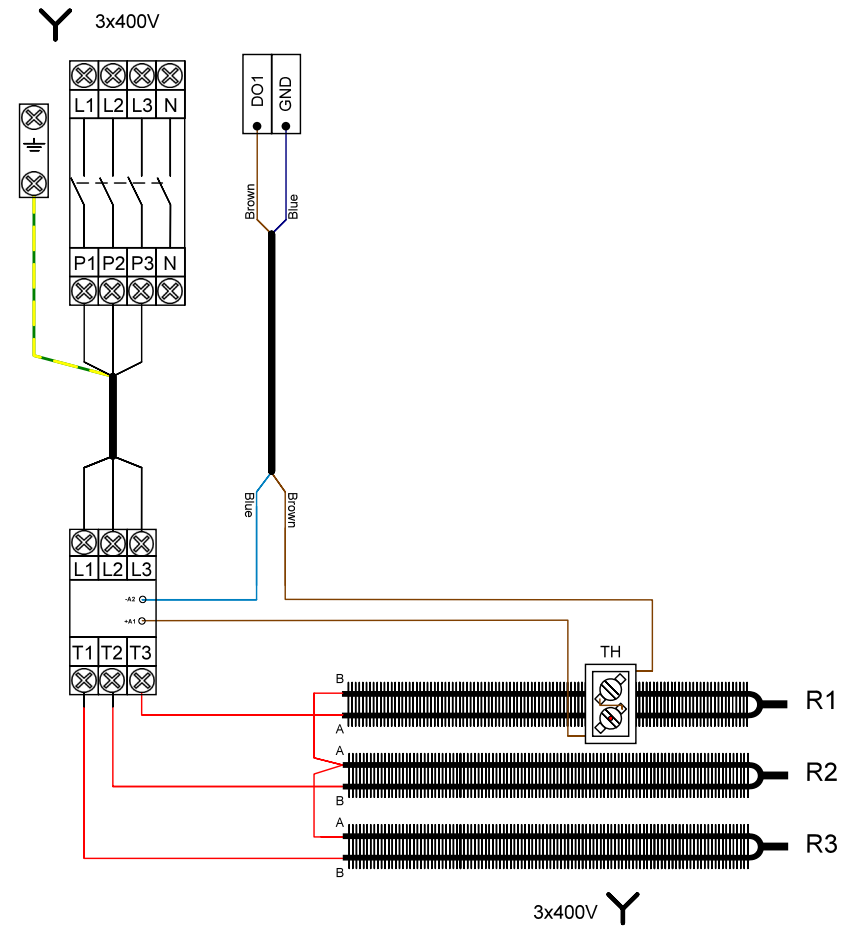
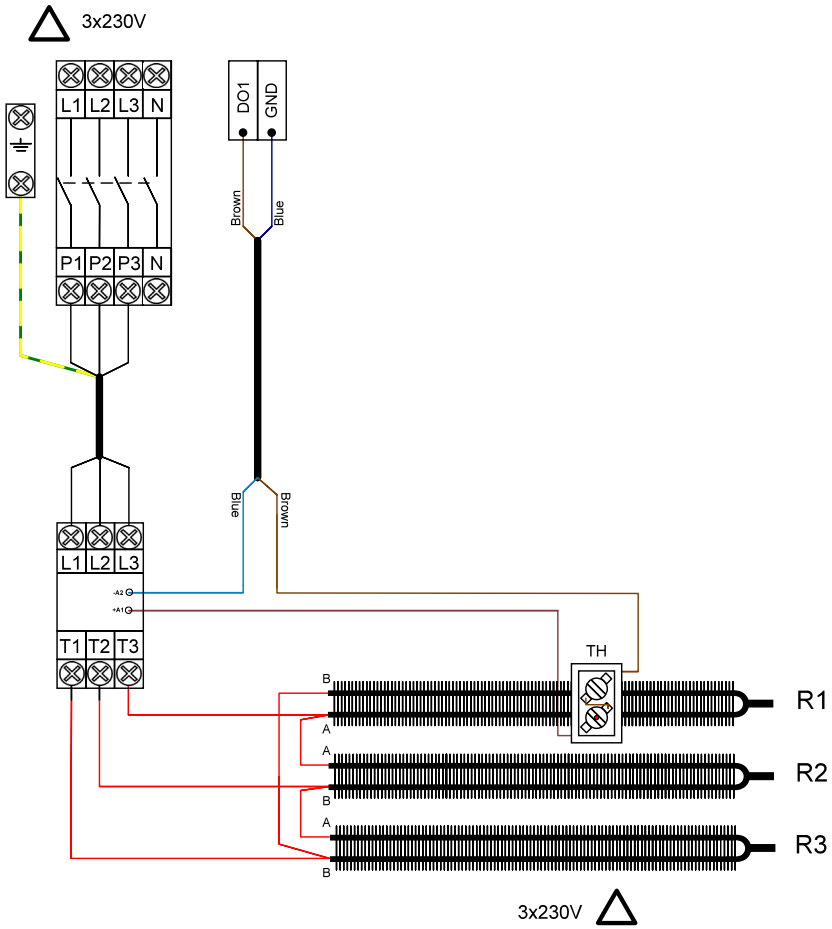


CID 025102



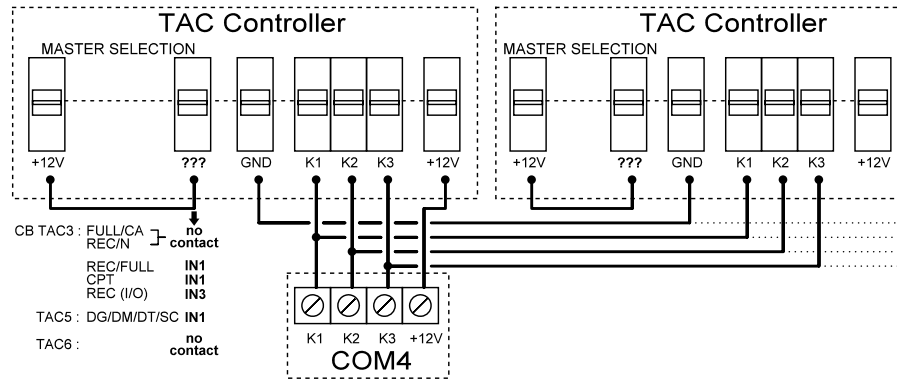
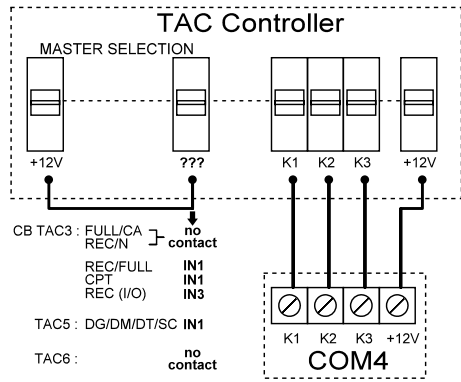
- Select the COM port to which the USB-RS 485 adapter cable is connected
- Select the Modbus address of the desired unit to reach in menu "Settings/Connection Setup"

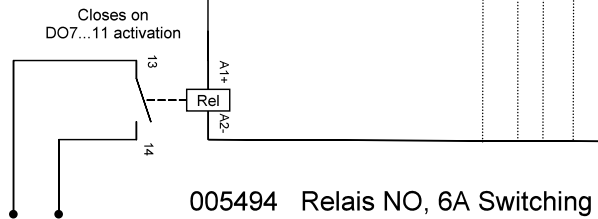
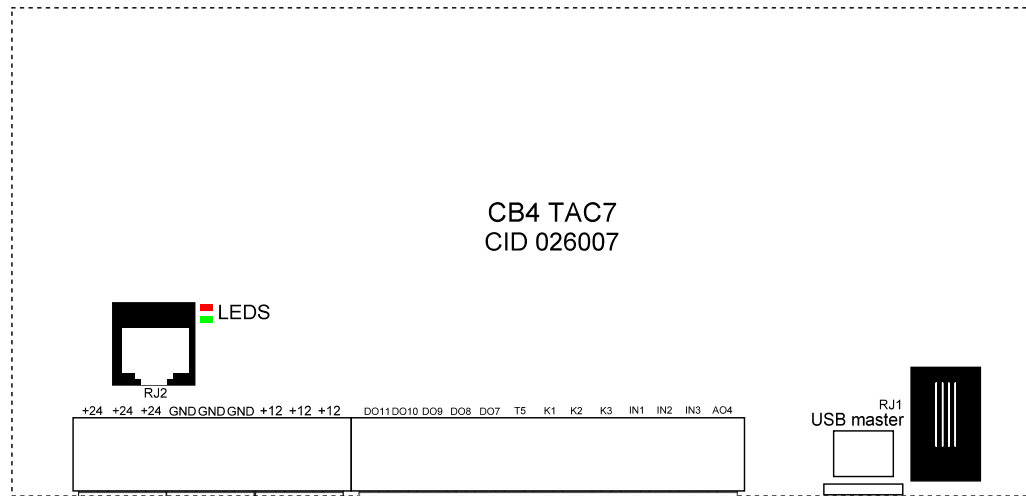
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: msg	17/10/2024		57
		check.:		Application: Soft HMI centralised	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7				63



Attention: only possible to change 3x230V into 3x400V. Due to cable sections and selected components, changing from 3x400V to 3x230V is not allowed on site.

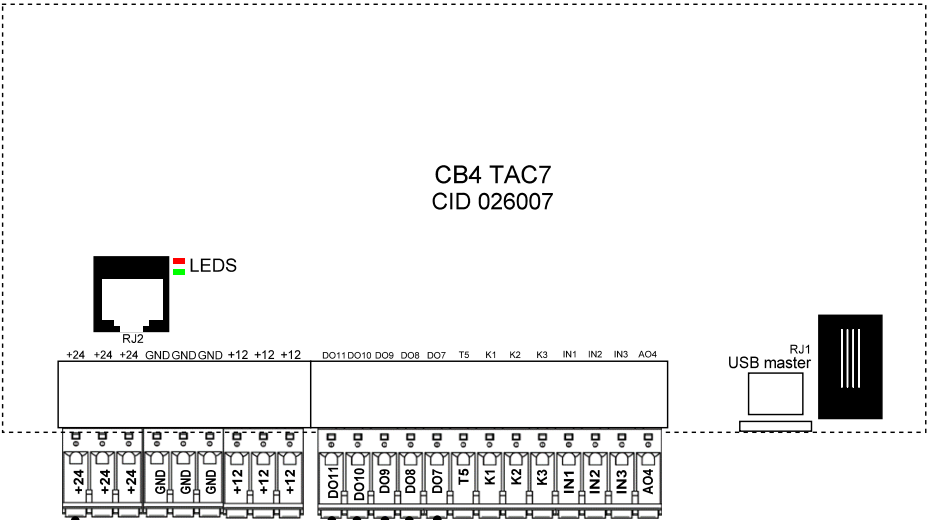
Changes		Name	Date	Configuration of function: N.A.	Page
Name	Date	Draw.: msg	16/03/2021		58
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: KWout 3x230V - 3x400V	of 63



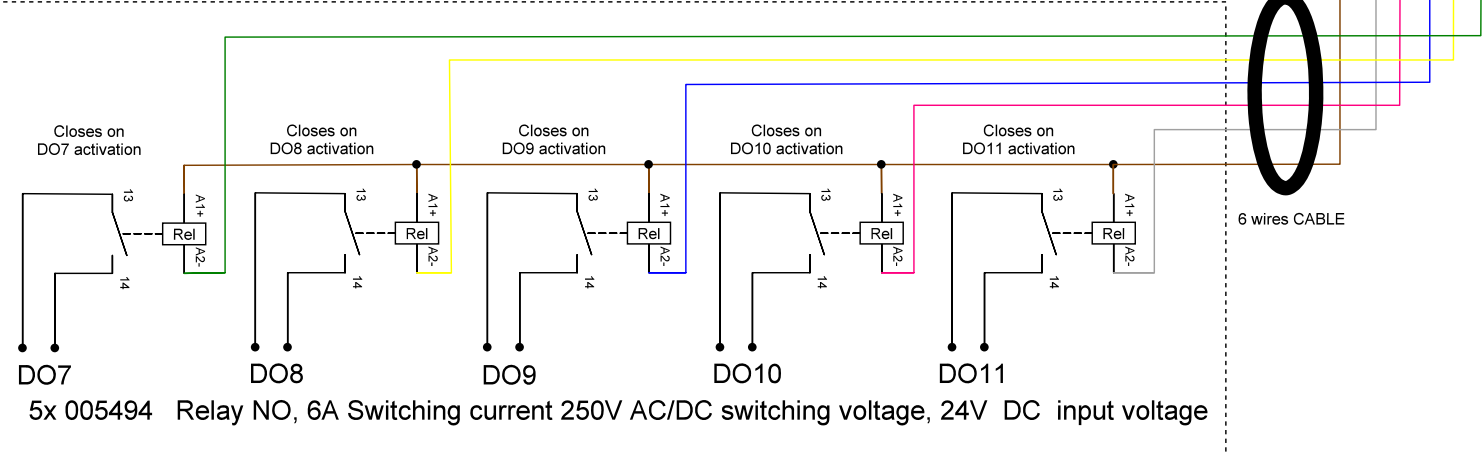


005494 Relais NO, 6A Switching current 250V AC/DC switching voltage, 24V DC input voltage

Changes		Name	Date	Configuration of function:	Page	
Name	Date	Draw.: ola	04/10/2024		Application:	60
		check.:				of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7			Output Relay 1x		



EXTERNAL ELECTRICAL BOX



WIRE COLOR	TAC6 CONNECTOR
BROWN	+24
GREEN	DO7
YELLOW	DO8
BLUE	DO9
PINK	DO10
GREY	DO11

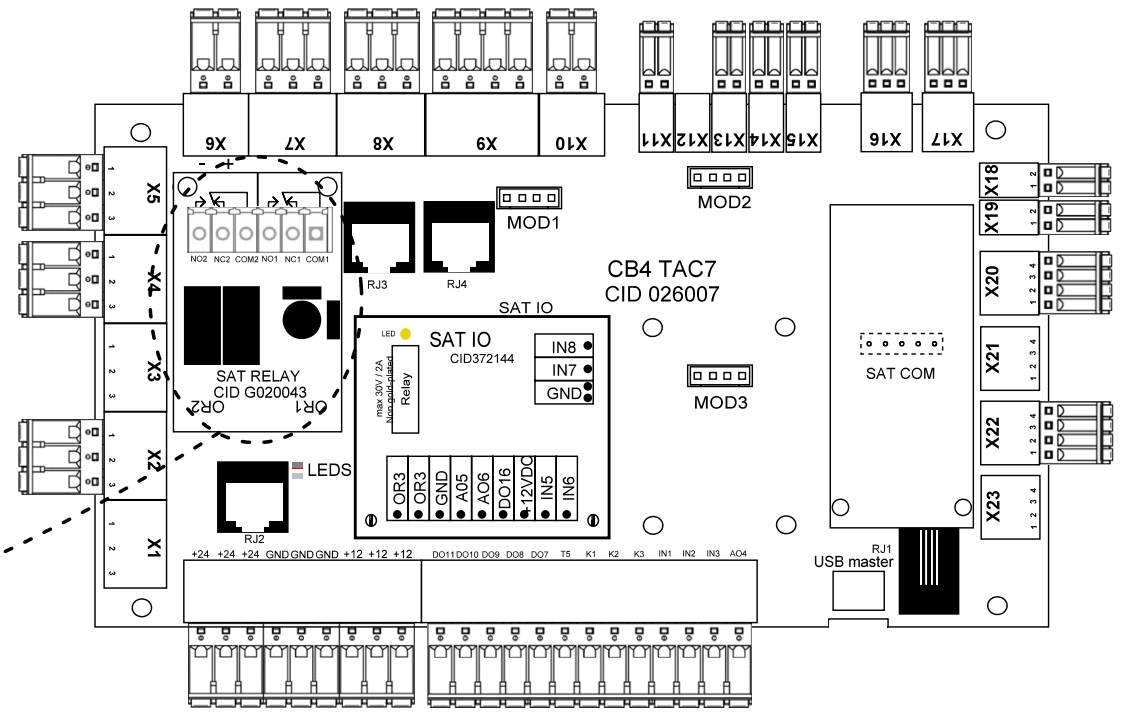
522346 Kit 5 Output relays

Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.: ola	04/10/2024		61
		check.:		Application: Output Relays 5x	of
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7		Norm:		63

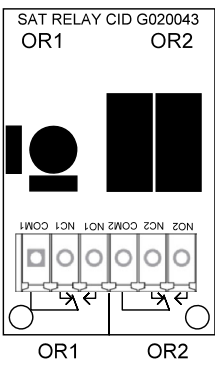
**\*SAT RELAY CONFIGURATION ONLY FOR NON LP MODELS**

Section Inputs/Outputs / Settings / Parameters:  
 User Digital I/O Mapping ON

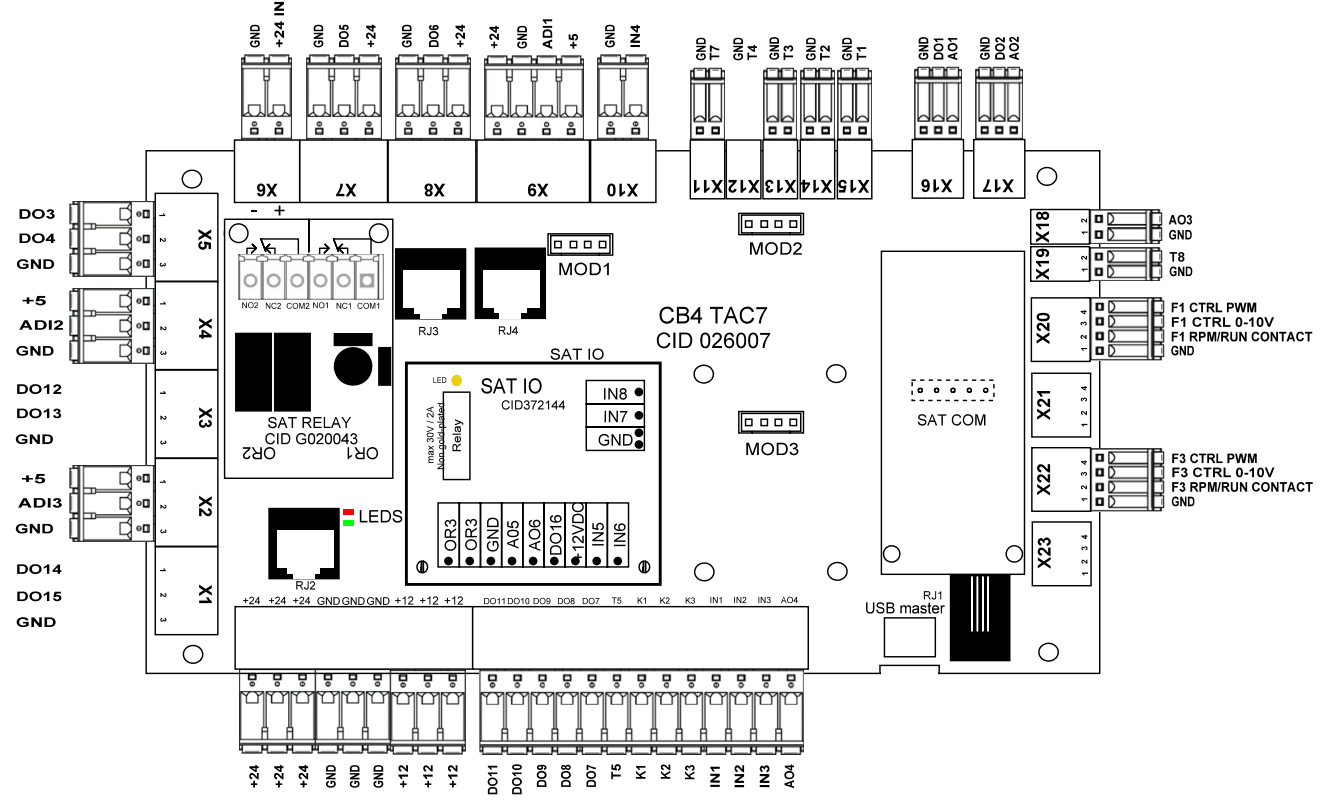
Section Inputs/Outputs / User Digital I/O Mapping - Outputs/Parameters:  
 Select desired functions to be mapped on SAT RELAY OR1 or OR2:  
 - Circulator pump for hydraulic reheater/reversible (by default on DO7)  
 - Circulator pump for hydraulic cooler (by default on DO8)  
 - Default Alarm satus (by default on DO9)  
 - Pressure Alarm satus (by default on DO10)  
 - Fan On satus (by default on DO11)  
 - Bypass satus (by default on SAT IO OR3)  
 - Heat satus (by default unapped)  
 - Cool satus (by default unapped)  
 - Circulator pump for hydraulic preheater (by default unapped)



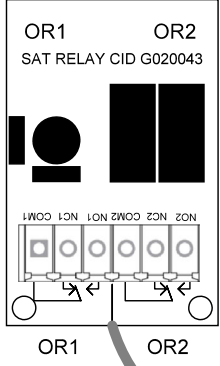
**SAT RELAY plugged on TAC7 controller dedicated connector**



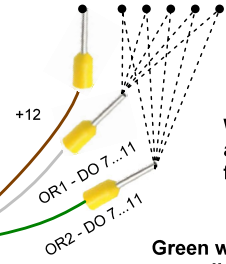
Changes		Name	Date	Configuration of function: mandatory used for GLOBAL LP, then premounted and prewired – option for other models SAT RELAY OR1 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC SAT RELAY OR2 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC See * here above for settings	Page
Name	Date	Draw.: msg	17/10/2024		62
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: <b>SAT RELAY</b>	of 63



**522697 KIT SAT RELAY:**  
 SAT RELAY with preconnected cable  
 mounted on its own support,  
 in turn fixed with 2 autodrilling  
 screws on main plate support  
 near to the control board



Brown wires connected to +12V



White wire be connected to DO7...DO11  
 according to the desired output to have on  
 free voltage contact on OR1

Green wire be connected to DO7...DO11  
 according to the desired output to have on  
 free voltage contact on OR2

To insulate if not used

Changes		Name	Date	Configuration of function: used for GLOBAL LP or when SAT RELAY already plugged on board SAT RELAY OR1 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC SAT RELAY OR2 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC See * here above for settings	Page
Name	Date	Draw.: msg	17/10/2024		63
		check.:			
Subject:	GLOBAL_ESENSA_Wiring TAC7 (1).spl7	Norm:		Application: KIT SAT RELAY	of 63