

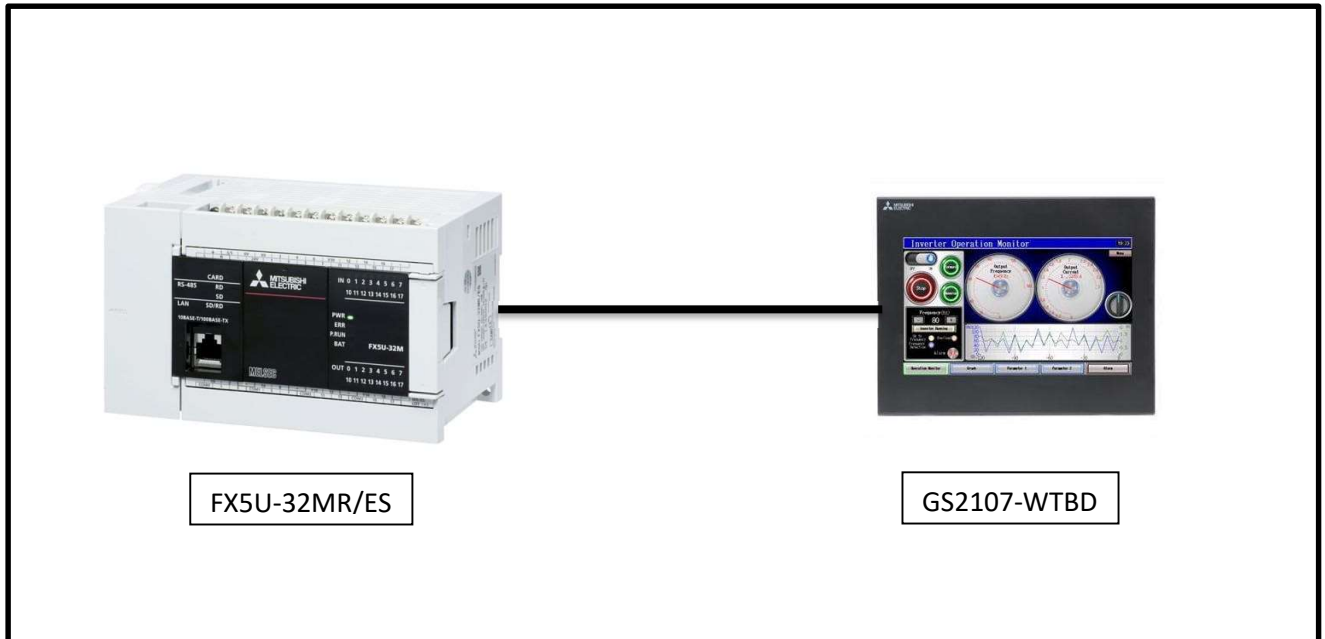
# DESIGN APPROVAL

<b>PROJECT</b>	COLLAR HEATING MACHINE
<b>WORK ORDER NO.</b>	WFAP22241
<b>CUSTOMER</b>	BFL - MUNDHWA
<b>END USER</b>	BFL - MUNDHWA
<b>DAP DATE</b>	14/07/2022
<b>PLACE</b>	ONLINE
<b>ATTENDED BY(CUBIX)</b>	1) MR. SANJAY BANKAR 2) MR. MILIND TAWALE 3) MR. SANDEEP DHIWAR
<b>ATTENDED BY CUSTOMER)</b>	1) MR. RAHUL LALE 2) MR. NITIN KAMAT 3)

## INDEX

SR.NO.	CONTENTS	PAGE NO.	APPROVAL	REMARK
1	SYSTEM LAYOUT	03		
2	IO LIST	04-05		
3	OPERATION SEQUENCE	06		
4	ELECTRICAL ITEMS MAKE LIST	07		
5	SCOPE OF SUPPLY	08		
6	ELECTRICAL DRAWING	09-		

## 1 – SYSTEM LAYOUT



## 2 – IO LIST

COLLAR HEATING MACHINE					
DATE- 07.07.2022 REV. 1.0					
SR.NO.	PLC ADD.	DISCRIPTION	TYPE	COLOUR CODE	LOCATION
MAIN PLC FX5U-32M					
1	X00	EMERGENCY STOP	E STOP	RED	PANEL
2	X01	AUTO/MANUAL	SELECTOR SWITCH	BLACK	PANEL
3	X02	CYCLE START	PUSH BUTTON	GREEN	PANEL
4	X03	CYCLE STOP	PUSH BUTTON	RED	PANEL
5	X04	HEAT ON/OFF	SELECTOR SWITCH	BLACK	PANEL
6	X05	SLIDE MECH. SOL.ON	SELECTOR SWITCH	BLACK	PANEL
7	X06	TEMP. SENSOR SOL. ON	SELECTOR SWITCH	BLACK	PANEL
8	X07	INV. READY	FEEDBACK	NA	PANEL
9	X10	TEMPRETURE CONTROLLER	FEEDBACK	NA	PANEL
10	X11	DWRS PUMP ON/OFF	SELECTOR SWITCH	BLACK	PANEL & FIELD
11	X12	FAULT RESET	PUSH BUTTON	YELLOW	PANEL & FIELD
12	X13	SPARE	SPARE	SPARE	SPARE
13	X14	SPARE	SPARE	SPARE	SPARE
14	X15	SPARE	SPARE	SPARE	SPARE
15	X16	SPARE	SPARE	SPARE	SPARE
16	X17	SPARE	SPARE	SPARE	SPARE

COLLAR HEATING MACHINE					
DATE- 07.07.2022 REV. 1.0					
SR.NO.	PLC ADD.	DISCRIPTION	TYPE	COLOUR CODE	LOCATION
MAIN PLC FX5U-32M					
1	Y00	HEAT ON	RELAY	NA	PANEL (POT FREE)
2	Y01	SLIDE MECH. SOL.ON	RELAY	NA	PANEL
3	Y02	TEMP. SENSOR SOL. ON	RELAY	NA	PANEL
4	Y03	SPARE	SPARE	SPARE	SPARE
5	Y04	SPARE	SPARE	SPARE	SPARE
6	Y05	SPARE	SPARE	SPARE	SPARE
7	Y06	SPARE	SPARE	SPARE	SPARE
8	Y07	SPARE	SPARE	SPARE	SPARE
9	Y10	SPARE	SPARE	SPARE	SPARE
10	Y11	SPARE	SPARE	SPARE	SPARE
11	Y12	SPARE	SPARE	SPARE	SPARE
12	Y13	SPARE	SPARE	SPARE	SPARE
13	Y14	SPARE	SPARE	SPARE	SPARE
14	Y15	SPARE	SPARE	SPARE	SPARE
15	Y16	SPARE	SPARE	SPARE	SPARE
16	Y17	SPARE	SPARE	SPARE	SPARE

## 3 – OPERATION SEQUENCE

### 3.1 – MANUAL MODE

Manual Mode is for function check purpose. Operator can use manual mode for job adjustment and setting. Selector Switch should be on Manual.

- a) Coil Up/Down - Coil Up/Down Operation can be performed by selector switch provided.

### 3.2 AUTO MODE

#### Home condition

- Emergency Healthy
- Auto mode selected
- coil cyl. Output off
- Job Present

#### Auto Operation

Step 1 – If Home Condition ok, Operator presses 'Test Start' push button.

Step 2 – Coil Cylinder (Single Acting pneumatic cylinder) output gets on, coil gets down. This output remains on till cycle complete.

Step 3 – 'Heat On' Output will get on which switch on the potential free relay on.

This output on- off function is depend upon 'with heat /without heat' selector switch.

With heat – 'Heat On' output will get on.

Without heat – 'Heat On' output will remain off.

Step 4 – Pre-settable timer(seconds) will start. Time Can be settable from HMI.

Step 5 – After Timer Complete 'Heat On' and 'Coil Up/Down' output will get off.

Step 6 – Cycle Complete.

Step 7 – While Cycle is running and operator presses 'Test Stop' push button, step 5 gets executed.

Step 8 – If Cycle is running and operator presses 'Emergency' push button, step 5 gets executed.

## 4 – PART MAKE LIST

Part Make List		
Sr. No.	Part	Make
1	PLC	Mitsubishi
2	HMI	Mitsubishi
3	MCB	Mitsubishi
4	SMPS	Omron
5	Relay Board	Standard
6	Terminals	Phoenix
7	Control Cable for Inside Panel Wiring	Lapp
8	Control Panel	Eldon
9	E Stop,Lamp, Selector Switch & Push Buttons	Teknic
10	Mains On Off Switch	Salzer
11	Transformer	Chintamani
12	Utility Socket	Anchor
13	Tube Light 11 Watt	Hawells/Philips

## 5 – SCOPE OF SUPPLY

SR.NO.	ACTIVITY DESCRIPTION	SCOPE UNDER	REMARK
1	FA hardware	Cubix	
2	PLC program	Cubix	
3	HMI program	Cubix	
4	SCADA development	NA	
5	Control panel	Cubix	
6	Packing Charges Scope and Type	NA	
7	Forwarding Charges Scope	NA	
8	Freight Scope	NA	
9	Transit Insurance Scope	NA	
10	Loading Scope	Cubix	
11	Unloading Scope	BFL	
12	Electrical drawing	Cubix	
13	Field wiring materials	BFL	
14	Field wiring labour/work	BFL	
15	Field instruments	NA	
16	Removal of old panel	BFL	
17	Removal of old field wiring	BFL	
18	Installation & commissioning	BFL & Cubix	
19	Operator Training	Cubix	
20	Panel Shifting	BFL	
21	Lodging facility scope	NA	
22	Boarding scope	NA	
23	Travelling (To & From) scope	NA	
24	Meal Arrangements at site- Scope	NA	
25	Scope supply is restricted to material mentioned in quotation		
26	Sensor, actuator, encoders, transmitters, connectors, adapters, printer are not considered.		
27	Any civil / mechanical work at site not considered		
28	Accuracy of system is up to electronic control only & does not involve any mechanical consultation or adjustments.		
29	Any change in configuration will affect price.		
30	Unless otherwise mentioned, Field cabling and cables mounting, fixing of PLC's panels not included.		
31	Unless otherwise mentioned, control panel & incoming power cable is not included in the scope of supply.		
32	Consumables such as Ferrules, Lugs, labels are available at additional price		
33	Communication cables and Software can be supplied at an additional Price and Online training can be offered free by CAPL training division.		
34	CAPL team continuously updates with latest technologies and assures free Online support by Service team on products supplied.		



## 6 – ELECTRICAL DRAWING



CUBIX AUTOTMATION PVT LTD

Sr. No 25/5 Nanded Phata Singhad Road  
411041 PUNE  
Phone. 9689943321

Company / customer

Project description

Drawing number

Commission

BFL - MUNDHWA

Collar Heating Machine

W/FA/P22241

BFL - MUNDHWA

Manufacturer (company)

Path

Project name

Make

Type

Place of installation

Responsible for project

Part feature

CUBIX AUTOTMATION PVT LTD

Collar Heating Machine

Universal VESA

Indoor

Created on

18-03-2022

Edit date

14-07-2022

Number of pages

17

# Table of contents

Column X: An automatically generated page was edited

F06\_001

[illegible]

		Date	13-07-2022	BFL - MUNDHWA Collar Heating Machine			CUBIX AUTOTMATION PVT LTD	Table of contents : =CA1+EAA1/1 - =CA1+EAA1/17			= CA1	
	CHECKED	S.B.B.	Ed.								+ EAA1	
	DWG	P.M.R.	Appr									W/FA/P22241
Modification	Date	Name	Original		Replaced by	Replaced by				Page	57	





TAG.	DESCRIPTION
PLC	FX5U-32MR/ES
MCB -1	2P/4AMP
MCB -2	2P/4AMP
MCB -3	2P/2AMP
MCB -4	2P/6AMP
MCB -5	1P/6AMP
MCB -6	2P/10AMP
SMPS	5 AMP 24 VDC
RB1 &2	RELAY BOARD 8 CH
RL1	230VAC COIL RELAY
U/S	UTILITY SOCKET 5 AMP
F1	230 FUSE TERMINAL
TB4	24VDC BUS TERMINAL
TB5	AUX SUPPLY BUS TERMINAL
TB6	AUX SUPPLY BUS TERMINAL
TB7	FUTURE PROVISION TERMINAL
PTB1	POWER TERMINAL
TB1	INPUT TERMINAL
TB2	OUTPUT TERMINAL
PE	EARTHING BUS BAR

# CABLE COLOUR CODE

POWER	R	RED
	Y	YELLOW
	B	BLUE
	N	BLACK

230VAC POSITIVE	RED
230VAC NEGATIVE	BLACK

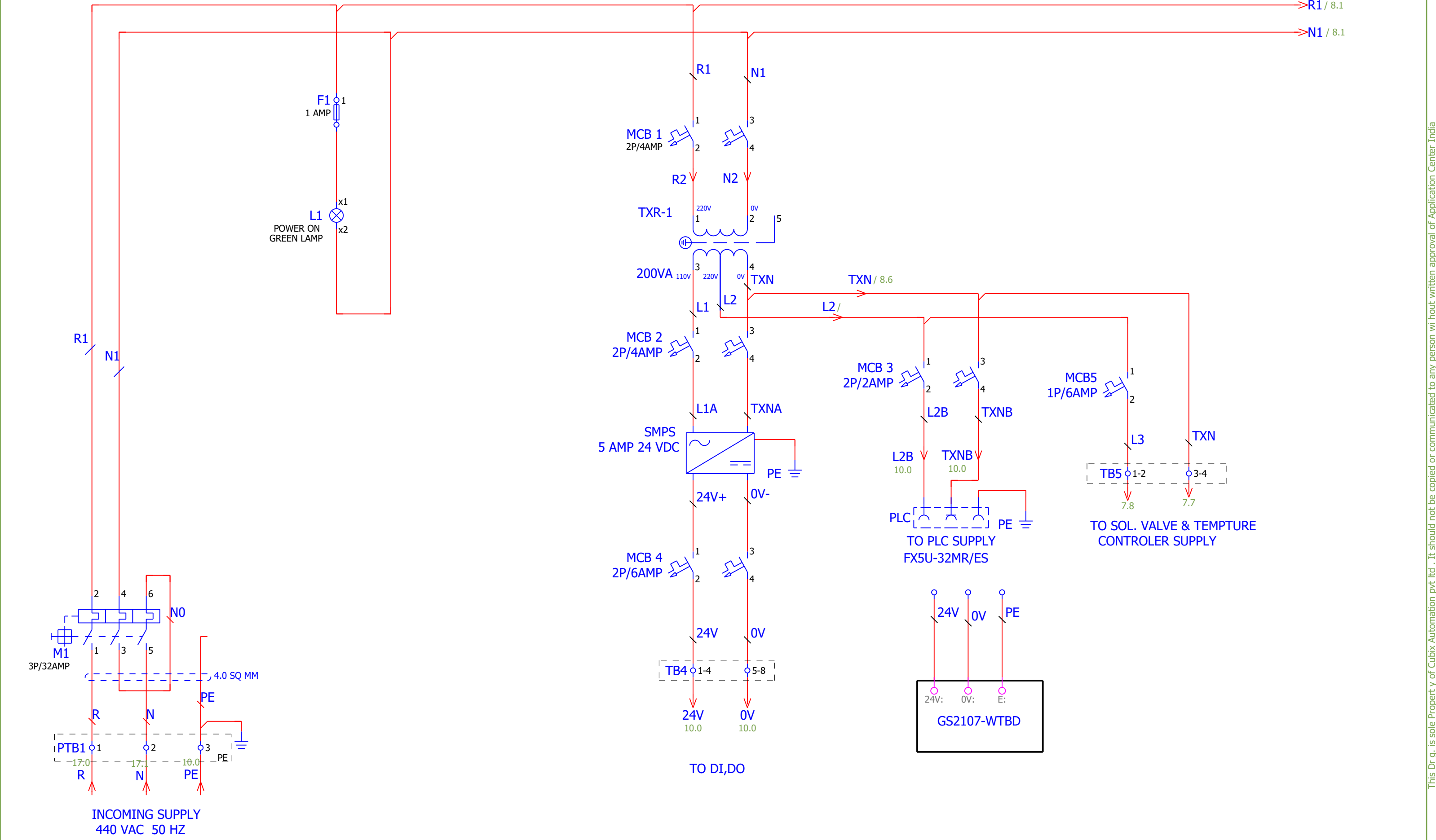
CONTROL POSITIVE	GREY
CONTROL NEGATIVE	GREY

PLC INPUT	BLUE
PLC OUTPUT	ORANGE
24VDC POSITIVE	BROWN
24VDC NEGATIVE	WHITE
EARTHING	YELLOW/GREEN

PREVIOUS PAGE  
5

NEXT PAGE  
7

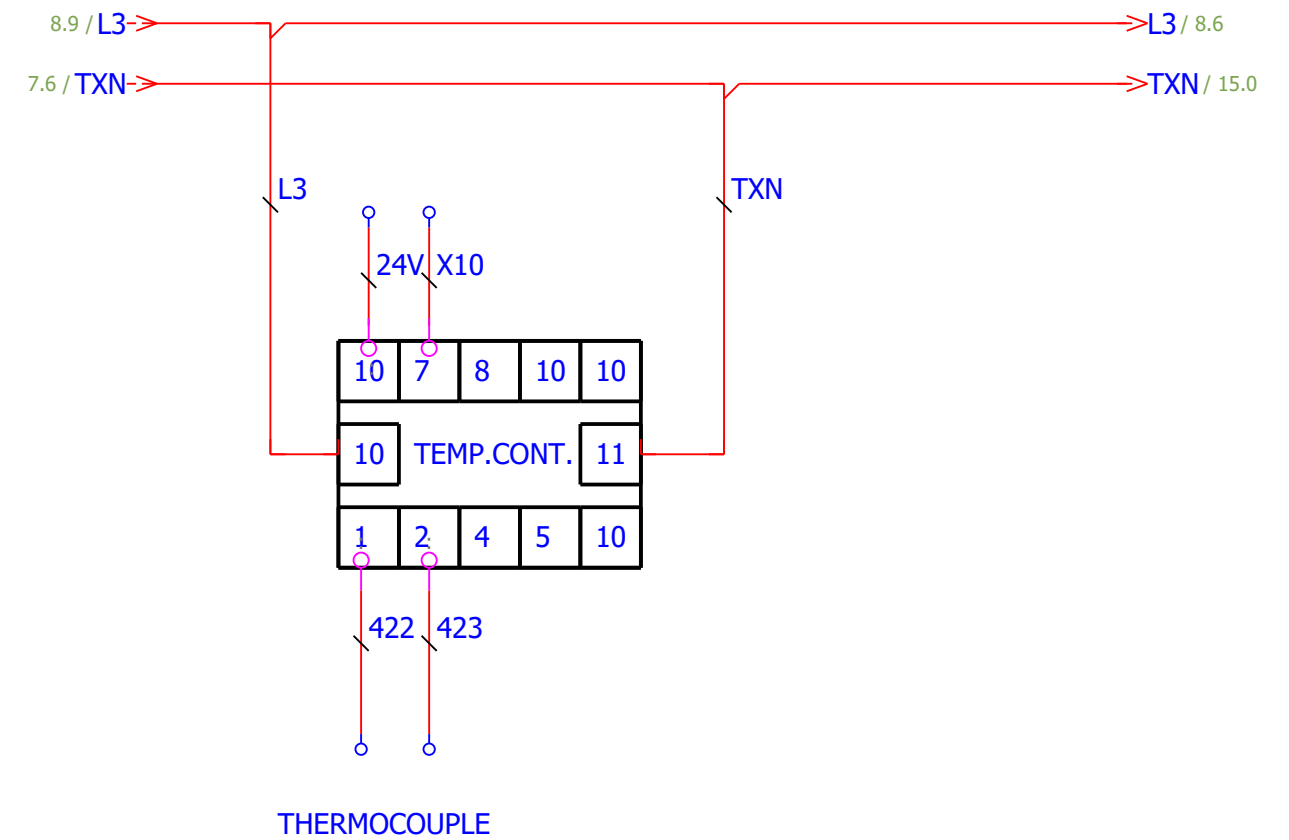
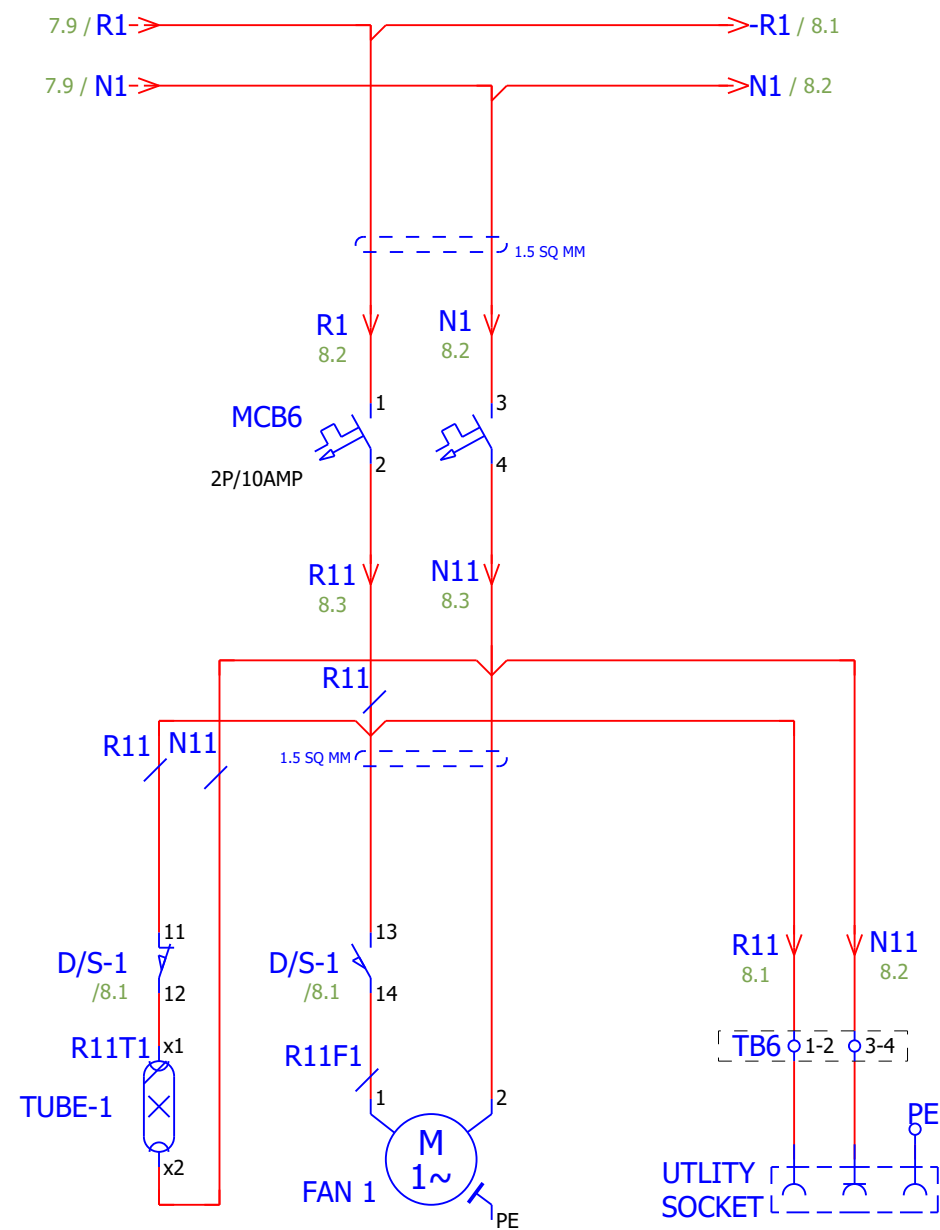
	CHECKED	S.B.B.	Ed.	13-07-2022	BFL - MUNDHWA	CUBIX AUTOTMATION PVT LTD	CABLE COLOUR CODE		= CA1	
Submission 1	DWG	P.M.R.	Appr		Collar Heating Machine				+ EAA1	
Modification	Date	Name	Original		Replaced by	Replaced by		W/FA/P22241	Page	6
									Page	57



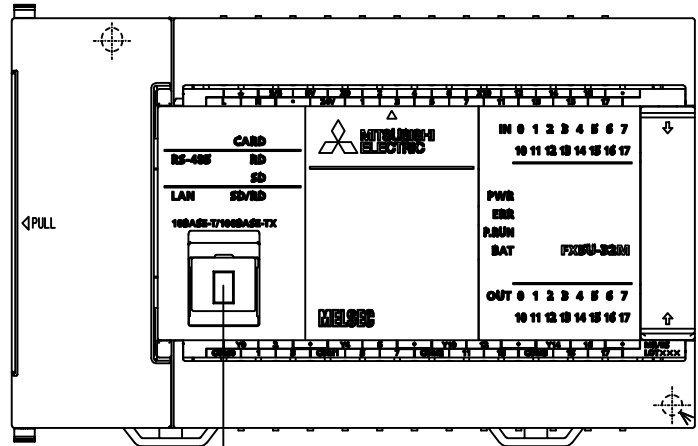
	CHECKED	S.B.B.	Date	13-07-2022	BFL - MUNDHWA	CUBIX AUTOTMATION PVT LTD	MAIN SWITCH POWER WIRING	= CA1		
Submission 1	DWG	P.M.R.	Appr		Collar Heating Machine			+ EAA1	Page	7
Modification	Date	Name	Original		Replaced by	Replaced by		W/FA/P22241	Page	57

This Dr g. is sole Propert y of Cubix Automation pvt ltd . It should not be copied or communicated to any person wi hout written approval of Application Center India



[illegible]

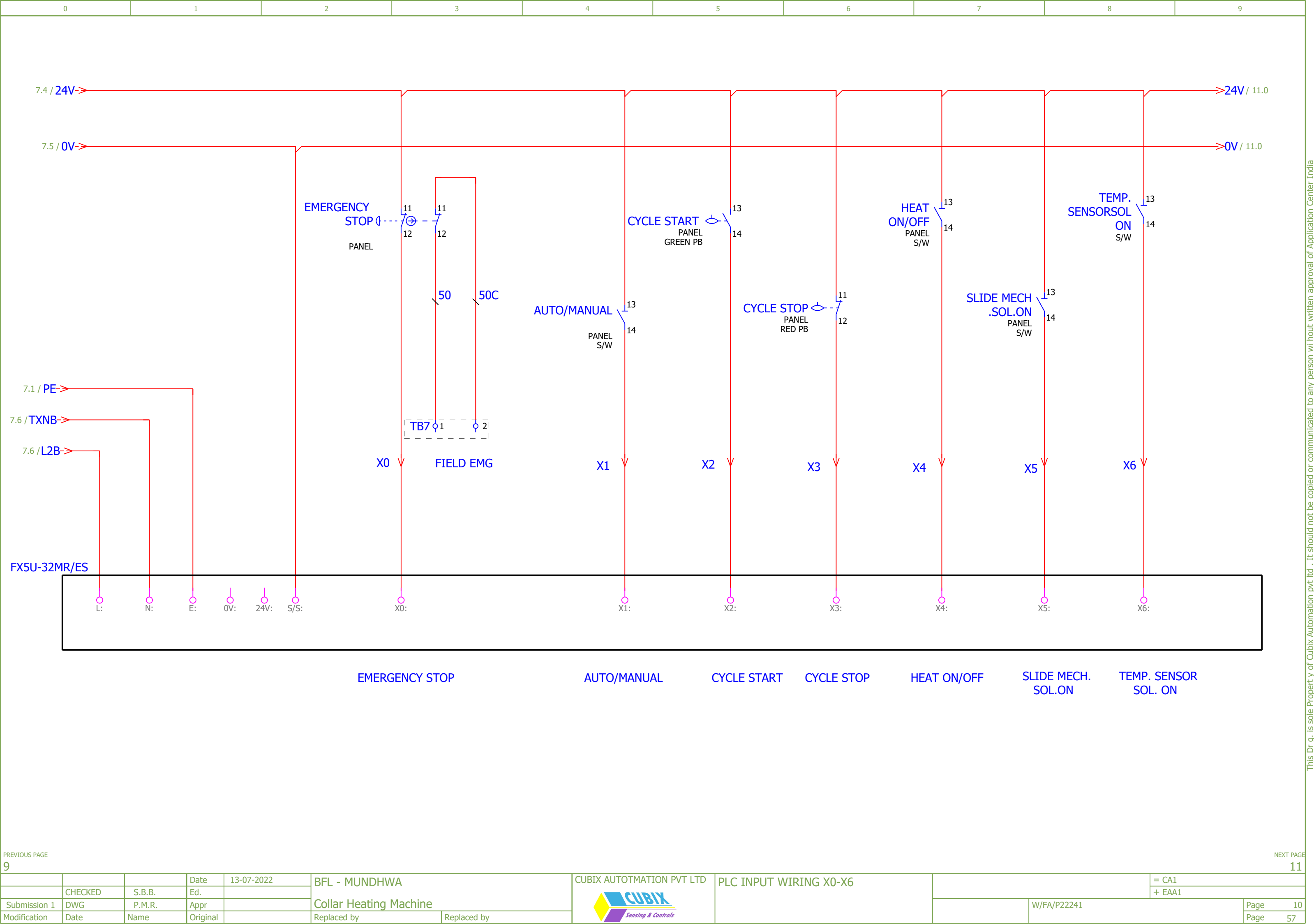
PLC SYSTEM LAYOUT



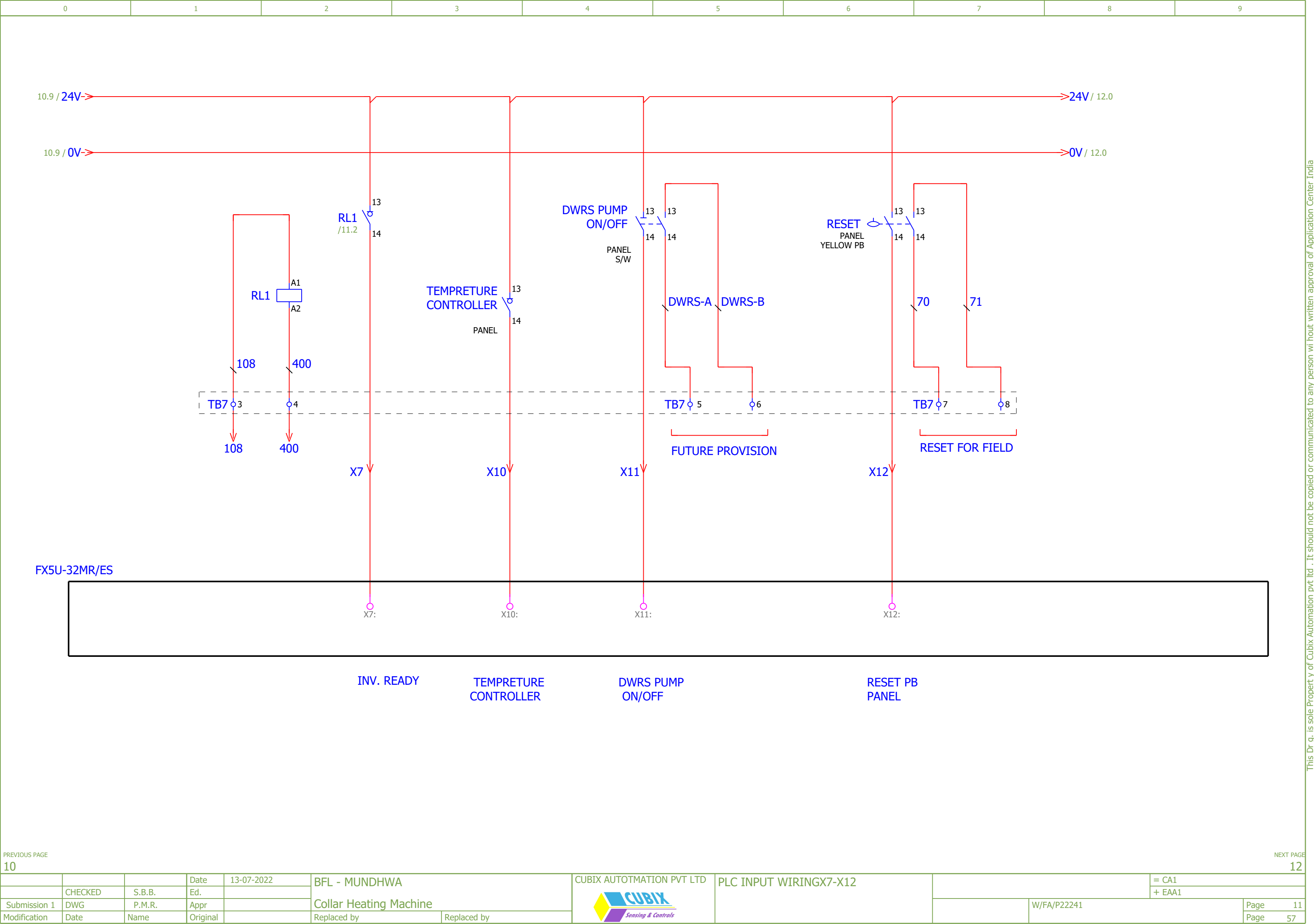
HMI

CABETHR-ST-IN-

GS2107-WTBD



This Dr g. is sole Property of Cubix Automation pvt ltd . It should not be copied or communicated to any person without written approval of Application Center India



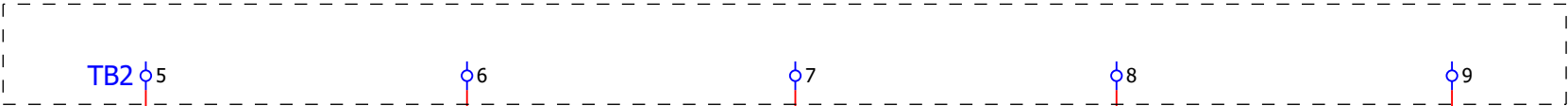
PREVIOUS PAGE

10

NEXT PAGE

12

This Dr g. is sole Property y of Cubix Automation pvt ltd . It should not be copied or communicated to any person wi hout written approval of Application Center India



X13

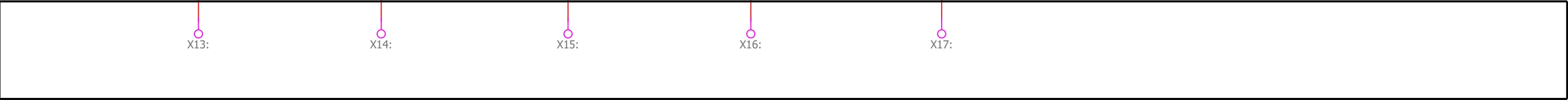
X14

X15

X16

X17

FX5U-32MR/ES



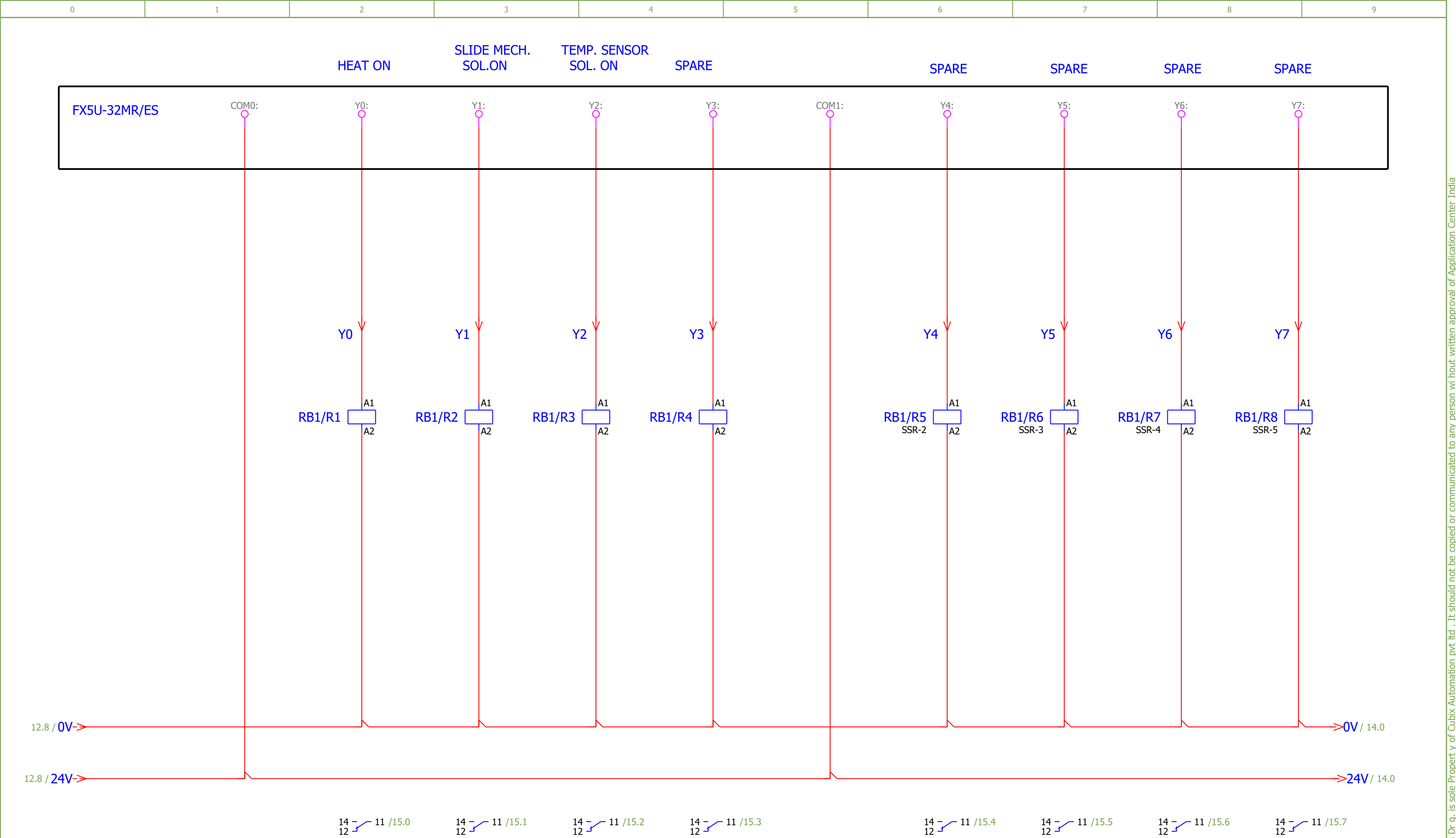
SPARE

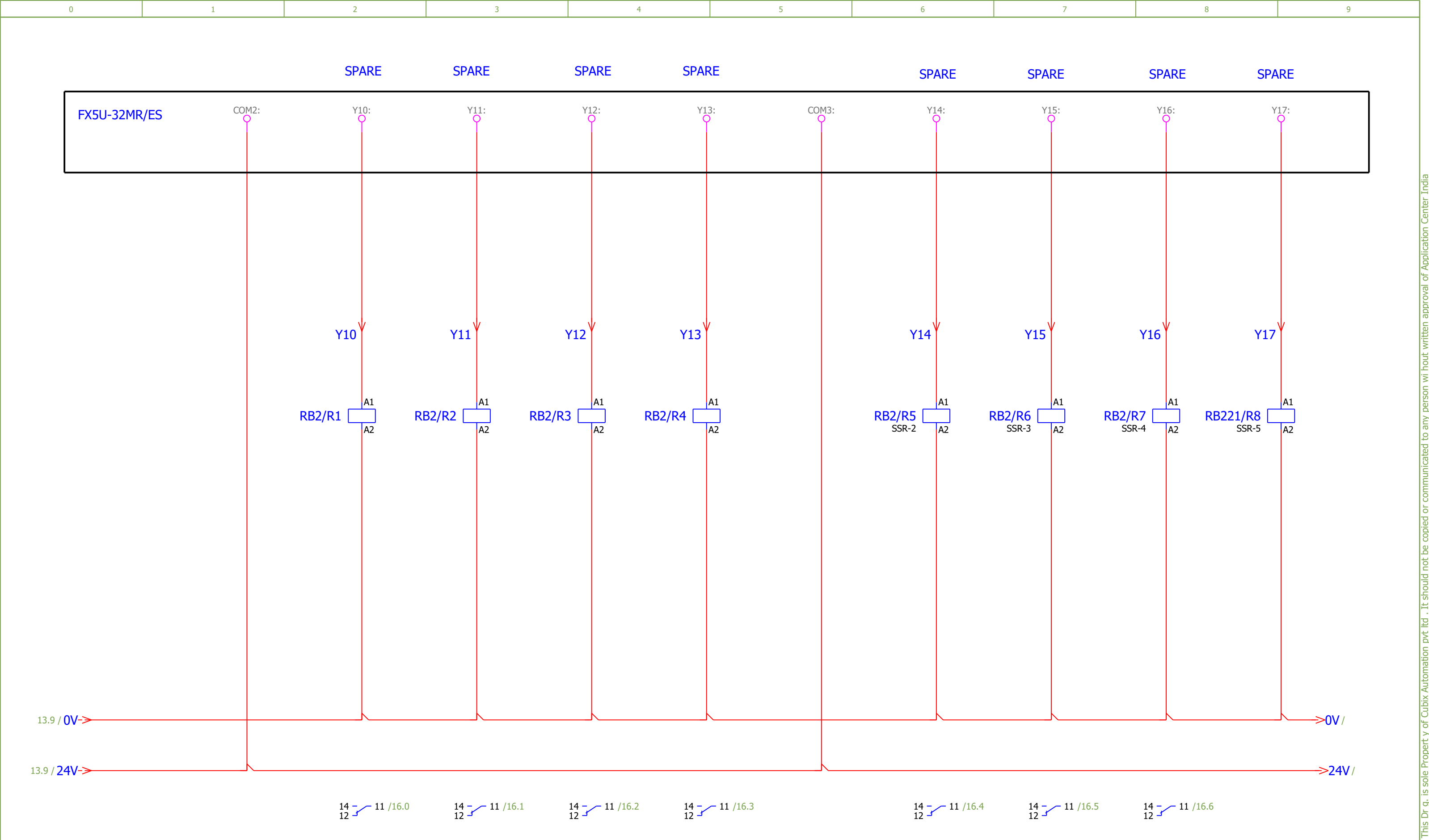
SPARE

SPARE

SPARE

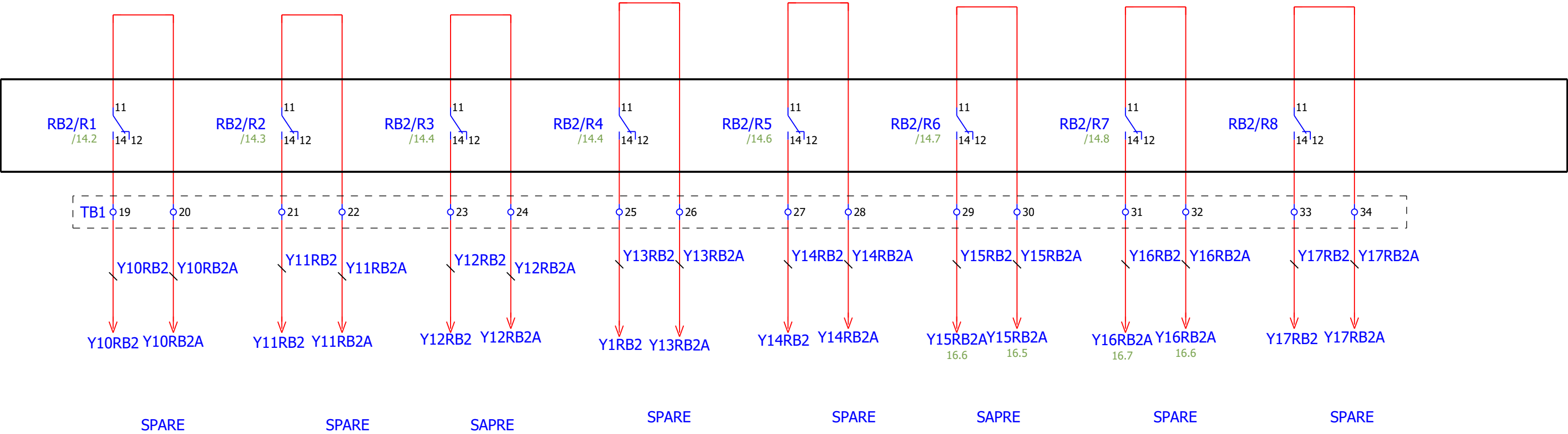
SPARE











	CHECKED	S.B.B.	Date	13-07-2022	BFL - MUNDHWA	CUBIX AUTOTMATION PVT LTD	RELAY BOARAD 2 WIRING Y10-Y17	= CA1 + EAA1	
Submission 1	DWG	P.M.R.	Appr		Collar Heating Machine			W/FA/P22241	Page 16
Modification	Date	Name	Original		Replaced by				Page 57

This Dr g. is sole Propert y of Cubix Automation pvt ltd . It should not be copied or communicated to any person wi hout written approval of Application Center India

