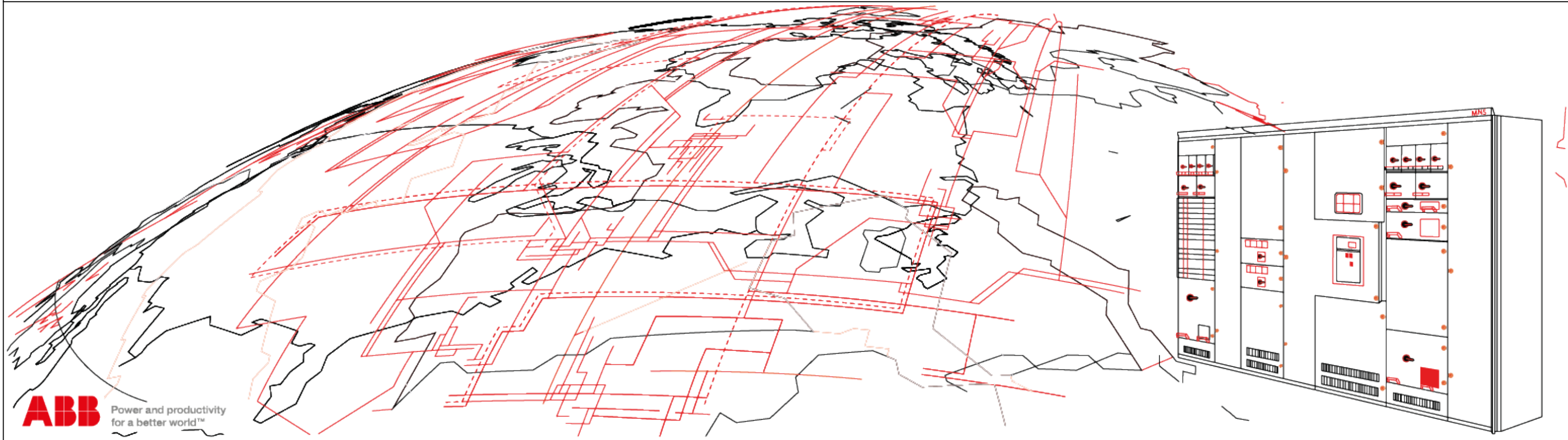


Elektrik Sanayi A.Ş.

# Low Voltage Systems

Customer : RMG COPPER JSC  
Contract Number : -  
Project Description : TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA  
Switchgear Name : BE01-WC-007 400V LV MOTOR CONTROL CENTER






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Dilovasi OSB 4.Kısım D-4009 No:11  
Dilovasi / Kocaeli / TURKEY




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R3V3	19.05.2021	Last Revision Date		SCALE 1	DESIGNED BY : VINEETHA														<b>Project No.</b> K21001	PAGE No.	1		REV.
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL															CONT.	2		
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ																		
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# Table of contents

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R3V3	13.07.2021	Last Revision Date		SCALE 1	DESIGNED BY : VINEETHA							<b>Project No.</b> K21001		PAGE No.	2		
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL									CONT.	3	REV.	
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ												
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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= 50 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	Raised Roof

### 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]	5040.0
SWITCHGEAR DEPTH [mm]	600.0
SWITCHGEAR HEIGHT [mm]	2200
SWITCHGEAR WEIGHT APPROX. [kg]	1847

## VOLTAGE PARAMETERS

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

## MAIN BUSBAR PARAMETERS

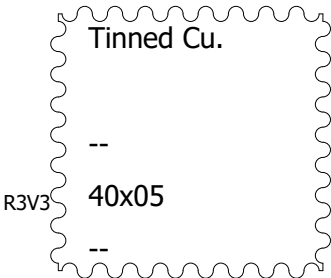
RATED CURRENT	Ie = 400A
MAIN BUSBAR SIZE PER PHASE [mm]	2x30x10/50
RATED SHORT-TIME WITHSTAND CURRENT	Icw = 28 kA, 1s
RATED PEAK WITHSTAND CURRENT	Ipk = 105 kA <sup>③</sup>
MATERIAL	Tinned Cu.

## NEUTRAL BUSBAR PARAMETERS (HORIZONTAL)

NEUTRAL BUSBAR SIZE [mm]	2x30x10
RATING OF NEUTRAL CONDUCTOR [%]	50%
MATERIAL	Tinned Cu.

## PE BUSBAR PARAMETERS (HORIZONTAL)

PE BUSBAR SIZE [mm]	30x10
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 <sup>④</sup>
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 <sup>②</sup>
PEN/N (HORIZONTAL)	Tin Plated Copper <sup>②</sup>
PE (HORIZONTAL)	Tin Plated Copper <sup>②</sup>
N-BAR (VERTICAL, IN CABLE COMPARTMENT)	Tin Plated Copper <sup>②</sup>
PE/PEN (VERTICAL, IN CABLE COMPARTMENT)	Tin Plated Copper <sup>②</sup>
CONNECTIONS BARS (SECTIONS)	Tin Plated Copper <sup>②</sup>
CONNECTIONS BARS (MODULES)	Tin Plated Copper <sup>②</sup>

R3V3

## 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
MCCB	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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R3V3		13.07.2021		Last Revision Date										PAGE No.		3			
ROV0		01.02.2021		Creation Date															
Rev.		Date		Description		SIGN										REV.			



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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, Hologen free, Self-exitinguishing)
Maximum operating temperature	90° Celcius
Halogen-free	YES
Tin Coating	NO

### MAIN CIRCUIT

L1 - BK<sup>①</sup>  
L2 - BK<sup>①</sup>  
L3 - BK<sup>①</sup>  
N - BK <sup>①</sup>  
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 mm²
AUXILIARY VOLTAGE 2 (L, N, PE) 230VAC	BK, BK, GNYE	min. 1.5 mm²

### DC AUXILIARY CIRCUITS

AUXILIARY VOLTAGE 1 (L+, L-) 24VDC	RD, WH	min. 1.5 mm²
AUXILIARY VOLTAGE 2	N/A	N/A
CT SECONDARY SIDE	L - BK	min. 2.5 mm²
VT SECONDARY SIDE	L - BK	min. 2.5 mm²
POTENTIAL FREE SIGNALS	L - BK	min. 1.5 mm²

\* 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 mm²
CUBICLE TO CUBICLE (+, -) 24V DC	RD, WH	4 mm²
MODULE TO MODULE (L, N) 230V AC	BK	2.5 mm²
MODULE TO MODULE (+, -) 24V DC	RD, WH	4 mm²
HEATER AND LIHGTING	BK	2.5 mm²

## COMMUNICATION CABLE

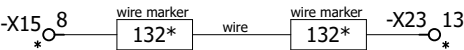
PROFIBUS DP	N/A
MODBUS RTU	BELDEN 9841NH (BU,WH)
MODBUS TCP/IP	CAT6 RJ45 CABLE
IEC61850	N/A

## 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	

<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>				<b>Supplier</b> <b>ABB</b> ELEKTRİK SAN. A.Ş.		<b>Customer</b> RMG COPPER JSC		<b>End User</b> RMG COPPER JSC		<b>Project</b> TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA BE01-WC-007 400V LV MOTOR CONTROL CENTER		<b>Title</b> Technical Data Sheet		<b>Drawing No.</b> 4TRD021001T9007		+DOCUMENTS		SIZE A3	
R3V3 27.05.2021 Last Revision Date				SCALE 1		DESIGNED BY : VINEETHA								<b>Project No.</b> K21001		PAGE No.		4	
R0V0 01.02.2021 Creation Date						CHECKED BY : O.TOPAL										REV.			
Rev. Date Description SIGN						APPROVED BY : O.YILMAZ										5			
1				2		3		4		5		6		7		8			



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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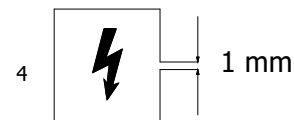
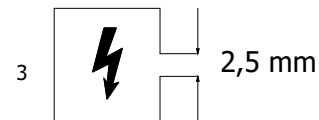
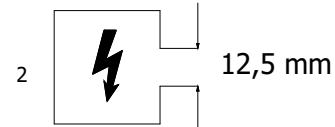
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## IP legends

acc. IEC 60529

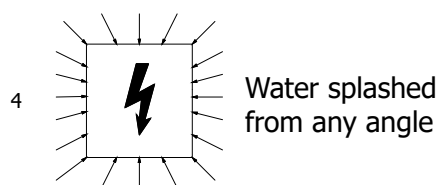
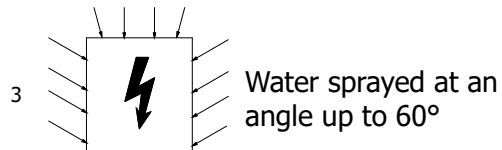
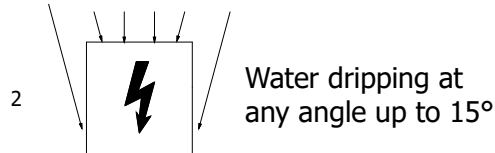
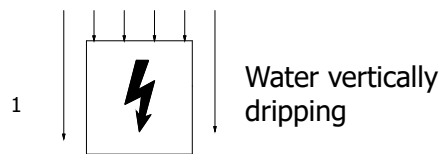
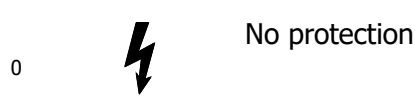
1.

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

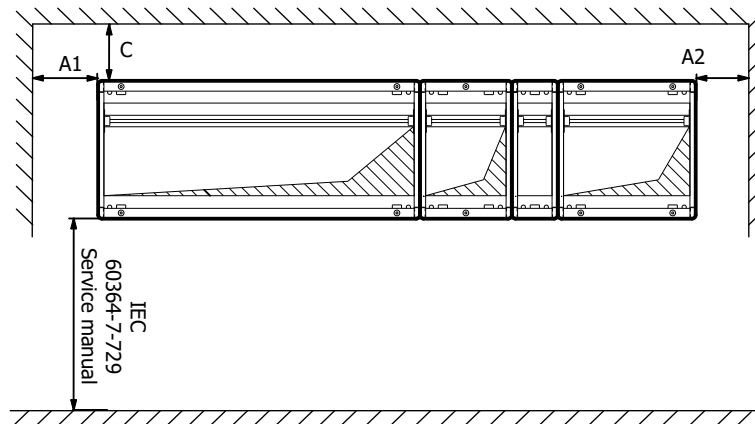
B Finger/tool > 12.5 diameter, 80 mm length

C Tool/Wire > 2.5 diameter, 100 mm length

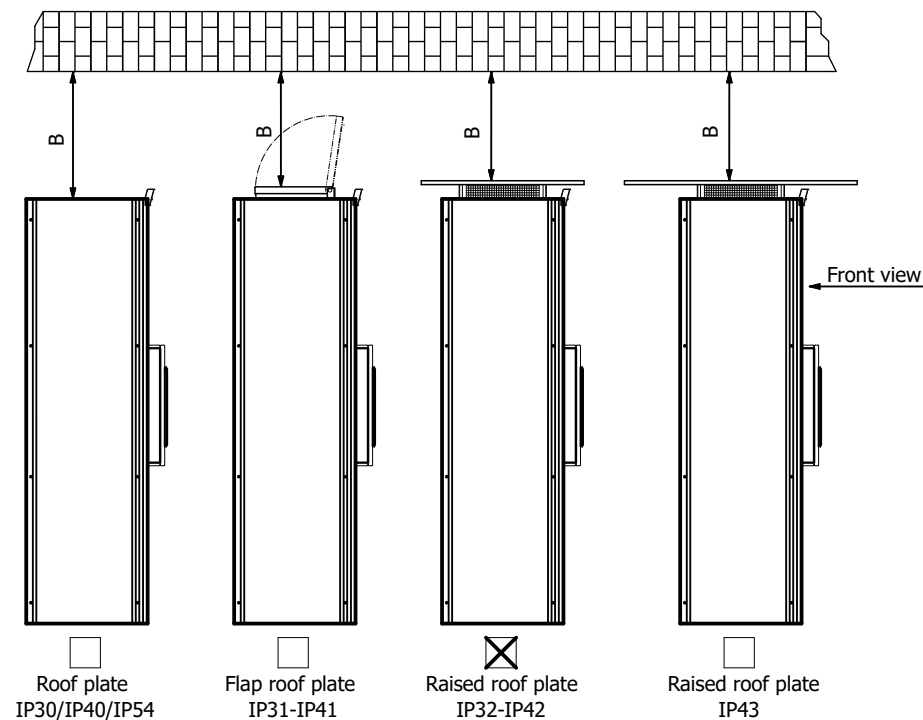
D Tool/Wire > 1.0 mm diameter, 100 mm length

## Wall distances

Floor View



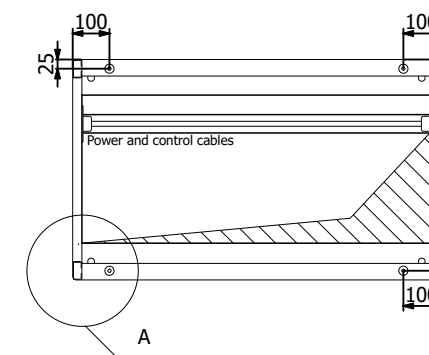
Side view



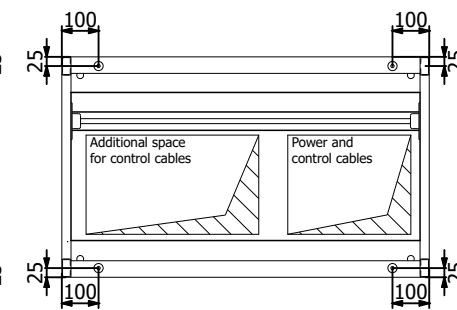
Internal protection	A1 (right mounted doors)	A1 (left mounted doors)	A2	B (Section to ceiling)	C (Section to back wall)
IP30-IP40	100 mm	170 mm	170 mm	500 mm	105 mm
IP54	100 mm	170 mm	170 mm	500 mm	105 mm
Raised roof plate (RRP)					
IP31-IP41	135 mm	170 mm	170 mm	500 mm	205 mm
IP32-IP42	135 mm	170 mm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

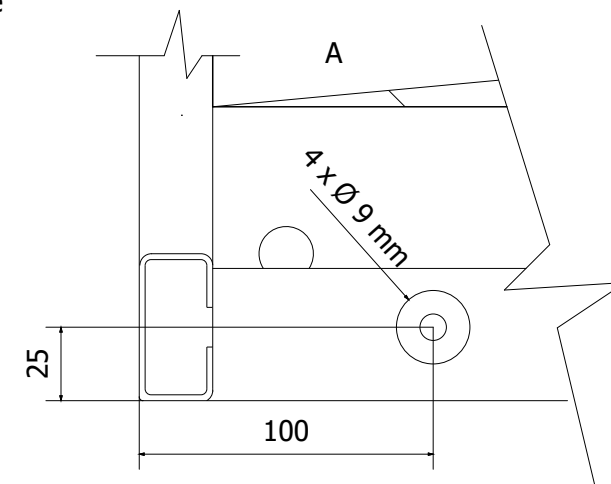
MNS 3.0 without bottom plate



MNS 3.0 with bottom plate



Anchor hole



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As Tested <input type="checkbox"/>	As Built <input type="checkbox"/>
R3V3 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-007
	400V LV MOTOR CONTROL CENTER

Title	Legend Sheet
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Drawing No.	4TRD021001T9007
Project No.	K21001

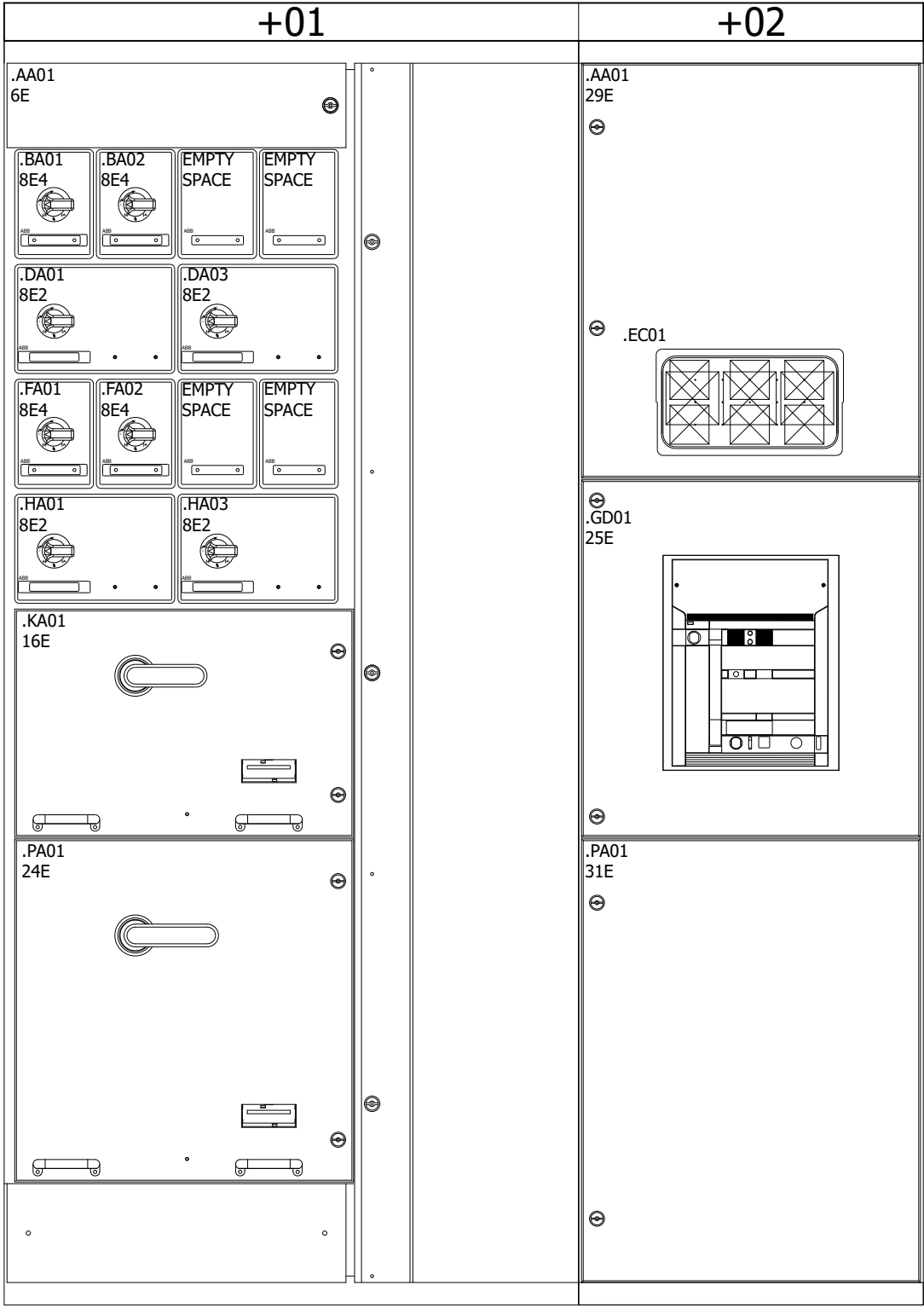
+DOCUMENTS	SIZE	A3
PAGE No.	6	
CONT.	7	REV.

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

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



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 clasification
- horizontal in numbers from 01 to 05

Example:

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

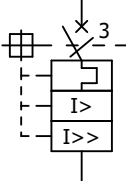
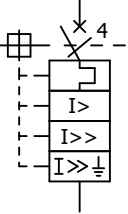
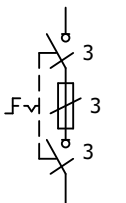
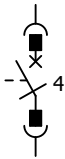
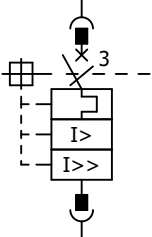
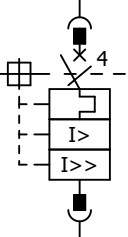
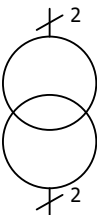



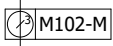
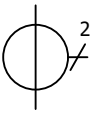






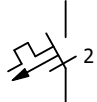



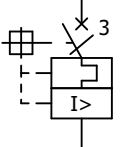



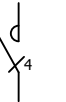
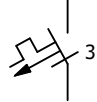







The withdrawable modules have five modes (operating handle schematised):

Mode	Position of switch			Mechanical / Electrical Status
	8E/4 and 8E/2	4E...24E	Designation	
1			ON position I	ON position-Main and control circuits are closed. Module is locked.
2			OFF position O	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 postion-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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A							A
B							B
C							C
D							D
E							E
F							F

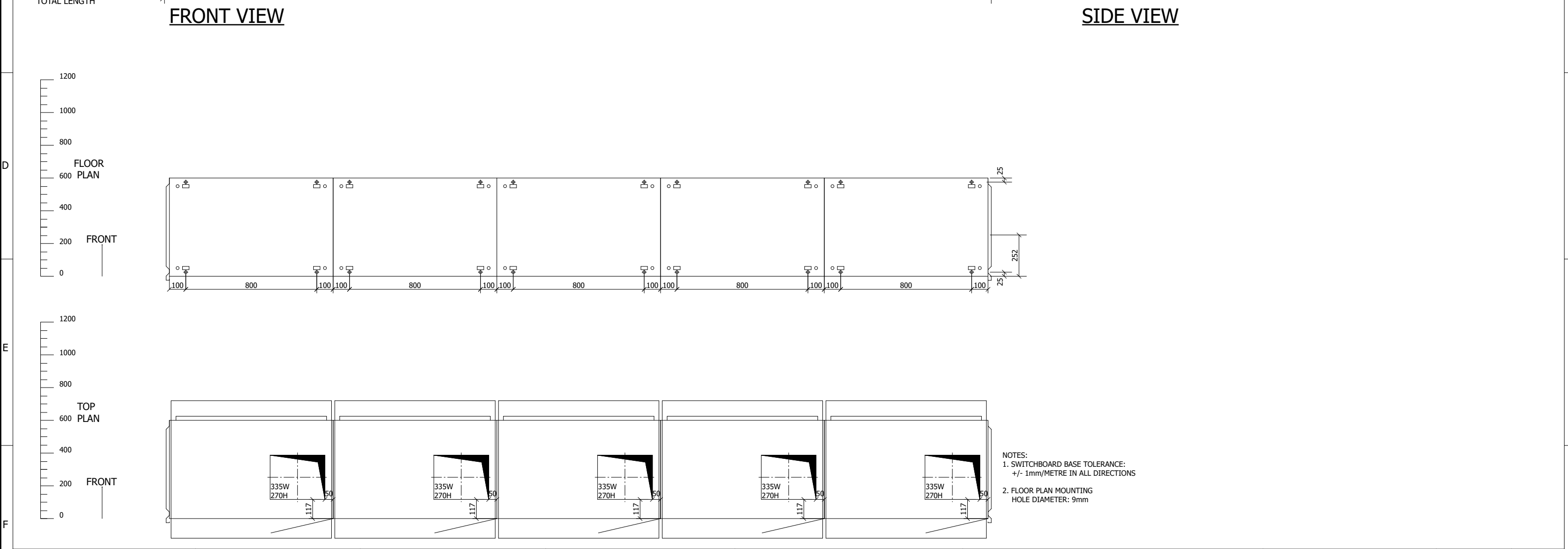


Manufacturers Name and Type	ABB MNS 3.0
Manufacturers Serial Number	4TRS021001X9007
Switchgear Tag Number	BE01-WC-007
Switchgear Title	400V LV MOTOR CONTROL CENTER
System Rated Voltage and Phases	400 VAC, ~3P+N+PE
System Wires and Frequency	4, 50 Hz
Rated Power Widtstand Voltage	2,2kV
Rated Lightening Imp. Withstand Voltage	8 kV
Rated Fault Current	28 kA
Rated RMS Short-Circuit Current, (s)	28 kA ,1s
Rated Peak Short-Circuit Current	105 kA
Busbar Rating	400 A
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

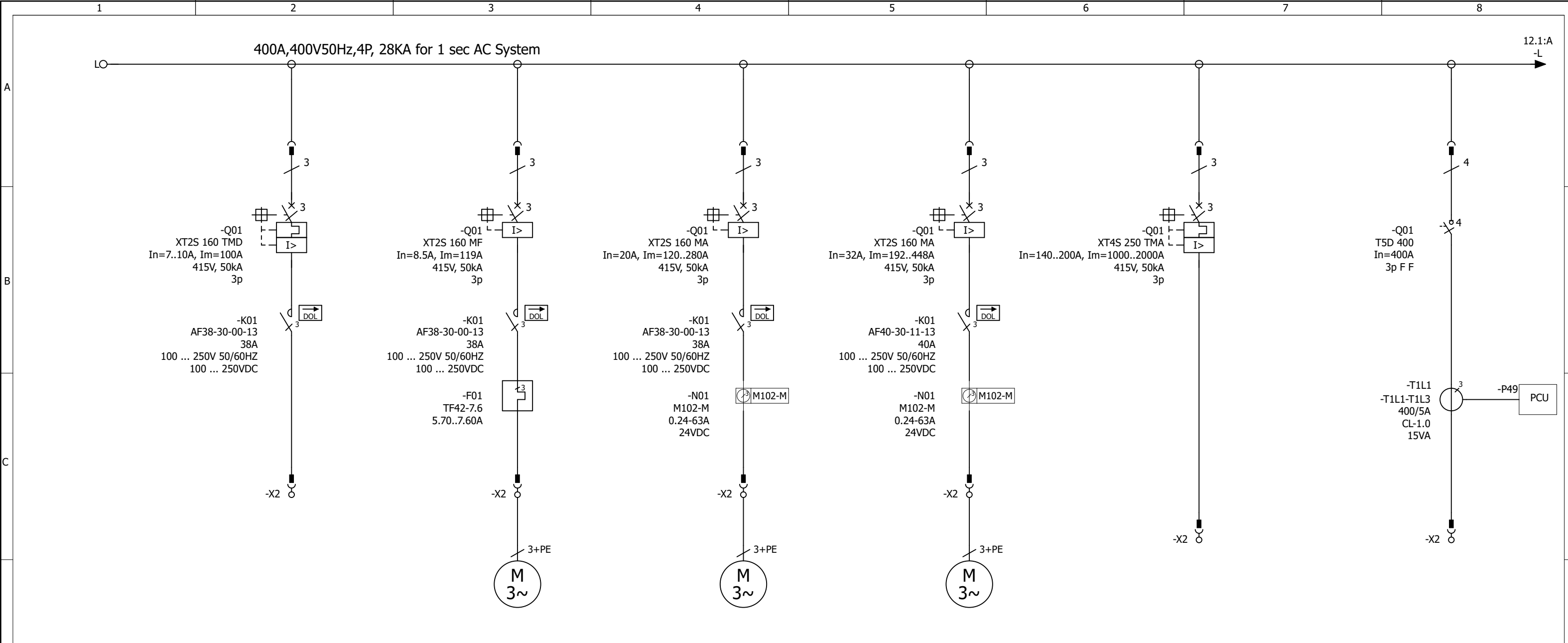
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R3V3		19.05.2021		Last Revision Date				<div>SCALE 1</div>		DESIGNED BY : VINEETHA				PAGE No.		9		<div><div></div><div></div></div>			
R0V0		01.02.2021		Creation Date						CHECKED BY : O.TOPAL				CONT.		+GA/10				REV.	
Rev.		Date		Description		SIGN				APPROVED BY : O.YILMAZ											
1																					

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A	<p>Roof Plan Floor Plan</p> <p>SINGLE UNIT SHIPPING UNIT TOTAL LENGTH</p> <p>FRONT VIEW</p>					<p>Roof Plan Side View Floor Plan</p> <p>SIDE VIEW</p>		A										
B								B										
C								C										
D	<p>FLOOR PLAN</p> <p>FRONT</p>							D										
E	<p>TOP PLAN</p> <p>FRONT</p>					<p>NOTES: 1. SWITCHBOARD BASE TOLERANCE: +/- 1mm/METRE IN ALL DIRECTIONS 2. FLOOR PLAN MOUNTING HOLE DIAMETER: 9mm</p>		E										
F	<table border="1"> <tr> <td>For Approval <input type="checkbox"/> As Tested <input type="checkbox"/></td> <td>Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/></td> <td>Supplier <b>ABB</b> ELEKTRİK SAN. A.Ş. DESIGNED BY : VINEETHA CHECKED BY : O.TOPAL APPROVED BY : O.YILMAZ</td> <td>Customer RMG COPPER JSC </td> <td>End User RMG COPPER JSC </td> <td>Project TREL-DEU-RMG MOTOR CONTROL CENTRE MNS-GEORGIA BE01-WC-007 400V LV MOTOR CONTROL CENTER</td> <td>Title Front View</td> <td>Drawing No. 4TRD021001G9007 Project No. K21001</td> <td>+GA PAGE No. 10 CONT. +SL/11</td> <td>SIZE A3 REV.</td> </tr> </table>					For Approval <input type="checkbox"/> As Tested <input type="checkbox"/>	Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/>	Supplier <b>ABB</b> ELEKTRİK SAN. A.Ş. DESIGNED BY : VINEETHA 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-007 400V LV MOTOR CONTROL CENTER	Title Front View	Drawing No. 4TRD021001G9007 Project No. K21001	+GA PAGE No. 10 CONT. +SL/11	SIZE A3 REV.			F
For Approval <input type="checkbox"/> As Tested <input type="checkbox"/>	Approved For Construction <input checked="" type="checkbox"/> As Build <input type="checkbox"/>	Supplier <b>ABB</b> ELEKTRİK SAN. A.Ş. DESIGNED BY : VINEETHA 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-007 400V LV MOTOR CONTROL CENTER	Title Front View	Drawing No. 4TRD021001G9007 Project No. K21001	+GA PAGE No. 10 CONT. +SL/11	SIZE A3 REV.									
	1	2	3	4	5	6	7	8										





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R3V3	12.07.2021	Last Revision Date		SCALE	DESIGNED BY : VINEETHA	<div><div></div><div>RMG</div><div>RICH METALS GROUP</div></div>	<div><div></div><div>RMG</div><div>RICH METALS GROUP</div></div>							PAGE No.	10	<div><div></div><div></div></div>	REV.		
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL														
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ														
				23										CONT.		+SL/11			

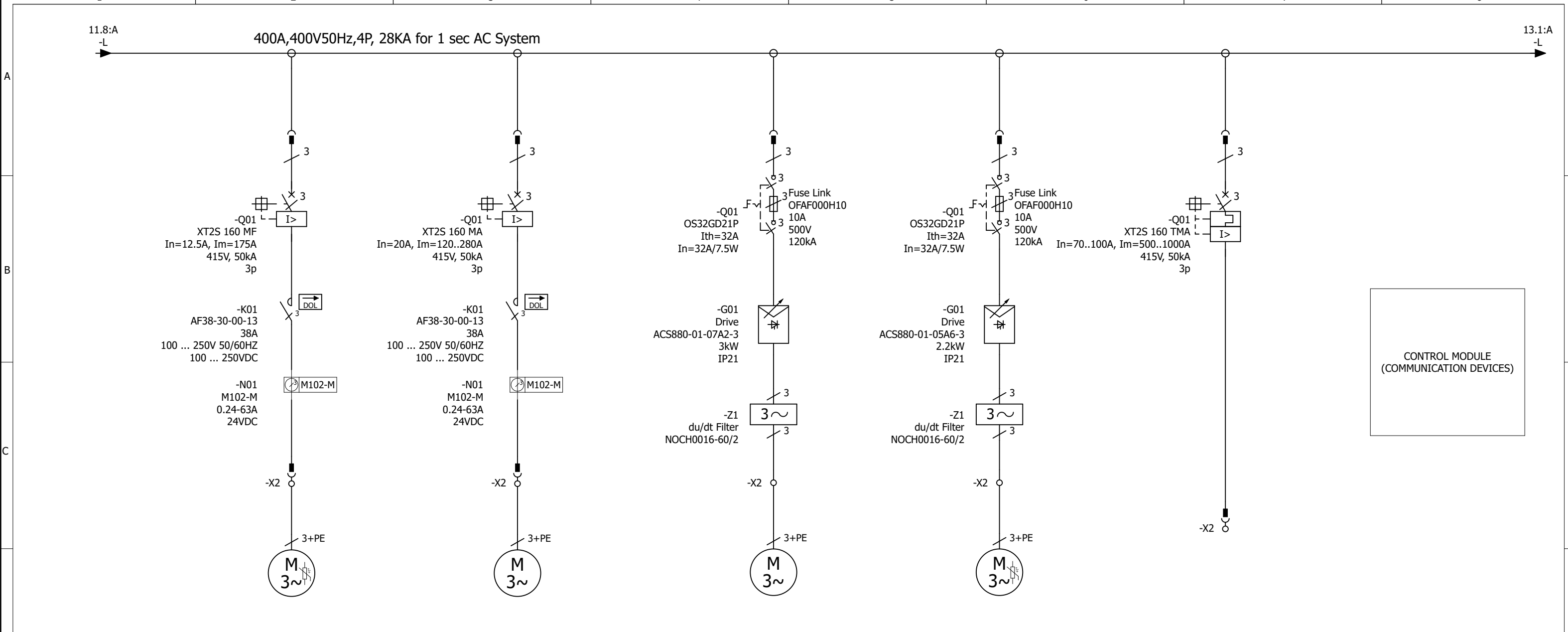
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Module No.	K2841_CF_1.1kW_50kA_XT2S 160 TMD 10_AF38_8E2_3P_WM_IE2	K2834_NRDOL-TOL_3kW_50kA_XT2S 160 MF 8.5_8E2_3P_WM_IE2	K2826_NRDOL-M102_11kW_50kA_XT2S 160 MA 32_8E2_3P_WM_IE2	K2827_NRDOL-M102_15kW_50kA_XT2S 160 MA 32_8E2_3P_WM_IE2	K2607_ED_200A_Icu_50kA_XT2S_250_TMA_160A_8E_3P_WM	K2507_INC_400A_T5D 400 SD_360A_16E_4P_WM
Control Diagram	K21001K8841	K21001K8831	K21001K8821	K21001K8821	K21001K8607	K21001K8507
Customer Control Diagram	CF	DOL	DOL	DOL	ED	INC
Line No	1	2	3	4	5	6
Power (kW)	1	3	11	15	-	-
Voltage (V)	400	400	400	400	400	400
Current (A)	-	-	21.1	-	-	-
Cable Cross Section mm²	-	-	-	-	-	-
Incoming / Outgoing	TOP	TOP	TOP	TOP	TOP	TOP
Tag No	HT01_HTU01_EA01	HT01_HTU01_MA01	AA03_PU001_MA01	SMF_1	-	-
Description	THICKENER OIL HEATER	THICKENER HYDRAULIC PUMP MOTOR	SPILLAGE PUMP	SPARE MOTOR FEEDER-1	ACTIVE FILTER	INCOMER FROM BE01-WB-004
Location	+N001.BA01	+N001.BA03	+N001.DA01	+N001.DA03	+N001.KA01	+N001.RA01

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<div>R3V3 19.05.2021 Last Revision Date</div> <div>Rev. Date Creation Date</div> <div>Rev. Date Description SIGN</div>				<div>1</div>		<div>2</div>		<div>3</div>		<div>4</div>		<div>5</div>		<div>6</div>		<div>7</div>		<div>8</div>	

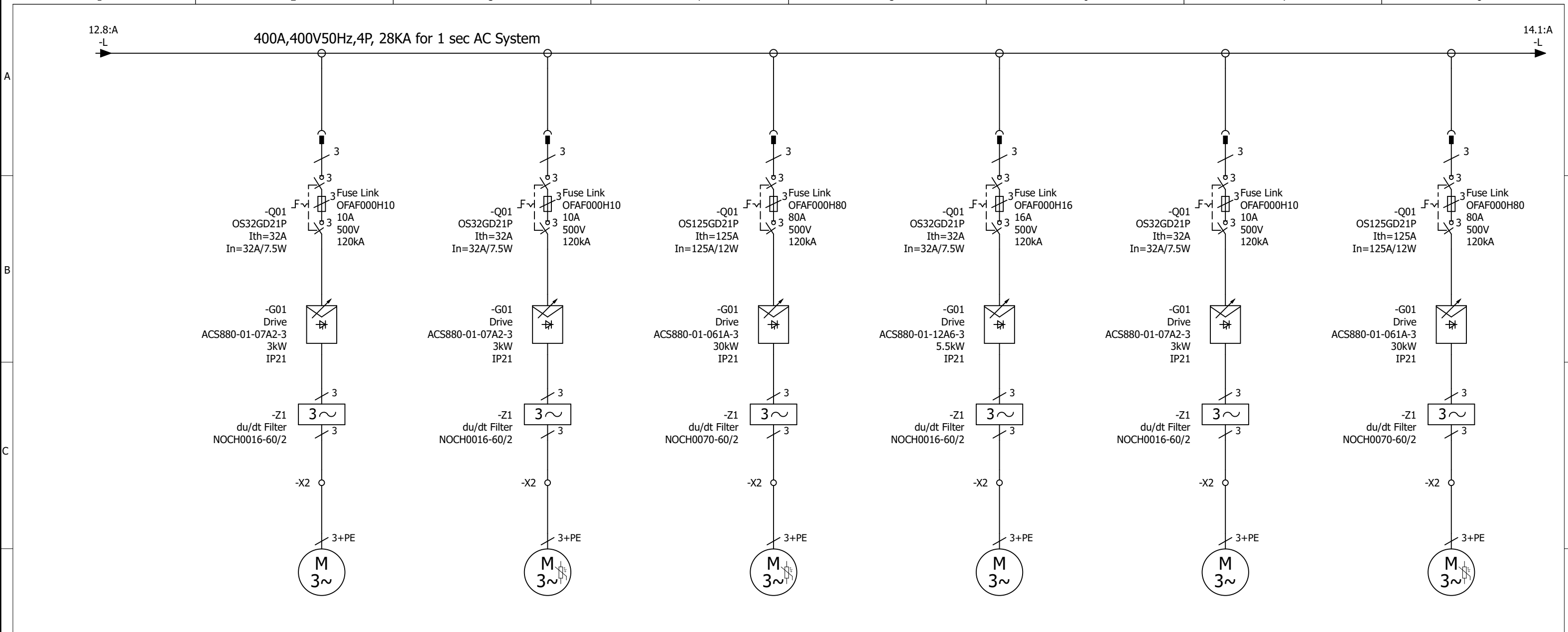
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Module No.	K2824_NRDOL-M102_5.5kW_50kA_XT2S 160 MF 12.5_8E2_3P_WM_IE2	K2826_NRDOL-M102_11kW_50kA_XT2S 160 MA 32_8E2_3P_WM_IE2	K2703_VFD-du_dt Filter_3kW_OS3 2G_32A_ACS 880_16E	K2702_VFD-du_dt Filter_2.2kW_OS 32G_32A_ACS 880_16E	K2606_ED_100A_Icu_50kA_XT2S_160_TMA_84A_6E_3P_WM	K2557_CONTROL PLUG-IN MODULE_ FOR COMMUNICATION COMPONENTS_16E
Control Diagram	K21001K8821	K21001K8821	K21001K8701	K21001K8701	K21001K8606	K21001K8557
Customer Control Diagram	DOL	DOL	VFD	VFD	ED	CM
Line No	7	8	9	10	11	12
Power (kW)	5.5	11	3	2.2	10kVA	-
Voltage (V)	400	400	400	400	400	400
Current (A)	10.5	-	-	5	-	-
Cable Cross Section mm²	-	-	-	-	-	-
Incoming / Outgoing	TOP	TOP	TOP	TOP	TOP	TOP
Tag No	ST01_PU009_MA01	SMF_2	AG35_PU003_MA01	ST01_PU007_MA01	-	-
Description	SPILLAGE PUMP	SPARE MOTOR FEEDER-2	GLAND SEAL WATER PUMP	THICKENER FROTH SPRAY WATER PUMP	UPS	CONTROL MODULE FOR COMMUNICATION DEVICES
Location	+N002.BA01	+N002.BA03	+N002.DA01	+N002.HA01	+N002.PC01	+N002.RA01



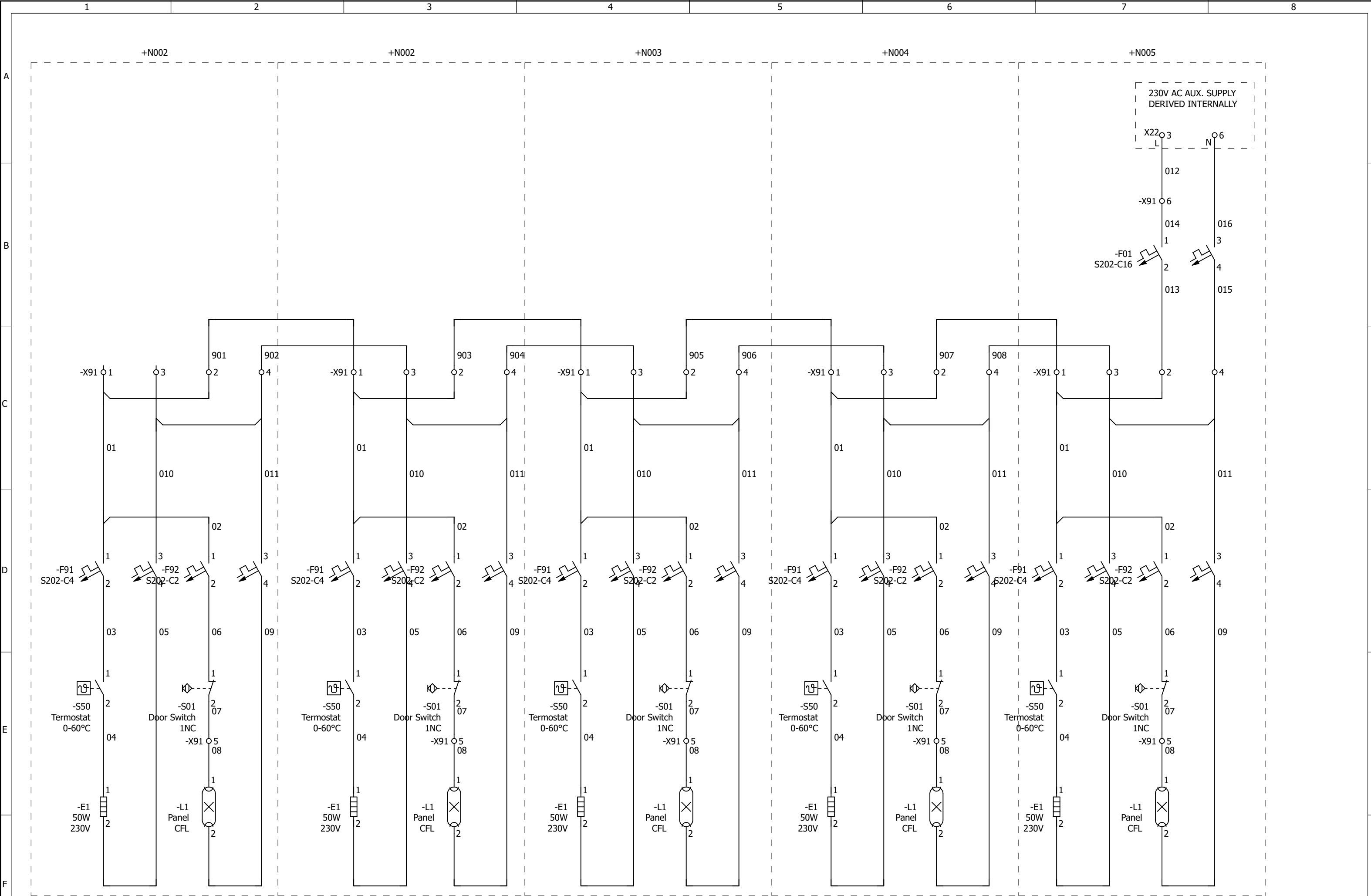
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Module No.	K2703_VFD-du_dt Filter_3kW_ OS32G_32A_ACS 880_16E	K2703_VFD-du_dt Filter_3kW_ OS32G_32A_ACS 880_16E	K2711_VFD-du_dt Filter_30kW_ OS125G_125A_ACS 880_36E	K2705_VFD-du_dt Filter_5.5kW_ OS32G_32A_ACS 880_16E	K2703_VFD-du_dt Filter_3kW_ OS32G_32A_ACS 880_16E	K2711_VFD-du_dt Filter_30kW_ OS125G_125A_ACS 880_36E
Control Diagram	K21001K8701	K21001K8701	K21001K8701	K21001K8701	K21001K8701	K21001K8701
Customer Control Diagram	VFD	VFD	VFD	VFD	VFD	VFD
Line No	13	14	15	16	17	18
Power (kW)	3	3	30	5.5	3	30
Voltage (V)	400	400	400	400	400	400
Current (A)	-	6.3	53	10.5	-	53
Cable Cross Section mm <sup>2</sup>	-	-	-	-	-	-
Incoming / Outgoing	TOP	TOP	TOP	TOP	TOP	TOP
Tag No	AG35_PU004_MA01	ST01_MI001_MA01	ST01_PU005_MA01	ST01_PU001_MA01	ST01_PU003_MA01	ST01_PU006_MA01
Description	GLAND SEAL WATER PUMP (STAND BY)	THICKENER FEED TANK MIXER	THICKENER OVERFLOW PUMP	THICKENER FEED PUMP	THICKENER UNDERFLOW PUMP	THICKENER OVERFLOW PUMP (STAND BY)
Location	+N003.CA01	+N003.GA01	+N003.LA01	+N004.CA01	+N004.GA01	+N004.LA01

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R3V3	19.05.2021	Last Revision Date		SCALE 1	DESIGNED BY : VINEETHA										Project No. K21001	PAGE No. 14		CONT.	REV.
R0V0	01.02.2021	Creation Date			CHECKED BY : O.TOPAL														
Rev.	Date	Description	SIGN		APPROVED BY : O.YILMAZ														
1				2		3		4		5		6		7		8		+Space Heater/15	

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R3V3		19.05.2021		Last Revision Date				SCALE 1		DESIGNED BY : VINEETHA												<b>Project No.</b> 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																									
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