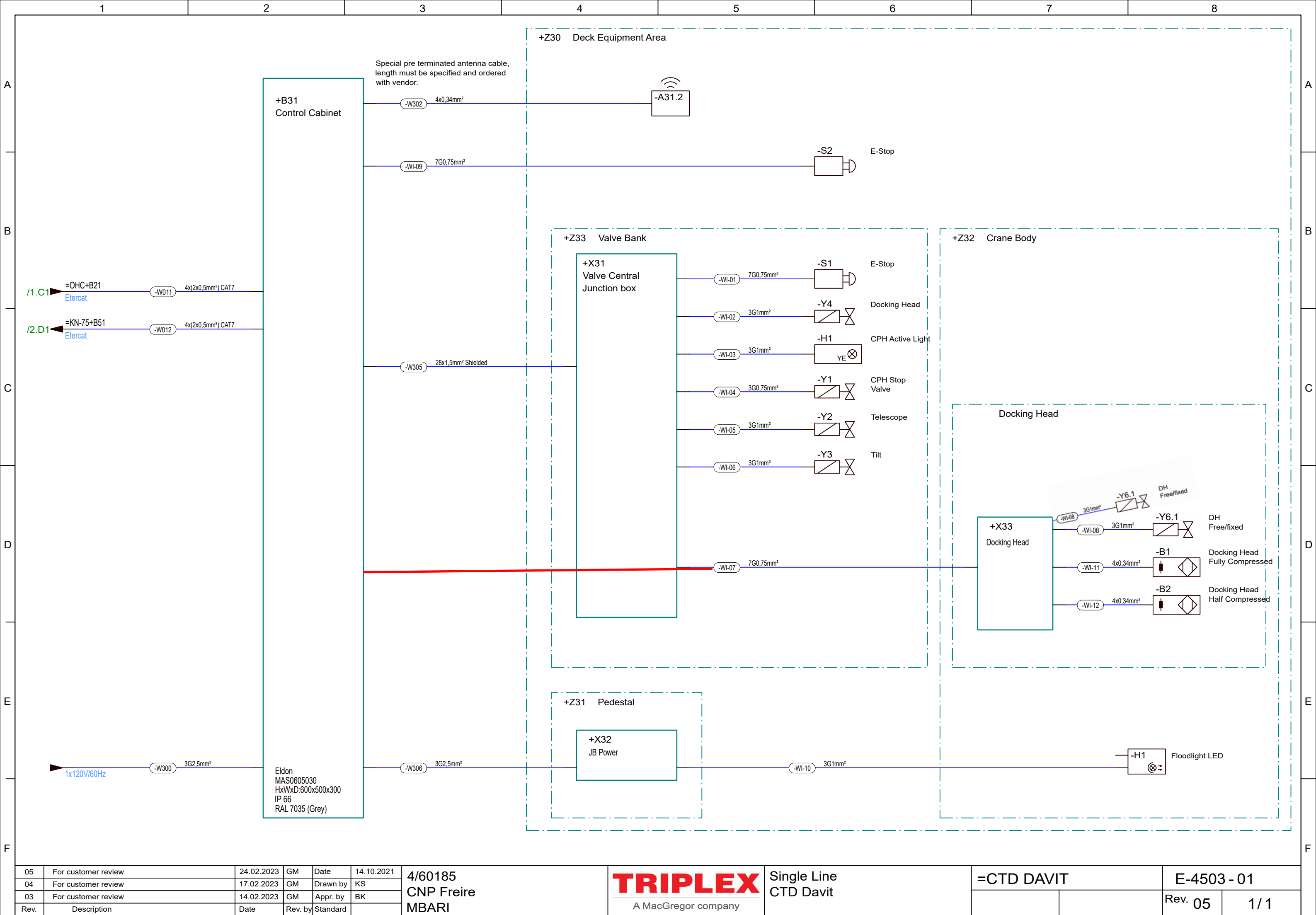


1		2		3		4		5		6		7		8	
=CTD DAVIT															
Customer : CNP Freire															
Ship/Hull : MBARI															
Project no. : 4/60185															
Drawing no.: E-4503															



05	For customer review	24.02.2023	GM	Date	14.10.2021
04	For customer review	17.02.2023	GM	Drawn by	KS
03	For customer review	14.02.2023	GM	Appr. by	BK
Rev.	Description	Date	Rev. by	Standard	

4/60185
CNP Freire
MBARI

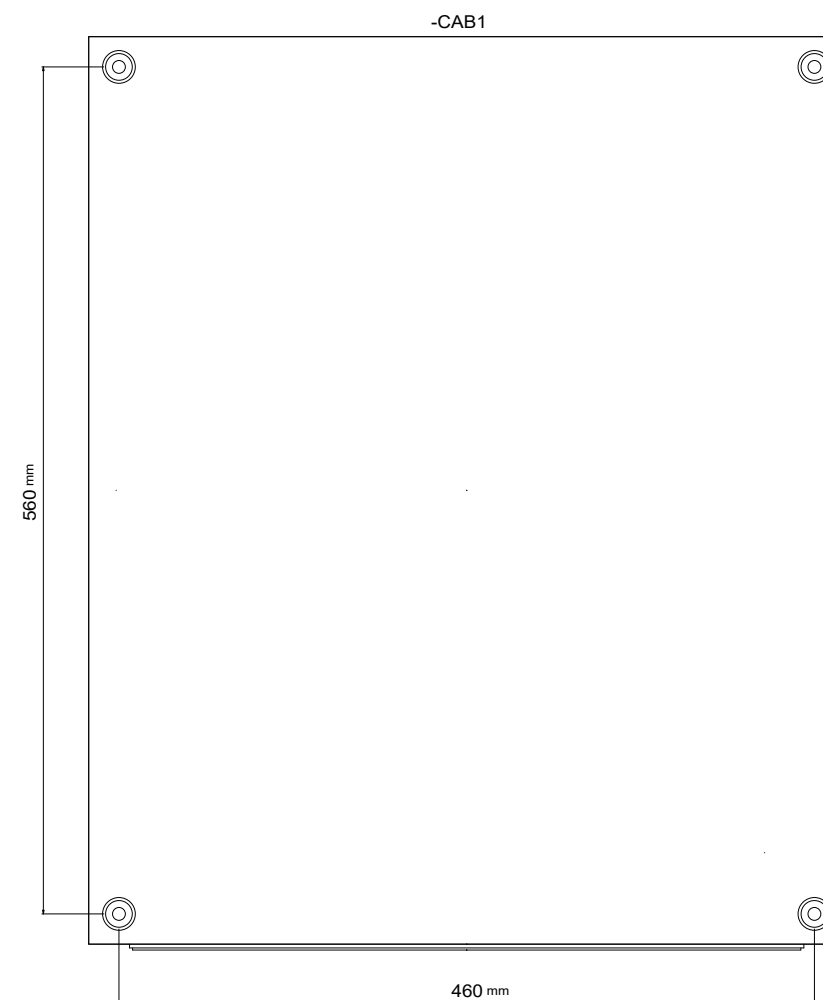
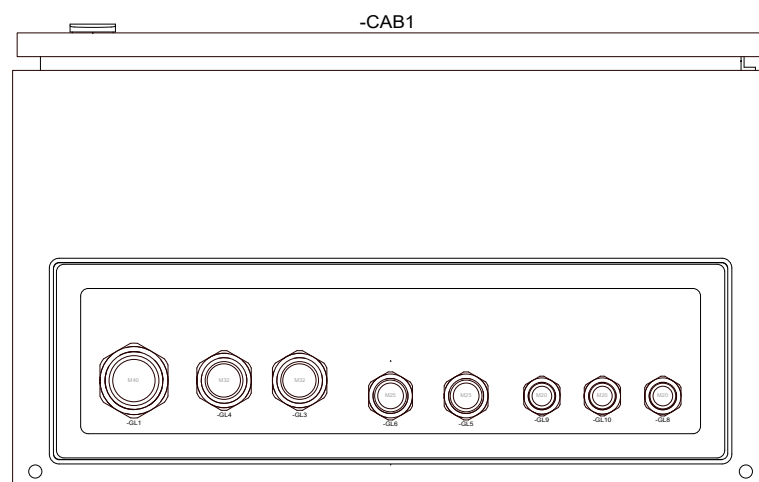
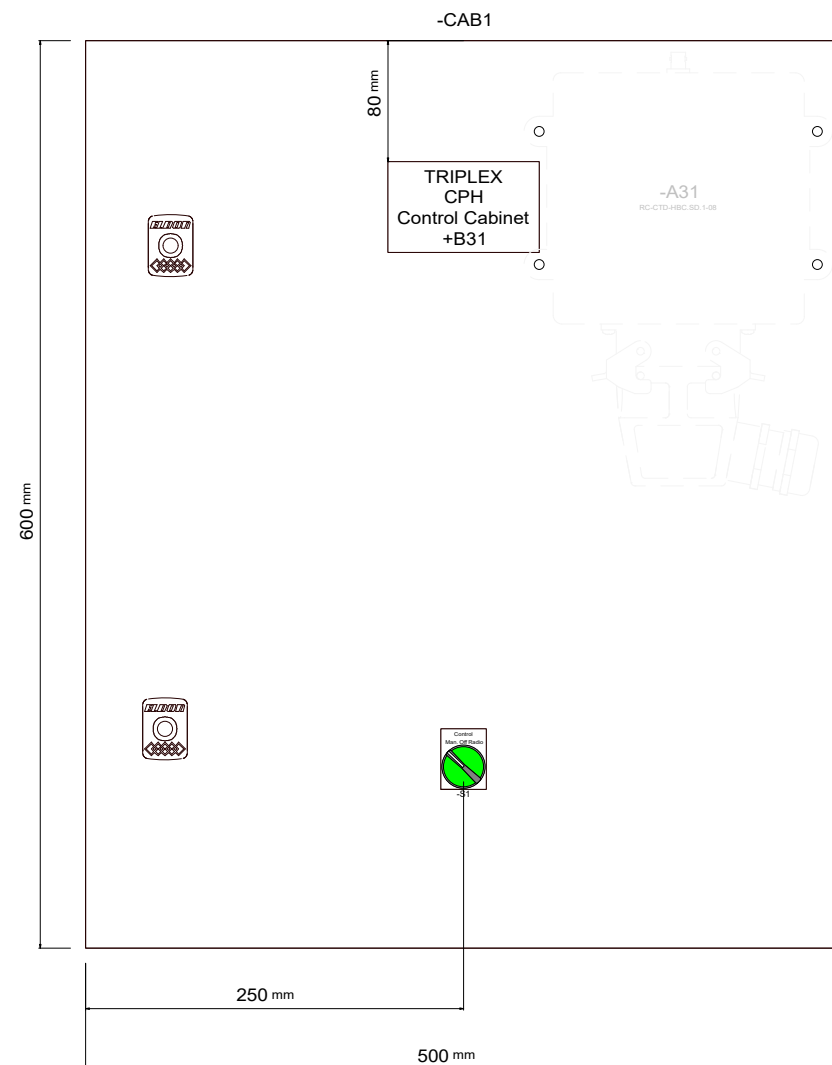
TRIPLEX
A MacGregor company

Single Line
CTD Davit

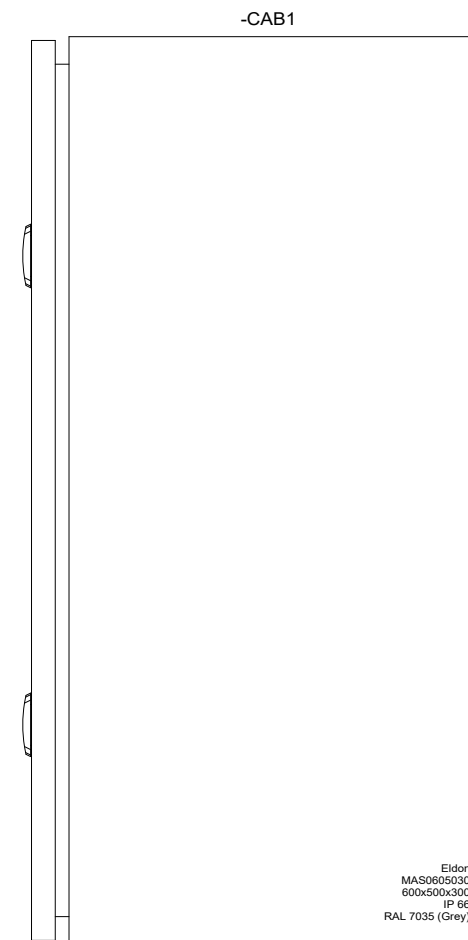
=CTD DAVIT

E-4503 - 01

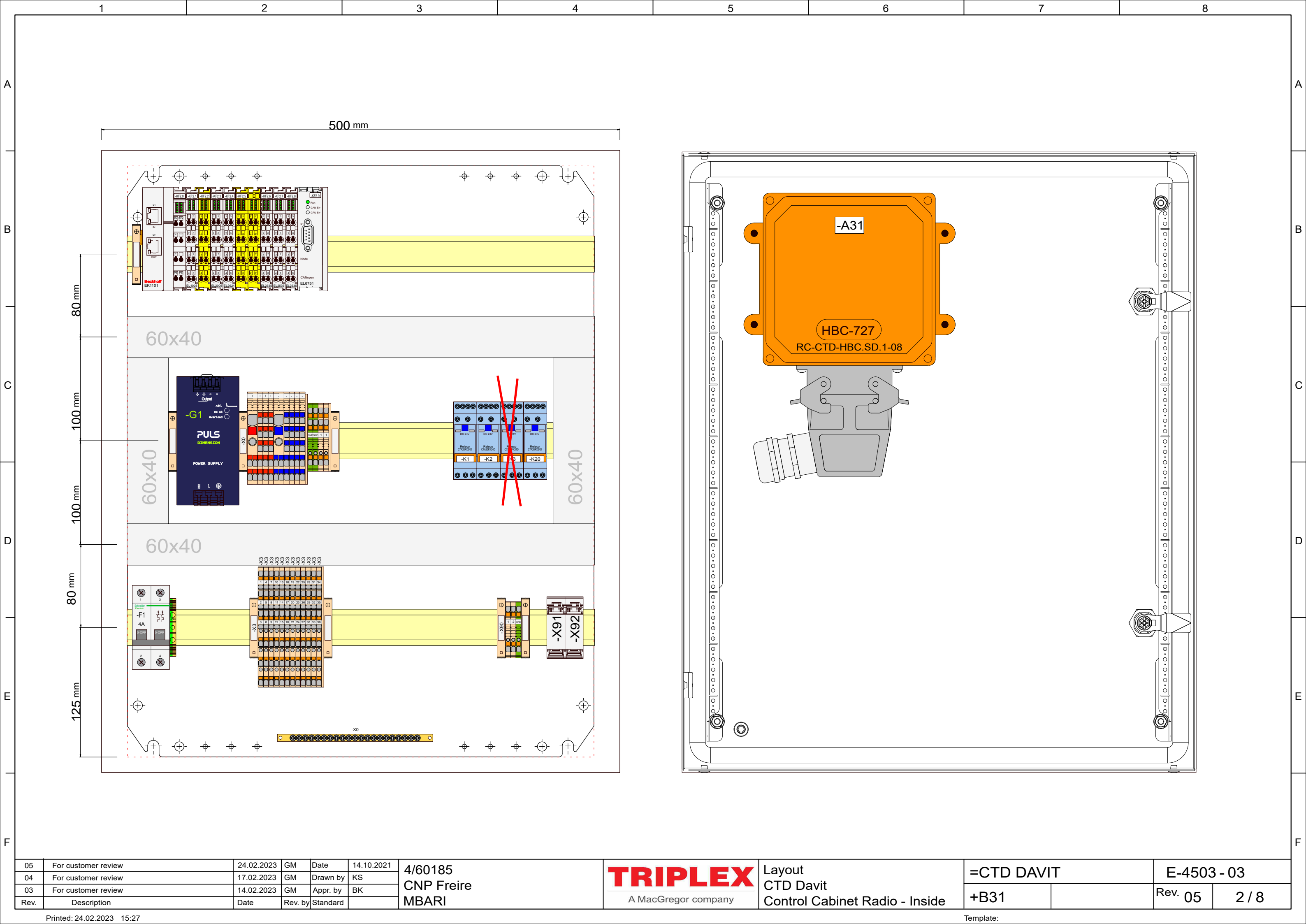
Rev. 05 1 / 1



Product Data	
Manufacturer	Eldon
Article name	MAS0605030
WxHxD	600x500x300
IP	IP 66
RAL Code	RAL 7035 (Grey)
Material	Steel. Painted



05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	 A MacGregor company	Layout CTD Davit Control Cabinet Radio - Outside	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS							
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard								
									+B31		Rev. 05	1 / 8



05	For customer review	24.02.2023	GM	Date	14.10.2021
04	For customer review	17.02.2023	GM	Drawn by	KS
03	For customer review	14.02.2023	GM	Appr. by	BK
Rev.	Description	Date	Rev. by	Standard	

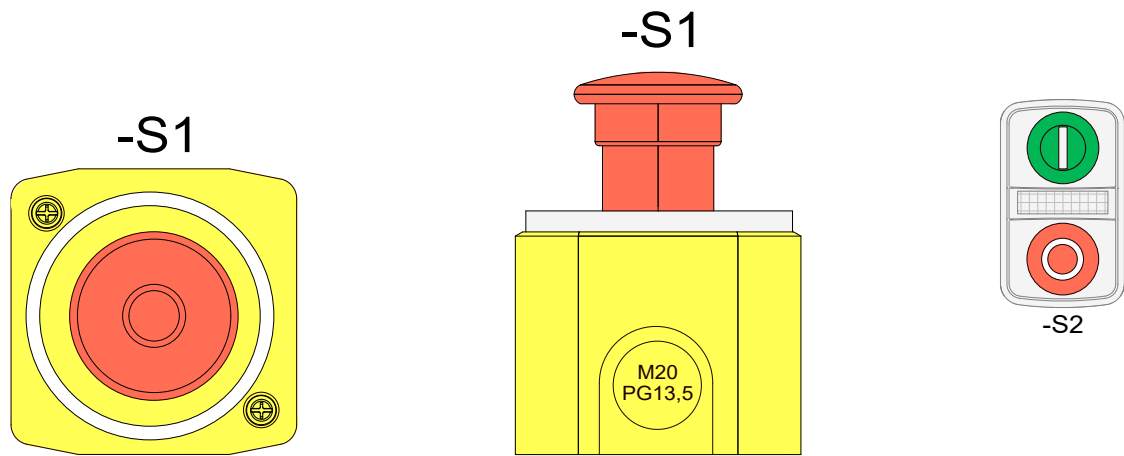
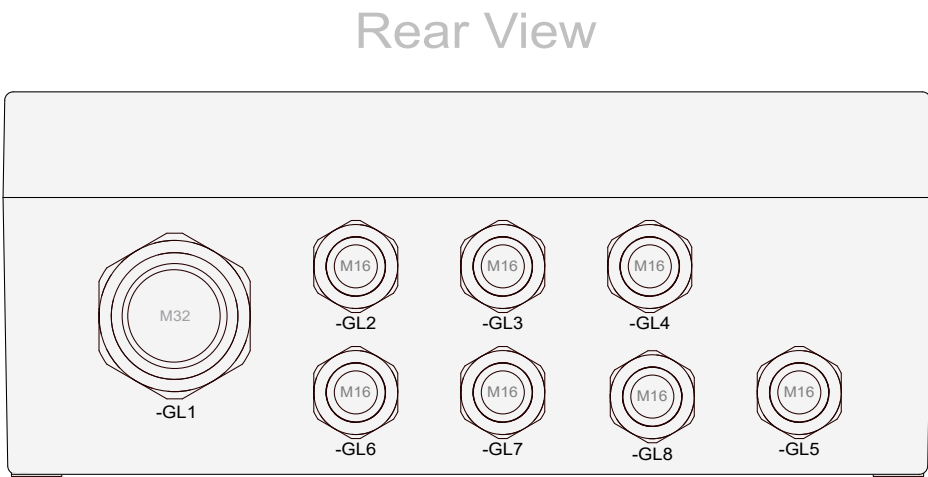
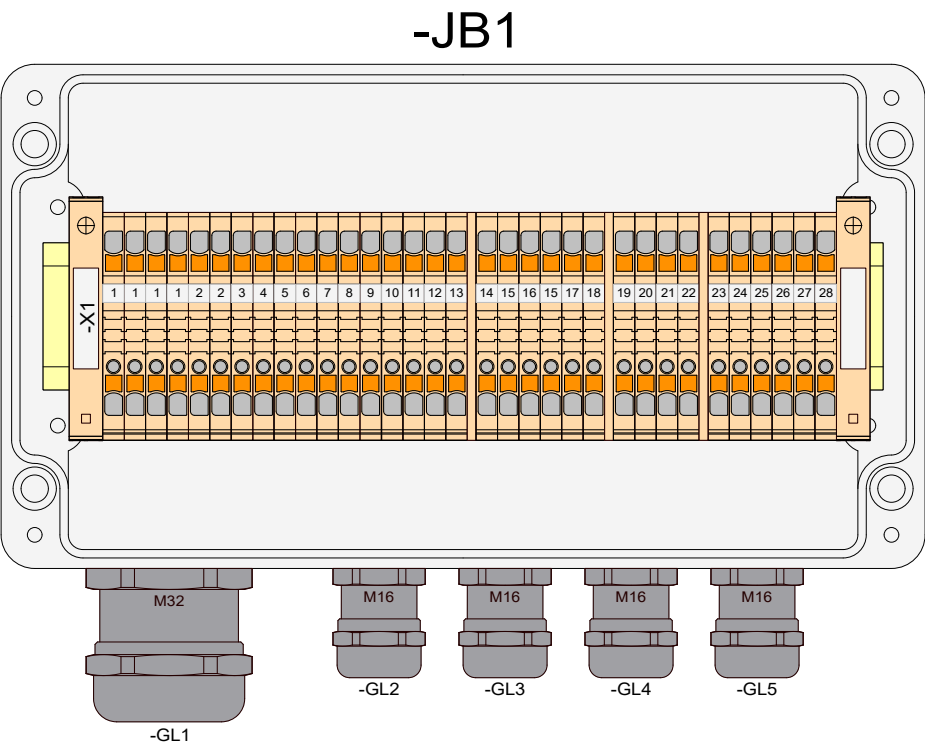
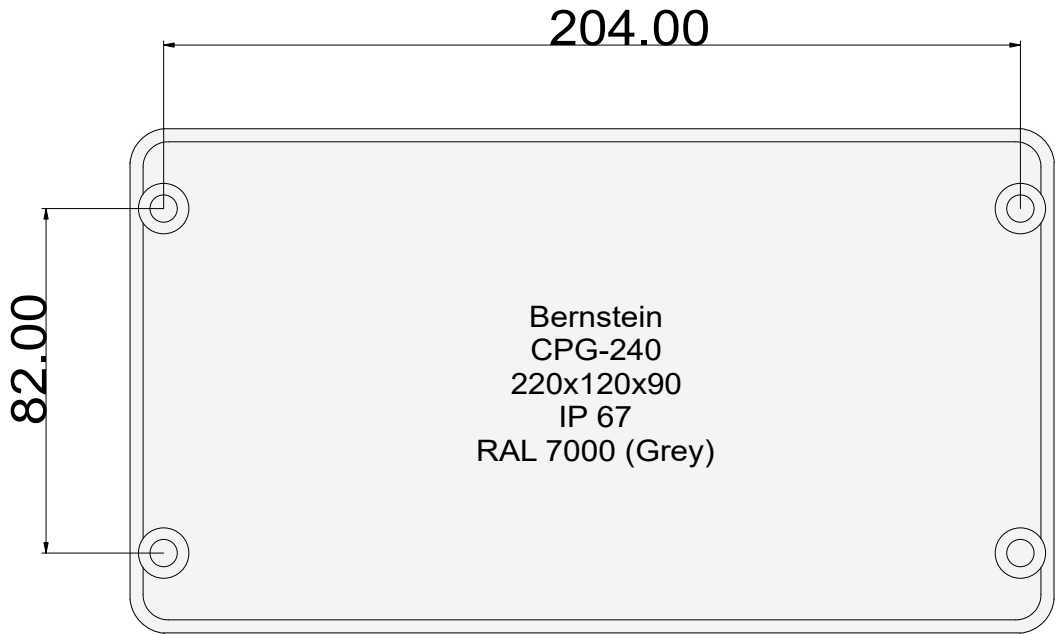
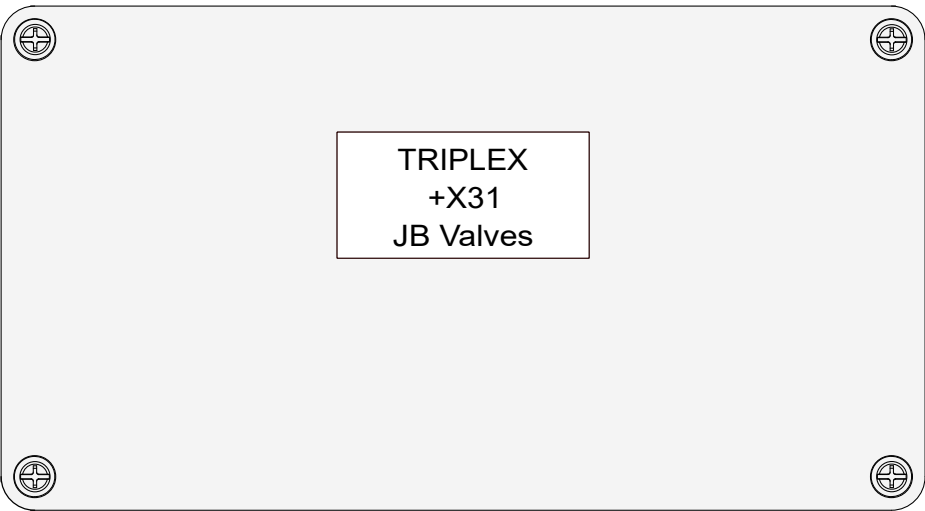
4/60185
CNP Freire
MBARI

TRIPLEX
A MacGregor company

Layout
CTD Davit
Control Cabinet Radio - Inside

=CTD DAVIT
+B31

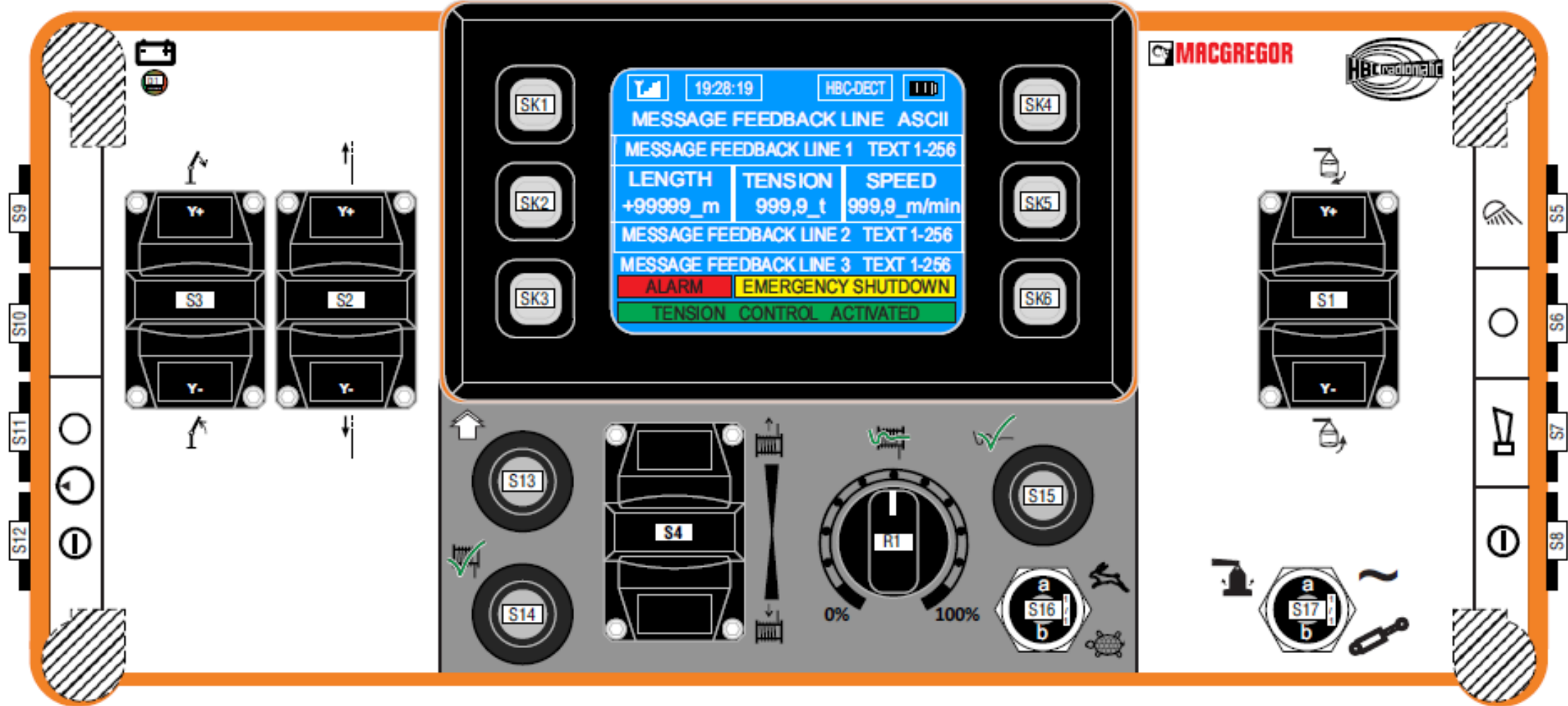
E-4503 - 03
Rev. 05 2 / 8



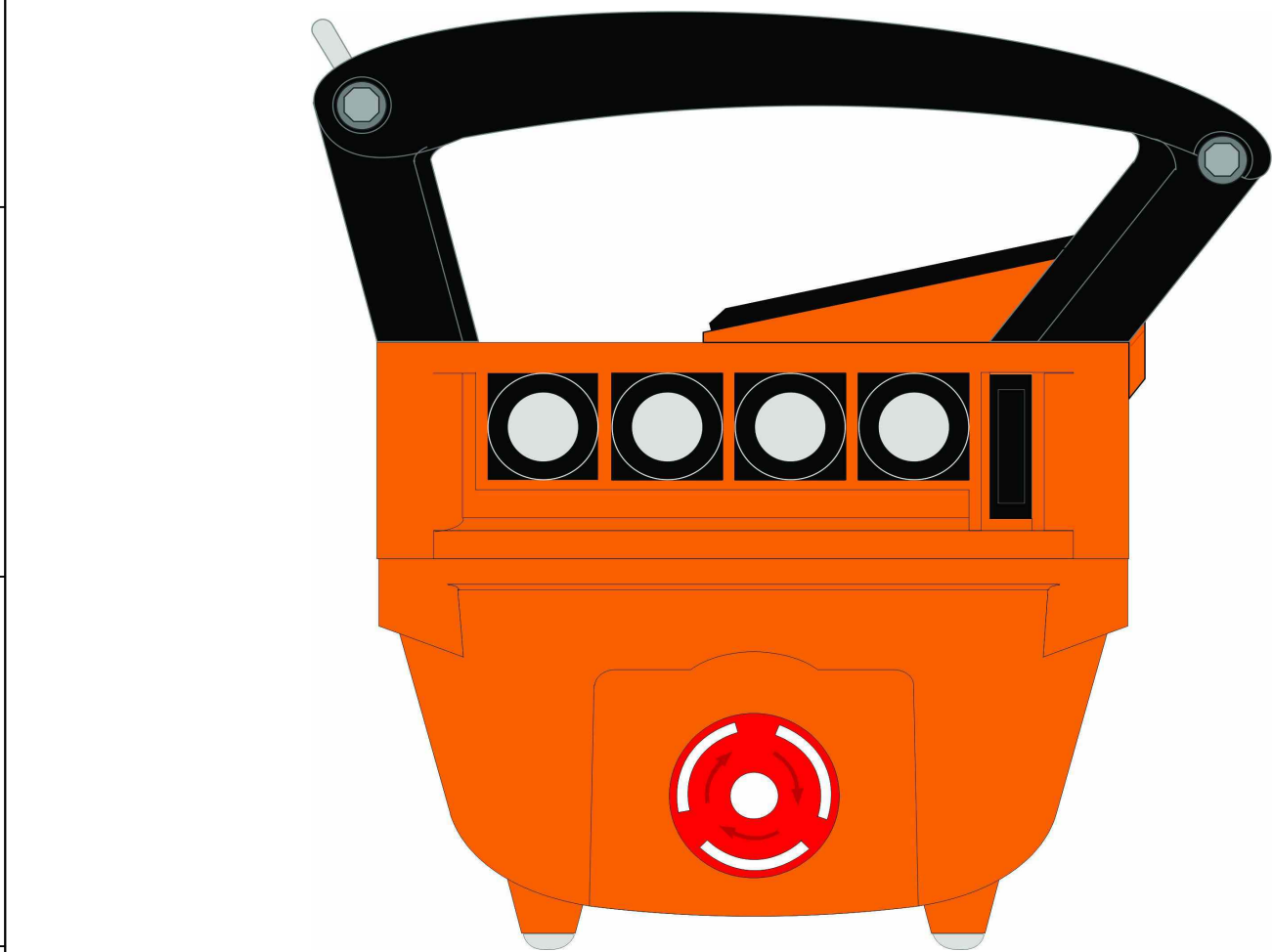
Component installed on equipment

05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	TRIPLEX A MacGregor company	Layout CTD Davit JB Valves	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS				+X31		Rev. 05	3 / 8
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard								

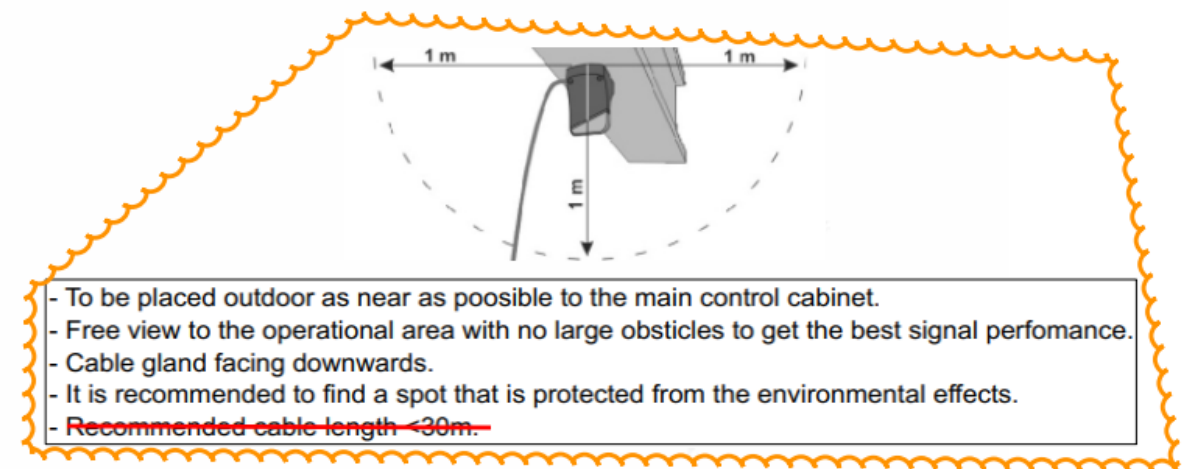
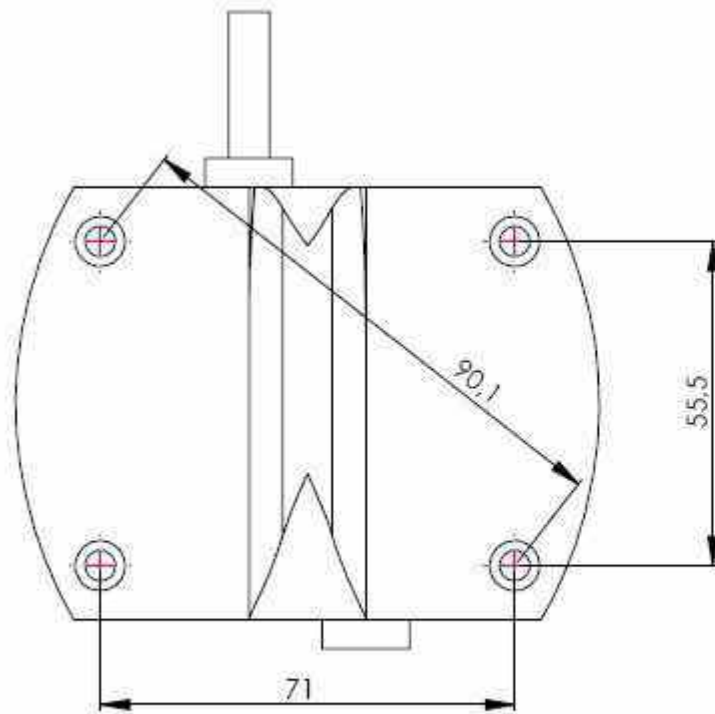
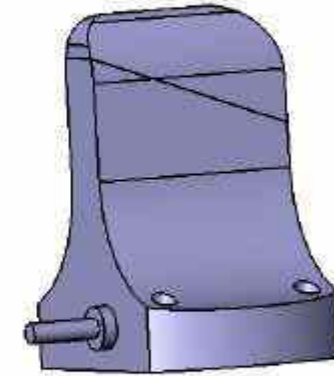
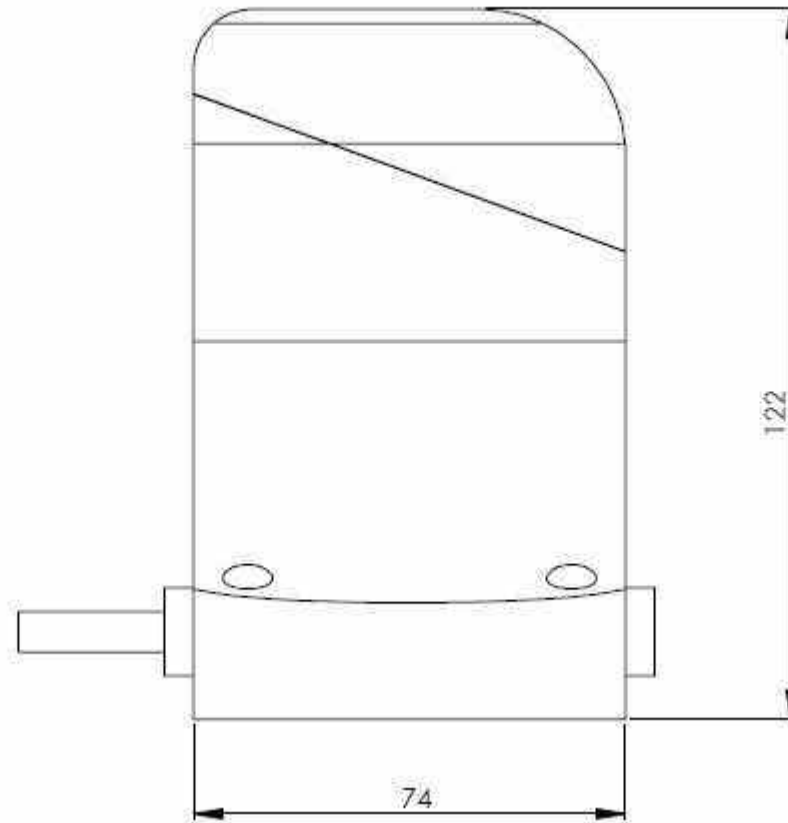
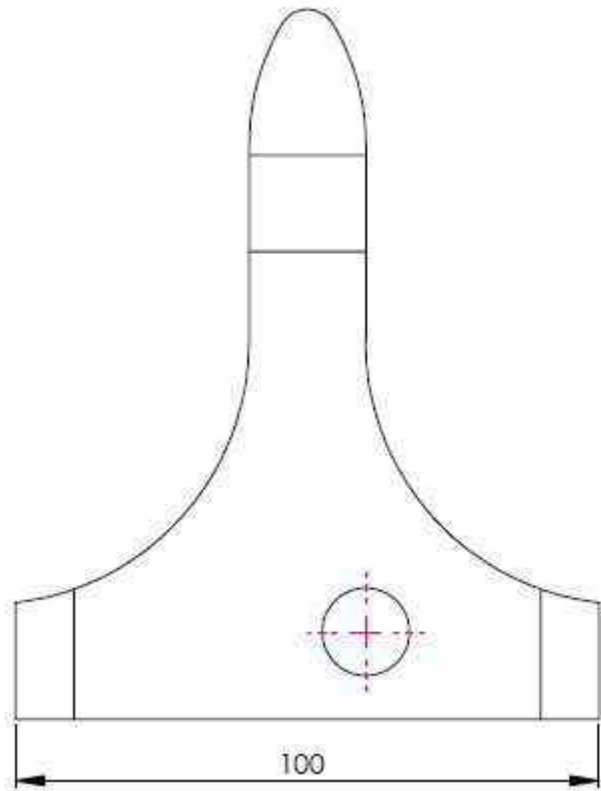
-A31.3



05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185	TRIPLEX A MacGregor company	Layout CTD Davit RC Transmitter	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS	CNP Freire			+A31		Rev. 05	5 / 8
03	For customer review	14.02.2023	GM	Appr. by	BK	MBARI						
Rev.	Description	Date	Rev. by	Standard								



05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	TRIPLEX A MacGregor company	Layout CTD Davit RC Transmitter Side View	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS							
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard					+A31		Rev. 05	6 / 8



05	For customer review	24.02.2023	GM	Date	14.10.2021
04	For customer review	17.02.2023	GM	Drawn by	KS
03	For customer review	14.02.2023	GM	Appr. by	BK
Rev.	Description	Date	Rev. by	Standard	

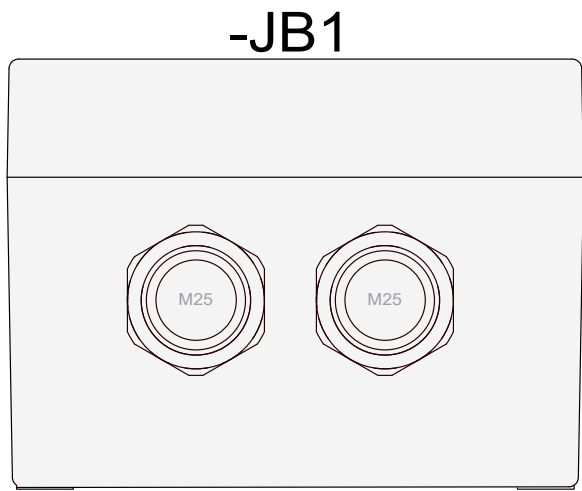
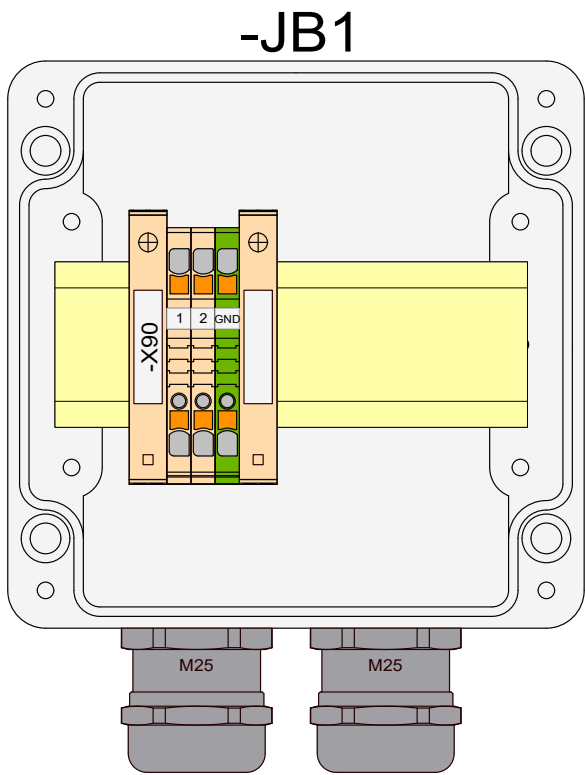
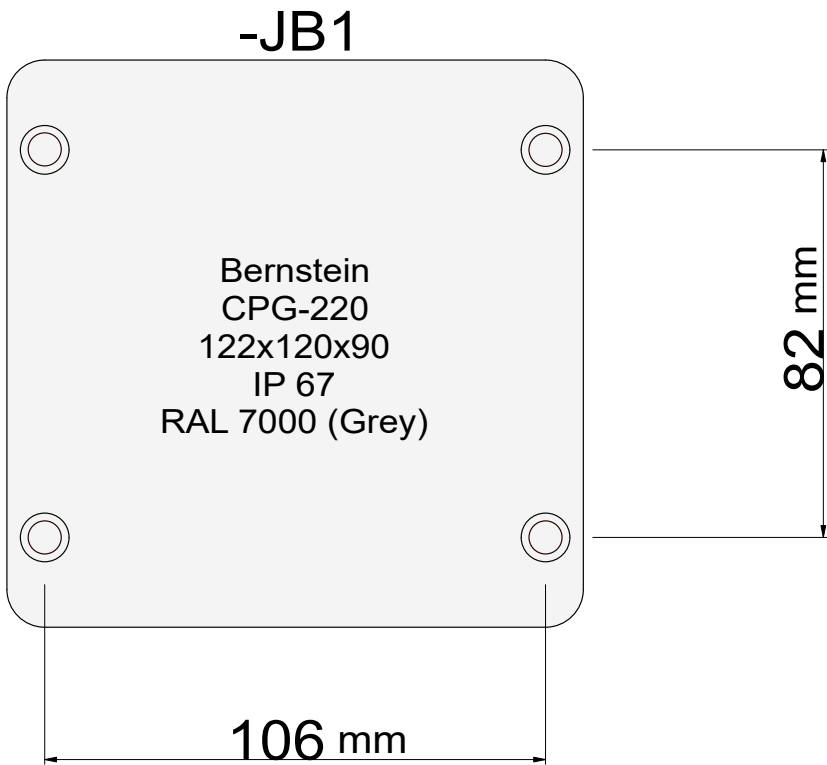
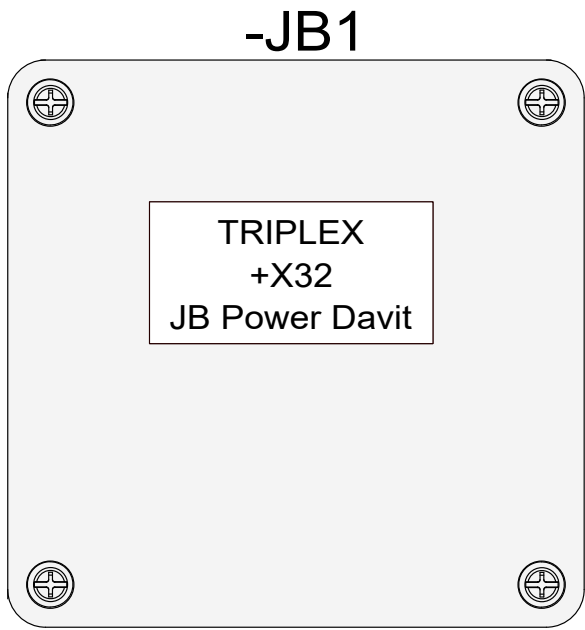
4/60185
CNP Freire
MBARI

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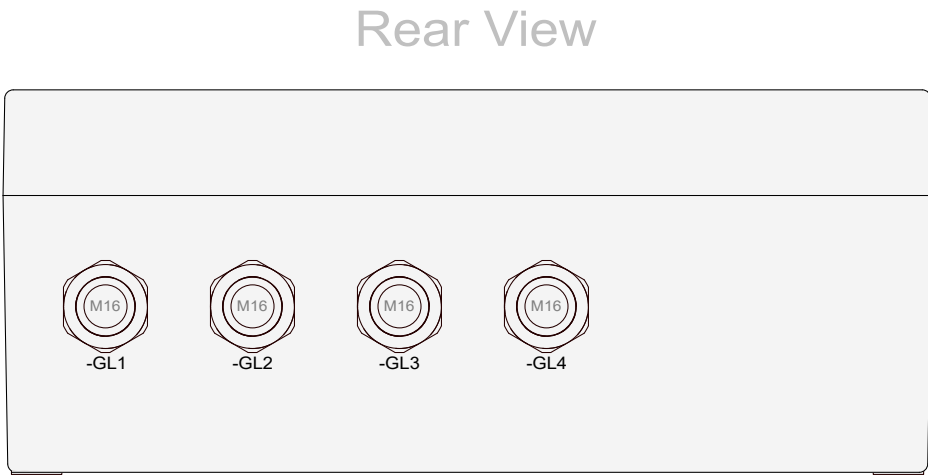
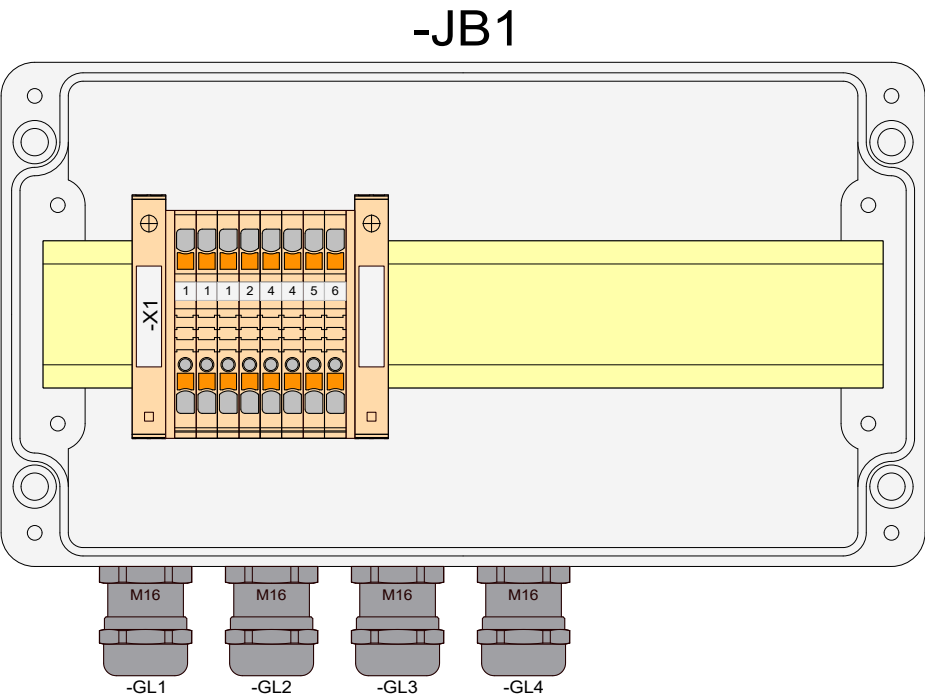
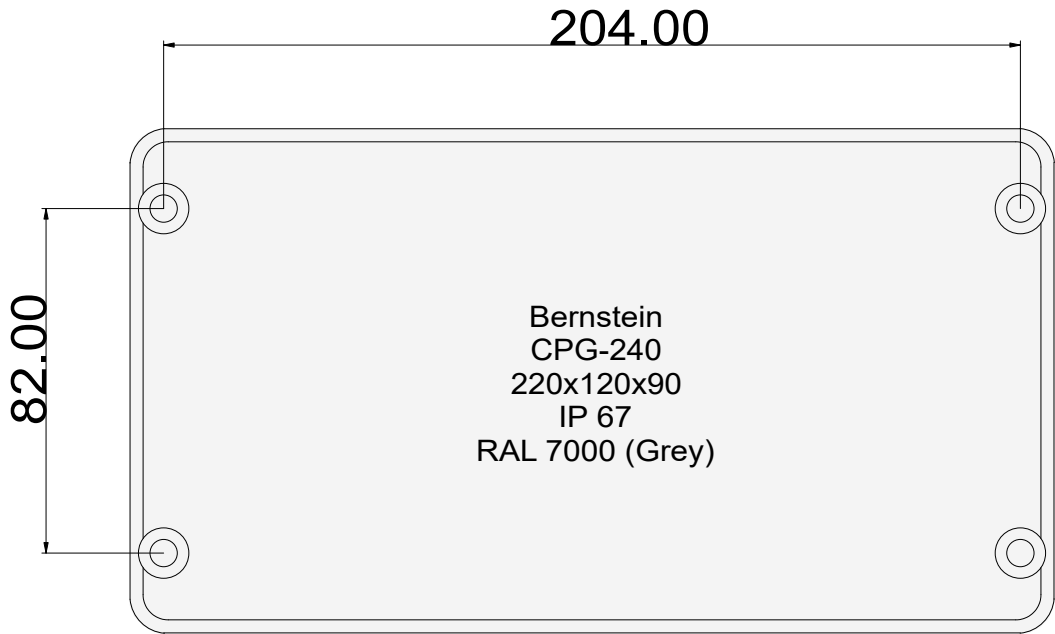
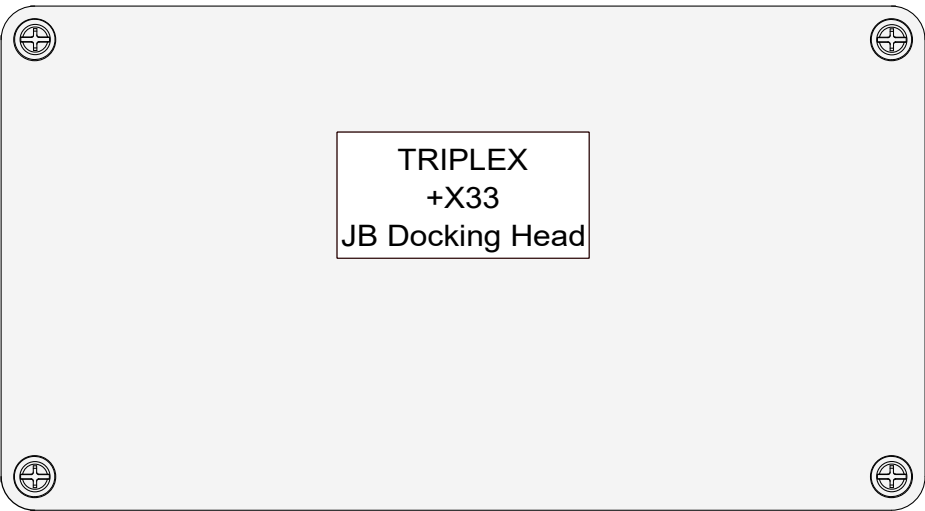
Layout
CTD Davit
RC Antenna

=CTD DAVIT
+A31

E-4503 - 03
Rev. 05 7 / 8

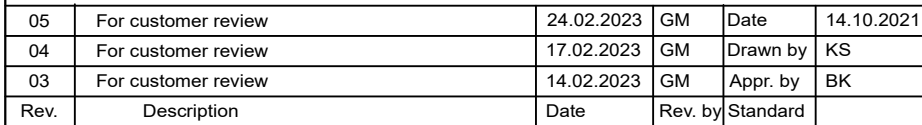


05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	TRIPLEX A MacGregor company	Layout CTD Davit JB Interface	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS				+X32		Rev. 05	8 / 8
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard								



Component installed on equipment

05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	TRIPLEX A MacGregor company	Layout CTD Davit JB Docking Head	=CTD DAVIT		E-4503 - 03	
04	For customer review	17.02.2023	GM	Drawn by	KS							
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard					+X33		Rev. 05	9 / 8



-KF2.1 Beckhoff EL1008									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	Digital Input	DI1	/6.C1	Control Cabinet	Switch	CTD	Manual Control	DI	
5	Digital Input	DI2	/7.B8	Valve Bank	Switch	HPU	Start		
2	Digital Input	DI3	/7.B8	Valve Bank	Switch	HPU	Stop		
6	Digital Input	DI4	/7.B6	Docking Head	Sensor	CTD	Fully Copressed	DI	
3	Digital Input	DI5	/7.B6	Docking Head	Sensor	CTD	Half Copressed	DI	
7	Digital Input	DI6	Control Cabinet switch Auto control					DI	
4	Digital Input	DI7						DI	
8	Digital Input	DI8						DI	

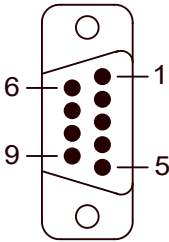
-KF2.2 Beckhoff EL1904						
Pin	Pin Description	IO Type	Ref	PLC Comment 1	PLC Comment 2	PLC Symbolic Address
1		I1	/5.B3	Emergency Stop		DIN/DOUT
2						
3		I2	/5.B4	Emergency Stop		DIN/DOUT
4						
5		I3	/5.B1	Emergency Stop		DIN/DOUT
7						
		I4	/5.B1	Emergency Stop		DIN/DOUT

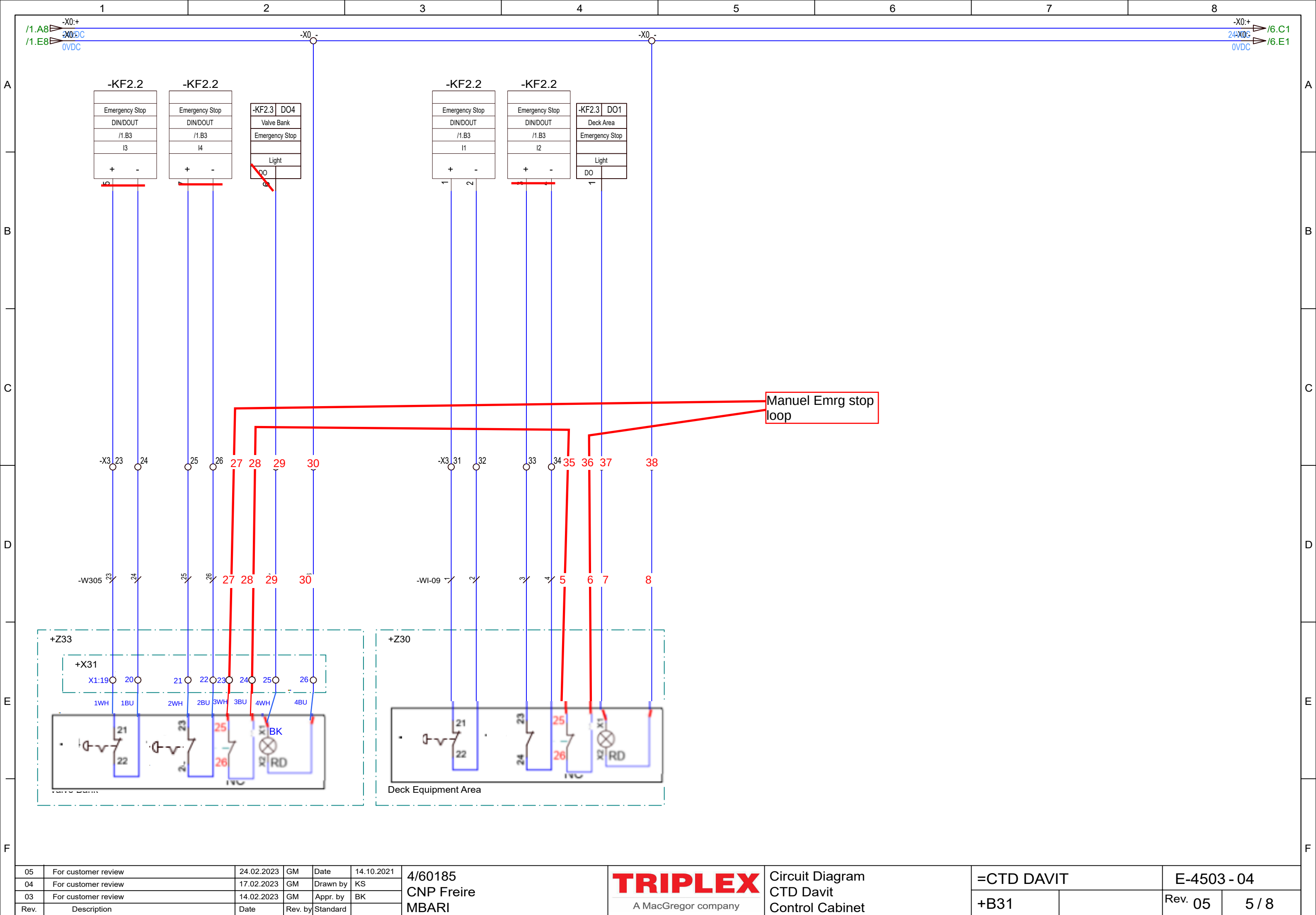
-KF2.3 Beckhoff EL2008									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	Digital Output	DO1	DO1 deck area EMS Ligth DO2 deck area EMS Ligth DO3 Crane body Docking head Free / fixed DO4 valvebank Pump running Ligth DO5 Crane Body Floodligh Ligth						
5	Digital Output	DO2							
2	Digital Output	DO3							
6	Digital Output	DO4							
3	Digital Output	DO5							
7	Digital Output	DO6							
4	Digital Output	DO7						DO	
8	Digital Output	DO8						DO	

-KF2.4 Beckhoff EL2624									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	Com	RO1	/8.B2	Control Cabinet	Switch	Floodlight	ON	RO	NO
2	Relay Output NO								
5	Com	RO2						RO	NO
6	Relay Output NO								
3	Com	RO3						RO	NO
4	Relay Output NO								
7	Com	RO4						RO	NO
8	Relay Output NO								

05	For customer review	24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI	TRIPLEX A MacGregor company	Circuit Diagram CTD Davit IO List	=CTD DAVIT		E-4503 - 04	
04	For customer review	17.02.2023	GM	Drawn by	KS				+B31		Rev. 05	2 / 8
03	For customer review	14.02.2023	GM	Appr. by	BK							
Rev.	Description	Date	Rev. by	Standard								

-KF2.5 Beckhoff EL2911									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	+	DIO1	From EL1904						
2	-								
5	+	DIO2							
6	-								
3	+	DIO3							
4	-								
7	+	DIO4							
8	-								
4`	+	DIO5							
3`	-								
8`	+	DIO6							
7`	-								
2`	+	DIO7	/7.B1	Valve Bank	CTD	Stop Valve	OUT		
3`	-								
6`		DIO8							
7`	-								
-KF2.6 Beckhoff EL2535-0002-									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	PWM Output A1	PWM1	/7.B2	Valve Bank	Valve	Telescope	In	AO+	PWM
5	PWM Output A2								
3	0Va		DI						
4	Digital Input								
2	PWM Output B1	PWM2		Valve Bank	Valve	Telescope	Out	AO+	PWM
6	PWM Output B2								
7	0Vb							DI	
8	Digital Input								

-KF2.7 Beckhoff EL2535-0002-									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	PWM Output A1	PWM1	/7.B3	Valve Bank	Valve	Tilt	In	AO+	PWM
5	PWM Output A2								
3	0Va							DI	
4	Digital Input	DI1	/7.B4	Valve Bank	Valve	Tilt	Out	AO+	PWM
2	PWM Output B1	PWM2							
6	PWM Output B2								
7	0Vb								
8	Digital Input	DI2						DI	
-KF2.8 Beckhoff EL2535-0002-									
Pin	Pin Description	IO Type	Ref	IO Device Location	IO Device Type	IO Function Target	IO Function	IO Used	Signal
1	PWM Output A1	PWM1	/7.B4	Valve Bank	Valve	Docking Head	In	AO+	PWM
5	PWM Output A2								
3	0Va							DI	
4	Digital Input	DI1	/7.B4	Valve Bank	Valve	Docking Head	Out	AO+	PWM
2	PWM Output B1	PWM2							
6	PWM Output B2								
7	0Vb								
8	Digital Input	DI2						DI	
-KF2.9 Beckhoff EL6751									
DSUB-9	Pin Description	IO Type	Ref						
1		CAN	/1.B6						
2	CAN-L								
3	CAN-G								
4									
5									
6	CAN-G								
7	CAN-H								
8									
9									



05	For customer review	24.02.2023	GM	Date	14.10.2021
04	For customer review	17.02.2023	GM	Drawn by	KS
03	For customer review	14.02.2023	GM	Appr. by	BK
Rev.	Description	Date	Rev. by	Standard	

4/60185
CNP Freire
MBARI

TRIPLEX
A MacGregor company

Circuit Diagram
CTD Davit
Control Cabinet

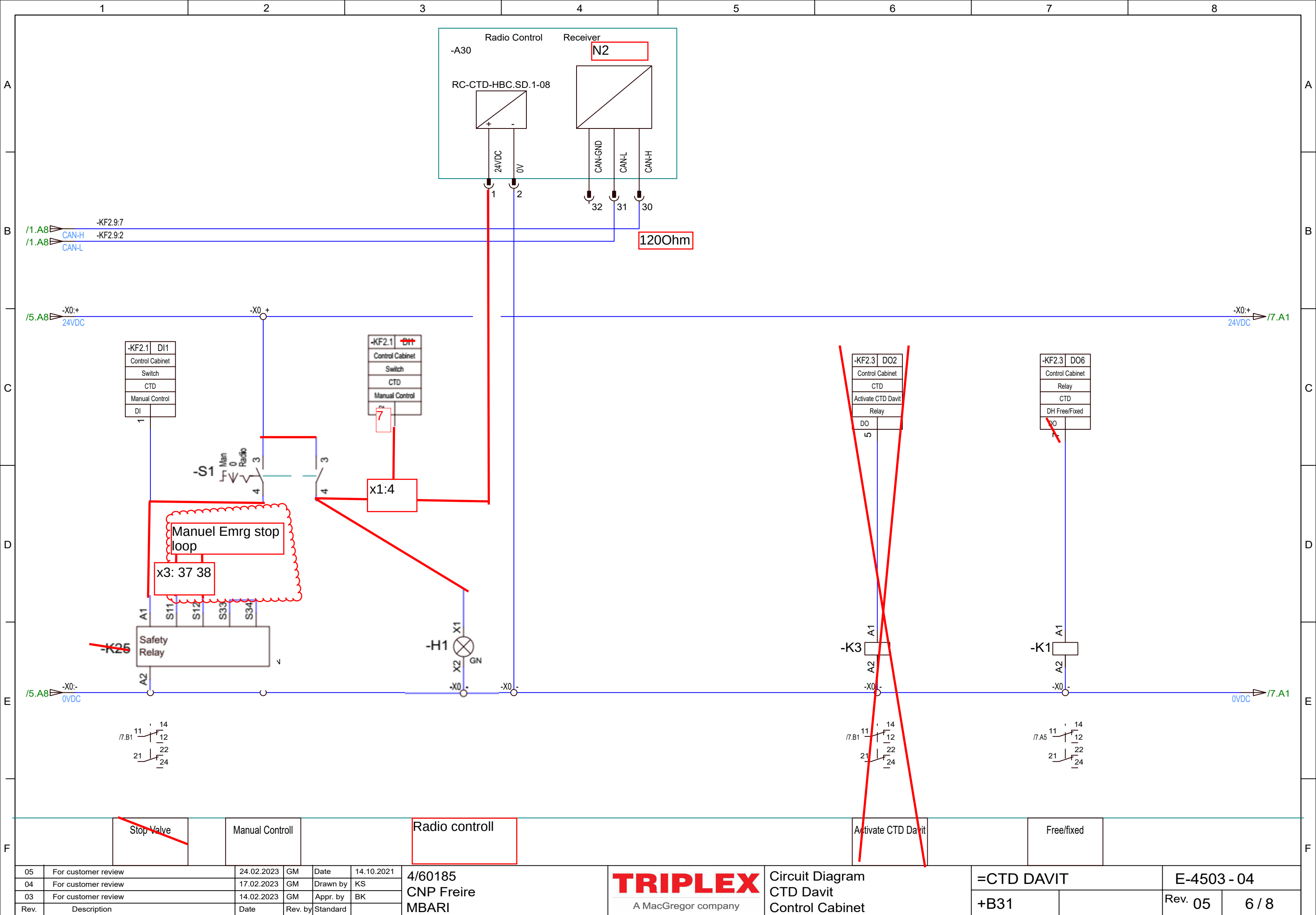
=CTD DAVIT

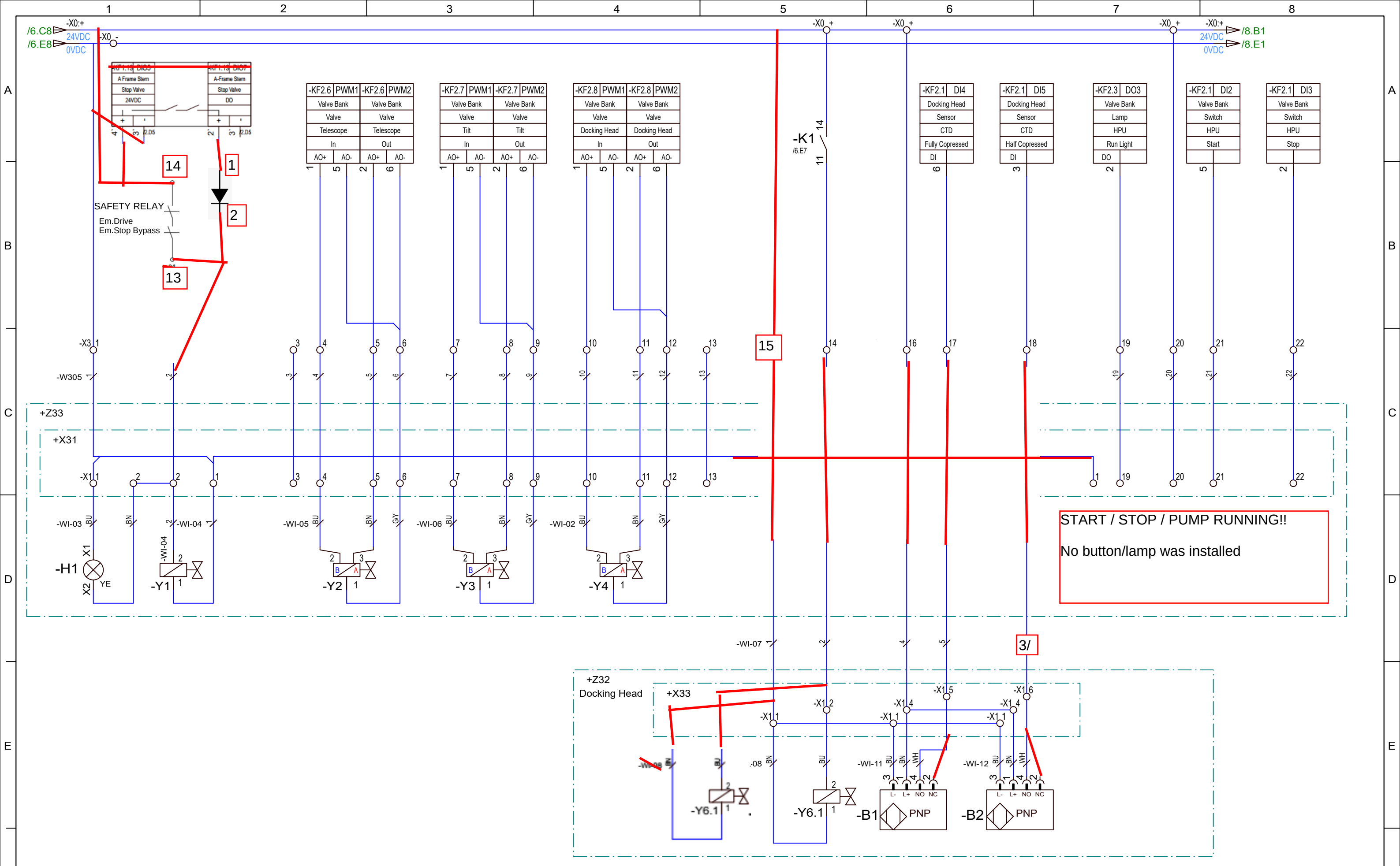
+B31

E-4503 - 04

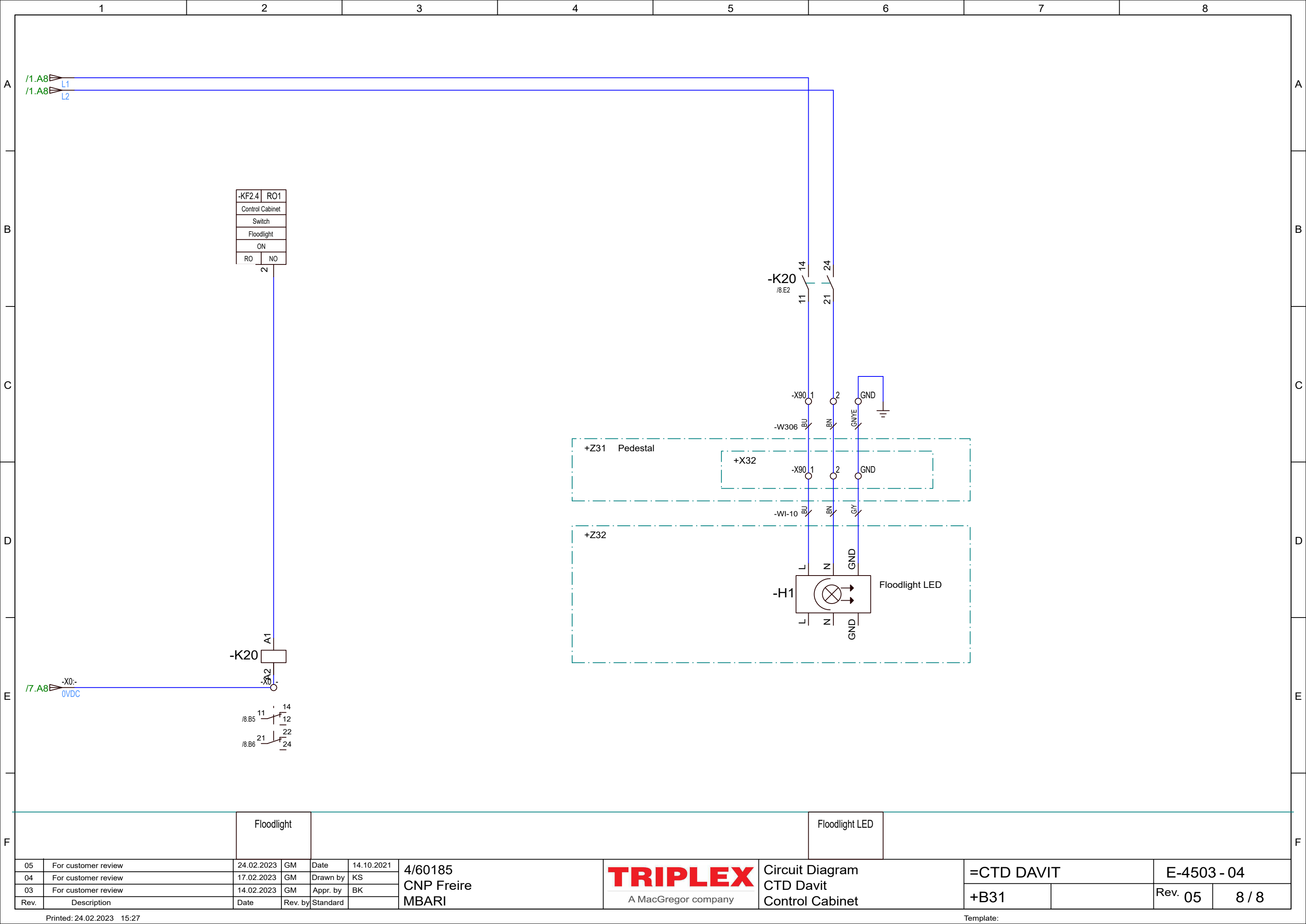
Rev. 05

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F	CPH Active Light		CPH Activate		Telescope		Tilt		Docking Head		DH Free/fixed		DH Free/fixed		Docking Head Fully Compressed		Docking Head Half Compressed				F	
					2 In	3 Out	2 In	3 Out	2 In	3 Out												
	05	For customer review		24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI		TRIPLEX A MacGregor company		Circuit Diagram CTD Davit Control Cabinet		=CTD DAVIT +B31				Rev. 05		7 / 8		
	04	For customer review		17.02.2023	GM	Drawn by	KS															
03	For customer review		14.02.2023	GM	Appr. by	BK																
Rev.	Description		Date	Rev. by	Standard																	



Floodlight		Floodlight LED			
05	For customer review	24.02.2023	GM	Date	14.10.2021
04	For customer review	17.02.2023	GM	Drawn by	KS
03	For customer review	14.02.2023	GM	Appr. by	BK
Rev.	Description	Date	Rev. by	Standard	
4/60185		CNP Freire		MBARI	
TRIPLEX		A MacGregor company		Circuit Diagram	
CTD Davit		Control Cabinet		=CTD DAVIT	
+B31		Rev. 05		8 / 8	
E-4503 - 04					



[illegible]

1		2		3		4		5		6		7		8			
Device ID		Device		Part No.		El. No.		Qty		Unit		Description		Manufacturer		Link	
-A31		RC-CTD-HBC.SD.1-08		400198451				1		Pcs		CTD-Davit 08		HBC			
-CAB1		ADO201		07939034		24 138 75		1		Pcs		CABINET, DOORSTOPPER, ADO, ELDON		Eldon			
-CAB1		MAS0605030		400089006		24 174 95		1		Pcs		CABINET, 600x500x300 ELDON*		Eldon			
-DUCT1..-DUCT4		HA760040		07920015		12 857 18		1.222		M		CABLE TRAY, 60X40, GREY, W/LID		Tehalit Hager			
-DUCT5		HA760025		07920014		12 857 17		0.2		M		CABLE TRAY, 60X25, GREY, W/LID		Tehalit Hager			
-F1		iC60H/C 02-2		07938004		16 760 61		1		Pcs		FUSE, AUTOMAT, 2A, 2-POLE, C		Schneider			
-G1		CS10.241		07949016		66 040 29		1		Pcs		POWER SUPPLY, PULSE, 10A, 230/24		Puls			
-GL1		WADI-TEC EMC M40 Ø24-30		400075304		12 492 78		1		Pcs		CABLE GLAND, BRASS, EMC, Ø24-30		Elis			
-GL3,-GL4		WADI-TEC EMC M32 Ø17-24		07928087		12 492 76		2		Pcs		CABLE GLAND, BRASS, EMC, Ø17-24		Elis			
-GL5,-GL6		WADI-TEC EMC M25 Ø10-14,5		07928084		12 492 70		2		Pcs		CABLE GLAND, BRASS, EMC, Ø10-14,5		Elis			
-GL8..-GL10		WADI-TEC EMC M20 Ø8-12,5		07928083		12 492 68		3		Pcs		CABLE GLAND, BRASS, EMC, Ø8-12,5		Elis			
-H1		ZBVB3		07924016		43 032 26		1		Pcs		LAMP, LED, GN, 24V		Schneider			
-K1..-K3,-K20		C7A20FX24D		07936015		43 783 87		4		Pcs		RELAY, RELECO, 2-POLE, 24V DC, 10A		Releco			
-K1..-K3,-K20		S7-I/O						4		Pcs		RELAY, SOCKET		Releco			
-KF2.0		EK1101		400142335				1		Pcs		EtherCAT Coupler w ID settings		Beckhoff			
-KF2.1		EL1008		400142339				1		Pcs		8 Digital Inputs		Beckhoff			
-KF2.2		EL1904						1		Pcs		TwinSAFE 4 Digital Inputs		Beckhoff			
-KF2.3		EL2008		400142342				1		Pcs		8 Digital Outputs		Beckhoff			
-KF2.4		EL2624		400142344				1		Pcs		4 Relay Outputs		Beckhoff			
-KF2.5		EL2911		400142346				1		Pcs		TwinSAFE 4 Digital Inputs, 1x Output		Beckhoff			
-KF2.6,-KF2.7,-KF2.8		EL2535-0002-		400142343				3		Pcs		2 PWM Outputs, 2 Digital Inputs		Beckhoff			
-KF2.9		EL6751		400142409				1		Pcs		CANopen master/slave terminal		Beckhoff			
-KF2.10		EL9011		400142410				1		Pcs		Bus end cap		Beckhoff			
-RAIL1..-RAIL4		TS 35X7.5 6.2MM HULLET		07940001		12 692 14		1.323		M		RAIL, PERFORATED, TS35 x 7,5 x 6,2mm		Weidmüller			
-S1		ZB4BK1333		07960019		43 025 24		1		Pcs		CONTR. SWITCH, 3 POS, LED GN		Schneider			
-S1		ZB4BZ009		07961012		43 027 45		1		Pcs		CONTR. ACC, SOCKET, METAL		Schneider			
-S1		ZBE101		07961013		43 004 23		2		Pcs		CONTR. ACC, CONTACTBLOCK, 1NO		Schneider			
-TAG1		US-EMLP 100X60 4 Line		07958308				1		Pcs		TAG, SIGN, THERMOMARK CARD, W/GLUE		Phoenix Contact			
-TAG2		US-EMLP-HA 24		400075270				1		Pcs		TAG, SIGN, THERMOMARK CARD		Phoenix Contact			
-X0		AEP 3C 2.5		400069937		12 694 11		1		Pcs		TERMINAL BLOCK, SNAP-IN, END PLATE		Weidmüller			
-X0		AEP AP12						1		Pcs		TERMINAL BLOCK, SNAP-IN, END PLATE		Weidmüller			
-X0 (1,1)		A3C 2.5		400069932		12 654 01		2		Pcs		TERMINAL BLOCK, SNAP-IN, DOUBLE		Weidmüller			
-X0 (-)		AAP12 10/4X2.5 LO-LI BL						1		Pcs		TERMINAL BLOCK, SNAP-IN,		Weidmüller			
05	For customer review		24.02.2023	GM	Date	14.10.2021	4/60185 CNP Freire MBARI		TRIPLEX A MacGregor company		Part List CTD Davit		=CTD DAVIT		E-4503 - 07		
04	For customer review		17.02.2023	GM	Drawn by	KS											
03	For customer review		14.02.2023	GM	Appr. by	BK											
Rev.	Description		Date	Rev. by	Standard												
												+B31				Rev. 05	2 / 10

1		2		3		4		5		6		7		8			
Device ID		Device		Part No.		El. No.		Qty		Unit		Description		Manufacturer		Link	
-S2		XALK178W3B140G		400208317		4322660		1		Pcs		CONTR. PUSH, EM STOP		Schneider			

