

WIRING DIAGRAMS FOR SERENITY 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	Draw.:	msg	17/10/2024
		check.:		
		Norm:		
Subject:	SERENITY_Wiring TAC7 20260528.spl7			

Name

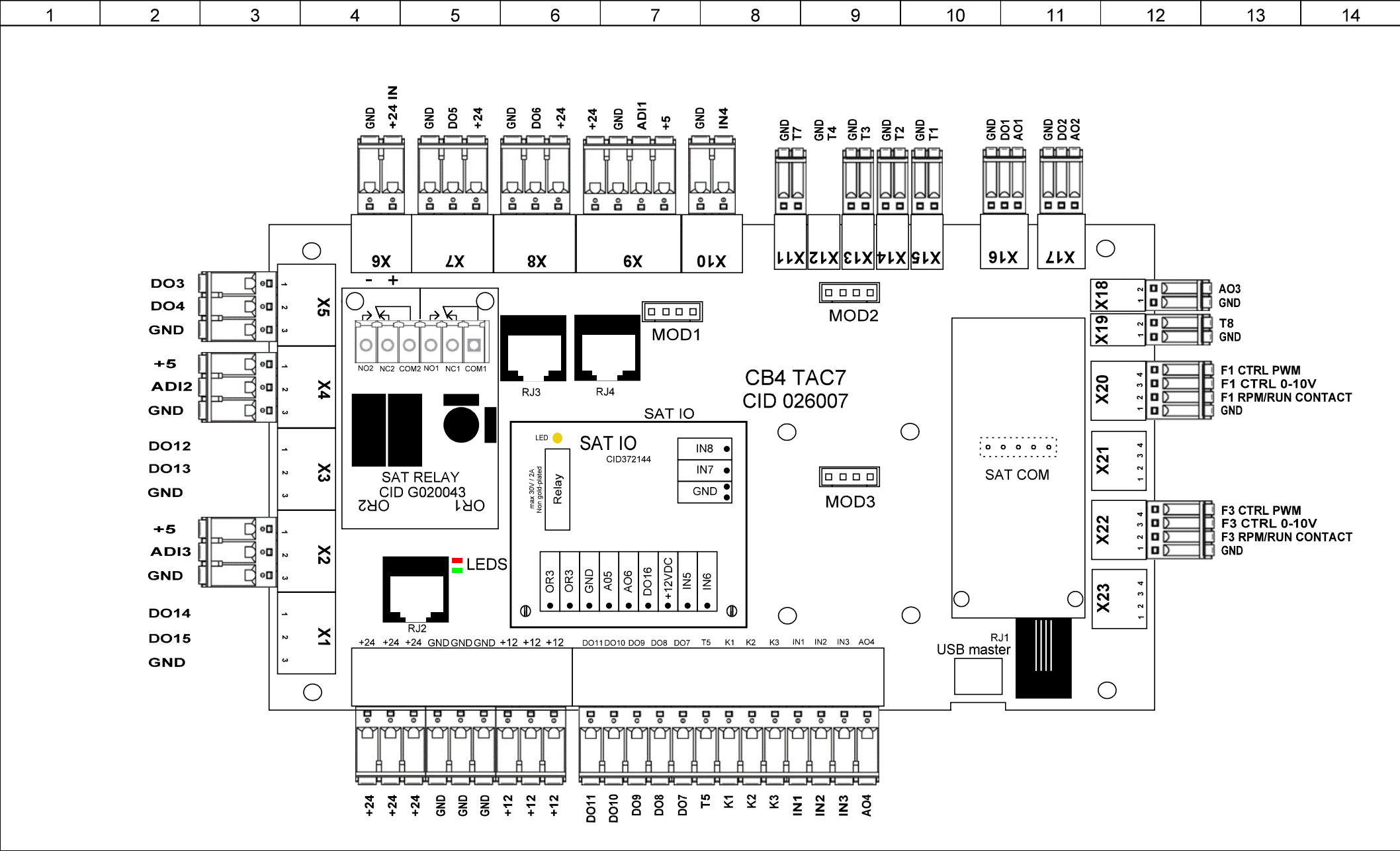
Date

Application:
General

Page

1

of
38



Changes			Name	Date	TAC7	Page
Name	Date	Draw.:	msg	17/10/2024		2
		check.:				
		Norm:			Application: Controller	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					

1

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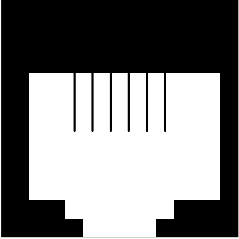
14

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)
AO2 - NOT USED
AO3 - BA- = output 0-10V for external waterborne recooler or reversible Heat/Cool (option)
AO4 - NV = output 0-10V for internal hydraulic postheater or reversible battery (option - prewired)
DO3 - BYPASS OPEN- PX (prewired)
DO4 - BYPASS CLOSE - PX (prewired)
DO5 - DAMPER 1 (with or without spring return, I_{max} = 0,5 A DC) (option - prewired)
DO6 - DAMPER 2 (with or without spring return, I_{max} = 0,5 A DC) (option - prewired)
DO7 - HEAT CONTACT (open collector; V_{max}=24 VDC; I_{max}=0,1 A)
DO8 - COOL CONTACT (open collector; V_{max}=24 VDC; I_{max}=0,1 A)
DO9 - ALARM CONTACT (open collector; V_{max}=24 VDC; I_{max}=0,1 A)
DO10 - AL dPACONTACT (open collector; V_{max}=24 VDC; I_{max}=0,1 A)
DO11 - FAN ON CONTACT (open collector; V_{max}=24 VDC; I_{max}=0,1 A)
ADI1 - BYPASS POS - PX | RX SPEED FEEDBACK - RX (prewired)
ADI2 - NOT USED
ADI3 - NOT USED
T1 - outdoor air T° sensor (prewired)
T2 - extract air T° sensor (prewired)
T3 - exhaust T° sensor (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

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 (NOT USED)
F3 - FAN 3 (EXHAUST)
F4 - FAN 4 ((NOT USED)

RJ1: RJ12 connector for TACtouch
RJ2: NOT USED
RJ3: RJ12 connector for Modbus Pressure sensors kit CA + filters monitoring, prewired, on supply flow
RJ4: RJ12 connector for Modbus Pressure sensors kit CA + filters monitoring, prewired, on extract flow and defrost detecting (option - prewired on another sensor)

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)

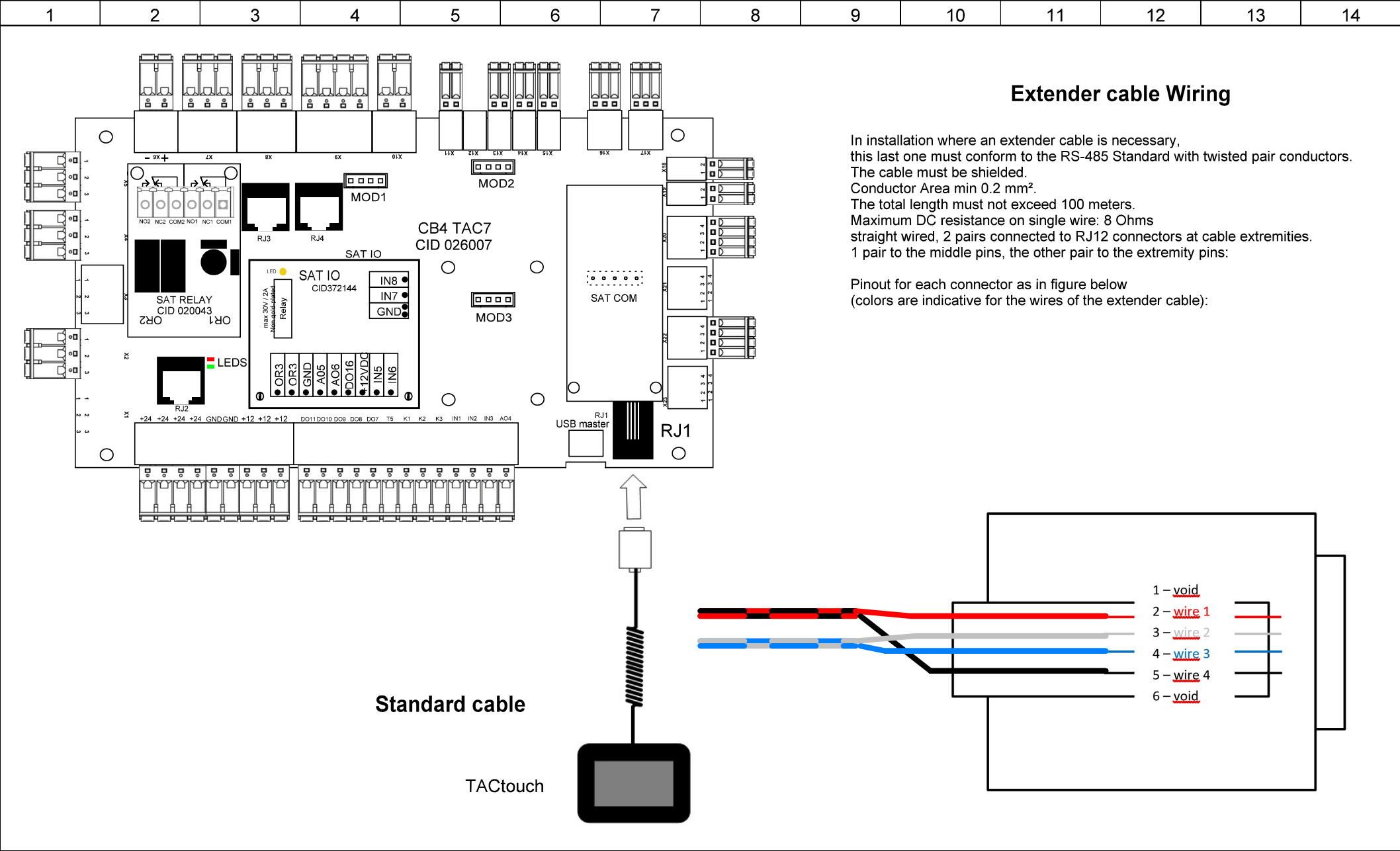
SAT COM - SAT MODBUS or SAT KNX or SAT SAT WIFI-ETHERNET or SAT WIFI-ETHERNET-MQTT - (option)

SAT RELAY:
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 DO7...DO11 thanks to dedicated function "IO mapping" on TACtouch.

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	Application: IO TAC7	Page
Name	Date	Draw.:	msg	11/05/2026		3
		check.:				
		Norm.:			of	38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



Changes			Name	Date		Page
Name	Date	Draw.:	msg	17/10/2024		4
		check.:				
		Norm:				of
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Application: TACtouch	38

SENSORS CONFIGURATION KIT CA

Section Airflow/ Fan with backward curved blades / Parameters:				
Advanced settings for pressure sensors of kit CA			Yes	
Type - Supply			MODBUS INPUT	
Type - Extract			MODBUS INPUT	
Section Airflow / Settings - Constant Airflow Sensor - Type - Modbus / Serial Parameters:				
	BUS	ADDRESS	REGISTER	SCALE FACTOR
1	BUS#3: INT2 (RJ3)	86	4	0,1
2	BUS#2: INT1 (RJ4)	80	4	0,1

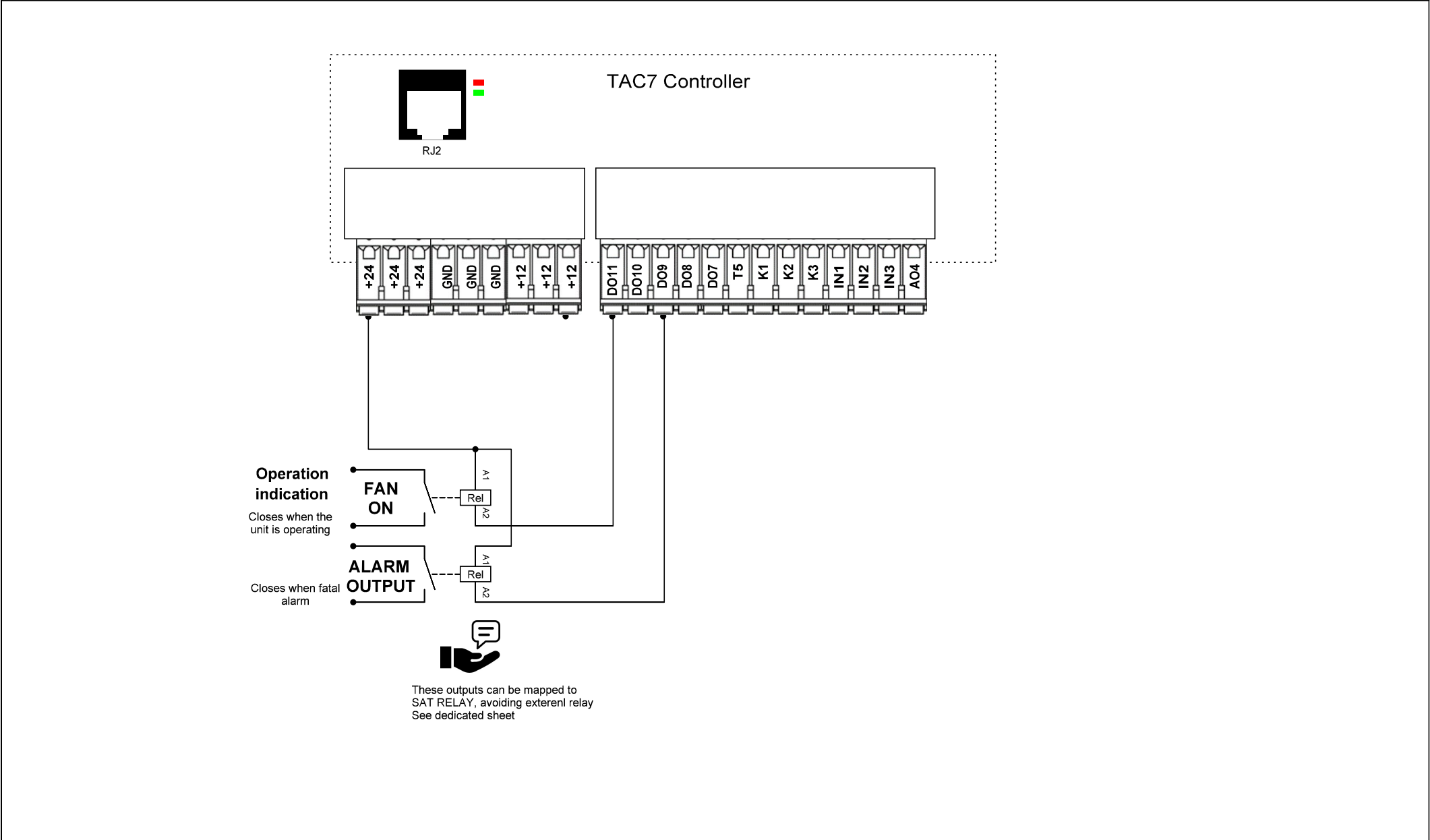
SENSORS CONFIGURATION KIT DEFROST

Section Heat / Cool recovery / Anti-freeze / Parameters:				
Defrost pressure sensor			Yes	
Section Heat / Cool recovery / Defrost pressure sensor / Parameters:				
	BUS	ADDRESS	REGISTER	SCALE FACTOR
1	BUS#2: INT1 (RJ4)	92	4	0,1

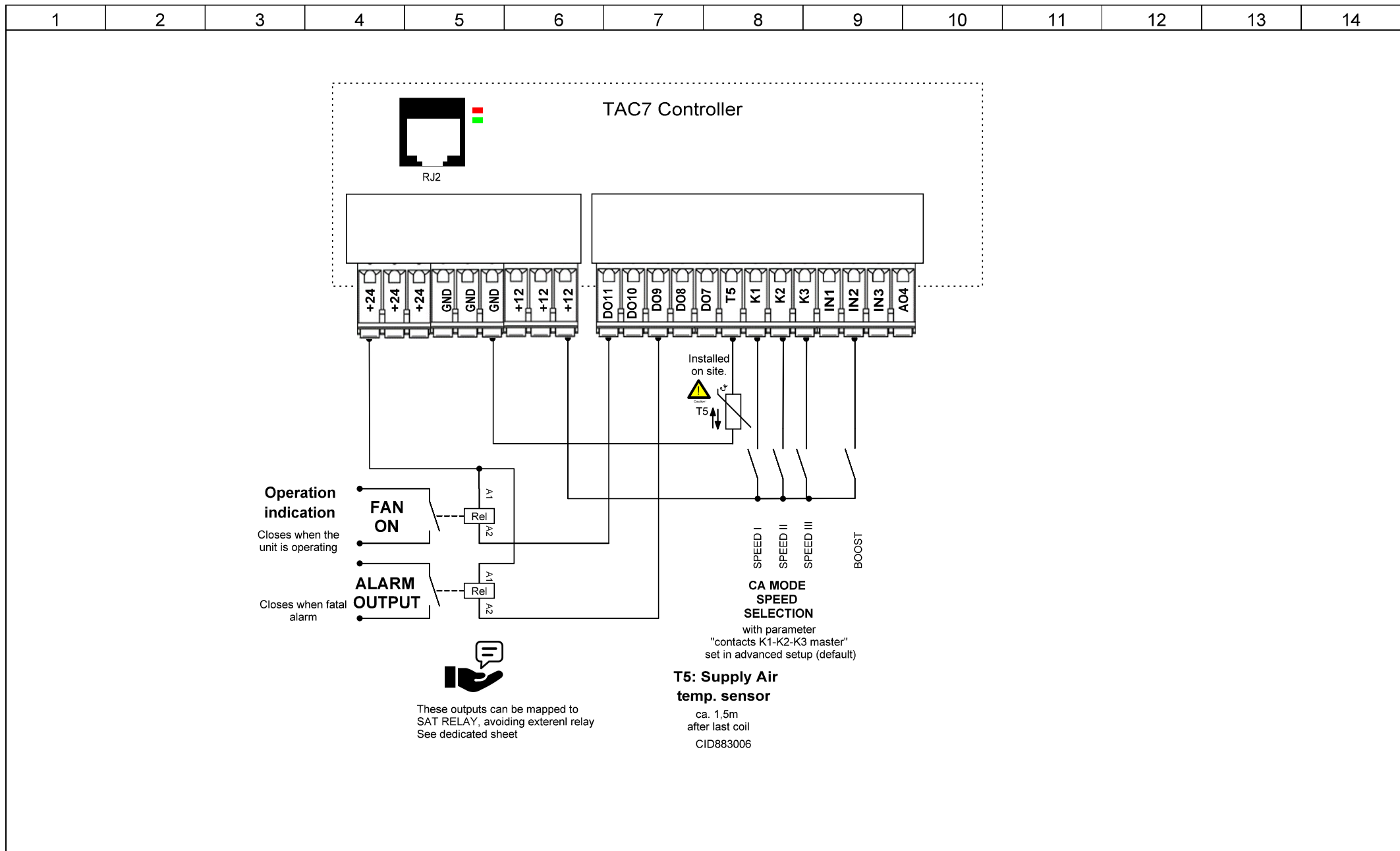
SENSORS CONFIGURATION KIT FILTERS

Section Filters/ Pressure alarm/ Parameters:				
Filter pressure monitoring with sensor			Yes	
Advanced settings for pressure sensors of kit FILTERS			Yes	
Section Filters/ Filters pressure sensors - Modbus / Serial Parameters:				
	BUS	ADDRESS	REGISTER	SCALE FACTOR
1	BUS#3: INT2 (RJ3)	86	24	0,1
2	BUS#2: INT1 (RJ4)	80	24	0,1

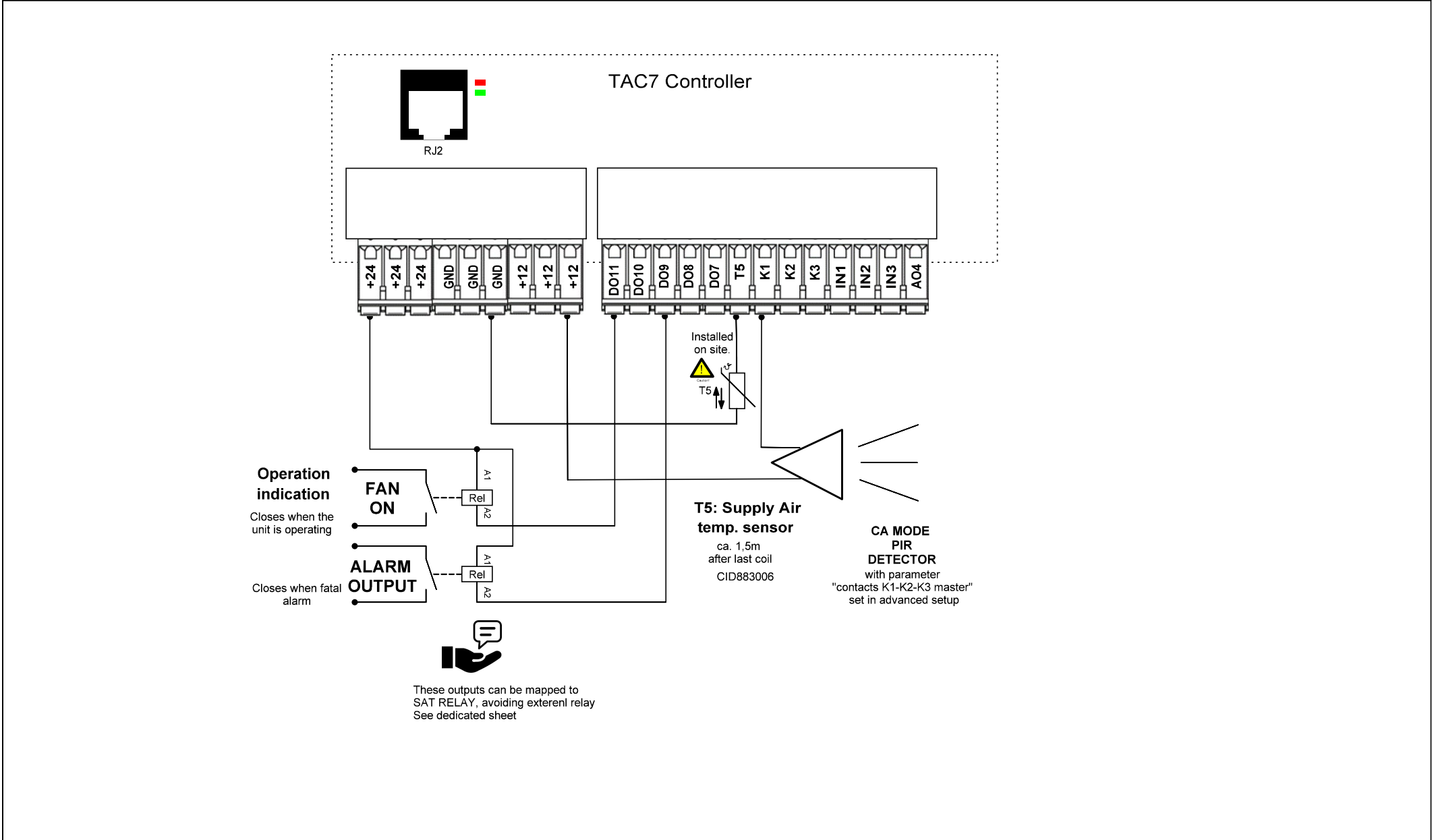
Changes			Name	Date	Configuration of function: Setup of Modbus Pressure sensors for SERENITY	Page
Name	Date	Draw.:	msg	28/05/2026		7
		check.:			Application: Modbus Pa Sensors - Setup	of
		Norm.:				38
Subject:		SERENITY_Wiring TAC7 20260528.spl7				



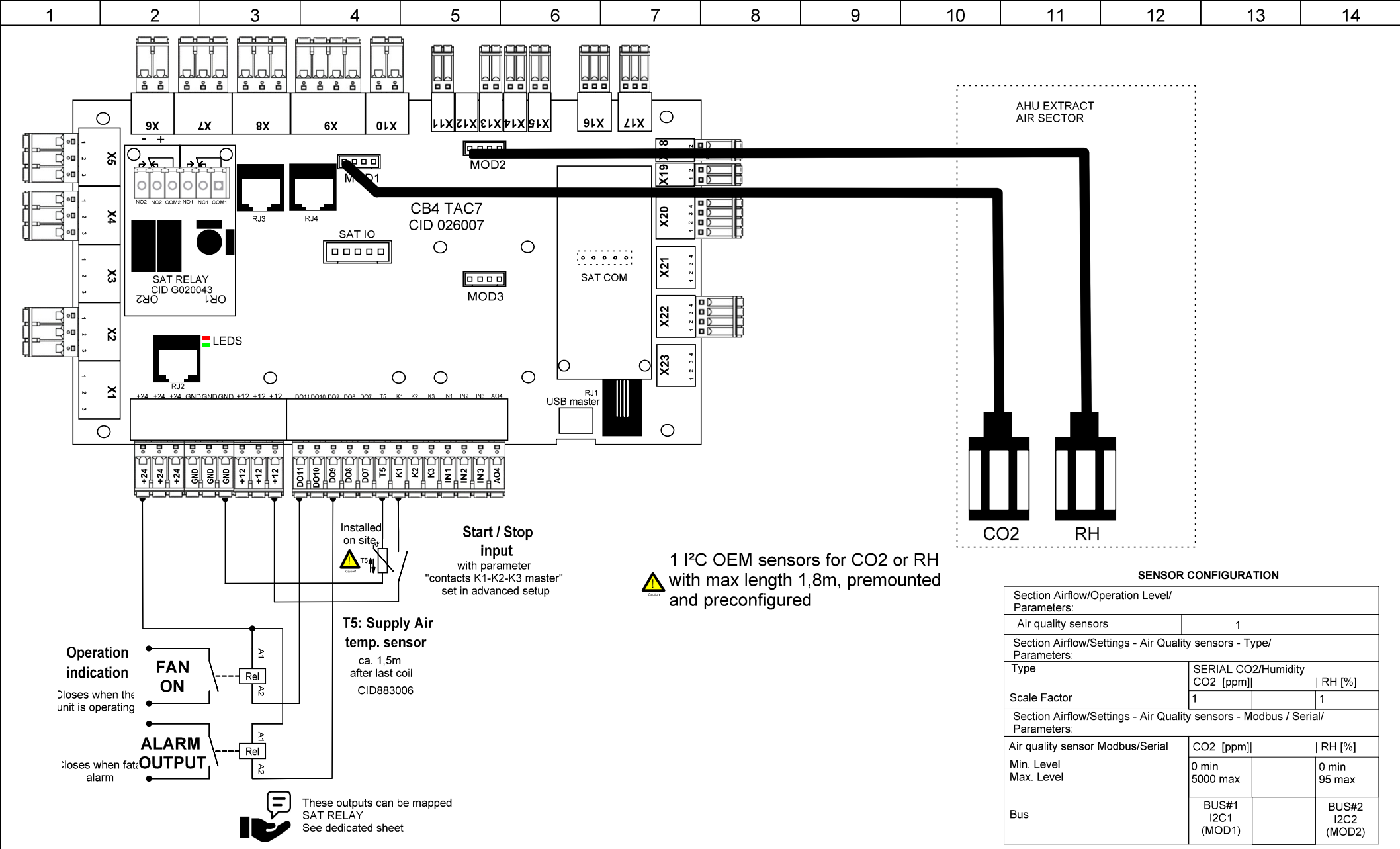
Changes			Name	Date	Configuration of function: Function Alarms	Page
Name	Date	Draw.:	msg	27/11/2024		8
		check.:			Application: ALARM OUTPUT	of
		Norm:				38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



Changes			Name	Date	Configuration of function: Function Regulation mode/ Constant Airflow	Page
Name	Date	Draw.:	ola	27/09/2024		9
		check.:			Application: Constant airflow	of
		Norm:				38
Subject:		SERENITY_Wiring TAC7 20260528.spl7				

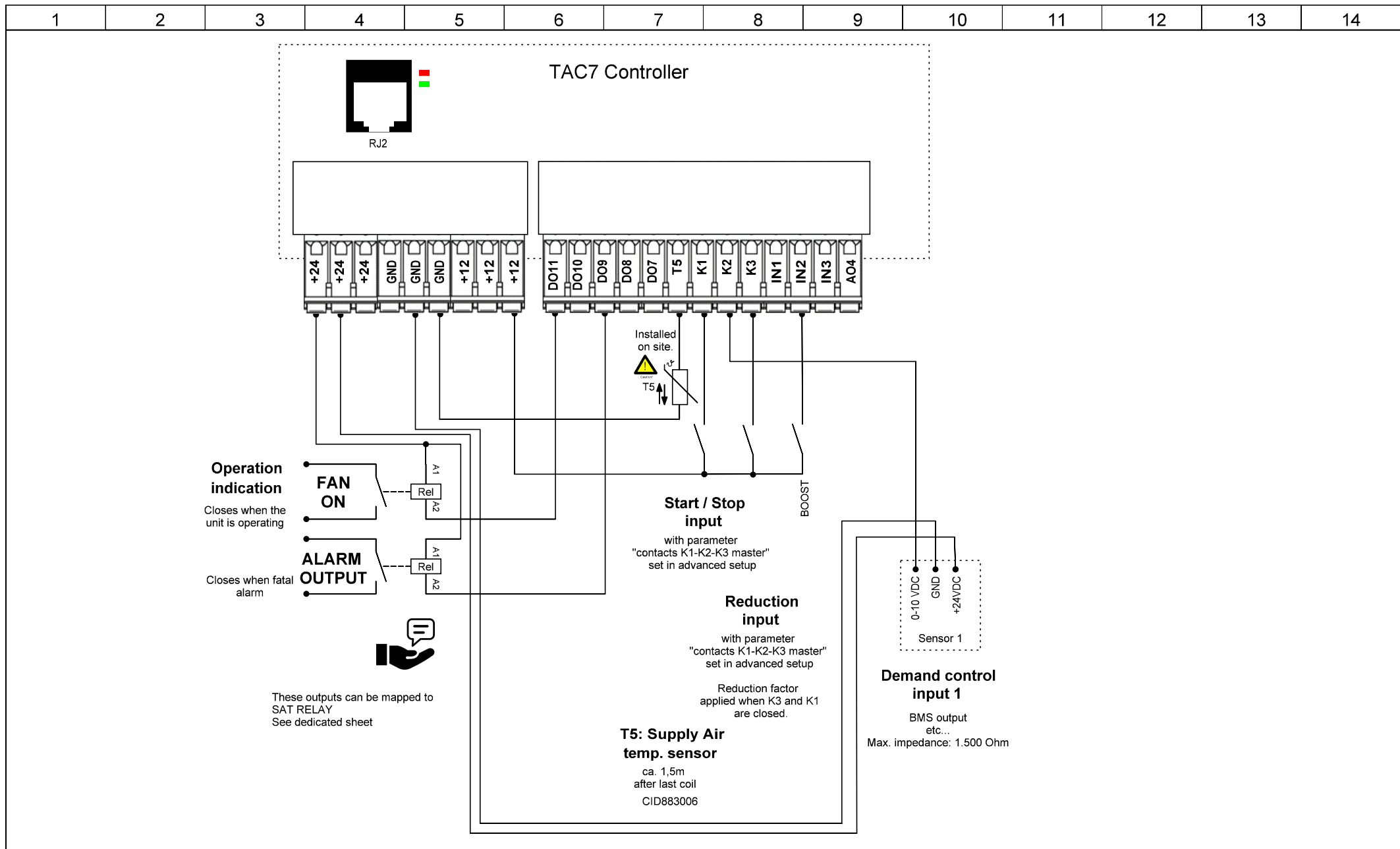


Changes			Name	Date	Configuration of function: Function Regulation mode/ Constant Airflow	Page
Name	Date	Draw.:	ola	27/09/2024		10
		check.:				
		Norm:			Application: Constant airflow - PIR	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					

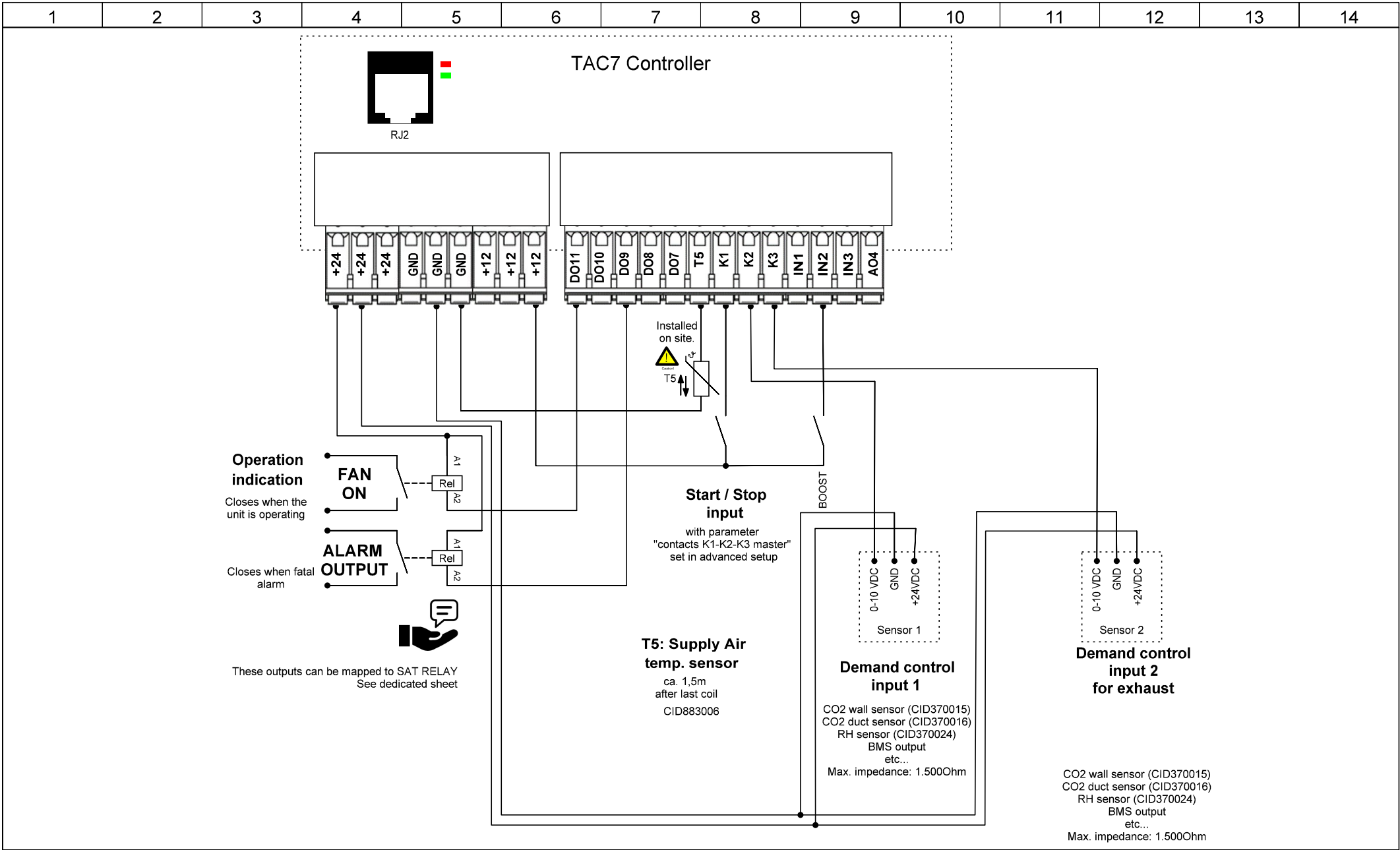


SENSOR CONFIGURATION			
Section Airflow/Operation Level/ Parameters:			
Air quality sensors		1	
Section Airflow/Settings - Air Quality sensors - Type/ Parameters:			
Type		SERIAL CO2/Humidity CO2 [ppm] RH [%]	
Scale Factor		1	1
Section Airflow/Settings - Air Quality sensors - Modbus / Serial/ Parameters:			
Air quality sensor Modbus/Serial		CO2 [ppm] RH [%]	
Min. Level	0 min		0 min
Max. Level	5000 max		95 max
Bus	BUS#1 I2C1 (MOD1)		BUS#2 I2C2 (MOD2)

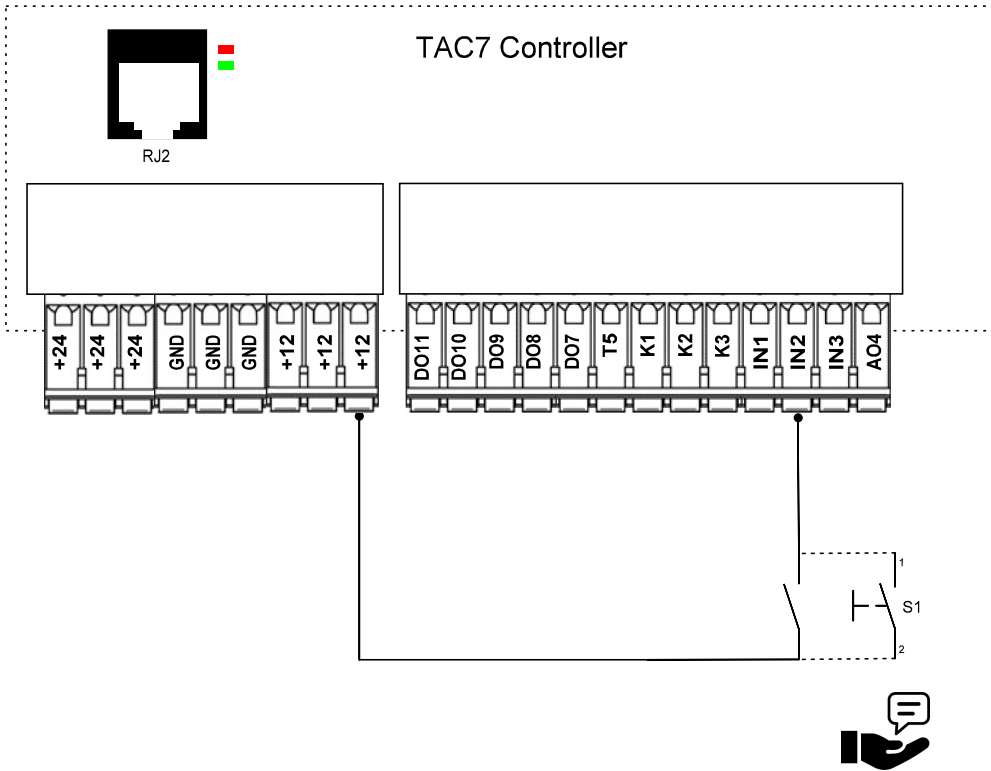
Changes		Name	Date	Configuration of function:	Page
Name	Date	Draw.:	msg	Function Regulation mode/ Demand control	11
		check.:			
		Norm.:			
Subject:	SERENITY_Wiring TAC7 20260528.spl7			Application: Demand control Serial COM (Indoor Air Quality)	of 38



Changes			Name	Date	Configuration of function: Function Regulation mode/ Demand control	Page
Name	Date	Draw.:	ola	27/09/2024		12
		check.:				
		Norm:				
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Application: Demand control 1x 0-10V	of 38

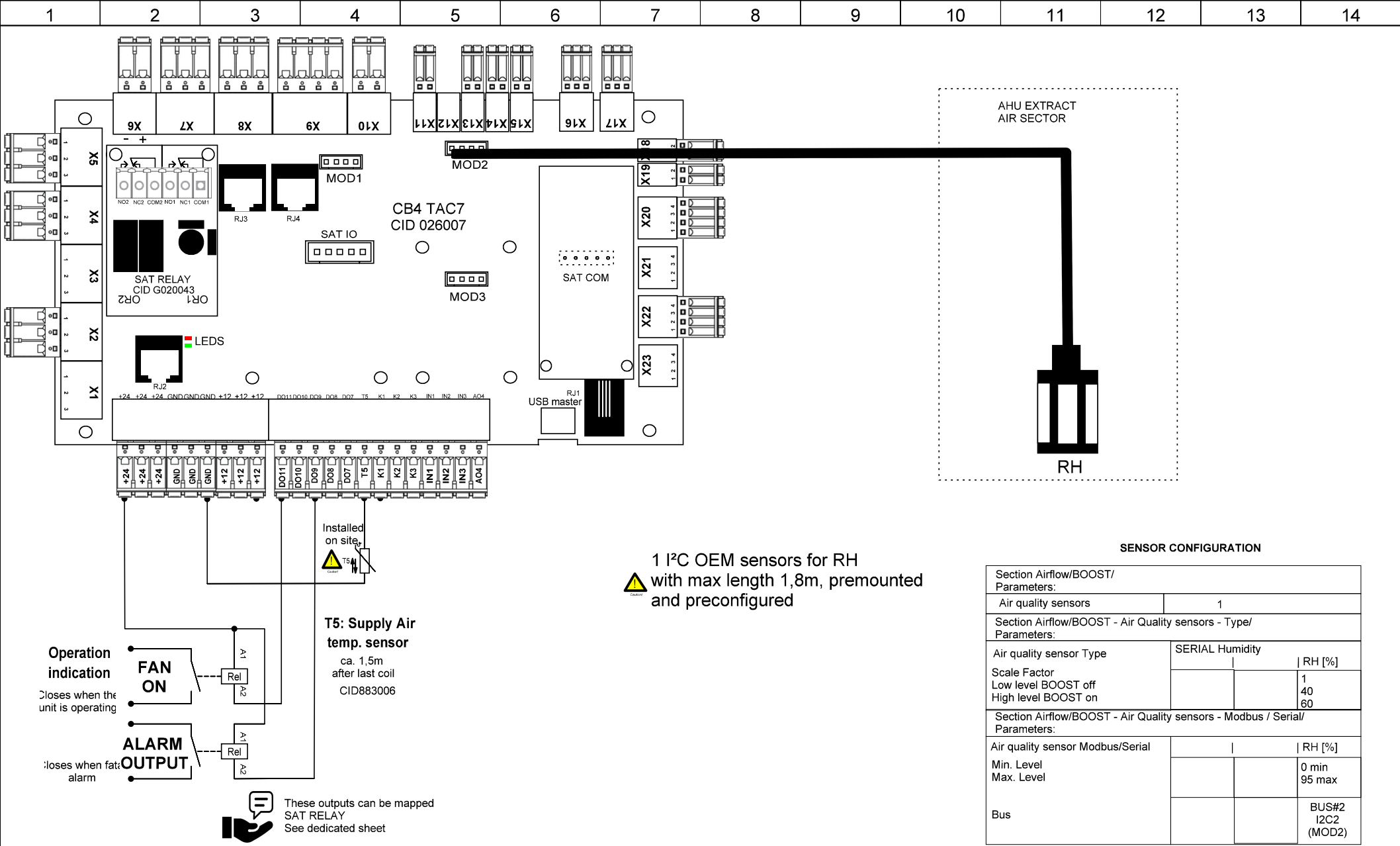


Changes			Name	Date	Configuration of function: Function Regulation mode/ Demand control	Page
Name	Date	Draw.:	ola	29/09/2024		13
		check.:				
		Norm:			Application: Demand control 2x 0-10V	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7					38



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.

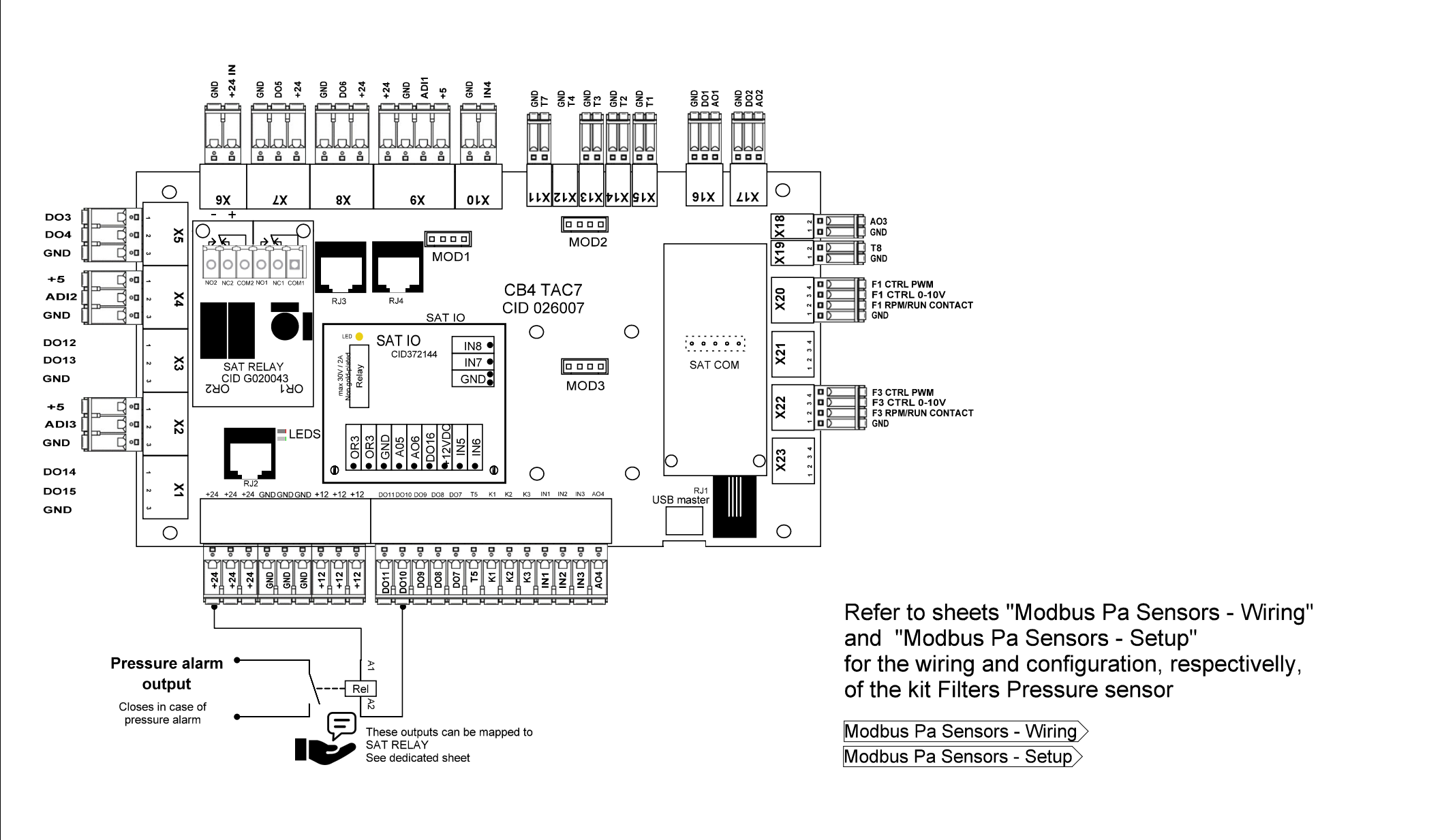
Changes			Name	Date	Configuration of function: Function Air flow/BOOST	Page
Name	Date	Draw.:	ola	27/09/2024		14
		check.:				
		Norm:			Application: BOOST with contact	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



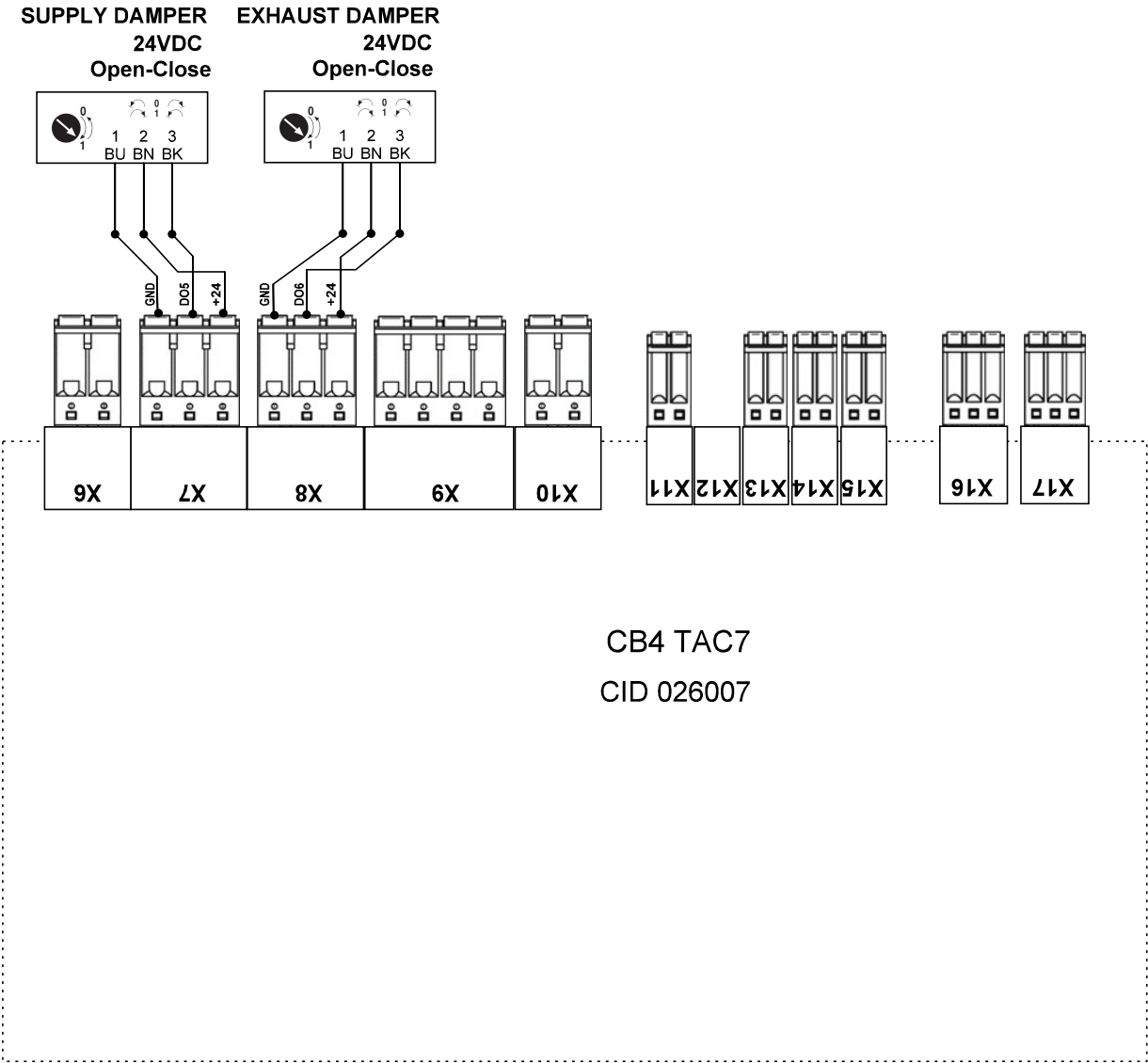
SENSOR CONFIGURATION

Section Airflow/BOOST/ Parameters:		
Air quality sensors	1	
Section Airflow/BOOST - Air Quality sensors - Type/ Parameters:		
Air quality sensor Type	SERIAL Humidity	
Scale Factor		RH [%]
Low level BOOST off		1
High level BOOST on		40
		60
Section Airflow/BOOST - Air Quality sensors - Modbus / Serial/ Parameters:		
Air quality sensor Modbus/Serial		RH [%]
Min. Level		0 min
Max. Level		95 max
Bus		BUS#2 I2C2 (MOD2)

Changes		Name	Date	Configuration of function:		Page
Name	Date	Draw.:	msg	Function Air flow/BOOST		15
		check.:				
		Norm.:				
Subject:	SERENITY_Wiring TAC7 20260528.spl7			Application: BOOST with RH sensor (Indoor Air Quality)		of 38



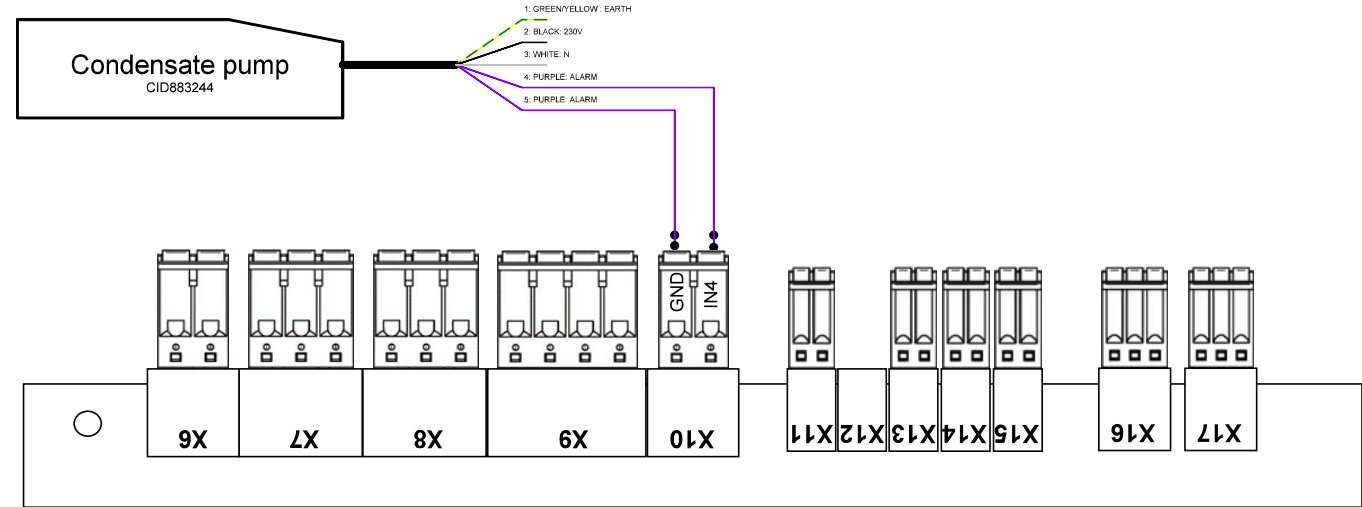
Changes		Name		Date	Configuration of function:	Page
Name	Date	Draw.:	msg	28/05/2026	Function Filters/Pressure alarm/Filters pressure revelation with sensors	16
		check.:				
		Norm.:			Application: Filters alarm & monitor	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7					38



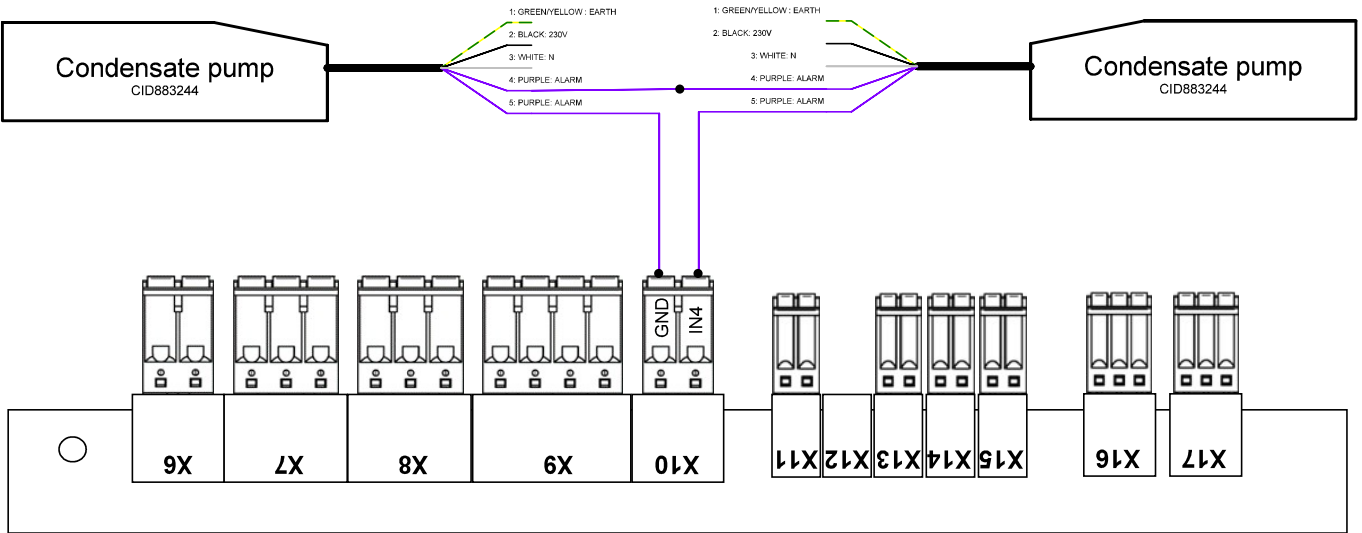
Changes			Name	Date	Configuration of function: Function Air Handling Unit/Dampers	Page
Name	Date	Draw.:	ola	27/09/2024		17
msg	07/04/2023	check.:			Application: Motorised damper - standard	of
		Norm:				38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					

1 device with drain pump

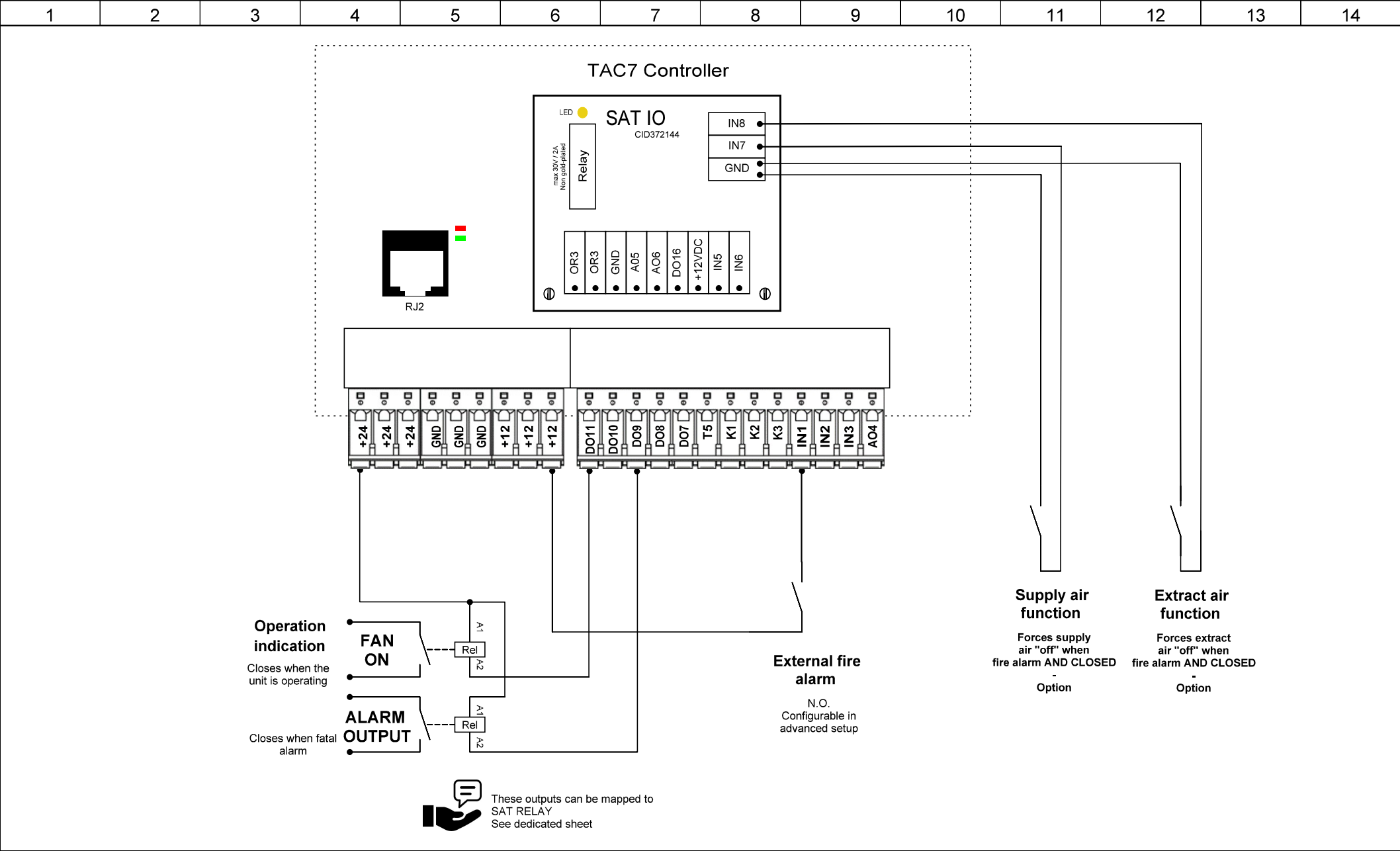
The condensate pump contains an internal sensor that will automatically start the pump when the water level rises above approx. 15 mm and stop the pump when the water level has fallen to approx. 5 mm. The condensate pump is also fitted with a high water level alarm that will operate the alarm relay if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

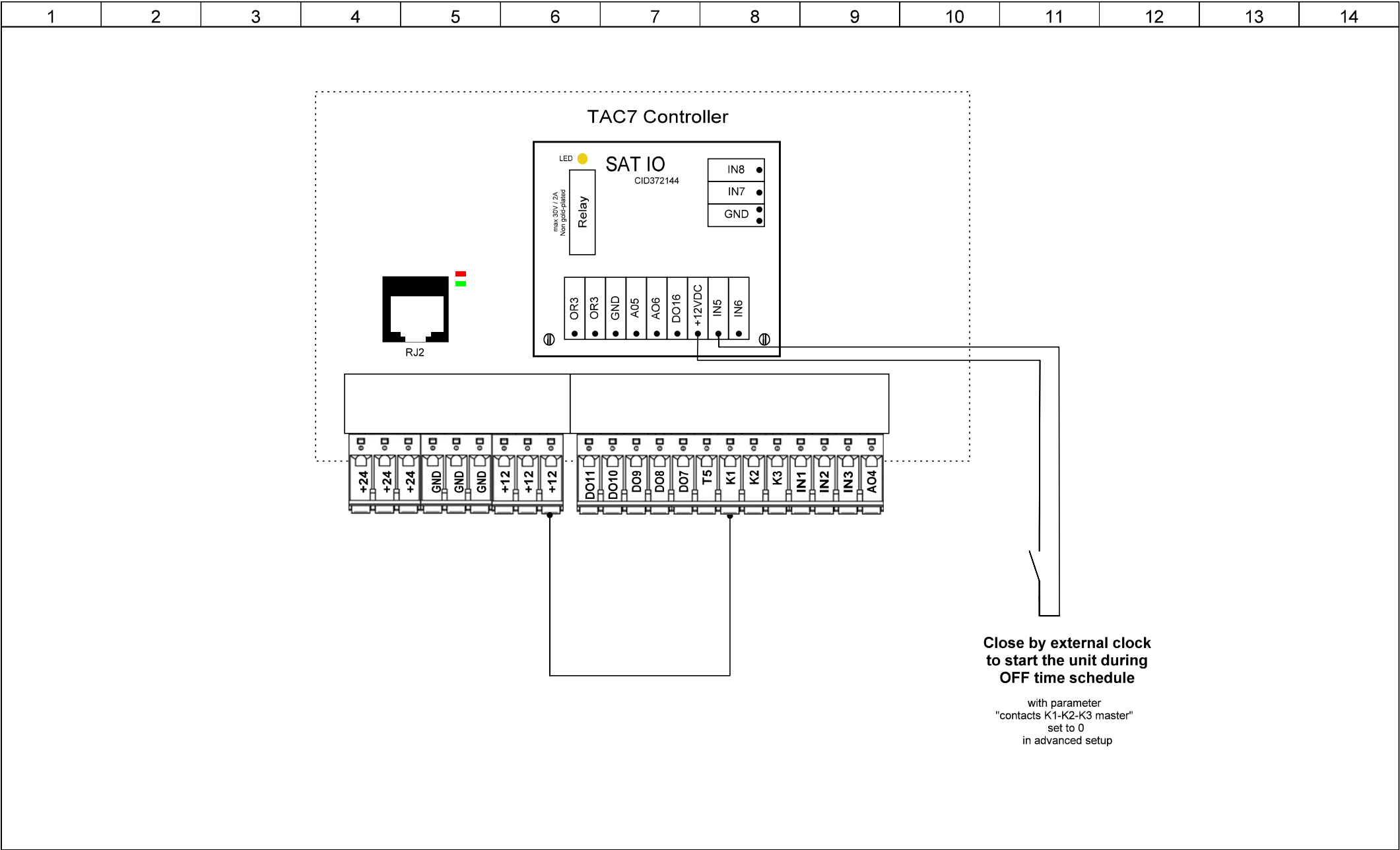


2 devices with drain pump
(in case of reversible / postcooling)

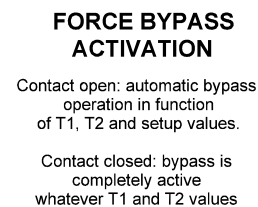


Changes			Name	Date	Application: Condense pump	Page
Name	Date	Draw.:	msg	13/05/2026		18
		check.:				
		Norm:				of 38
Subject:		SERENITY_Wiring TAC7 20260528.spl7				

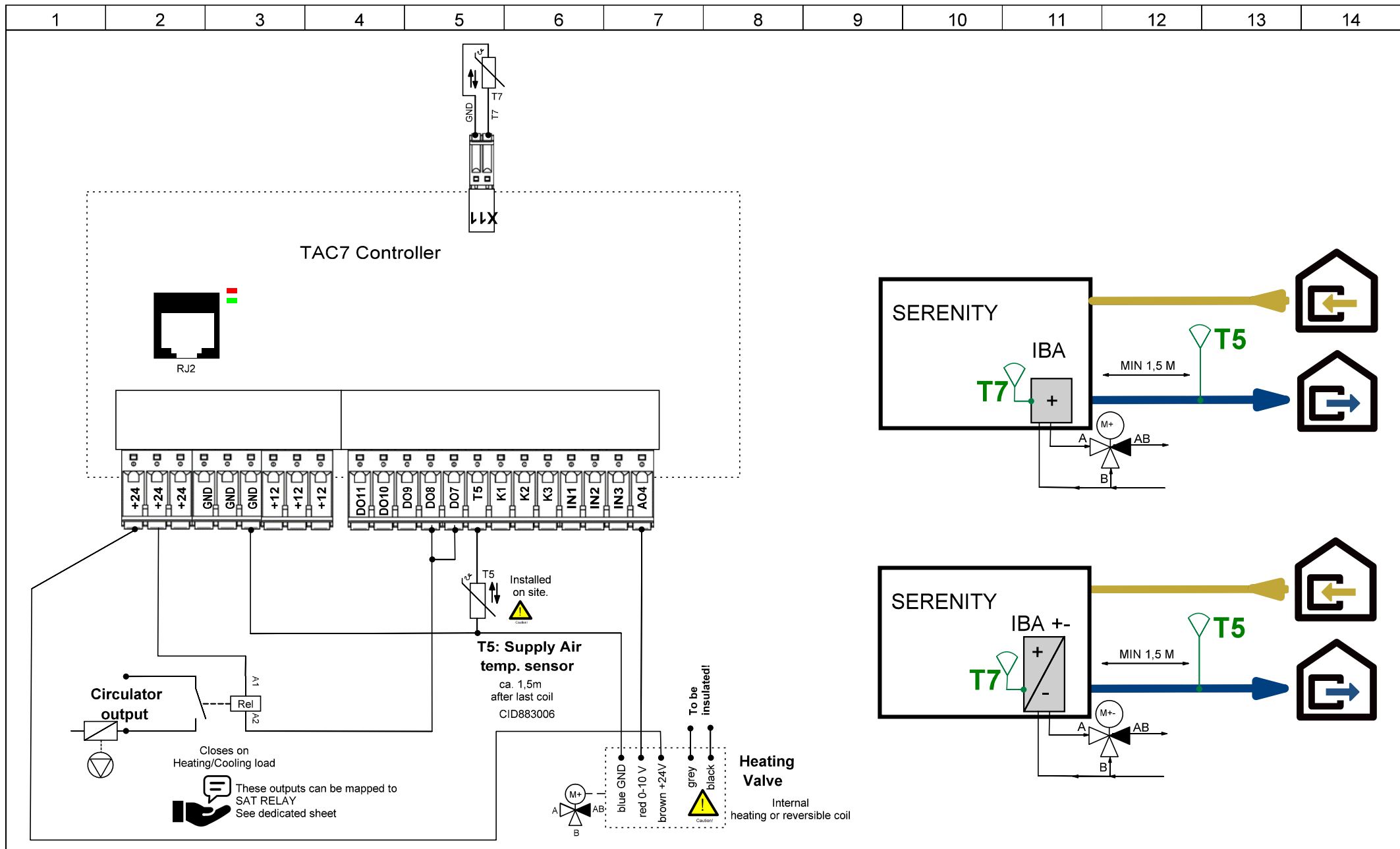




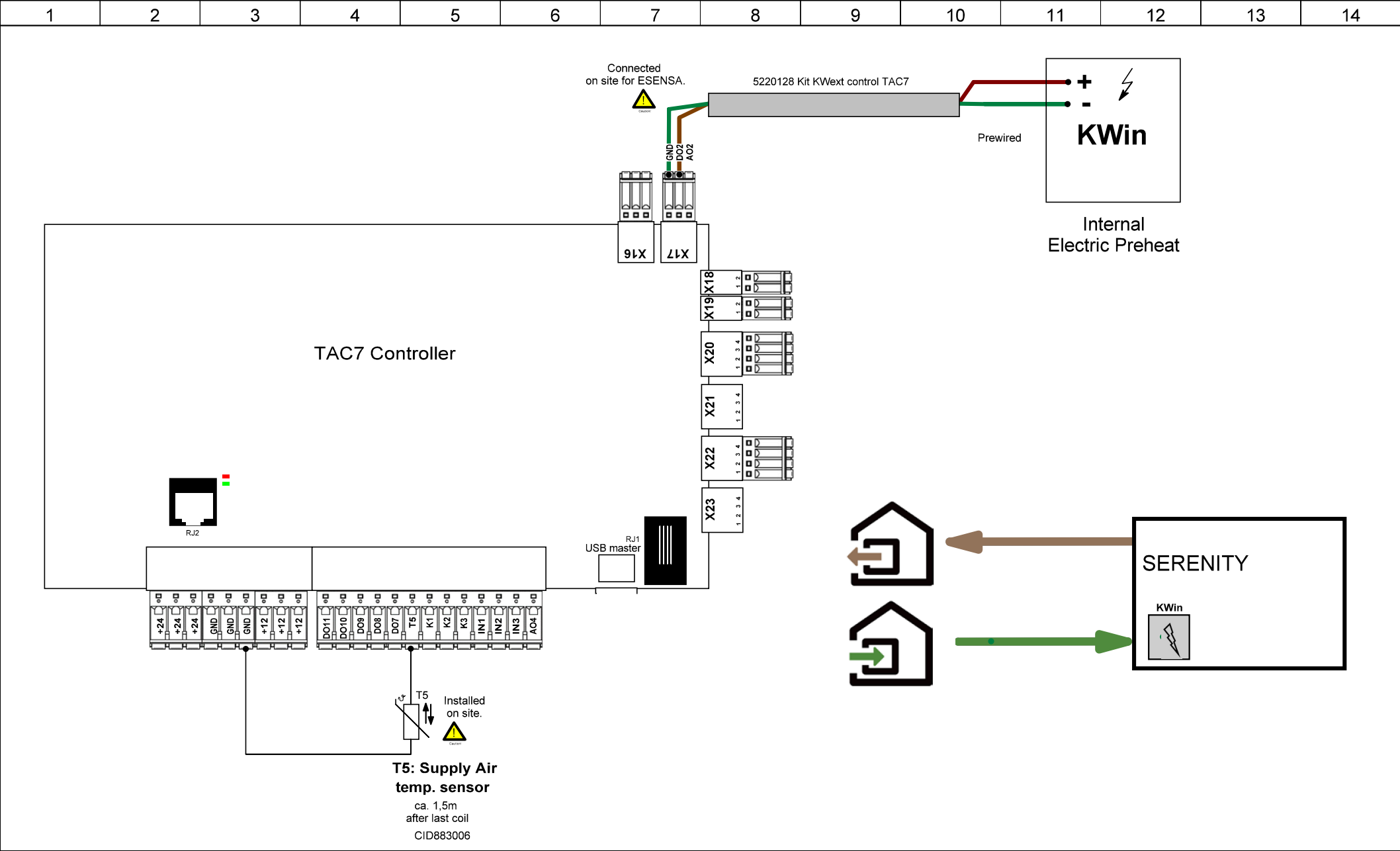
Changes			Name	Date	Configuration of function: Timeschedules configured Control screen of TACtouch: Speed selecion on 'AUTO'	Page
Name	Date	Draw.:	ola	30/09/2024		20
		check.:			Application: External Clock	of
		Norm:				38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



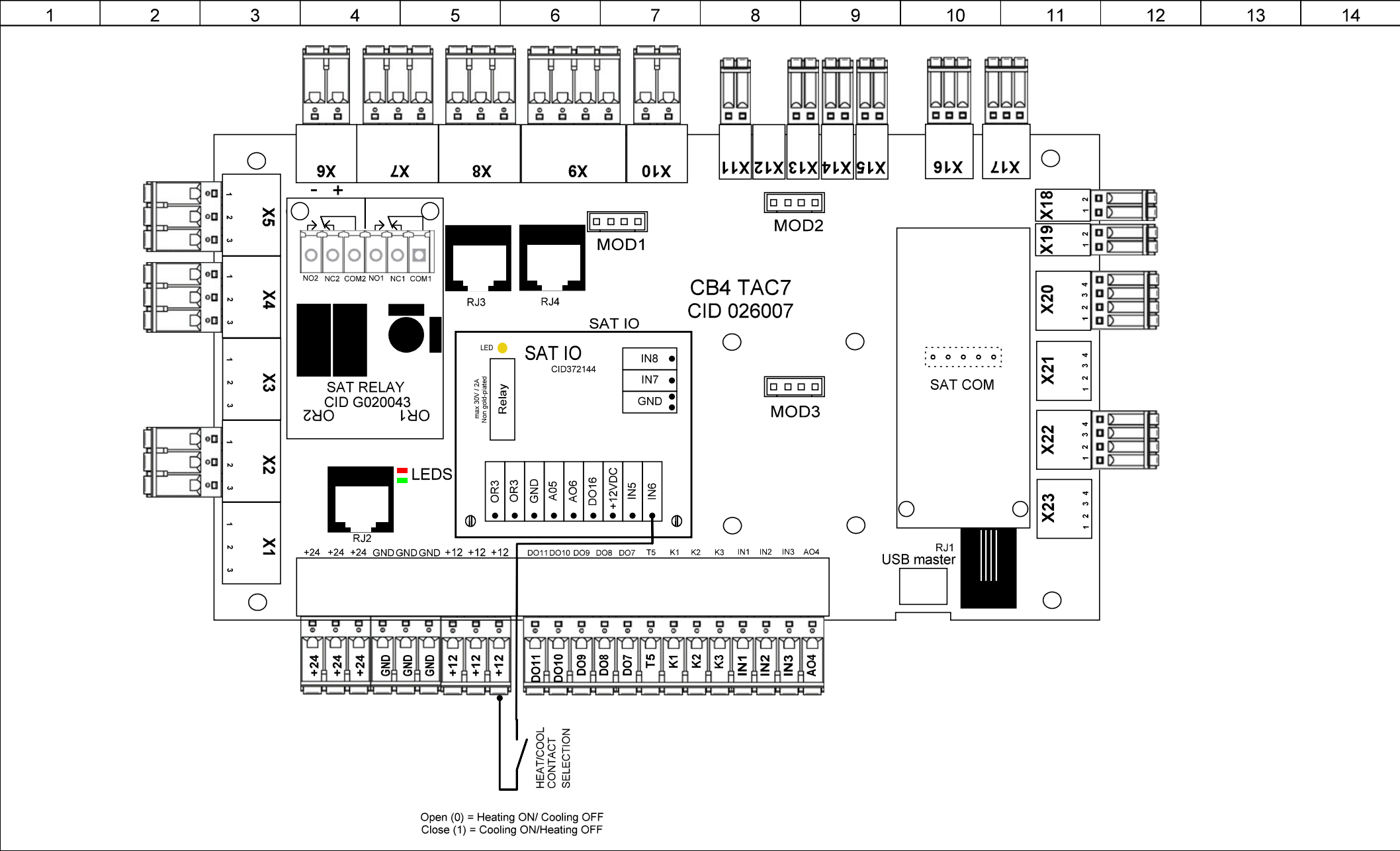
Changes			Name	Date	Configuration of function: Function Temperature/Freecooling	Page
Name	Date	Draw.:	ola	30/09/2024		21
		check.:				
		Norm:			Application:	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Bypass	38



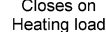
Changes			Name	Date	Configuration of function:	Page
Name	Date	Draw.:	msg	12/05/2026	Function Heat/Reheat/Internal Waterborne Rehater (IBA)	22
		check.:			Function Heat/Cool/Internal Waterborne Reversible (IBA+-)	
		Norm:			Application:	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Internal Waterborne Battery	



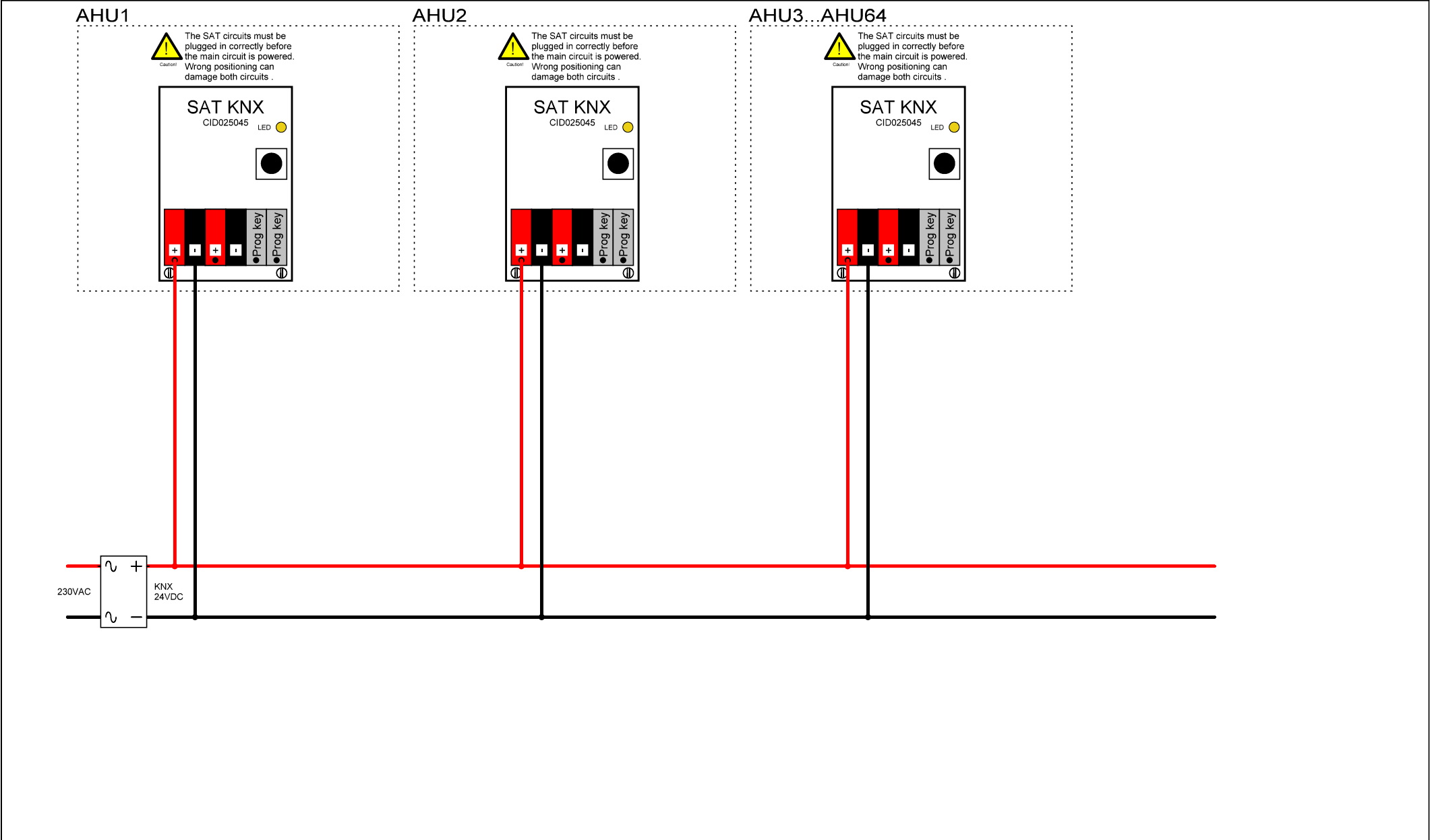
Changes			Name	Date	Configuration of function: Function Heat/Preheat/ Internal Electric Prehater (KWin)	Page
Name	Date	Draw.:	msg	13/05/2026		24
		check.:			Application: KWin Internal Electric Preheat	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7					38



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		25
		check.:			Application: HEAT/COOL CONTACT SELECTION	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



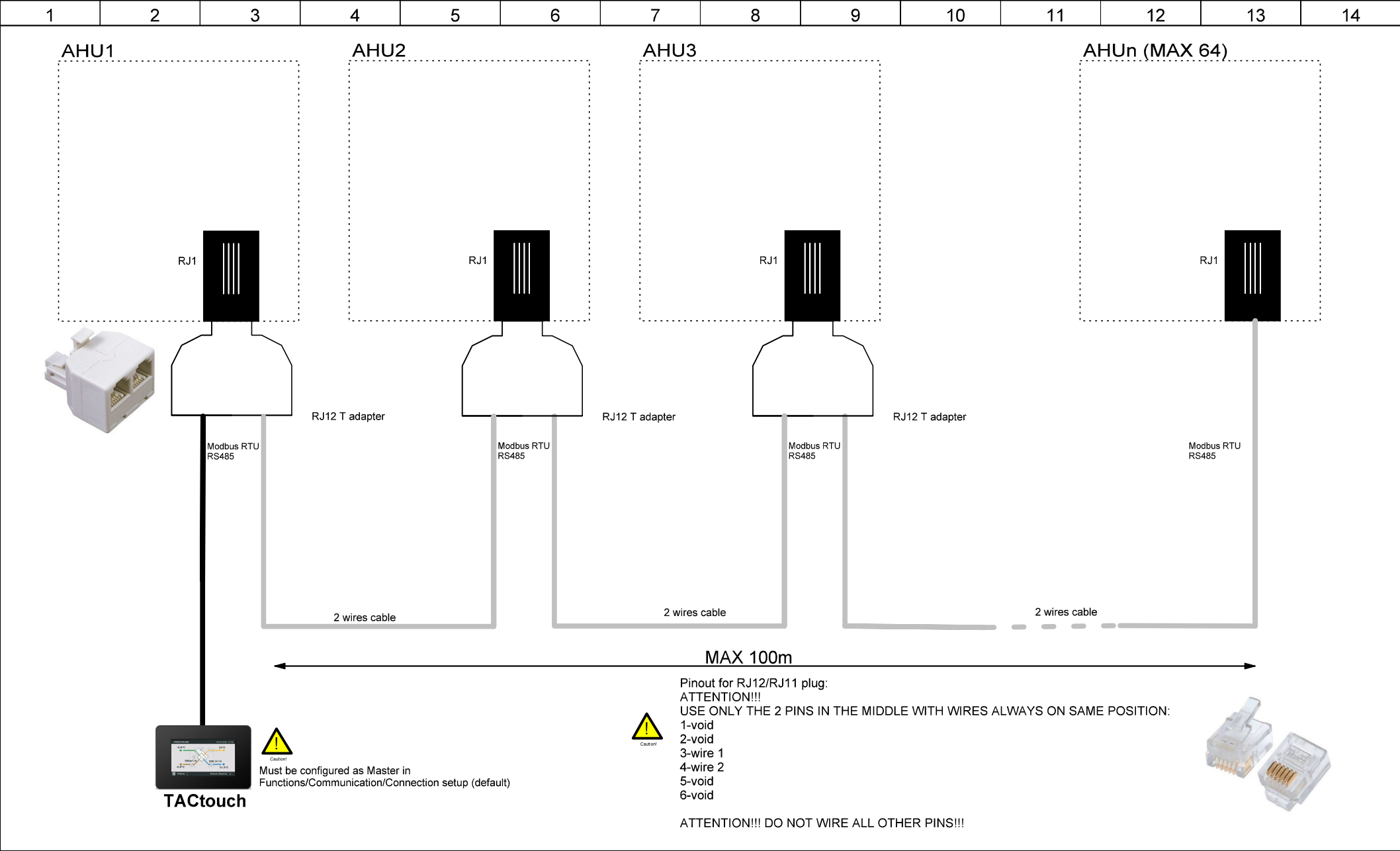
Changes			Name	Date	Configuration of function:	Page
Name	Date	Draw.:	ola	04/10/2024		26
		check.:				
		Norm:				
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Application: Circulator pump (with hydraulic coils)	of 38



Changes			Name	Date	Configuration of function:	Page
Name	Date	Draw.:	msg	17/10/2024		28
		check.:				
		Norm:			Application: KNX	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



Changes			Name	Date	Configuration of function: Function Communication/Connection Setup Function Network	Page
Name	Date	Draw.:	msg	17/10/2024		30
		check.:				
		Norm:			Application: TACtouch centralised	of 38
Subject:	SERENITY_Wiring TAC7 20260528.spl7					



Changes			Name	Date	Configuration of function: Function Communication/Connection Setup Function Network	Page
Name	Date	Draw.:	msg	17/10/2024		31
		check.:				
		Norm:			Application: TACtouch centralised short	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7					38

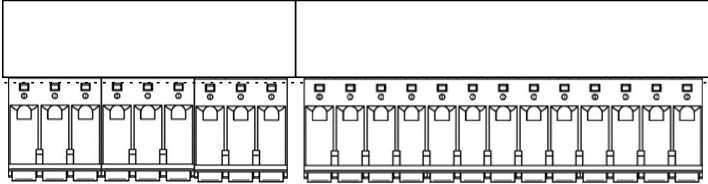
CB4 TAC7
CID 026007



RJ2

+24 +24 +24 GND GND GND +12 +12 +12

DO11 DO10 DO9 DO8 DO7 T5 K1 K2 K3 IN1 IN2 IN3 AO4



+24 +24 +24 GND GND GND +12 +12 +12

DO11 DO10 DO9 DO8 DO7 T5 K1 K2 K3 IN1 IN2 IN3 AO4

RJ1
USB master



TACsimulator V2

Section Communication/Connection Setup/
Parameters:

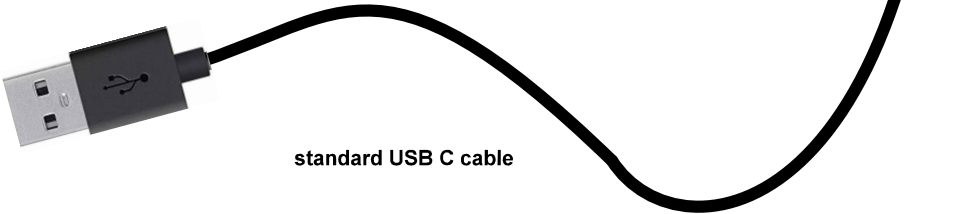
Modbus Type	RTU
COM Port	COMx
Baudrate	38400
Parity and Stop bits	None 2 STOP BITS
Modbus Master	Yes
TAC Modbus address	1



Select the COM port
to which the USB-C
cable is connected

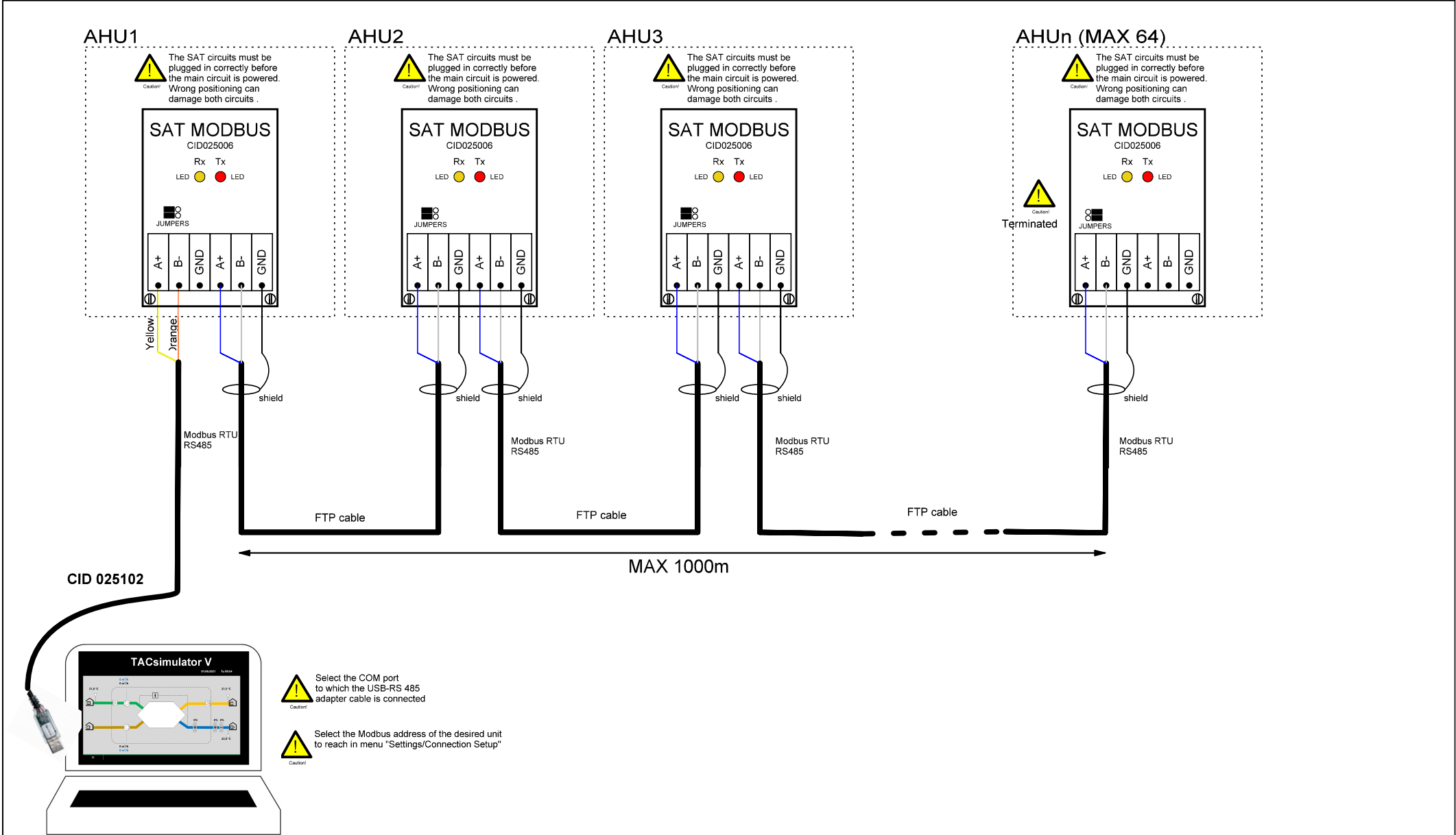


Once setup is changed,
Press "RESET COM" at the
end of this menu to
validate the change

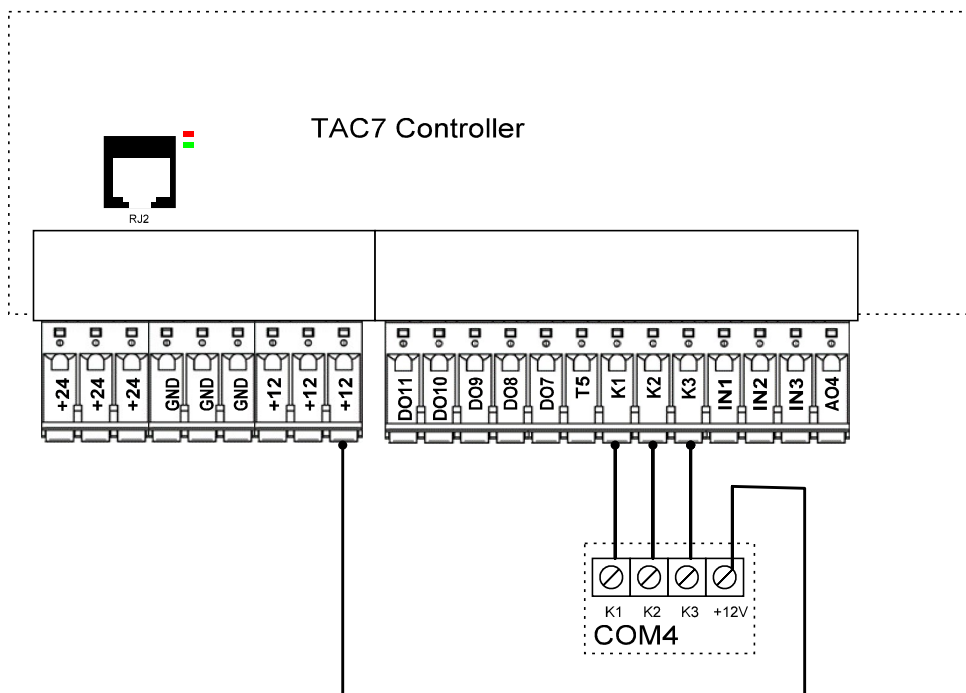


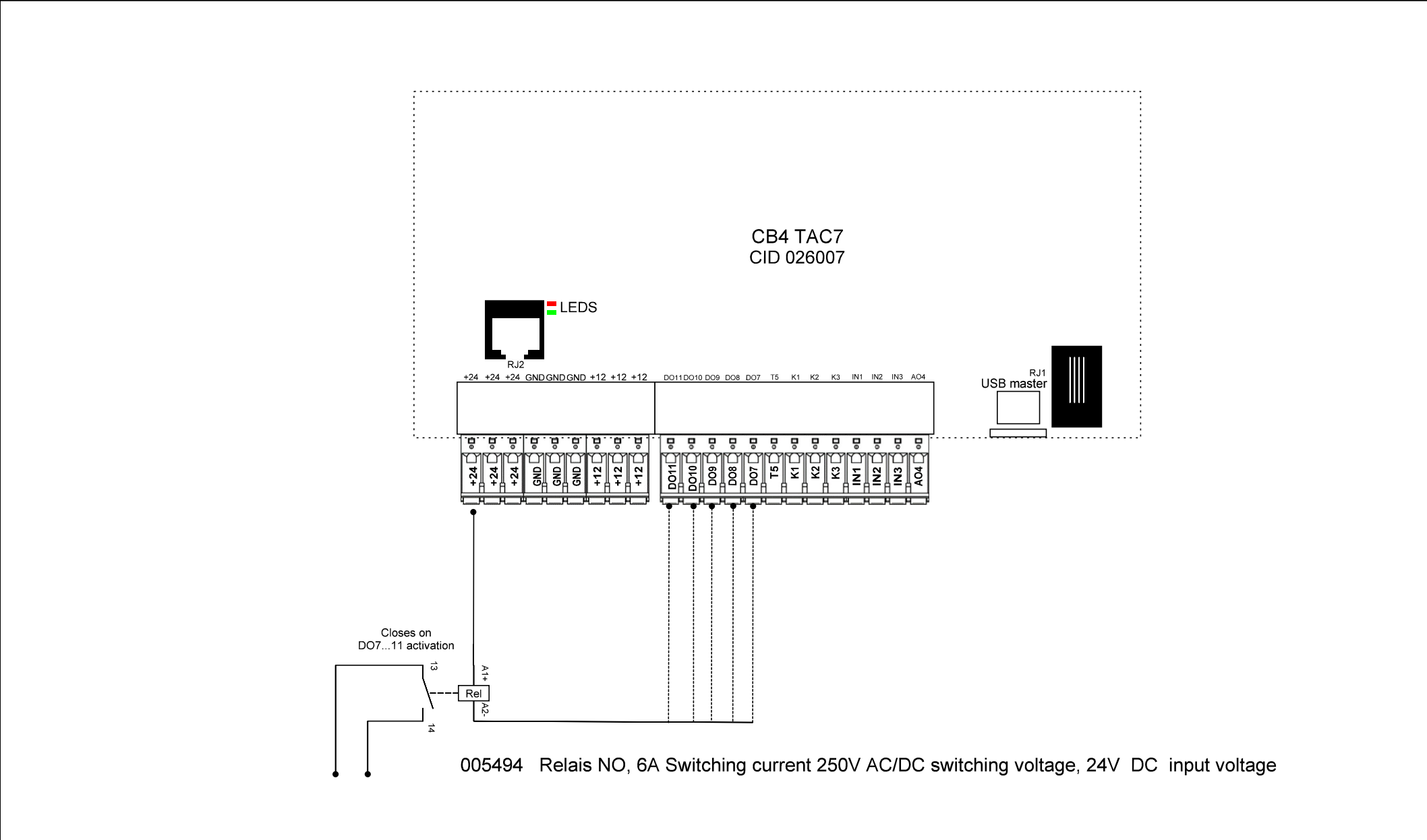
standard USB C cable

Changes			Name	Date	From version TAC7 v1.0.10.66	Page
Name	Date	Draw.:	msg	06/05/2025		32
		check.:				
		Norm:			Application: Software HMI+USB C	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7					38



Changes			Name	Date	Configuration of function:	Page
Name	Date	Draw.:	msg	17/10/2024		33
		check.:				
		Norm:			Application:	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Soft HMI centralised	38





Changes			Name	Date	Configuration of function:	Page
Name	Date	Draw.:	ola	04/10/2024		35
		check.:				
		Norm:			Application:	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Output Relay 1x	38

SAT RELAY CONFIGURATION

Section Inputs/Outputs / Settings / Parameters:

User Digital I/O Mapping

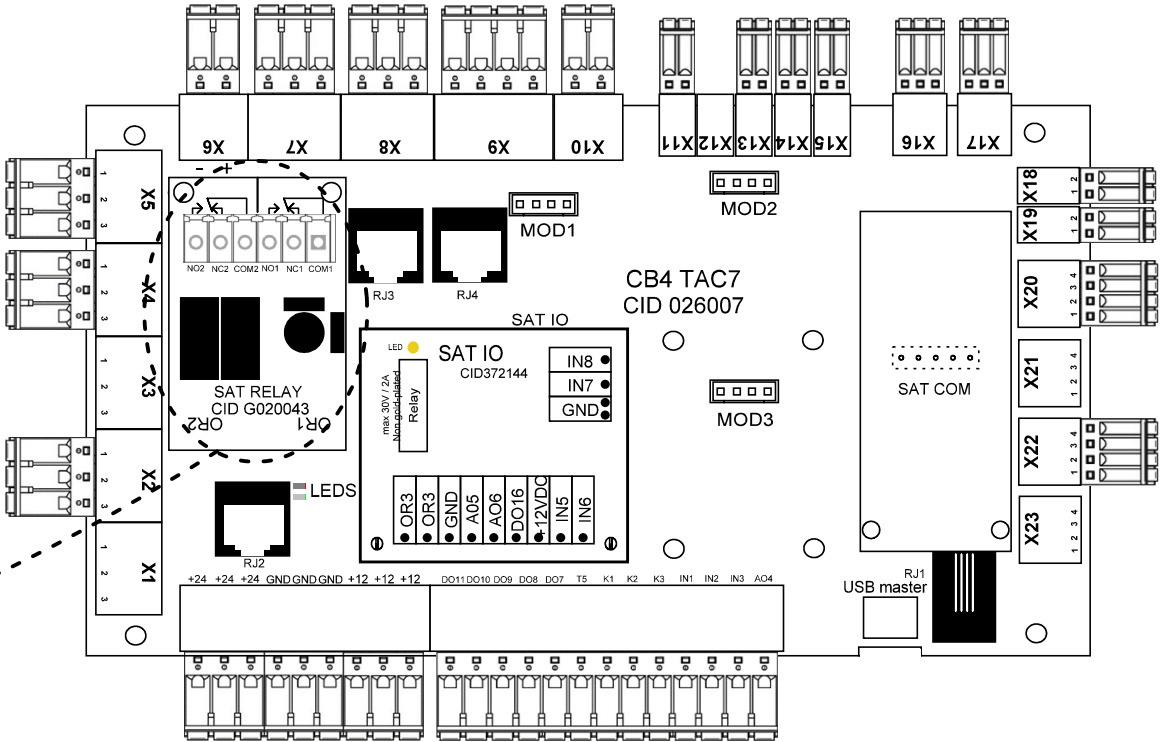
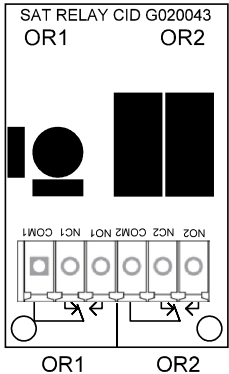
ON

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



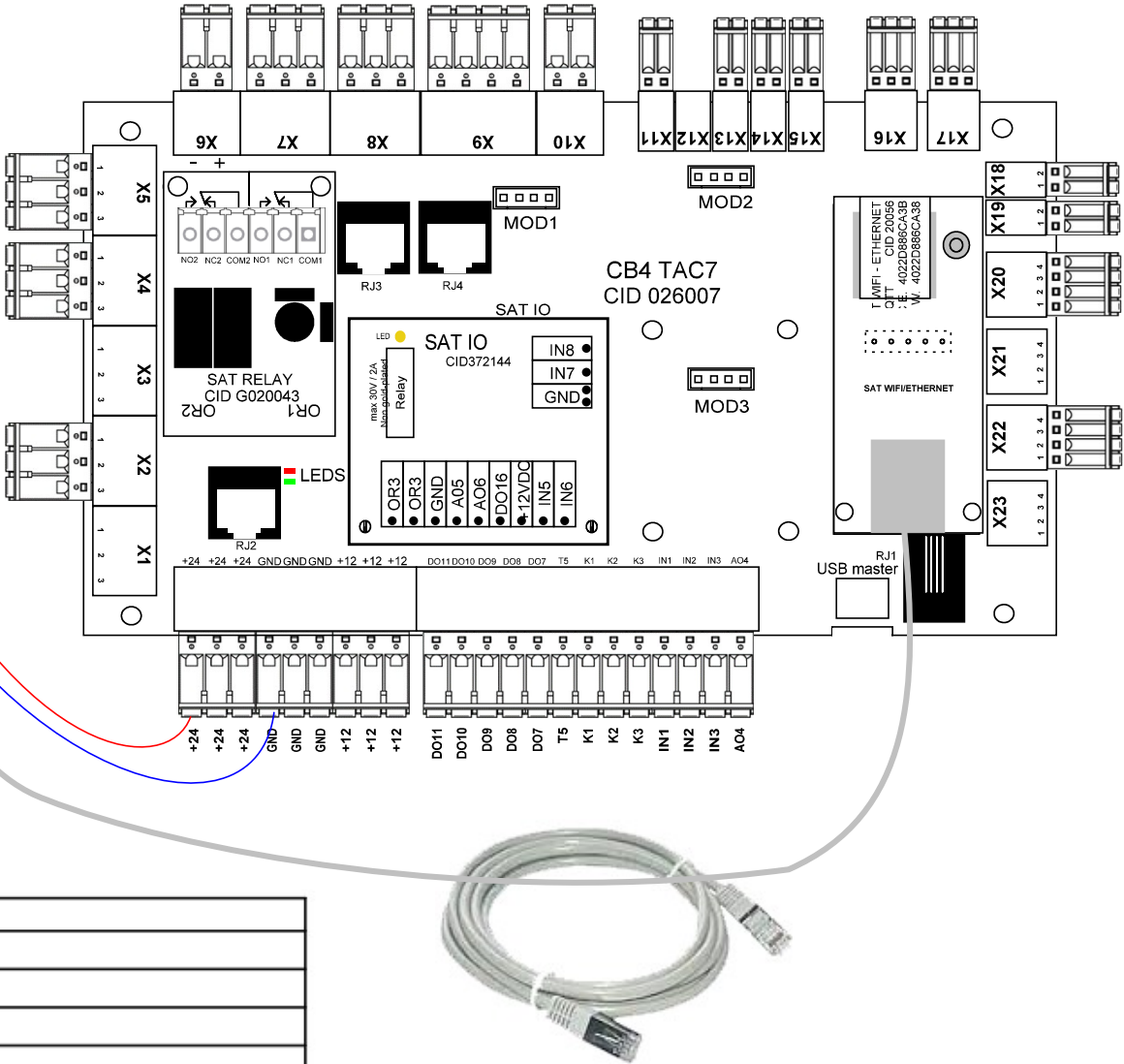
Changes			Name	Date	Configuration of function: SAT RELAY OR1 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC SAT RELAY OR2 – relay SPDT (COM + NC/NO) – max 0,5A 30V DC See * here above for settings	Page
Name	Date	Draw.:	msg	17/10/2024		37
		check.:			Application: SAT RELAY	of 38
		Norm:				
Subject:		SERENITY_Wiring TAC7 20260528.spl7				

Label	CID
INSIDE Connect, fitted in electrical cabinet	883819
INSIDE Connect, delivered loose (no PSU)	883820
INSIDE External antenna-a-15	883821
INSIDE External antenna-a-30	883822

IP65

External antenna-a-30

1,5 / 3 m



DHCP	Off
IP address	169.254.235.1
Netmask	255.255.255.248
Default gateway	169.254.235.6
Primary DNS	8.8.8.8

Changes			Name	Date	Configuration of function: Function/Communication/Configuration of SAT LAN See settings in table here above	Page
Name	Date	Draw.:	msg	30/09/2025		38
		check.:				
		Norm:			Application:	of
Subject:	SERENITY_Wiring TAC7 20260528.spl7				Cloud+4G router	38