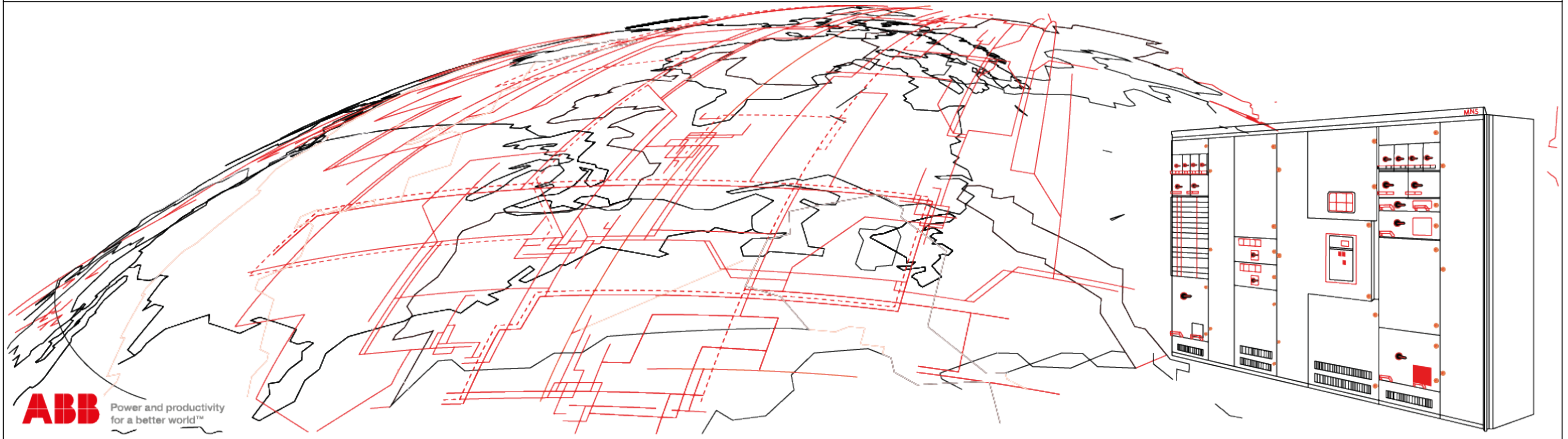




Elektrik Sanayi A.Ş.

Low Voltage Systems

Customer : RMG COPPER JSC
Contract Number : -
Project Description : TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA
Switchgear Name : BE01-WC-001 400V LV MOTOR CONTROL CENTER



Phone:(+90) 262 326 1500
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Dilovasi OSB 4.Kısım D-4009 No:11
Dilovasi / Kocaeli / TURKEY

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R3V4	19.05.2021	Last Revision Date		SCALE 1	DESIGNED BY : VINEETHA										<div>Project No.</div> <div>K21001</div>	PAGE No.	1									
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL											CONT.	2		REV.							
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ																					
1				2												3		4		5		6		7		8

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1				2		3		4		5		6		7		8				

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TECHNICAL PARAMETERS



SWITCHGEAR PARAMETERS

SYSTEM MNS	MNS 3.0
STANDARD	IEC61439-2
INTERNAL ARC TEST STANDARD	Not Applicable
SWITCHBOARD ARRANGEMENT	Single Front
MODULE CO-ORDINATION	TYPE-2, Icc= 65 kA, IE2
DIVERSITY FACTOR	Module Level
COLOUR (SWITCHGEAR)	RAL 7035
COLOUR (W-MODULES)	RAL 7035
DOOR LOCK	Double Bit Lock 5mm
INGRESS OF PROTECTION (EXTERNAL)	IP41
INGRESS OF PROTECTION (INTERNAL)	IP 2X (including IPXXB)

ROOF PLATE TYPE

INTERNAL FORM OF SEPERATION

WITHDRAWABLE MODULE COMPARTMENT	4b
PLUG-IN MODULE COMPARTMENT	2b
ACB/MCCB SECTION	4b
OTHER SECTION/COMPARTMENT	2b

SWITCHGEAR DIMENSIONS

TOTAL SWITCHGEAR WIDTH [mm]	8040.0
SWITCHGEAR DEPTH [mm]	600.0
SWITCHGEAR HEIGHT [mm]	2200
SWITCHGEAR WEIGHT APPROX. [kg]	3234

VOLTAGE PARAMETERS

EARTHING SYSTEM	IT
SERVICE OPERATIONAL VOLTAGE	Ue = 400VAC
SERVICE FREQUENCY	fn = 50 Hz
RATED INSULATION VOLTAGE	Ui = 1000VAC
RATED IMPULSE WITHSTAND VOLTAGE	Uimp = 8kV

MAIN BUSBAR PARAMETERS

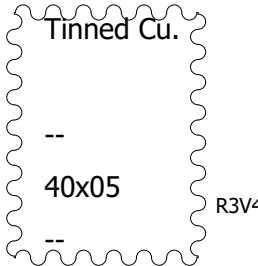
RATED CURRENT	Ie = 2000A
MAIN BUSBAR SIZE PER PHASE [mm]	2x60x10
RATED SHORT-TIME WITHSTAND CURRENT	Icw = 65 kA, 1s
RATED PEAK WITHSTAND CURRENT	Ipk = 165 kA ^③
MATERIAL	Tinned Cu.

NEUTRAL BUSBAR PARAMETERS (HORIZONTAL)

NEUTRAL BUSBAR SIZE [mm]	NA
RATING OF NEUTRAL CONDUCTOR [%]	NA%
MATERIAL	NA

PE BUSBAR PARAMETERS (HORIZONTAL)

PE BUSBAR SIZE [mm]	60x10
MATERIAL	Tinned Cu.
<u>VERTICAL BARS IN POWER CABLE AREA</u>	
N / PEN BUSBAR SIZE [mm]	--
PE BUSBAR SIZE [mm]	40x05
PE BUSBAR SIZE IN RE-INFORCED [mm]	--

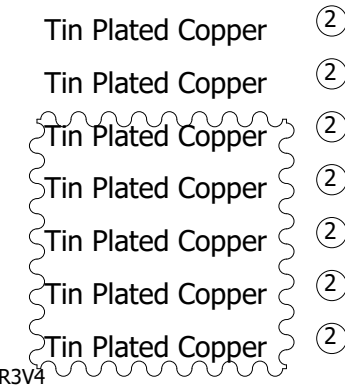


DISTRIBUTION BUSBAR PARAMETERS

RATED CURRENT	Ie = 725.0A ^④
BUSBAR SIZE PER PHASE [mm]	50x30x5
RATED SHORT-TIME WITHSTAND CURRENT	Icw = 65 kA, 1s
RATED PEAK WITHSTAND CURRENT	Ipk = 143 kA
MATERIAL	Silver Plated Copper (Ag)

ADDITIONAL TREATMENT ON COPPER BARS

MAIN BUSBAR	Tin Plated Copper ^②
PEN/N (HORIZONTAL)	Tin Plated Copper ^②
PE (HORIZONTAL)	Tin Plated Copper ^②
N-BAR (VERTICAL, IN CABLE COMPARTMENT)	Tin Plated Copper ^②
PE/PEN (VERTICAL, IN CABLE COMPARTMENT)	Tin Plated Copper ^②
CONNECTIONS BARS (SECTIONS)	Tin Plated Copper ^②
CONNECTIONS BARS (MODULES)	Tin Plated Copper ^②



SERVICE CONDITIONS

ALTITUDE	< 2000 m.a.s.l
TEMPERATURE AVERAGE DURING 24HRS	35°C
TEMPERATURE RANGE	-5°...+40°
HUMIDITY	<=50%
POLLUTION DEGREE	3
OVERVOLTAGE CATAGORY	III
SEISMIC ZONE	Zone-I

TERMINALS



CUSTOMER SIGNALS	PUSH-IN TYPE
CONTROL / AUXILIARY POWER SUPPLY	PUSH-IN TYPE
DRAWER INSIDE	PUSH-IN TYPE
DRAWER OUTSIDE	SCREW TYPE
CT-VT TERMINAL BLOCK SIZE	4mm²
SIGNAL TERMINAL BLOCK SIZE	2.5mm²
CONTROL TERMINAL BLOCK SIZE	2.5/4mm²

PROTOCOLS OF COMMUNICATIONS

IED (INTELLIGENT ELECTRONIC DEVICE)	-
ETHERNET SWITCH	IEC 61850
PCU	Modbus RTU
MOTOR CONTROLLER	Modbus RTU
PROTOCOL CONVERTOR	Modbus RTU to Ethernet IP

CONNECTIONS

INCOMING	CABLE	TOP
OUTGOING	CABLE	TOP
BOTTOM PLATES	YES	
CABLE GLANDS	NO	

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TECHNICAL PARAMETERS



CABLE COLOURS, CROSS SECTIONS AND TYPES

CABLE TYPES

Control circuit	H07Z-K (450/750V, halogen-free single core, harmonised, for wiring in control cabinets, acc. to EN 50525-2-31)
Power circuit	NSHXAFÖ (1.3/3kV, Flame retardance, Halogen free, Self-extinguishing)
Maximum operating temperature	90° Celcius
Halogen-free	YES
Tin Coating	NO

MAIN CIRCUIT

L1 - BK^①
L2 - BK^①
L3 - BK^①
N - BK ^①
PE - GNYE

MISCELLENEOUS ELECTRICAL INFORMATION

SURGE ARRESTORS	NO
SPACE HEATER	YES
THERMOSTAT	YES
PANEL LAMP	YES
POWER SOCKET	NO

INSTRUMENT SIZE

WITHDRAWABLE MODULE	48x48mm
DC2BB MODULE	72x72mm

AC AUXILIARY CIRCUITS

AUXILIARY VOLTAGE 1 (L, N, PE) 230VAC	BK, BK, GNYE	min. 1.5 mm ²
AUXILIARY VOLTAGE 2 (L, N, PE) 230VAC	BK, BK, GNYE	min. 1.5 mm ²

DC AUXILIARY CIRCUITS

AUXILIARY VOLTAGE 1 (L+, L-) 24VDC	RD, WH	min. 1.5 mm ²
AUXILIARY VOLTAGE 2	N/A	N/A
CT SECONDARY SIDE	L - BK	min. 2.5 mm ²
VT SECONDARY SIDE	L - BK	min. 2.5 mm ²
POTENTIAL FREE SIGNALS	L - BK	min. 1.5 mm ²

* Cross-Section of wires mentioned here are for general use.
Higher Cross-Section of wires shall be used according to current requirment.

INTERCONNECTION CABLES

CUBICLE TO CUBICLE (L, N) 230V AC	BK	2.5 mm ²
CUBICLE TO CUBICLE (+, -) 24V DC	RD, WH	4 mm ²
MODULE TO MODULE (L, N) 230V AC	BK	2.5 mm ²
MODULE TO MODULE (+, -) 24V DC	RD, WH	4 mm ²
HEATER AND LIHGTING	BK	2.5 mm ²

COMMUNICATION CABLE

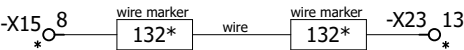
PROFIBUS DP	N/A
MODBUS RTU	BELDEN 9841NH (BU,WH)
MODBUS TCP/IP	CAT6 RJ45 CABLE
IEC61850	N/A

LABELING

MIMIC DIAGRAM	N/A
ENGRAVED LABELS FIXATION	CLENCHED (RIVET)
SWITCHGEAR MAIN TECHNICAL LABEL	PAPER LABEL
ENGRAVED LANGUAGE 1	ENGLISH
ENGRAVED LANGUAGE 2	N/A
LABEL WILL BE BLACK LETTER WHITE BACKGROUND	

WIRE MARKER

MOUNTING TYPE
MARKER TYPE
COLOUR



*wire marker text will be black colour according to control schematic.

SLEEVE TYPE
KG1
YELLOW

COLOUR LEGEND - ACC. IEC 60757





BK Black	BN Brown	RD Red	OG Orange
YE Yellow	GN Green	BU Light blue	VT Violet
GY Grey	WH White	PK Pink	GD Gold
SR Silver	TQ Turquoise	GNYE Green-yellow	TR Transparent
DB Dark blue			

NOTES:





- Power cable shall be in black color while at both ends colored heat shrinkable tube (L1-BN, L2-BK, L3-GY, N-BU) shall be provided.
- Coloured label will be provided at regular intervals for phase identification.
- According to standard MNS busbar system there are constant values for Icp. For example 4x40x10 Icp value is 176kA, 4x60x10 Icp value is 220kA
- This rating just indicates the MCC column minimum rating. DC2BB cubicle distribution busbar rating varies according to CB Rating.

ADDITIONAL REQUIREMENT

STEEL BASE FRAME	NO
REAR C PROFILES ANTIMAGNETICS	false
REAR WALL ANTIMAGNETICS	false
MAXIMUM SHIPPING SECTION LENGTH	

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Rev. Date Description SIGN						APPROVED BY : O.YILMAZ															

ACB	Air Circuit Breaker
ATS	Automatic Transfer Switch
BA	Busbar Arrangement
CCA	Control Cable Area
CT	Current Transformer
DBB	Distribution BusBar
DCS	Distributed Control System
DC2BB	Direct Connection to BusBar
DTM	Device Type Manager
EDS	Electronic Data Sheets
EOL	Electronic Overload
ELDS	Electrification Business Line, Distribution Solution
FBP	Field Bus Plug
GA	General Arrangement
GPS	Global Positioning System
GSD File	GeräteStammDaten
HGF	Halogen-Free
HMI	Human Machine Interface
I/O	Input/Output
IIP	Ingress of Protection
Icc	Rated conditional-short circuit current
LED	Light-Emitting Diode
LVS	Low Voltage System
MBB	Main BusBar
MCB	Miniature Circuit Breaker
MCC	Motor Control Center
MCCB	Moulded-Case Circuit Breaker
MCT	Measuring Current Transformer
MNS	Das Modulare Niederspannungs-schaltanlagen-Sy
NS	NonStandard
OLE	Object Linking and Embedding
OPC	OLE for Process Control
PCA	Power Cable Area
PCS	Process Control System
PCT	Protection Current Transformer
PLC	Programmable Logic Controller
PMU	Power Monitoring Unit
RCU	Remote Control Unit
SCADA	Supervisory Control And Data Acquisition
SNTP	Simple Network Time Protocol
TOL	Thermal OverLoad relay
UMC	Universal Motor Controller
UPS	Uninterruptible Power Supply
UTC	Coordinated Universal Time
VSD	Variable Speed Drive
VT	Voltage Transformer

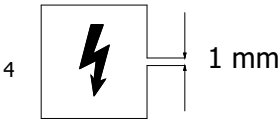
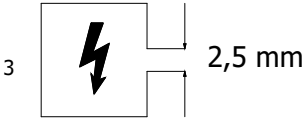
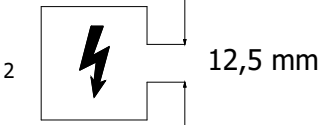
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Rev.		Date		Description		SIGN						APPROVED BY : O.YILMAZ									

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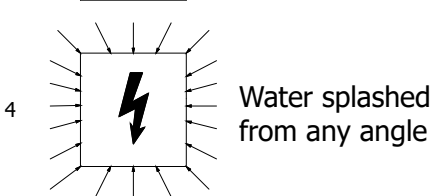
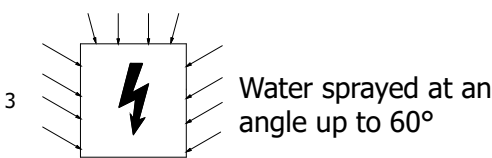
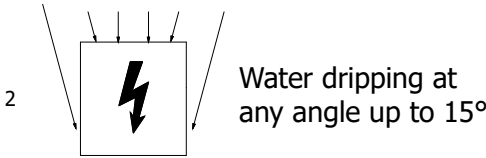
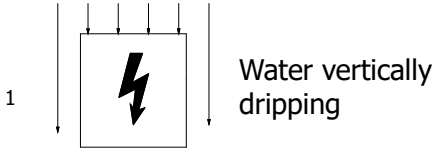
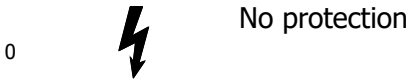
IP legends

acc. IEC 60529

1. Protection against penetration by foreign bodies and dust



2. Protection against ingress of water with harmful effects



Additional letter

Protection against access hazardous parts with:

A Back of the hand > 50 mm diameter

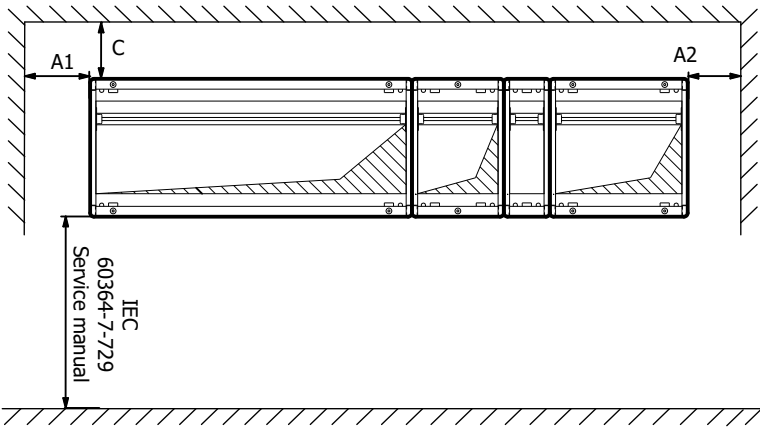
B Finger/tool > 12.5 diameter, 80 mm length

C Tool/Wire > 2.5 diameter, 100 mm length

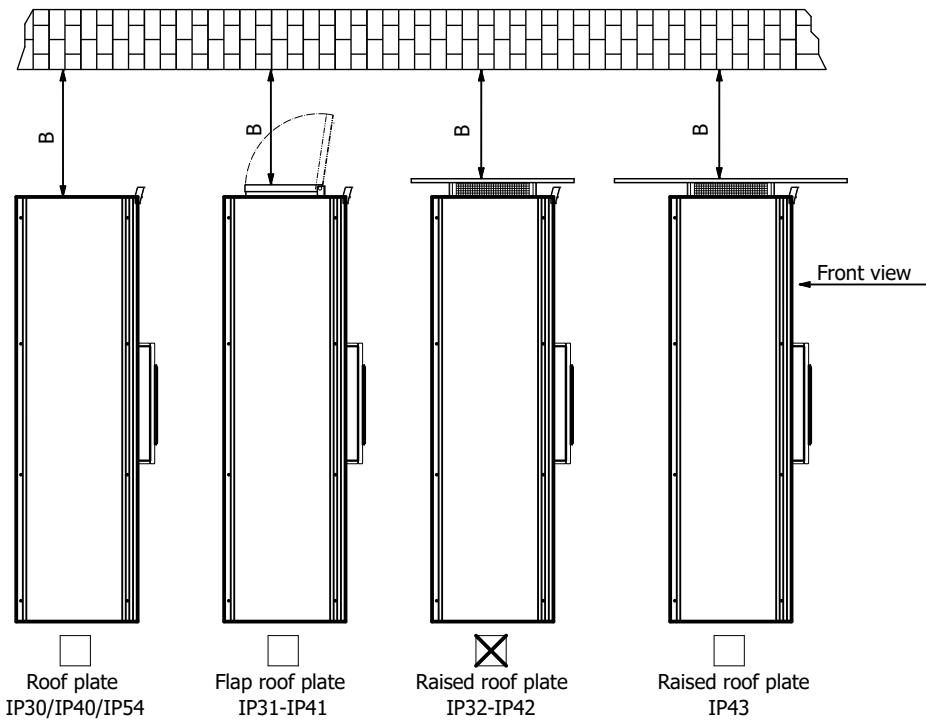
D Tool/Wire > 1.0 mm diameter, 100 mm length

Wall distances

Floor View

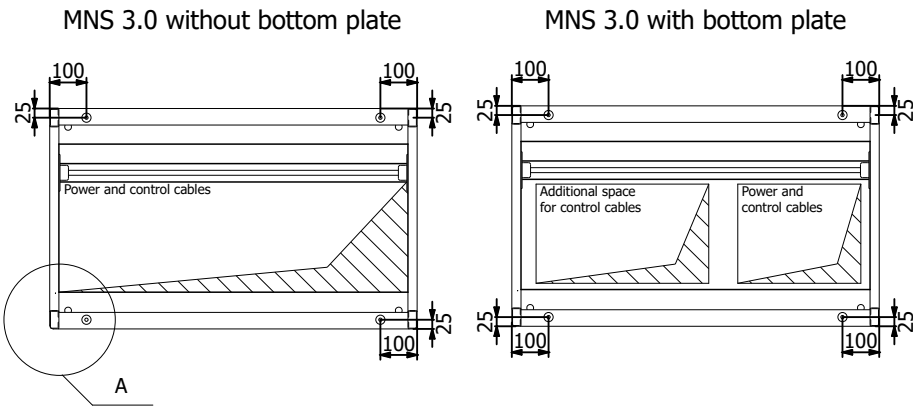


Side view

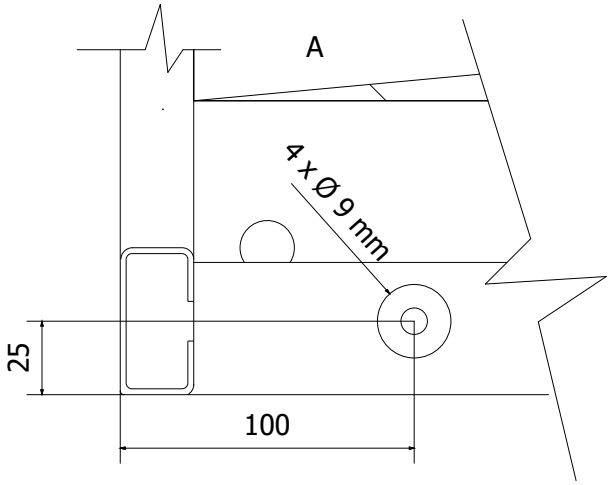


Internal protection	A1 (right mounted doors)	A1 (left mounted doors)	A2	B (Section to ceiling)	C (Section to back wall)
IP30-IP40	100 mm	170 mm	170 mm	500 mm	105 mm
IP54	100 mm	170 mm	170 mm	500 mm	105 mm
Raised roof plate (RRP)					
IP31-IP41	135 mm	170 mm	170 mm	500 mm	205 mm
IP32-IP42	135 mm	170 mm	170 mm	500 mm	205 mm
IP43	400 mm	400 mm	400 mm	500 mm	405 mm
Flap roof plate					
IP31-IP41	100 mm	170 mm	170 mm	500 mm	105 mm
IP32-IP42	100 mm	170 mm	170 mm	500 mm	105 mm
IP43	100 mm	170 mm	170 mm	500 mm	105 mm

Bottom plates



Anchor hole



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As Tested <input type="checkbox"/>	As Build <input type="checkbox"/>
R3V4 19.05.2021	Last Revision Date
R0V0 01.02.2021	Creation Date
Rev.	Date
	DESCRIPTION
	SIGN

Supplier	ABB ELEKTRİK SAN. A.Ş.
SCALE	DESIGNED BY : VINEETHA
1	CHECKED BY : O.TOPAL
	APPROVED BY: O.YILMAZ


Customer	RMG COPPER JSC
	

End User	RMG COPPER JSC
	

Project	TREL-DEU-RMG MOTOR CONTROL CENTRE
	MNS-GEORGIA
	BE01-WC-001
	400V LV MOTOR CONTROL CENTER

Title	Legend Sheet
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Drawing No.	4TRD021001T9001
Project No.	K21001

+DOCUMENTS	SIZE	A3
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* Example
LOCATION CODING OF MNS 3.0

Section height				
mm	E	alphabetical classification		MNS iS
2200 mm		A	A	
2000 mm	72 E	B	A B	1
			C D	2
	68 E	C	A B	3
			C D	4
1800 mm	64 E	D	A B	5
			C D	6
	60 E	E	A B	7
			C D	8
1600 mm	56 E	F	A B	9
			C D	10
	52 E	G	A B	11
			C D	12
1400 mm	48 E	H	A B	13
			C D	14
	44 E	J	A B	15
			C D	16
1200 mm	40 E	K	A B	17
			C D	18
	36 E	L	A B	19
			C D	20
1000 mm	32 E	M	A B	21
			C D	22
	28 E	N	A B	23
			C D	24
800 mm	24 E	P	A B	25
			C D	26
	20 E	Q	A B	27
			C D	28
600 mm	16 E	R	A B	29
			C D	30
	12 E	S	A B	31
			C D	32
400 mm	8 E	T	A B	33
			C D	34
	4 E	U	A B	35
			C D	36
200 mm				
0 mm	0 E	W		

Equipment compartment				Power cable area	Incoming section
Position in compartment					Position in compartment
01	02	03	04	05	01

+01	+02
<p>.AA01 6E</p> <p>.BA01 8E4</p> <p>.BA02 8E4</p> <p>EMPTY SPACE</p> <p>EMPTY SPACE</p> <p>.DA01 8E2</p> <p>.DA03 8E2</p> <p>.FA01 8E4</p> <p>.FA02 8E4</p> <p>EMPTY SPACE</p> <p>EMPTY SPACE</p> <p>.HA01 8E2</p> <p>.HA03 8E2</p> <p>.KA01 16E</p> <p>.PA01 24E</p>	<p>.AA01 29E</p> <p>.EC01</p> <p>.GD01 25E</p> <p>.PA01 31E</p>

Location coding of functional withdrawable unit in sections of MNS 3.0
Location coding of functional withdrawable units diagrammed
below in 2E modular dimensions
TOTAL 72E = 1800mm / 1E = 25mm
The withdrawable section is subdivided in:
- perpendicularly in alphabetical classification and MNS 3.0 classification
- horizontal in numbers from 01 to 05

Quantity	Module size	Location in section
4	8E/4	BA01, BA02, FA01, FA02
4	8E/2	DA01, DA03, HA01, HA03
1	16E	KA01
1	24E	PA01

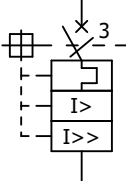
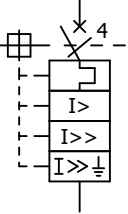
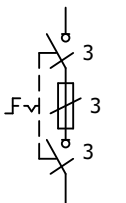
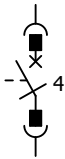
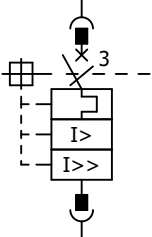
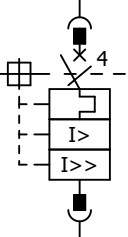
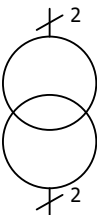



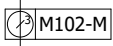
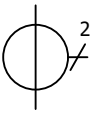






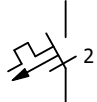



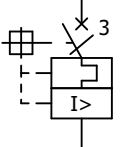



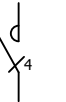
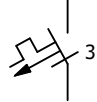







The withdrawable modules have five modes (operating handle schematised):

Mode	Position of switch			Mechanical / Electrical Status
	8E/4 and 8E/2	4E...24E	Designation	
1			ON position 	ON position-Main and control circuits are closed. Module is locked.
2			OFF position 	OFF position- Main circuit are disconnected, the control circuits are closed. Module is locked. Can be locked with 3 padlocks.
3			Test position 	TEST position-Main circuit are disconnected, the control circuits are closed. Module is locked. Can be locked with 3 padlocks.
4			Moving position (Withdrawn mode)	MOVE position-Main and control circuits are disconnected.
5			Disconnected position (Isolated mode)	ISOLATED position-The module is 30 mm drawn out of the section.Main and control circuits are disconnected and the isolating distance is fulfilled. Can be locked with 3 padlocks.

Example for coding of location for withdrawable modules

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SYMBOL OVERVIEW

 <div>Fixed Circuit Breaker three-pole (L-S-I characteristic)</div>	 <div>Fixed Circuit Breaker four-pole (L-S-I-G characteristic)</div>	 <div>Fixed Switch Disconnecter with fuse element three-pole</div>	 <div>Withdrawable Switch Disconnecter four-pole</div>
 <div>Withdrawable Circuit Breaker three-pole (L-S-I characteristic)</div>	 <div>Withdrawable Circuit Breaker four-pole (L-S-I characteristic)</div>	 <div>Control Power Transformer (MKT)</div>	 <div>Potential Transformer</div>
 <div>Power Circuit Breaker three-pole</div>	 <div>Motor Operator of Circuit Breaker</div>	 <div>Motor/Heater Control Unit (with Modbus-RTU communication)</div>	 <div>Bar or Cable Type Current Transformer</div>
 <div>Analog Ammeter</div>	 <div>Analog Voltmeter</div>	 <div>Motor Direct On Line Starter without reversing motion</div>	 <div>Motor Direct On Line Starter without reversing motion, Heavy Duty</div>
 <div>Motor Direct On Line Starter with reversing motion</div>	 <div>Toroidal Transformer</div>	 <div>Miniature circuit-breaker (Double Pole)</div>	 <div>Miniature circuit-breaker (Four Pole)</div>
 <div>KORC Current Transformer</div>	 <div>Earth Leakage Relay</div>	 <div>Fixed Circuit Breaker three-pole (L-I characteristic)</div>	 <div>V.S. Voltmeter Selector switch</div>
 <div>A.S. Ammeter Selector switch</div>	 <div>RD2 Residual Current Monitor</div>	 <div>Power Contactor four-pole</div>	 <div>Miniature circuit-breaker (Three Pole)</div>
 <div>Motor Star-Delta Starter</div>	 <div>Power Terminal / Cable Connection Unit</div>	 <div>Male and Female Pin</div>	 <div>Thermal Over Load Relay</div>
 <div>Motor Control Unit (with Profibus DP communication)</div>	 <div>P49 Network Analyzer</div>	 <div>REF620 Numerical Feeder Protection Relay</div>	




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1	2	3	4	5	6	7	8
A							A
B							B
C							C
D							D
E							E
F							F



Manufacturers Name and Type	ABB MNS 3.0
Manufacturers Serial Number	4TRS021001X9001
Switchgear Tag Number	BE01-WC-001
Switchgear Title	400V LV MOTOR CONTROL CENTER
System Rated Voltage and Phases	400 VAC, ~3P+PE
System Wires and Frequency	3, 50 Hz
Rated Power Widtstand Voltage	2,2kV
Rated Lightening Imp. Withstand Voltage	8 kV
Rated Fault Current	65 kA
Rated RMS Short-Circuit Current, (s)	65 kA ,1s
Rated Peak Short-Circuit Current	165 kA
Busbar Rating	2000A
Protection Class	IP41
Year of Manufacture	2021
Standard	IEC61439-2
Purchaser's Name	RMG COPPER JSC
Order Item No	K21001

ABB ELEKTRİK SANAYİ A.Ş.
Alçak Gerilim Sistemleri
Dilovasi OSB, 4.Kısım, D-4009 Sk. 41455, Kocaeli/TURKEY

<div>For Approval <input type="checkbox"/> As Tested <input type="checkbox"/></div> <div>Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/></div>				<div>Supplier</div> <div><div>ABB</div><div>ELEKTRİK SAN. A.Ş.</div></div>		<div>Customer</div> <div>RMG COPPER JSC</div> <div></div>		<div>End User</div> <div>RMG COPPER JSC</div> <div></div>		<div>Project</div> <div>TREL-DEU-RMG MOTOR CONTROL CENTRE</div> <div>MNS-GEORGIA</div> <div>BE01-WC-001</div> <div>400V LV MOTOR CONTROL CENTER</div>		<div>Title</div> <div>Technical Information Label</div>		<div>Drawing No.</div> <div>4TRD021001T9001</div>		<div>+DOCUMENTS</div>		<div>SIZE</div> <div>A3</div>	
R3V4		19.05.2021		Last Revision Date				SCALE		DESIGNED BY : VINEETHA		Project No.		PAGE No.		9			
R0V0		01.02.2021		Creation Date						CHECKED BY : O.TOPAL				CONT.		+GA/10			
Rev.		Date		Description		SIGN				1				APPROVED BY : O.YILMAZ		REV.			
1																			

2300
100mm Raised Roof
2200

Roof Plan

2000
1800
1600
1400
1200
1000
800
600
400
200
0

A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S
T
U
W

20
1000
1000
1000
1000
400
400
1000
200
1000

20
3000
8040.0

SINGLE UNIT
SHIPPING UNIT
TOTAL LENGTH

FRONT VIEW

1200
1000
800
600
400
200
0

FLOOR PLAN

FRONT




1200
1000
800
600
400
200
0



TOP PLAN

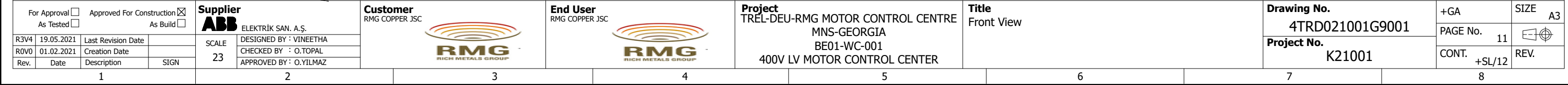
FRONT

For Approval <input type="checkbox"/> As Tested <input type="checkbox"/>		Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/>		Supplier ABB ELEKTRİK SAN. A.Ş.		Customer RMG COPPER JSC		End User RMG COPPER JSC		Project TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA BE01-WC-001 400V LV MOTOR CONTROL CENTER		Title Front View		Drawing No. 4TRD021001G9001		Project No. K21001		+GA		SIZE A3	
R3V4 08.07.2021		Last Revision Date		SCALE 23		DESIGNED BY : VINEETHA		CHECKED BY : O.TOPAL		APPROVED BY : O.YILMAZ						PAGE No. 10		CONT. 11		REV.	

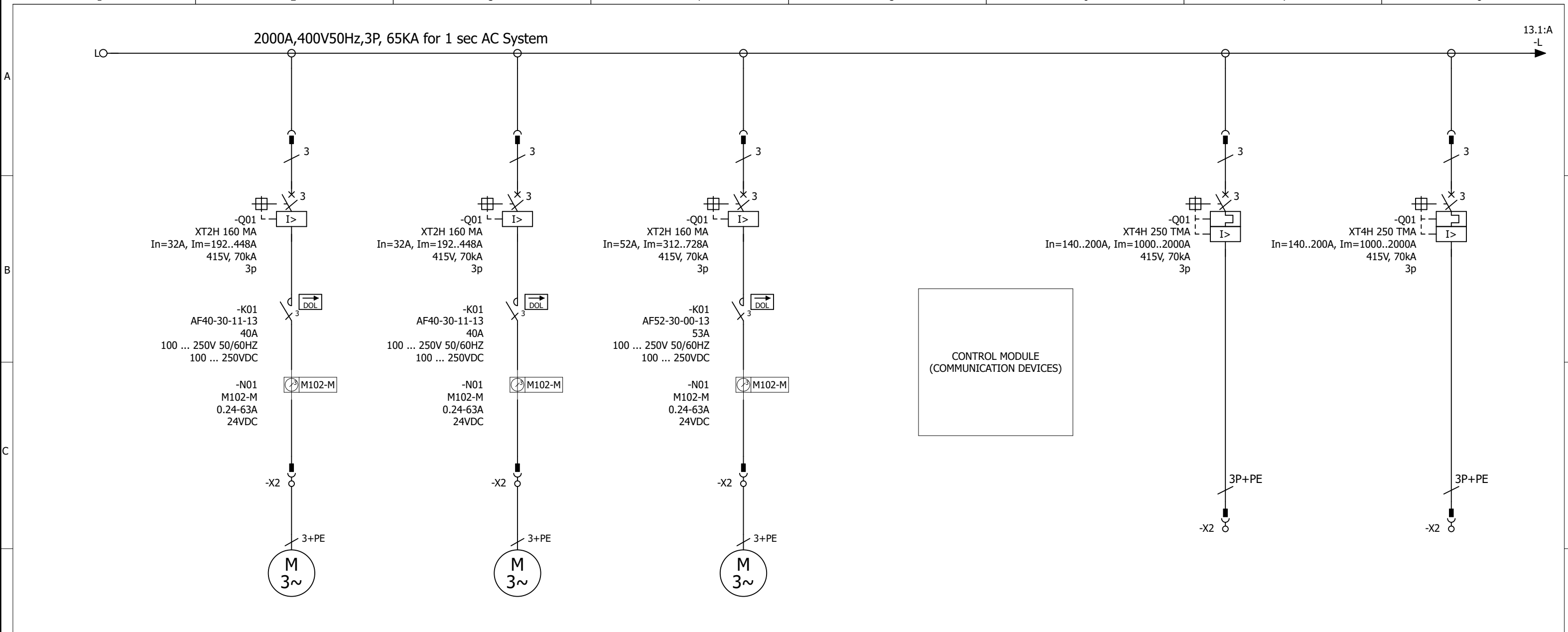


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R3V4	08.07.2021	Last Revision Date		SCALE 23	DESIGNED BY : VINEETHA								PAGE No.		10				
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL								CONT.		11	REV.			
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ														
1				2		3		4		5		6		7		8			

1		2		3		4		5		6		7		8	
<div><div>A</div><div>B</div><div>C</div><div>D</div><div>E</div><div>F</div><div>G</div><div>H</div><div>J</div><div>K</div><div>L</div><div>M</div><div>N</div><div>P</div><div>Q</div><div>R</div><div>S</div><div>T</div><div>U</div><div>W</div></div> <div><div>2300</div><div>100mm Raised Roof</div><div>2200</div><div>2000</div><div>1800</div><div>1600</div><div>1400</div><div>1200</div><div>1000</div><div>800</div><div>600</div><div>400</div><div>200</div><div>0</div></div> <div><div>SINGLE UNIT</div><div>SHIPPING UNIT</div><div>TOTAL LENGTH</div></div>		<div><div>+N010</div><div>+N011</div></div> <div><div>Roof Plan</div><div>Side View</div><div>Side View</div><div>Floor Plan</div></div> <div><div>20</div><div>400</div><div>600</div><div>2000</div></div> <div><div>FRONT VIEW</div></div>		<div><div>80 - 120 mm (80 Min.)</div></div> <div><div>62.5</div><div>600</div><div>652</div></div> <div><div>SIDE VIEW</div></div>											
		<div><div>FLOOR PLAN</div><div>FRONT</div></div> <div><div>200</div><div>200</div><div>100</div><div>400</div><div>100</div><div>25</div><div>252</div><div>25</div></div>													
		<div><div>TOP PLAN</div><div>FRONT</div></div> <div><div>284W</div><div>289H</div><div>58</div><div>112</div><div>484W</div><div>289H</div><div>58</div><div>112</div></div> <div><div>NOTES:</div><div>1. SWITCHBOARD BASE TOLERANCE: +/- 1mm/METRE IN ALL DIRECTIONS</div><div>2. FLOOR PLAN MOUNTING HOLE DIAMETER: 9mm</div></div>													
<div><div>For Approval</div><div>As Tested</div><div>19.05.2021</div><div>01.02.2021</div><div>Rev.</div></div> <div><div>Approved For Construction</div><div>As Build</div><div></div><div></div><div>SIGN</div></div>		<div><div>Supplier</div><div>ABB</div><div>ELEKTRİK SAN. A.Ş.</div><div>SCALE</div><div>23</div></div> <div><div>DESIGNED BY : VINEETHA</div><div>CHECKED BY : O.TOPAL</div><div>APPROVED BY : O.YILMAZ</div></div>		<div><div>Customer</div><div>RMG COPPER JSC</div><div></div></div>		<div><div>End User</div><div>RMG COPPER JSC</div><div></div></div>		<div><div>Project</div><div>TREL-DEU-RMG MOTOR CONTROL CENTRE</div><div>MNS-GEORGIA</div><div>BE01-WC-001</div><div>400V LV MOTOR CONTROL CENTER</div></div>		<div><div>Title</div><div>Front View</div></div>		<div><div>Drawing No.</div><div>4TRD021001G9001</div><div>Project No.</div><div>K21001</div></div>		<div><div>+GA</div><div>PAGE No.</div><div>11</div><div>CONT.</div><div>+SL/12</div></div> <div><div>SIZE</div><div>A3</div><div>REV.</div></div>	
1		2		3		4		5		6		7		8	



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Module No.	K2805_NRDOL-M102_11kW_65kA_XT2H 160 MA 32_8E2_3P_WM_IE2	K2806_NRDOL-M102_15kW_65kA_XT2H 160 MA 32_8E2_3P_WM_IE2	K2808_NRDOL-M102_22kW_65kA_XT2H 160 MA 52_8E2_3P_WM_IE2	K2551_CONTROL PLUG-IN MODULE_FOR COMMUNICATION COMPONENTS_16E	K2603_ED_200A_Icu_70kA_XT2H_250_TMA_160A_8E_3P_WM	K2603_ED_200A_Icu_70kA_XT2H_250_TMA_160A_8E_3P_WM
Control Diagram	K21001K8801	K21001K8801	K21001K8801	K21001K8551	K21001K8603	K21001K8603
Customer Control Diagram	DOL	DOL	DOL	CM	ED	ED
Line No	1	2	3	4	5	6
Power (kW)	11	15	20	-	-	-
Voltage (V)	400	400	400	400	400	400
Current (A)	-	-	-	-	-	-
Cable Cross Section mm ²	-	-	-	-	-	-
Incoming / Outgoing	TOP	TOP	TOP	TOP	TOP	TOP
Tag No	MSF_1	MSF_2	MSF_3	-	-	-
Description	MOTOR SPARE FEEDER-1	MOTOR SPARE FEEDER-2	MOTOR SPARE FEEDER-3	CONTROL MODULE FOR COMMUNICATION DEVICES	ACTIVE FILTER-1	ACTIVE FILTER-2
Location	+N001.BA01	+N001.BA03	+N001.DA01	+N001.KA01	+N001.PA01	+N001.RA01

For Approval ☐

As Tested ☐

Approved For Construction ☒

As Build ☐


Supplier

ABB

ELEKTRİK SAN. A.Ş.


Customer

RMG COPPER JSC



End User

RMG COPPER JSC



Project

TREL-DEU-RMG MOTOR CONTROL CENTRE

MNS-GEORGIA

BE01-WC-001

400V LV MOTOR CONTROL CENTER

Title

Single Line Diagram

Drawing No.

4TRD021001S9001

Project No.

K21001

+SL

SIZE

A3

PAGE No.

12

REV.

13

CONT.

13

1

2

3

4

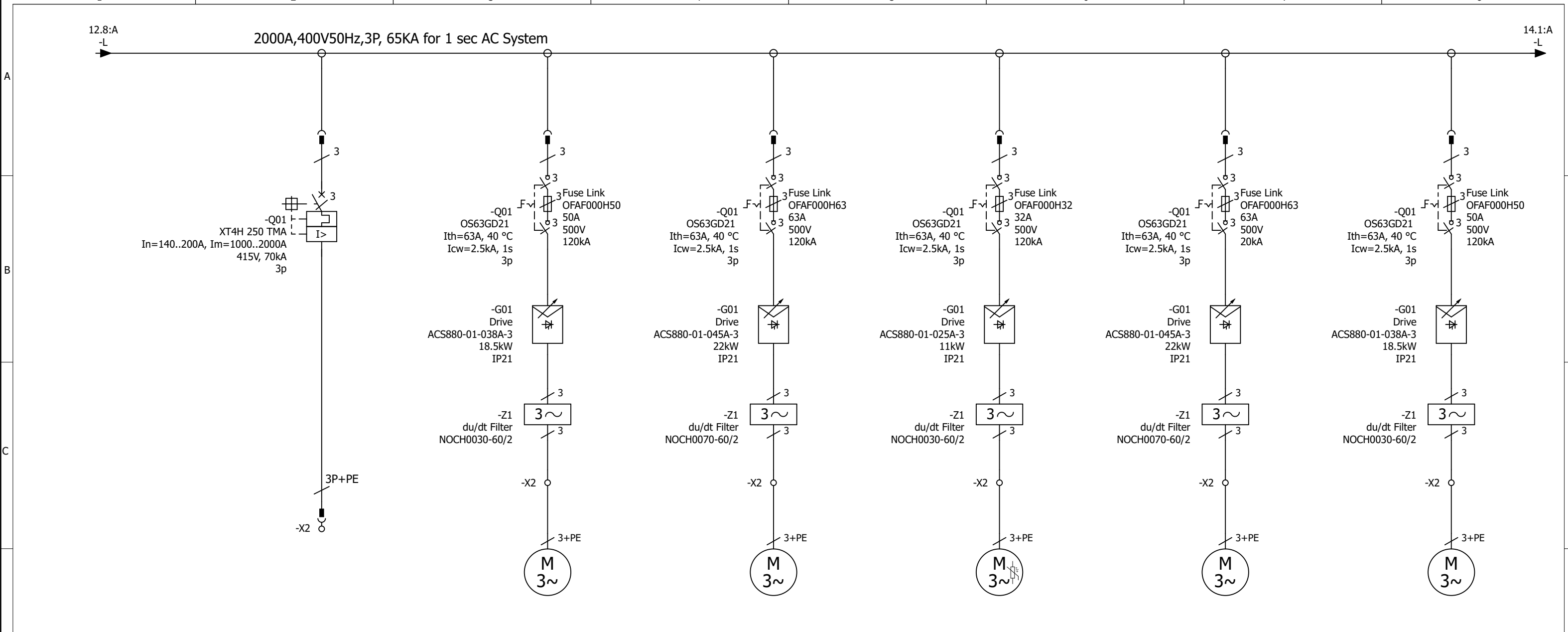
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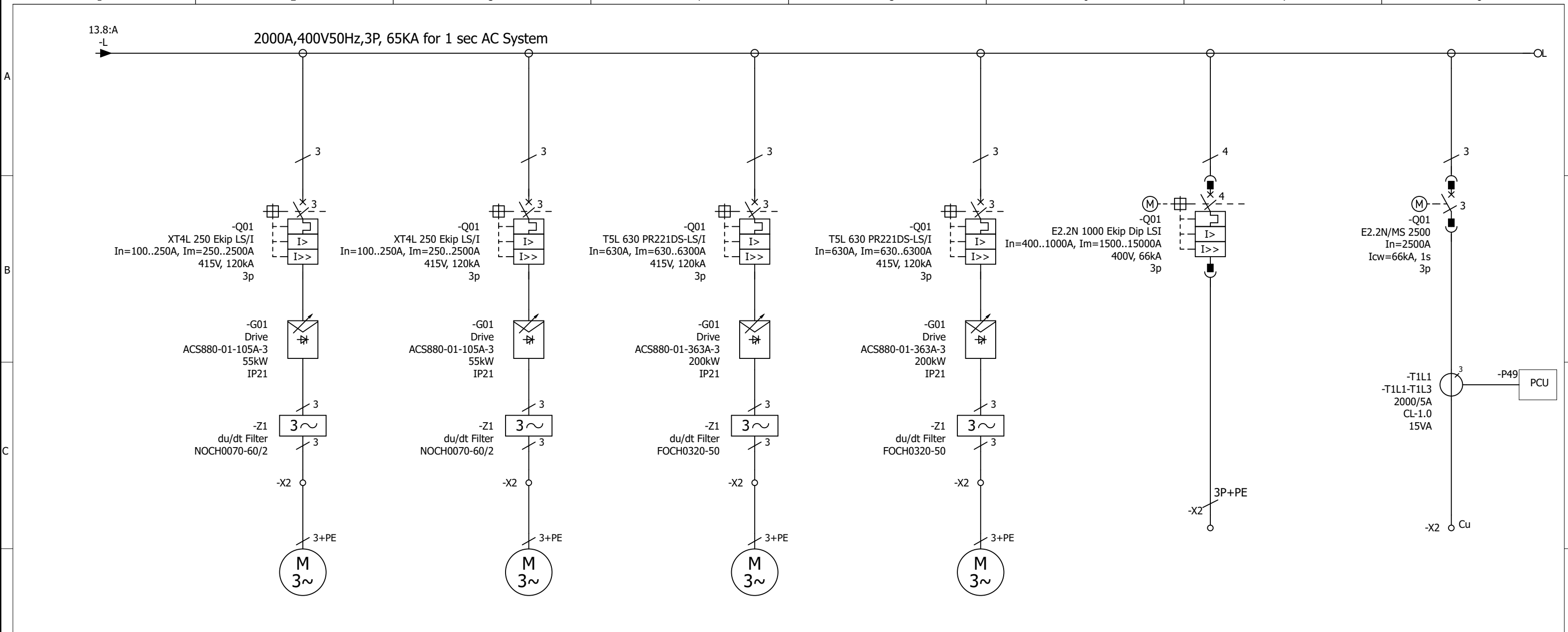
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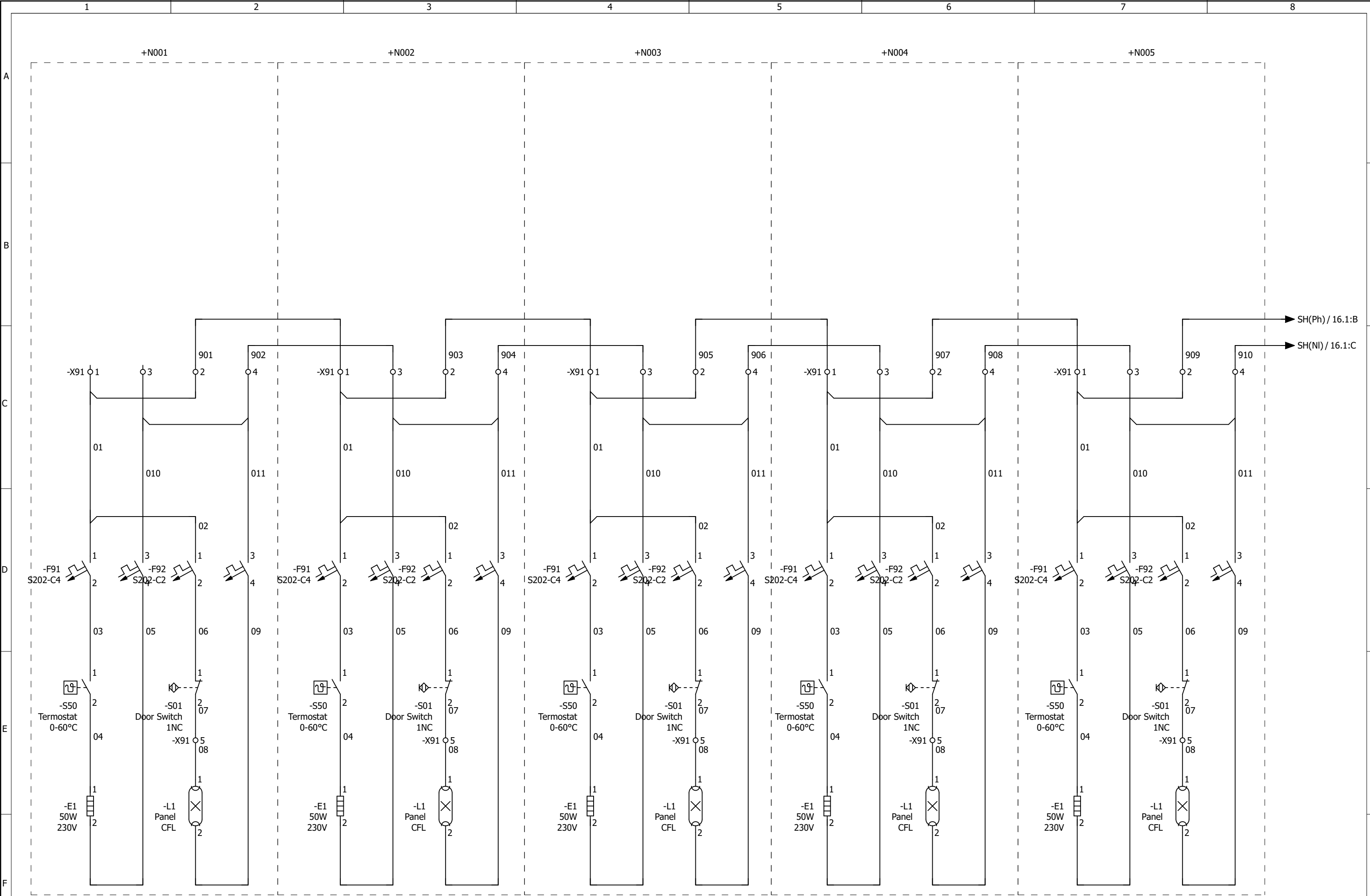
Module No.	K2603_ED_200A_Icu_70kA_XT2H_250_TMA_160A_8E_3P_WM	K2709_VFD-du_dt Filter_18.5kW_OS63G_63A_ACS 880_28E	K2710_VFD-du_dt Filter_22kW_OS63G_63A_ACS 880_36E	K2707_VFD-du_dt Filter_11kW_OS63G_63A_ACS 880_16E	K2710_VFD-du_dt Filter_22kW_OS63G_63A_ACS 880_36E	K2709_VFD-du_dt Filter_18.5kW_OS63G_63A_ACS 880_28E
Control Diagram	K21001K8603	K21001K8701	K21001K8701	K21001K8701	K21001K8701	K21001K8701
Customer Control Diagram	ED	VFD	VFD	VFD	VFD	VFD
Line No	7	8	9	10	11	12
Power (kW)	-	18.5	22	11	22	18.5
Voltage (V)	400	400	400	400	400	400
Current (A)	-	35	42.8	22	42.8	35
Cable Cross Section mm²	-	-	-	-	-	-
Incoming / Outgoing	TOP	TOP	TOP	TOP	TOP	TOP
Tag No	-	ZF03_PU001_MA01	ZF03_PU003_MA01	ZF01_MI001_MA01	ZF03_PU004_MA01	ZF03_PU002_MA01
Description	ACTIVE FILTER-3	2ND CLEANER CONC. PUMP	2ND CLEANER TAILINGS PUMP	ROUGHER CONDITIONER AGITATOR	2ND CLEANER TAILINGS PUMP (STAND BY)	2ND CLEANER CONC. PUMP (STAND BY)
Location	+N001.TA01	+N002.DA01	+N002.LA01	+N003.GA01	+N003.LA01	+N004.NA01




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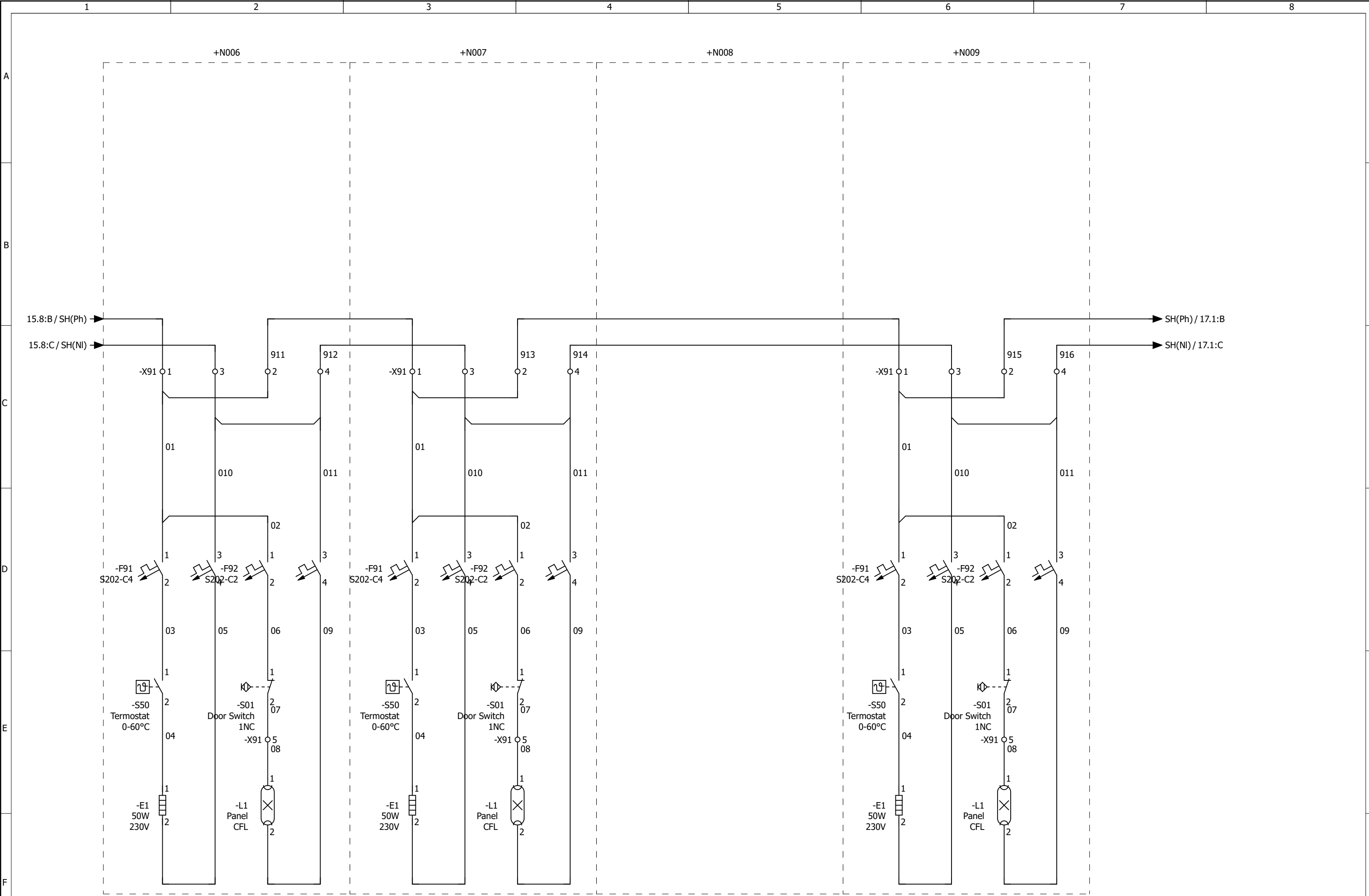
E	Module No.	K2713_VFD-du_dt Filter_55kW_XT4 L 250 Ekip LS_I_250A_ACS 880_85E		K2713_VFD-du_dt Filter_55kW_XT4 L 250 Ekip LS_I_250A_ACS 880_85E		K2716_VFD-du_dt Filter_200kW_T5 L 630 PR221DS-LS_I_630A_ACS 880_85E		K2716_VFD-du_dt Filter_200kW_T5 L 630 PR221DS-LS_I_630A_ACS 880_85E		K2531_ED_1000A_Icu_66kA_E2.2N_Ekip DIP LSI_3P_Ics_66kA_BBT_IOT_CABLE_1000A_DC2BB		K2501_INC_2500A_Icu_66kA_E2.2N_MS_3P_Ics_66kA_BBT_IOT_CABLE_2150A_DC2BB					
	Control Diagram	K21001K8702		K21001K8702		K21001K8703		K21001K8703		K21001K8531		K21001K8501					
	Customer Control Diagram	VFD		VFD		VFD		VFD		ED		INC					
	Line No	13		14		15		16		17		18					
	Power (kW)	55		55		200		200		-		-					
	Voltage (V)	400		400		400		400		400		400					
	Current (A)	-		-		-		-		-		-					
	Cable Cross Section mm²	-		-		-		-		4Rx1Cx240 mm2/Phase		4Rx1Cx240 mm2/Phase					
	Incoming / Outgoing	TOP		TOP		TOP		TOP		TOP		TOP					
F	Tag No	GZ02_PU007_MA01		GZ02_PU008_MA01		GZ03_PU001_MA01		GZ03_PU002_MA01		-		-					
	Description	MILL #6 & MILL #7 HC OF PUMP		MILL #6 & MILL #7 HC OF PUMP (STAND BY)		TERTIARY GRIND. MILL HC FEED PUMP		TERTIARY GRIND. MILL HC FEED PUMP (STAND BY)		FUTURE MCC		INCOMER FROM BE01-WB-001					
	Location	+N005.AA01		+N006.AA01		+N007.AA01		+N009.AA01		+N010.AA01		+N011.AA01					
<div>For Approval <input type="checkbox"/> As Tested <input type="checkbox"/></div> <div>Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/></div>				<div>Supplier</div> <div> ELEKTRİK SAN. A.Ş.</div> <div>SCALE 1</div> <div>DESIGNED BY : VINEETHA</div> <div>CHECKED BY : O.TOPAL</div> <div>APPROVED BY : O.YILMAZ</div>		<div>Customer</div> <div>RMG COPPER JSC</div> <div></div>		<div>End User</div> <div>RMG COPPER JSC</div> <div></div>		<div>Project</div> <div>TREL-DEU-RMG MOTOR CONTROL CENTRE</div> <div>MNS-GEORGIA</div> <div>BE01-WC-001</div> <div>400V LV MOTOR CONTROL CENTER</div>		<div>Title</div> <div>Single Line Diagram</div>		<div>Drawing No.</div> <div>4TRD021001S9001</div> <div>Project No.</div> <div>K21001</div>		<div>+SL</div> <div>PAGE No. 14</div> <div>CONT. +Space Heater/15</div>	<div>SIZE</div> <div>A3</div> <div></div> <div>REV.</div>




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R3V4 19.05.2021 Last Revision Date								SCALE 1				DESIGNED BY : VINEETHA																Project No. K21001				PAGE No. 15			
R0V0 01.02.2021 Creation Date								CHECKED BY : O.TOPAL				CONT. 16		REV.																					
Rev. Date Description				SIGN				APPROVED BY : O.YILMAZ																											
1				2				3				4				5				6				7				8							

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For Approval <input type="checkbox"/> As Tested <input type="checkbox"/> Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/>				Supplier ABB ELEKTRİK SAN. A.Ş.		Customer RMG COPPER JSC		End User RMG COPPER JSC		Project TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA BE01-WC-001 400V LV MOTOR CONTROL CENTER		Title Heater and Lighting		Drawing No. 4TRD021001H9001		+Space Heater	SIZE	A3	
R3V4	19.05.2021	Last Revision Date		SCALE 1	DESIGNED BY : VINEETHA										Project No. K21001		PAGE No.	16	
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL												CONT.	17	
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ												REV.		

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