






WIRING DIAGRAM MURAL 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 class B or B+

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

Changes		Name	Date	Application: General	Page	
Name	Date	Draw.:	M.Sgreccia		08/03/2019	1
		check.:				
		Norm:			of 19	
Subject:	MURAL_Wiring TAC5 V2.spl7					

TAC5 Controller

Rx Tx
LED ● LED

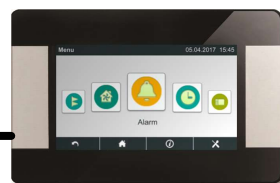


300mA B-Type
Residual current
circuit breaker



Blue
White
Black
Red

TACtouch

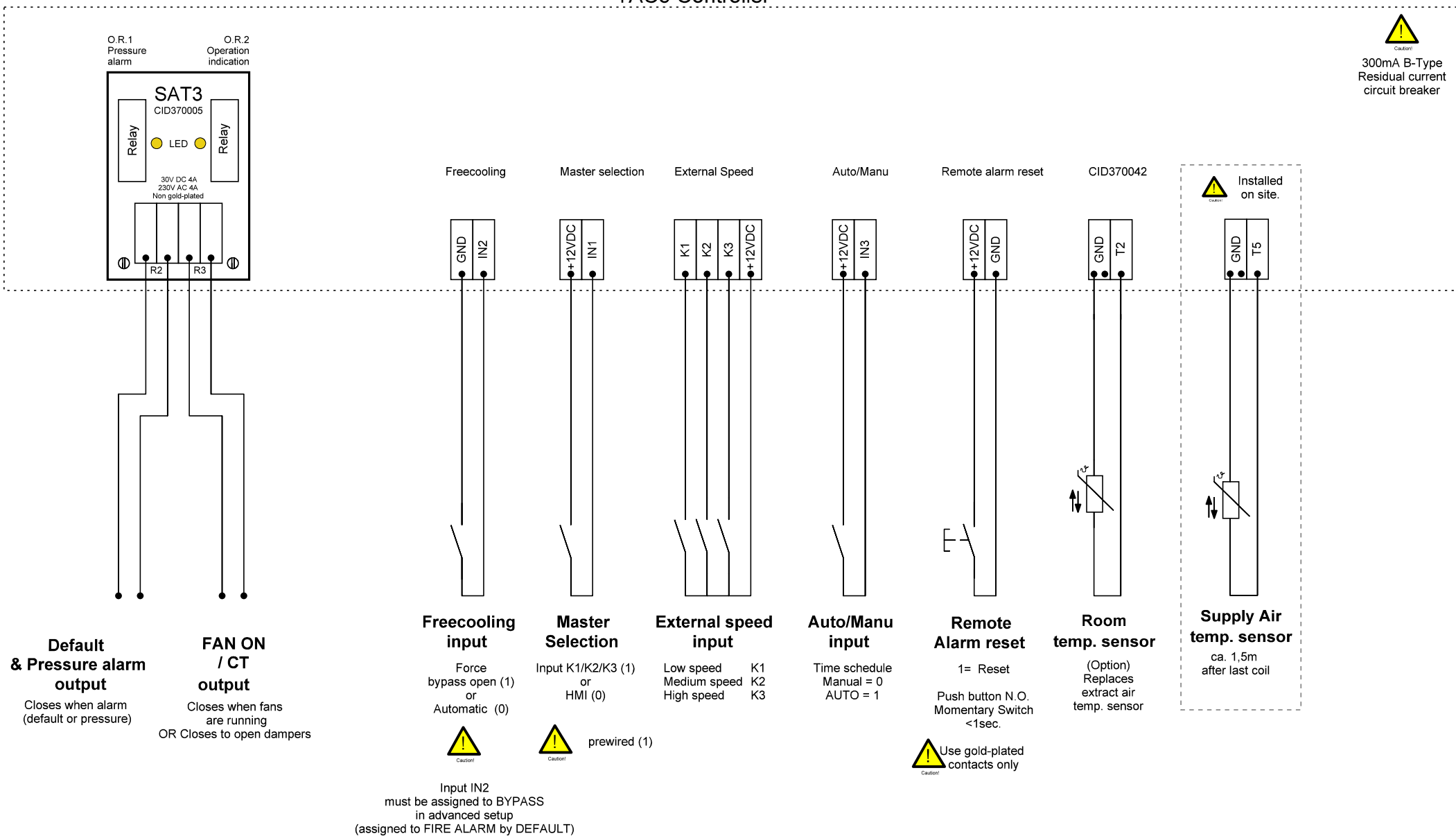


The cables used in the network must comply to the RS-485 standard with twisted pair conductors. The cables must be shielded. Conductor Area >0.2 mm². The total length must not exceed 100 meters.

Changes

Changes		Name	Date	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019	2
		check.:		
		Norm:		
Subject:	MURAL_Wiring TAC5 V2.spl7		Application: TACtouch	of 19

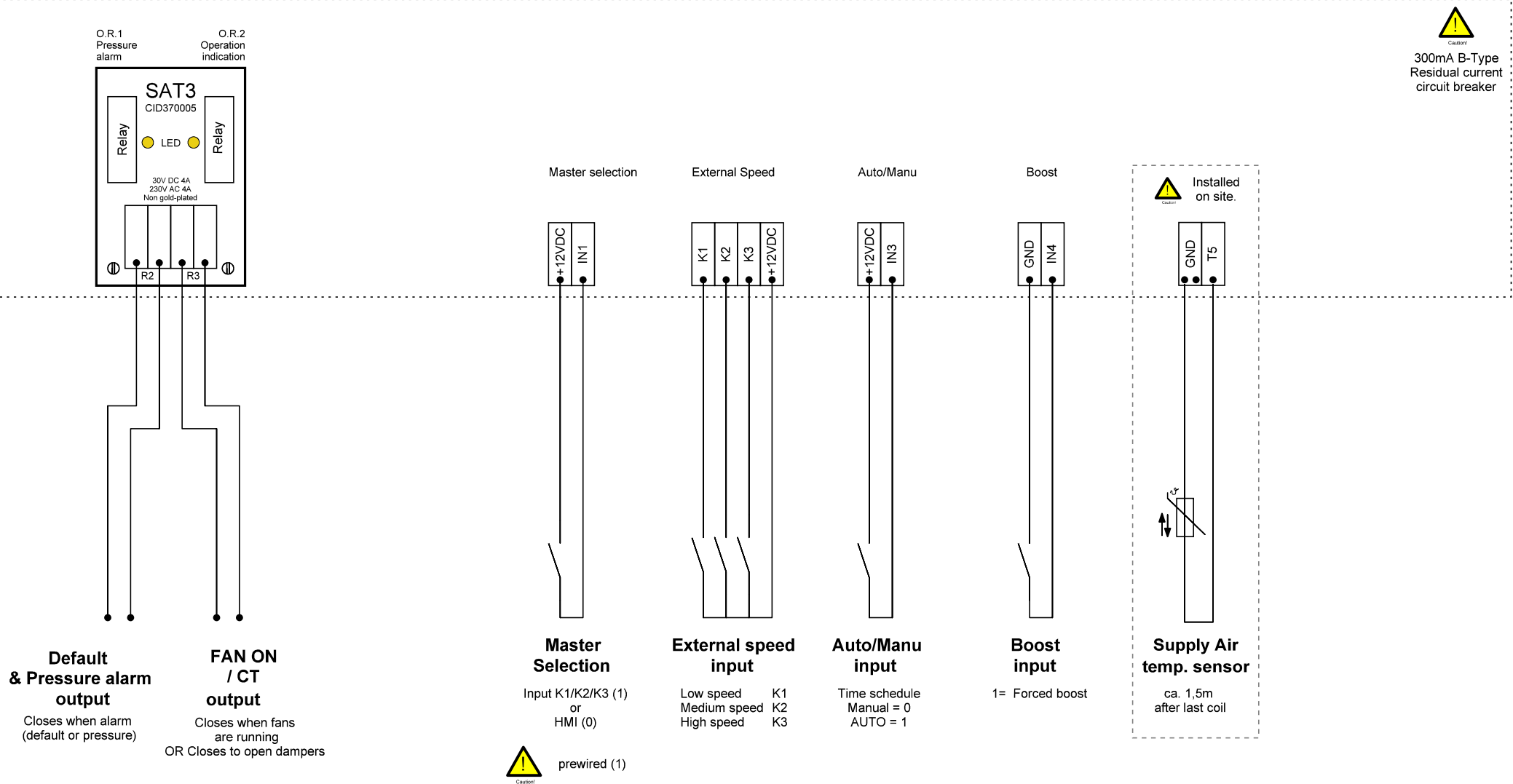
TAC5 Controller



Changes

Changes		Name	Date	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019	3
		check.:		
		Norm.:		
Subject:	MURAL_Wiring TAC5 V2.spl7			of 19
Application: Main Controller TAC5				

TAC5 Controller



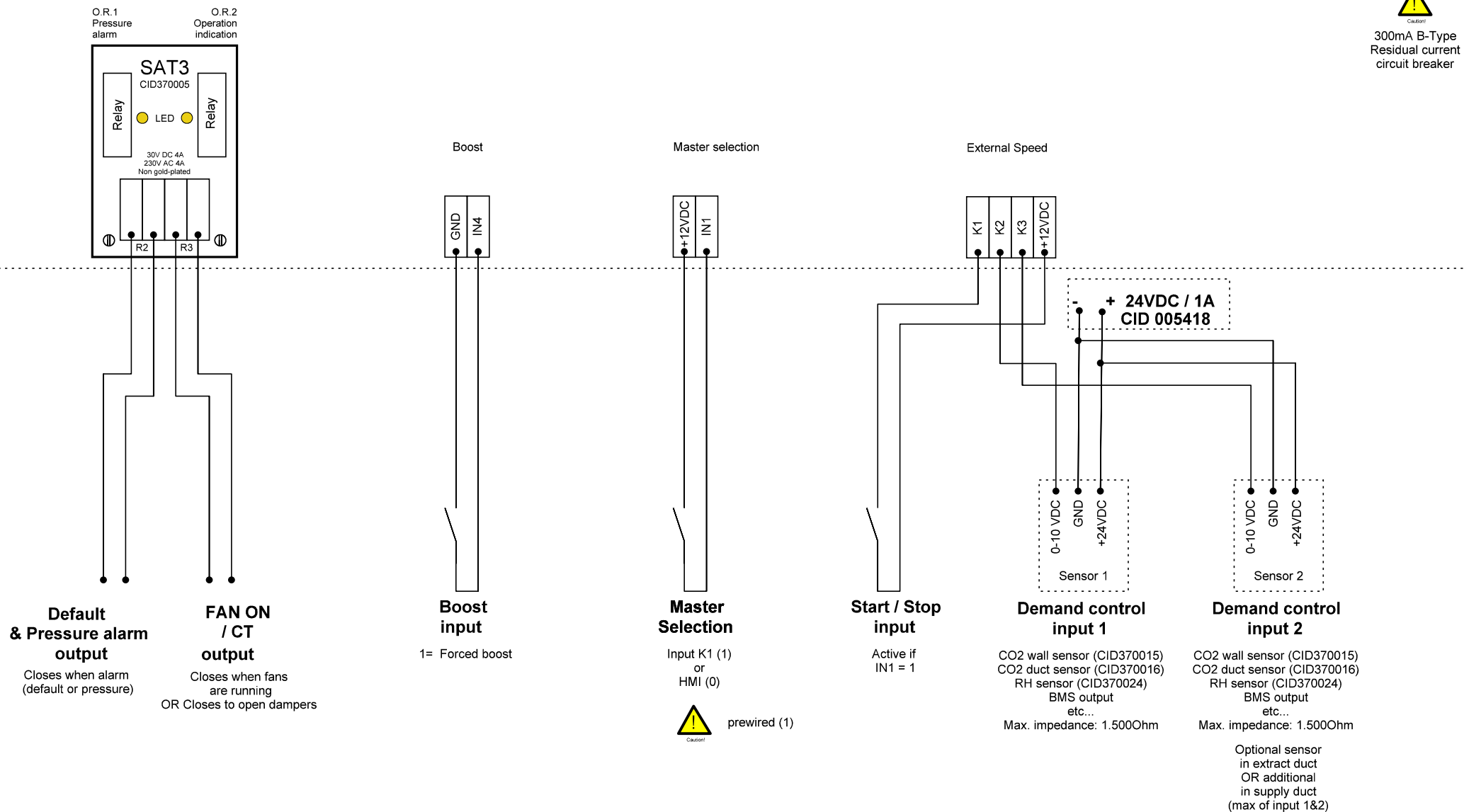
Changes

Changes		Name	Date	Configuration of function: Basic setup / Air flow regulation / Constant pressure	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		Application: Constant airflow
		check.:		of	
Subject:	MURAL_Wiring TAC5 V2.spl7	Norm:		19	

TAC5 Controller



300mA B-Type
Residual current
circuit breaker



Changes

Changes		Name	Date	Configuration of function: Basic setup / Air flow regulation / Demand control	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		5
		check.:			
		Norm:		Application: Demand control	of
Subject:	MURAL_Wiring TAC5 V2.spl7				19

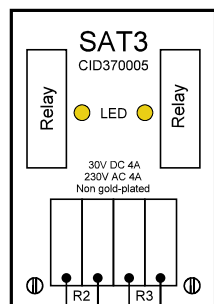
TAC5 Controller



300mA B-Type
Residual current
circuit breaker

O.R.1
Pressure
alarm

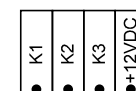
O.R.2
Operation
indication



Pressostat input

Master selection

External Speed



Default & Pressure alarm output

Closes when alarm
(default or pressure)

FAN ON / CT output

Closes when fans
are running
OR Closes to open dampers

Pressostat input

External pressostat
for filter
clogging



Input IN2
must be assigned to Pa ALARM
in advanced setup
(assigned to FIRE ALARM by DEFAULT)

Master Selection

Input K1 (1)
or
HMI (0)



prewired (1)

Start / Stop input

Active if
IN1 = 1

Supply air pressure sensor

Analogue sensor
0-10VDC



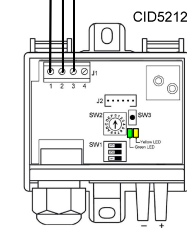
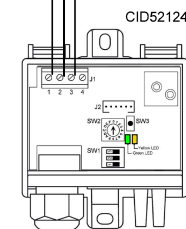
Exhaust air pressure sensor
when CP on Exhaust
is configured



Exhaust air pressure sensor

Analogue sensor
0-10VDC

Only when CP on
Supply+Exhaust
is configured



+ 24VDC / 1A
CID 005418

GREEN LED ON: OK
GREEN LED Flashing: Pressure outside of set range
GREEN LED OFF: No power supply

YELLOW LED ON: >50Pa
YELLOW LED Flashing: Calibration
YELLOW LED OFF: <50Pa

Position switch SW2:
0... +100Pa: 1
0... +150Pa: 2
0... +300Pa: 3
0... +500Pa: 4

Changes

Name

Date

Draw.:

Name

Date

check.:

Norm.:

MURAL_Wiring TAC5 V2.spl7

Configuration of function:

Basic setup / Air flow regulation

Application:

Constant pressure

Page

6

of

19

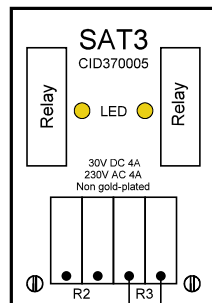
TAC5 Controller



300mA B-Type
Residual current
circuit breaker

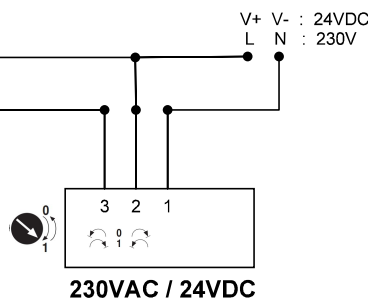
O.R.1
Pressure
alarm

O.R.2
Operation
indication



CT OUTPUT

When dampers
are configured
as present,
this output is
assigned to
dampers
opening/closing



Changes

Changes		Name	Date	Configuration of function: Basic setup	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		
		check.:			
		Norm:		Application: Motorised damper	of 19
Subject:	MURAL_Wiring TAC5 V2.spl7				

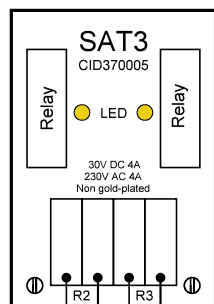
TAC5 Controller



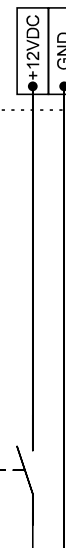
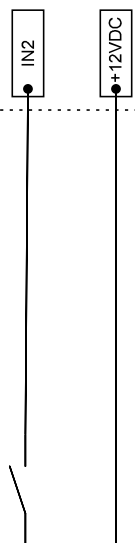
300mA B-Type
Residual current
circuit breaker

O.R.1
Pressure
alarm

O.R.2
Operation
indication



Remote alarm reset



**Default
& Pressure alarm
output**

Closes when alarm
(default or pressure)

**FAN ON
/ CT
output**

Closes when fans
are running
OR Closes to open dampers

**External fire
alarm**

N.O.
Configurable in
advanced setup



Input IN2
must NOT be assigned to Pa ALARM
neither to BYPASS
in advanced setup
(assigned to FIRE ALARM by DEFAULT)

**Remote
Alarm reset**

1= Reset

Push button N.O.
Momentary Switch
<1sec.



Use gold-plated
contacts only

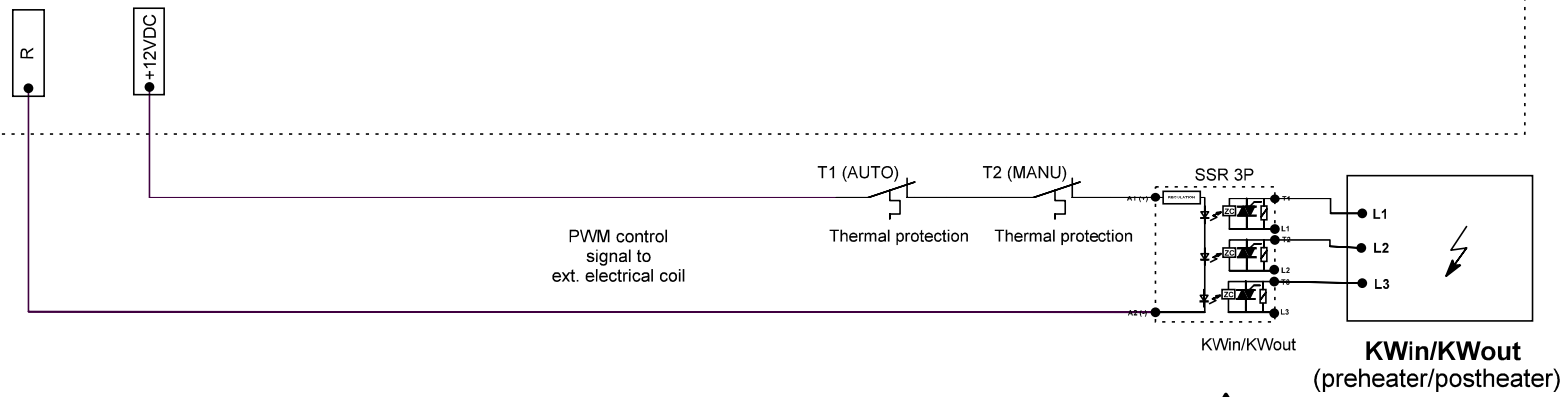
Changes

Changes		Name	Date	Configuration of function: Basic setup/Fire alarm	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		8
		check.:			
Subject:	MURAL_Wiring TAC5 V2.spl7	Norm:		Application: Fire alarm	of 19

TAC5 Controller



300mA B-Type Residual current circuit breaker



SSR (solid state relay) and coil are 2P monophase for MURAL size under 1200

Changes		Name	Date	Configuration of function: Advanced setup / Internal coils / Electric heater	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		9
		check.:			
		Norm:		Application: Electrical (pre/post) heater	of 19
Subject:	MURAL_Wiring TAC5 V2.spl7				

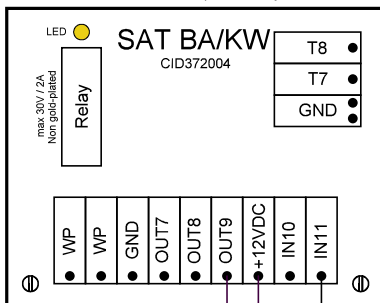
TAC5 Controller



The SAT circuits must be plugged in before the circuit is powered. The SAT must be plugged in correctly, wrong positioning can damage both circuits permanently.



300mA B-Type Residual current circuit breaker

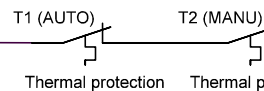


In case there is no preheater, follow diagram in sheet Electrical (pre/post) heater

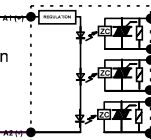
PWM control signal to ext. electrical coil

Heat Stop

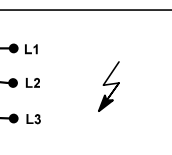
1=Heating OFF
0=Heating ON



SSR 3P



KWout



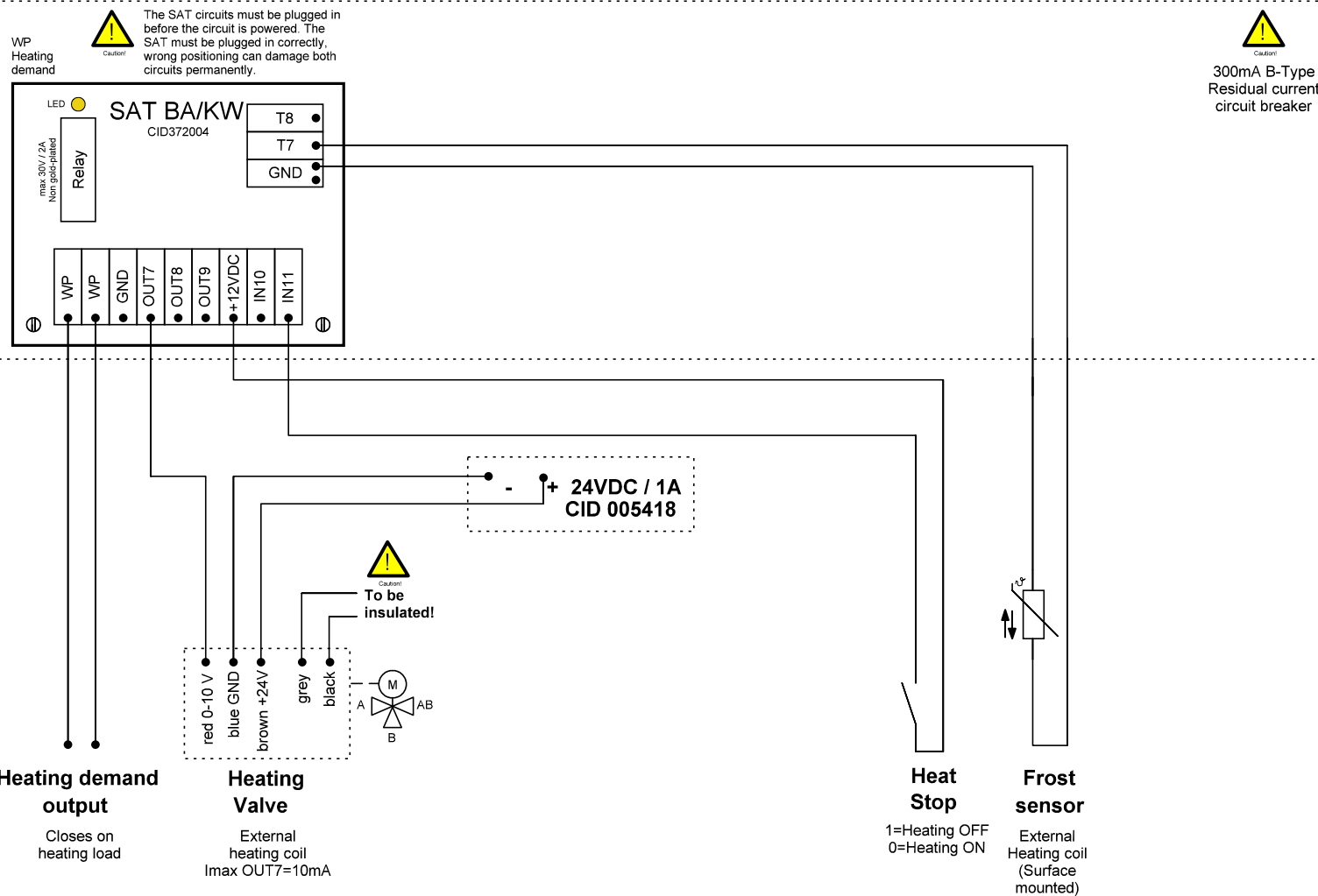
KWout
(postheater)



SSR (solid state relay) and coil are 2P monophas for MURAL size under 1200

Changes		Name	Date	Configuration of function: Advanced setup / External coils / Electric (PWM)	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		Application: External elec. postheating
		check.:		of	
Subject:	MURAL_Wiring TAC5 V2.sp17			19	

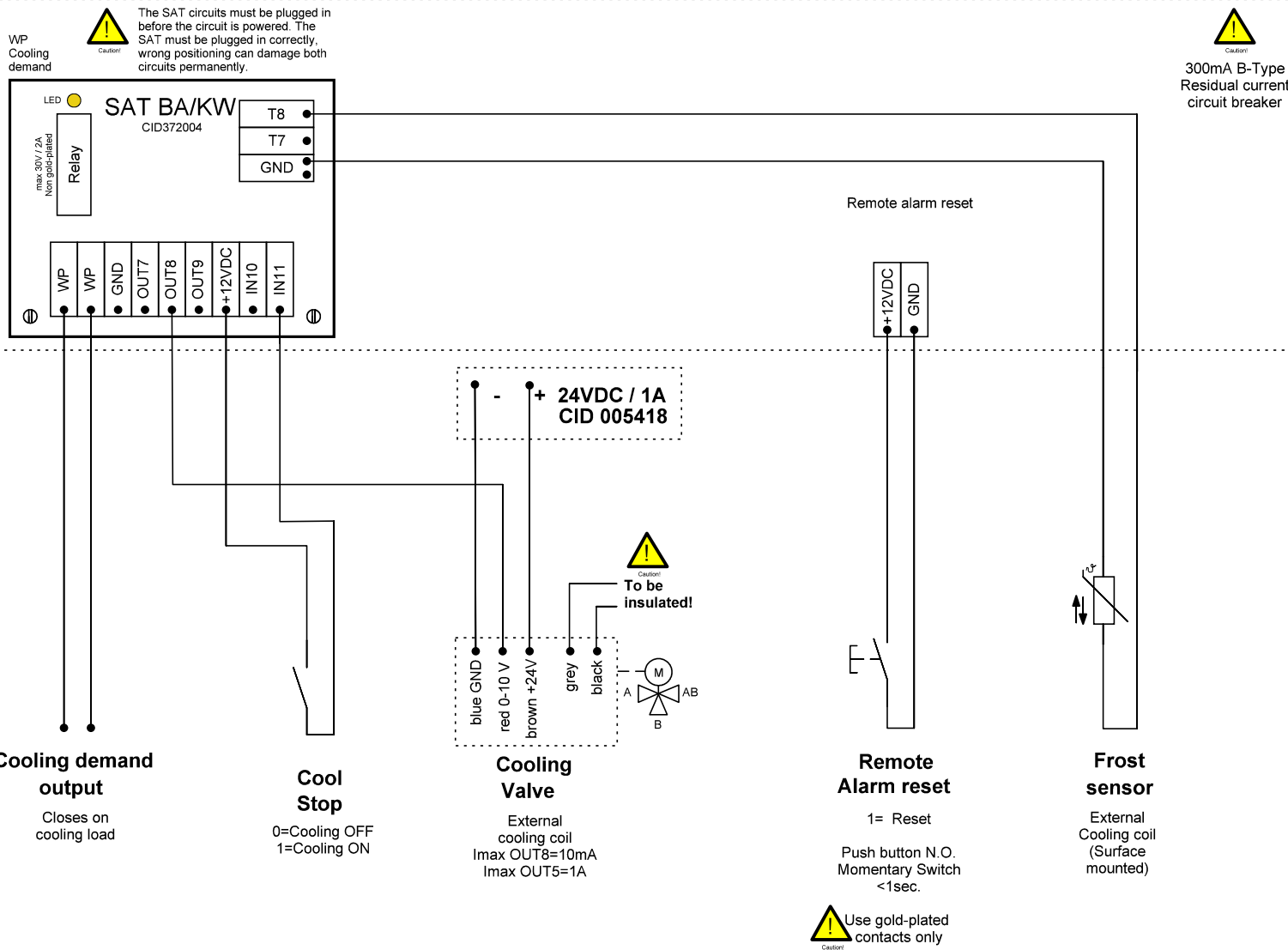
TAC5 Controller



Changes

Changes		Name	Date	Configuration of function: Advanced setup / External coils / Hot water	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		11
		check.:			
		Norm:			
Subject:	MURAL_Wiring TAC5 V2.spl7			Application: External hydr. heating coil	of 19

TAC5 Controller

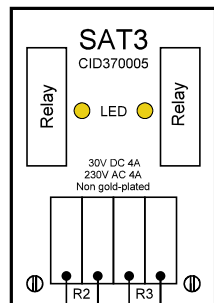


Caution! Use gold-plated contacts only

Changes		Name	Date	Configuration of function: Advanced setup / External coils / Cooling	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		
		check.:			
		Norm:			
Subject:	MURAL_Wiring TAC5 V2.spl7			Application: External cooling coil	of 19

O.R.1
Pressure
alarm

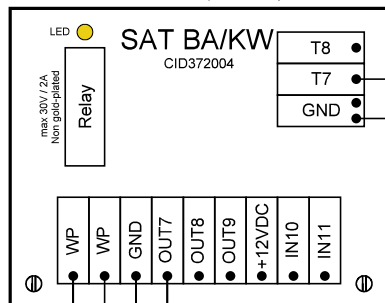
O.R.2
Operation
indication



The SAT circuits must be plugged in before the circuit is powered. The SAT must be plugged in correctly, wrong positioning can damage both circuits permanently.



300mA B-Type
Residual current
circuit breaker



10k
Ohm

Default & Pressure alarm / Heating demand output

Closes when alarm (default or pressure) OR Closes when in heating demand

FAN ON / CT / Heating demand output

Closes when fans are running OR Closes to open dampers OR Closes when in heating demand

Cooling demand output

Closes on cooling load



WP contact can be used in alternative for heating indication (open) and cooling indication (closed) (this logic can be inverted in advanced setup)

Capacity output

0-10VDC output for capacity control
Imax OUT7=10mA

Frost sensor

Sensor to be replaced with 10kOhm resistance if frost protection is not needed

Changes

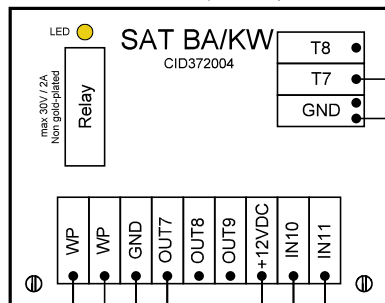
Changes		Name	Date	Configuration of function: Advanced setup / External coils / Reversible	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		Application: Change over / Master
		check.:		of	
Subject:	MURAL_Wiring TAC5 V2.spl7				



The SAT circuits must be plugged in before the circuit is powered. The SAT must be plugged in correctly, wrong positioning can damage both circuits permanently.



300mA B-Type Residual current circuit breaker



Heating/Cooling demand output

Closes on heating/cooling load

Capacity output

0-10VDC output for capacity control
Imax OUT7=10mA

Cooling input

Close to deactivate cooling

Heat/Cool input

1=Cooling
0=Heating

Frost sensor

Sensor to be replaced with 10kOhm resistance if frost protection is not needed

10k Ohm

Changes

Name	Date	Draw.:	M.Sgreccia	Date	08/03/2019
		check.:			
		Norm:			

Subject: MURAL_Wiring TAC5 V2.spl7

Name

Date

Configuration of function:

Advanced setup / External coils / Reversible

Page

14

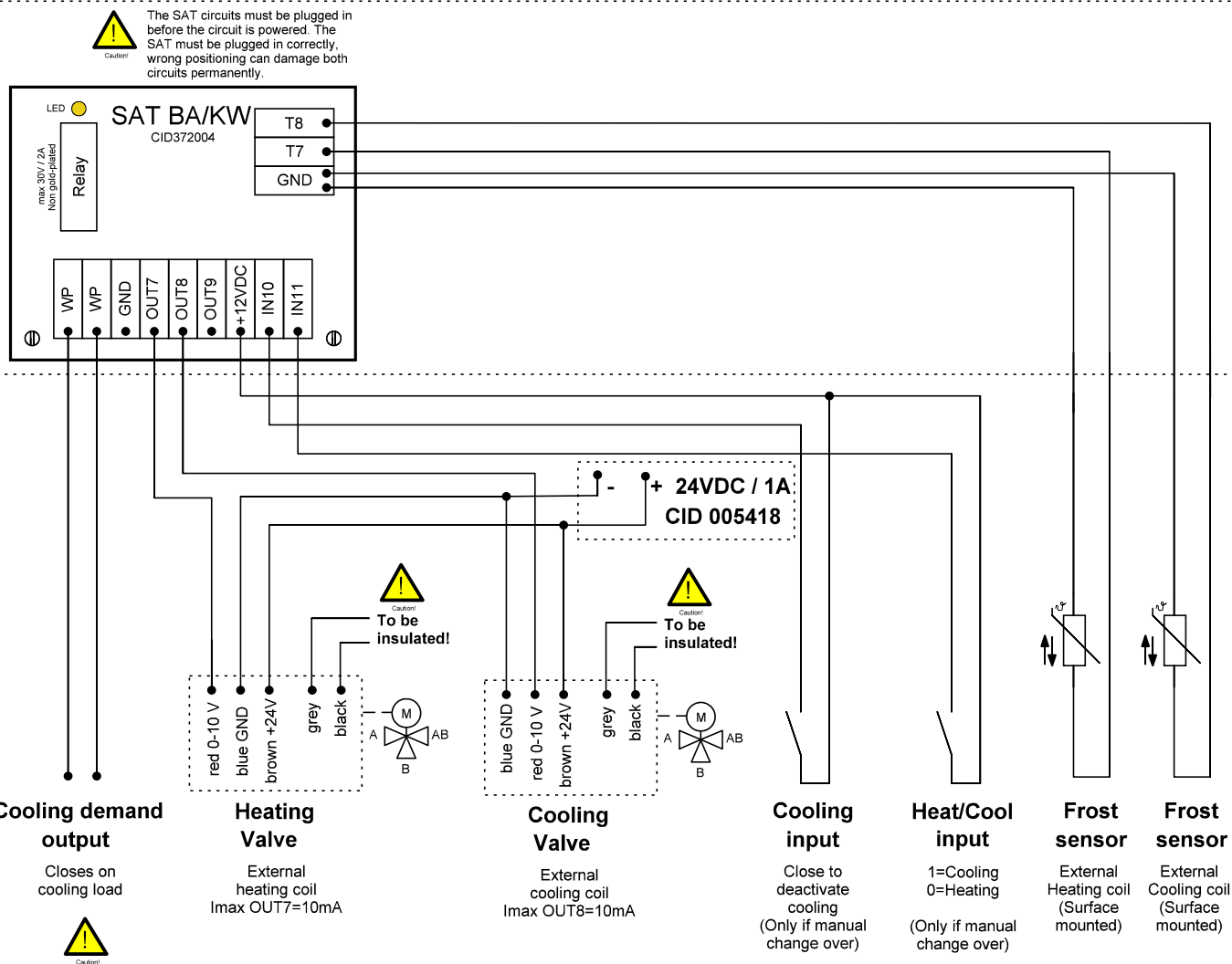
Application:

Change over / Slave

of

19

TAC5 Controller



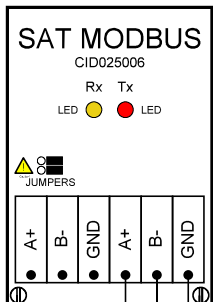
in case of automatic changeover between heating and cooling, WP contact can be used in alternative to heating indication (open) and cooling indication (closed) (this logic can be inverted in advanced setup)

Changes

Changes		Name	Date	Configuration of function: Advanced setup / External coils / Hot water + Cold water	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		Application: Ext. heating & Ext. Cooling
		check.:		of	
		Norm.:		19	
Subject:	MURAL_Wiring TAC5 V2.spl7				

AHU1

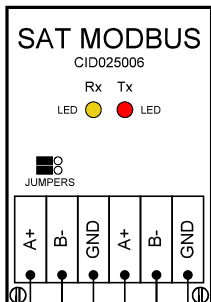
Caution!
 The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits.



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.

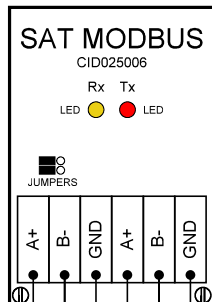


Modbus RTU RS485

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 mm² to 0.50mm². The total length must not exceed 1.000 meters.


Changes			Name	Date	Configuration of function: Advanced setup	Page
Name	Date	Draw.:	M.Sgreccia	08/03/2019		16
		check.:				
		Norm:			Application: Modbus RTU	of
Subject:	MURAL_Wiring TAC5 V2.spl7					19


AHU1

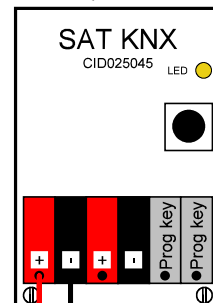
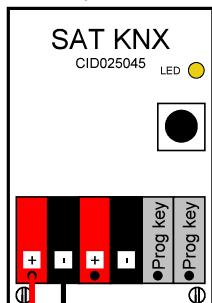
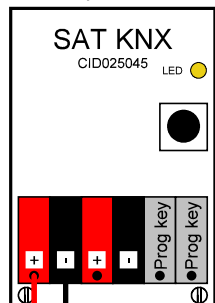
AHU2

AHU3...AHU64

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

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Changes		Name	Date	Configuration of function: Advanced setup	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		17
		check.:		Application: KNX	of
Subject:	MURAL_Wiring TAC5 V2.spl7	Norm:			19

AHU1

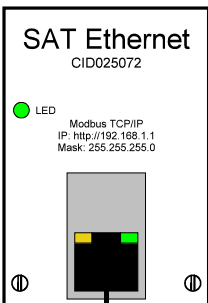
AHU2

AHU3

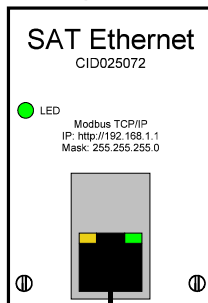
AHU4



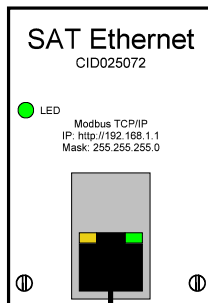
The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



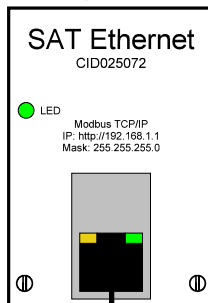
The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



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



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

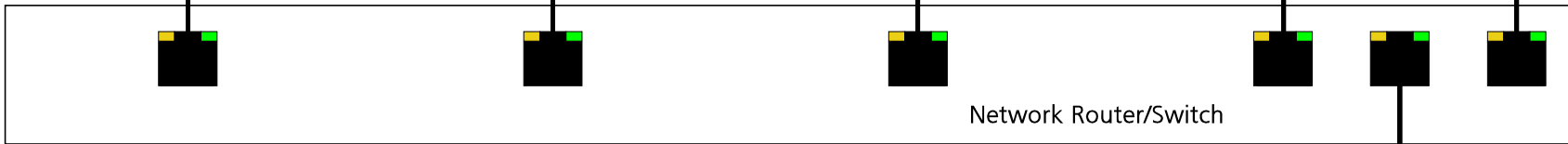


Power supply: 8...24VAC 12...35VDC



LED1: ON
LED2: BACnet communication
LED3: Device state
LED4: Modbus communication

LED5: Not used
LED6: Not used
LED7: Not used



BACnet To BMS

Changes		Name	Date	Configuration of function: Advanced setup	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		18
		check.:		Application: BACnet	of
Subject:	MURAL_Wiring TAC5 V2.spl7				19

AHU1

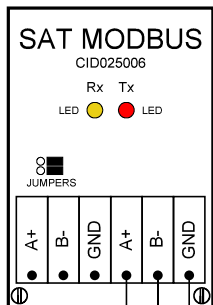
AHU2

AHU3

AHU4



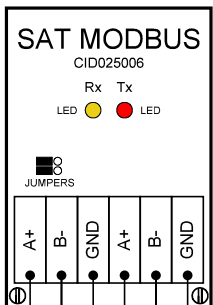
The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



Modbus RTU RS485



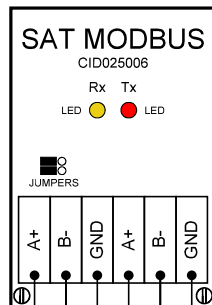
The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



Modbus RTU RS485



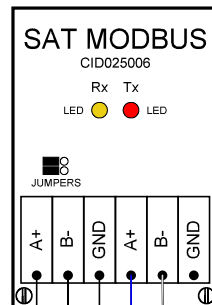
The SAT circuits must be plugged in correctly before the main circuit is powered. Wrong positioning can damage both circuits .



Modbus RTU RS485



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



Modbus RTU RS485



TACtouch

Changes		Name	Date	Configuration of function: Settings Menu/ TACtouch setup/TACtouch master Network menu	Page
Name	Date	Draw.: M.Sgreccia	08/03/2019		19
		check.:			
		Norm:		Application: TACtouch centralised	of
Subject:	MURAL_Wiring TAC5 V2.spl7				19