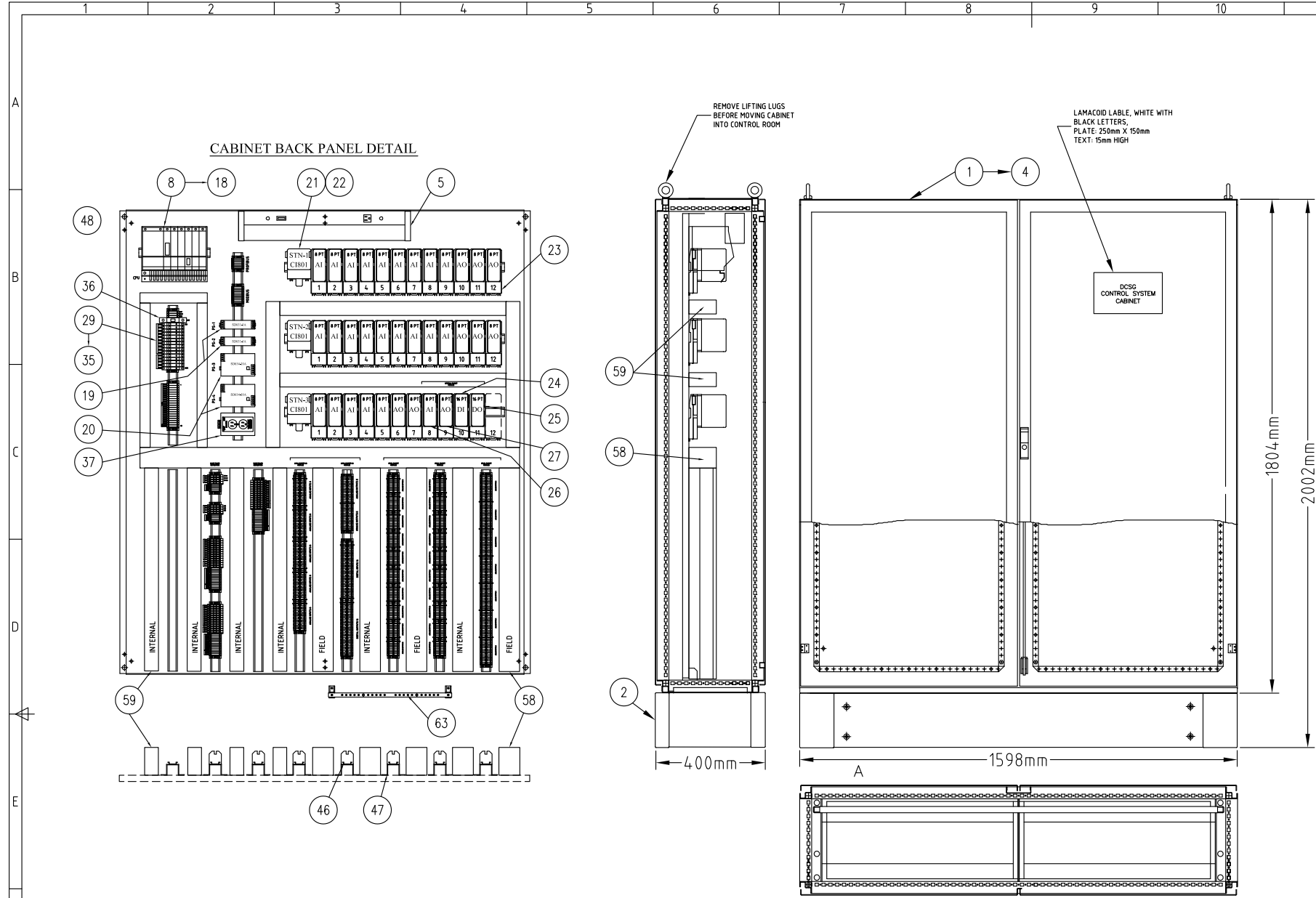
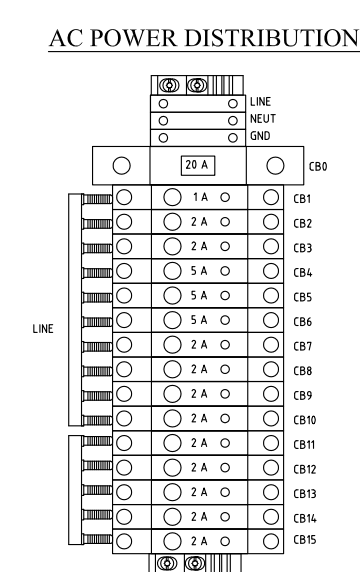
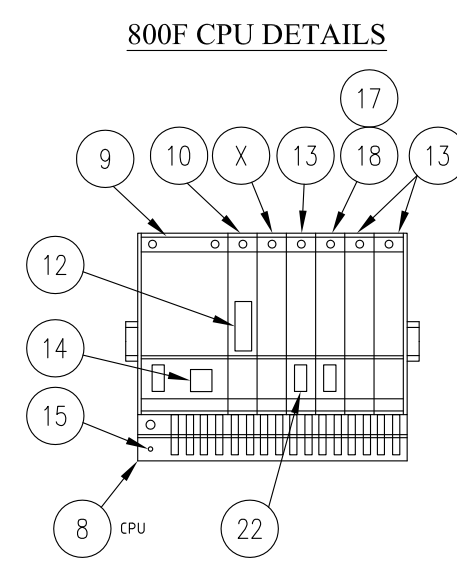
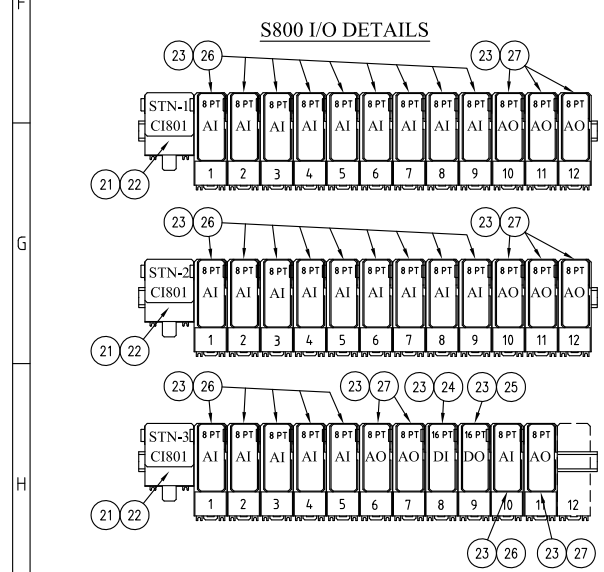


RevNo	Revision note	Date	Signature	Checked
X	X		SB	



ITEM	QTY	MFR	DESCRIPTION	PART NO.	ITEM	QTY	MFR	DESCRIPTION	PART NO.
39	565	ENTRELEC	STANDARD TERMINAL BLOCK, M 4/6, WITH TEST 2mm TEST SOCKET	115 217.14	1	1	RITTAL	ES 5000 CABINET, 1800MM X 1600MM X 400MM [H W D] C/W MOUNTING PANEL, 50 CABLE PLINTH FOR THE ABOVE ITEM, 200 MM HIGH	5784,500
40	47	ENTRELEC	FUSED TERMINAL BLOCKM4/8.SF	115 657.25	2	1	RITTAL		2906,200
41	23	ENTRELEC	TERMINAL BLOCKS, M 6/8	115 118.11	3	1	RITTAL	SZ STANDARD HANDLE SYSTEM C/W KEY	2435,000
42	14	ENTRELEC	END SECTION, M4/6	118 368.16	4	1	RITTAL	SZ PRINT POCKETS	2513,000
43	5	ENTRELEC	END SECTION, M4/8.SF	116 951.15	5	1	RITTAL	SZ STANDARD LIGHT UL, 60HZ, 120VAC, 14W, ULc APPROVED, WITH INTEGRAL DOOR SWITCH	4138,250
44	28	ENTRELEC	END STOP (ALL RAILS)	206 351.16	6				
45	57	ENTRELEC	SEPARATOR END SECTION, RAIL MOUNT, SCF6	118 707.03	7				
46	9.5m	ENTRELEC	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm, 2 meter	173 220.05	8	1	ABB	B140 ? PM 803F, BASE UNIT 16 MB, BATTERYBUFFERED RAM	8BDH000530R
47	16	ENTRELEC	RAIL OFFSET MTG BRACKET, TS0441-SM6 40mm HIGH	101 655.06	9	1	ABB	B230 ? SA 811F, POWER SUPPLY 115/230 VAC	8BDH000013R
48	4	ENTRELEC	RAIL OFFSET MTG BRACKET, TS0441-SM6 20mm HIGH	101 653.04	10	1	ABB	B360 ? EI 813F, ETHERNET MODULE 10BASET	8BDH000022R
49	6	ENTRELEC	COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6)	113 548.26	11	1	ABB	B430 ? FI 830F, FIELDBUS MODULE, PROFIBUSDP	8BDH000032R
50	6	ENTRELEC	COMB-TYPE JUMPER BAR, PC81, 10 POLE, 35A, (M 4/8.SF)	173 523.11	12	1	ABB	B520 ? AM 811F, BATTERY MODULE	8BDH000050R
51	2	ENTRELEC	COMB-TYPE JUMPER BAR, PC81, 10 POLE, 50A, (M 6/8)	163 313.24	13	1	ABB	B625 ? AM 895F, FRONT PANEL, 4 PCS	8BDH000044R
52	56	ENTRELEC	SHIELD CONNECTOR, CBMS, PKG OF 10	178 745.14	14	1	ABB	B636 ? TK 809F, SUPPLY CABLE 115/230 VAC, US PLUG, 2 M	8BDM000122R
53	40	ENTRELEC	SM6 MTG BRACKET SCREWS	101 659.12	15	1	ABB	J110 ? RY 885F, GROUNDING STRAP, 2 PCS.	8BDM000169R
54		ENTRELEC	TERMINAL BLOCK BLANK MARKING TAGS, 6m SPACING, 10X10 PER CARD, VERTICAL PRINTED NUMBER RANGE (SEE ATTACHMENT FOR CUSTOM LABELS)	233 000.01	16	1	ABB	J190 ? SB 808F, BATTERY FOR RAM BUFFERING, 2 PCS	8BDM000199R
55		ENTRELEC	HORIZONTAL MARKER HOLDER, ATTACHED ACROSS END-STOP, PKG OF 10	163 211.26	17	1	ABB	"TK 821F, SERIAL CABLE (2 CHANNEL), INTEGRAL CONNECTORS, 0.5 M, CONNECTION FI 820F TO TERMINAL BLOCK TB 870F"	8BDM000150R
56					18	1	ABB	TB 870F, TERMINAL BLOCK, FOR SERIAL INTERFACE	8BDM000160R
57	.0m	IBICO	WIRE DUCT, 4.0 x 4.0 IN., 4/PK, GRY, SLOTTED, 2M, WITH COVER	T1-4040G	19	3	ABB	SDB31 POWER SUPPLY DEVICE, INPUT A.C. 100/240 V OR D.C. 110/230V, OUTPUT D.C. 24 V 3A.	8BSC610064R
58	5.1m	IBICO	WIRE DUCT, 3.0 x 4.0 IN., 4/PK, GRY, SLOTTED, 2M, WITH COVER	T1-3040G	20	2	ABB	SDB34 POWER SUPPLY DEVICE, INPUT A.C. 100/240 V OR D.C. 110/230V, OUTPUT D.C. 24 V 20A	8BSC610067R
59	4.4m	IBICO	WIRE DUCT, 2.25 x 4.0 IN., 4/PK, GRY, SLOTTED, 2M, WITH COVER	T1-2240G	21	4	ABB	"CB801?EA PROFIBUS DP?V1 COMMUNICATION INTERFACE INCLUDING: 1 PCE POWER SUPPLY CONNECTOR 1 PCE TB807 MODULEBUS TERMINATOR"	8BSE022366R
60	1.3m	IBICO	WIRE DUCT, 1.5 x 4.0 IN., 4/PK, GRY, SLOTTED, 2M, WITH COVER	T1-1540G	22	3	EASYCONN	PBR PROFIBUS CONNECTOR, 90 DEG [PA003135]	VIP972-0DPO
61	.0m	IBICO	WIRE DUCT, 1.0 x 4.0 IN., 8/PK, GRY, SLOTTED, 2M, WITH COVER	T1-1040G	23	34,000000	ABB	"TU810V1 COMPACT MODULE TERMINATION UNIT, MTU, 50V 2X8 SIGNAL TERMINALS, RATED ISOL 50V"	8BSE013230R
62					24	1	ABB	"DI810?EA DIGITAL INPUT 24V D.C. 2X8 CH. RATED ISOLATON 50V."	8BSE008508R
63	1.0m	ILSCO	6-14 AWG COPPER BUS BAR WITH SUPPORTS	N-174	25	1	ABB	DO810?EA DIGITAL OUTPUT 24 V D.C. 2X8 CH 0.5A	8BSE008510R
64	10	RESISTOR	249 OHM, 1/2 WATT		26	24	ABB	AIB15?EA ANALOG INPUT 1X8 CH WITH HART, 0(4)...20mA, 0(1)...5V, 12BIT, SINGLE ENDED, 0.1%, RATED, ISOL 50V	8BSE052604R
65					27	8	ABB	AO810V2?EA ANALOG OUTPUT 1*8 CHANNELS, 0(4)...20mA 0(4)...20mA, 14BIT RLMAX 500/850 OHMS, RATED ISOL 50V	8BSE038415R
66					28				
					29	1	WEIDMULLER	CB4200 SERIES, SINGLE POLE, THERMAL MAGNETIC BREAKER, 250VAC, 1.0A	9101203500
					30	10	WEIDMULLER	CB4200 SERIES, SINGLE POLE, THERMAL MAGNETIC BREAKER, 250VAC, 2.0A	9101503500
					31	0	WEIDMULLER	CB4200 SERIES, SINGLE POLE, THERMAL MAGNETIC BREAKER, 250VAC, 3.0A	9101703500
					32	3	WEIDMULLER	CB4200 SERIES, SINGLE POLE, THERMAL MAGNETIC BREAKER, 250VAC, 5.0A	9101803500
					33	0	WEIDMULLER	CB4200 SERIES, SINGLE POLE, THERMAL MAGNETIC BREAKER, 250VAC, 10.0A	9101903500
					34	3	WEIDMULLER	JUMPER, CQB 10 STRAIGHT, INSULATED, COMB 2/IP	9970590000
					35	1	WEIDMULLER	MARKING TAGS, DEK 5/5, VERTICAL, NUMBERED 1-50	473560001
					36	1	WEIDMULLER	CB4200 SERIES, SINGLE POLE, HYDRAULIC MAGNETIC, BRANCH RATED CIRCUIT BREAKER, 250VAC, 20.0A	9926251020
					37	1	WEIDMULLER	RECEPTICAL, DIN RAIL MOUNT, 15A, DUPLEX, TYPE DRAC DP 15	6720005421
					38				



REFERENCE DRAWINGS		
DWG NO.	REV	DESCRIPTION
D-401519-014		GASIFIER DCS I/O DIAGRAM

NOTES:
1. ABB EQUIPMENT SHOWN ON DRAWING D-401519-014 ARE FREE ISSUED TO SHOP.
2. ITEMS 1 TO 9 & 60 WILL BE FREE ISSUED TO SHOP, ASSEMBLY REQUIRED.
3. NRCAN WILL SUPPLY THE SHOP WITH MULTI CONDUCTOR 19CL, 20 AWG, UN-SHIELDED CABLE FOR CONNECTING THE I/O MODULES TO THE TERMINAL BLOCKS.

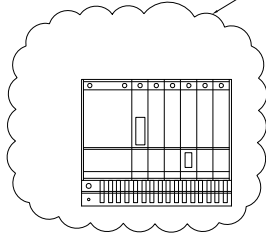
Natural Resources Canada
CANMET Energy Technology Center

Resources naturelles Canada
Centre de la technologie de l'énergie de CANMET

EngServ
CANMET Engineering Services Group

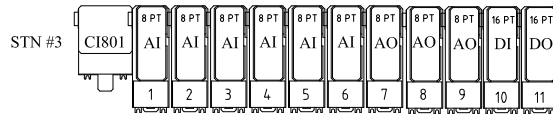
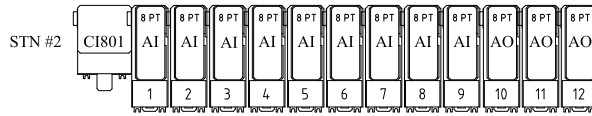
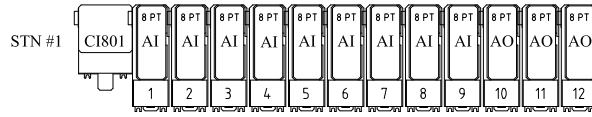
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Designed by S. BETHUNE	Checked by S. BETHUNE	Approved by - date	File name P001617-XXX Date 27 NOV 2013 Scale XXX
NRCAN-CFF, DCSG			CONTROL CABINET ASSY. D-P001617-XXX Edition 0 Sheet 1/1

ALREADY PURCHASED IN 2013

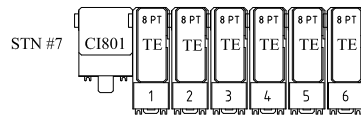
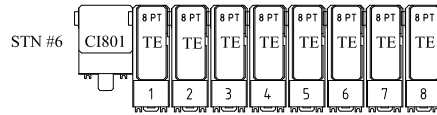
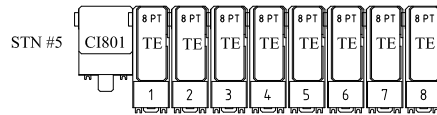


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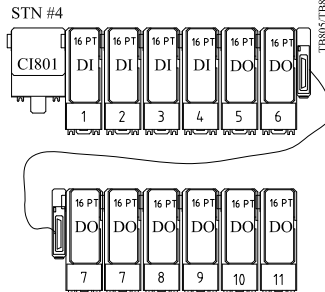
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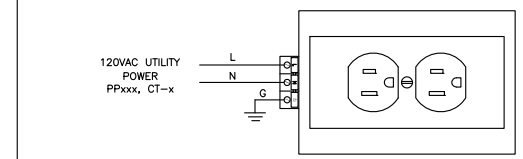
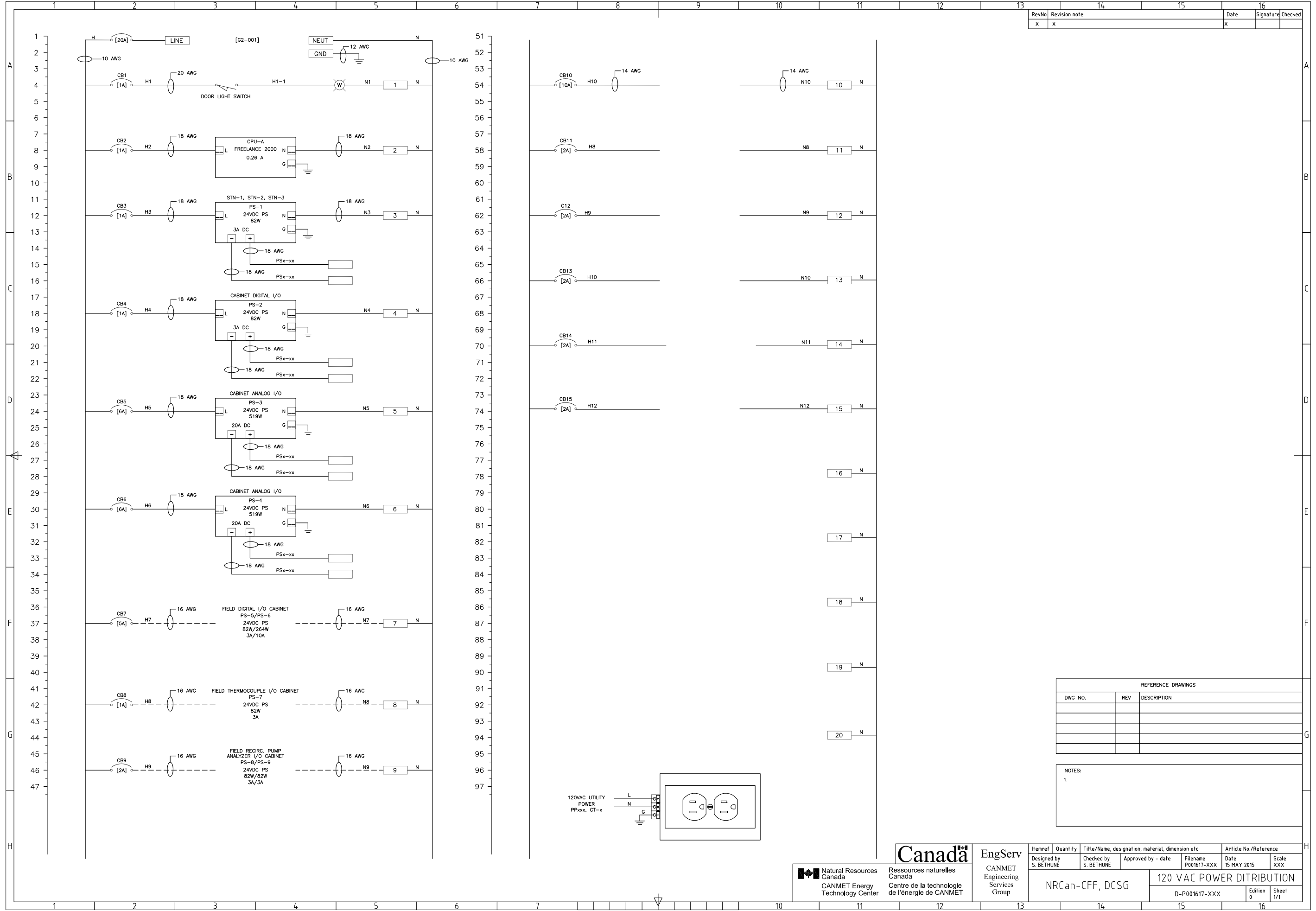
THERMOCOUPLE CABINET



DIGITAL I/O CABINET



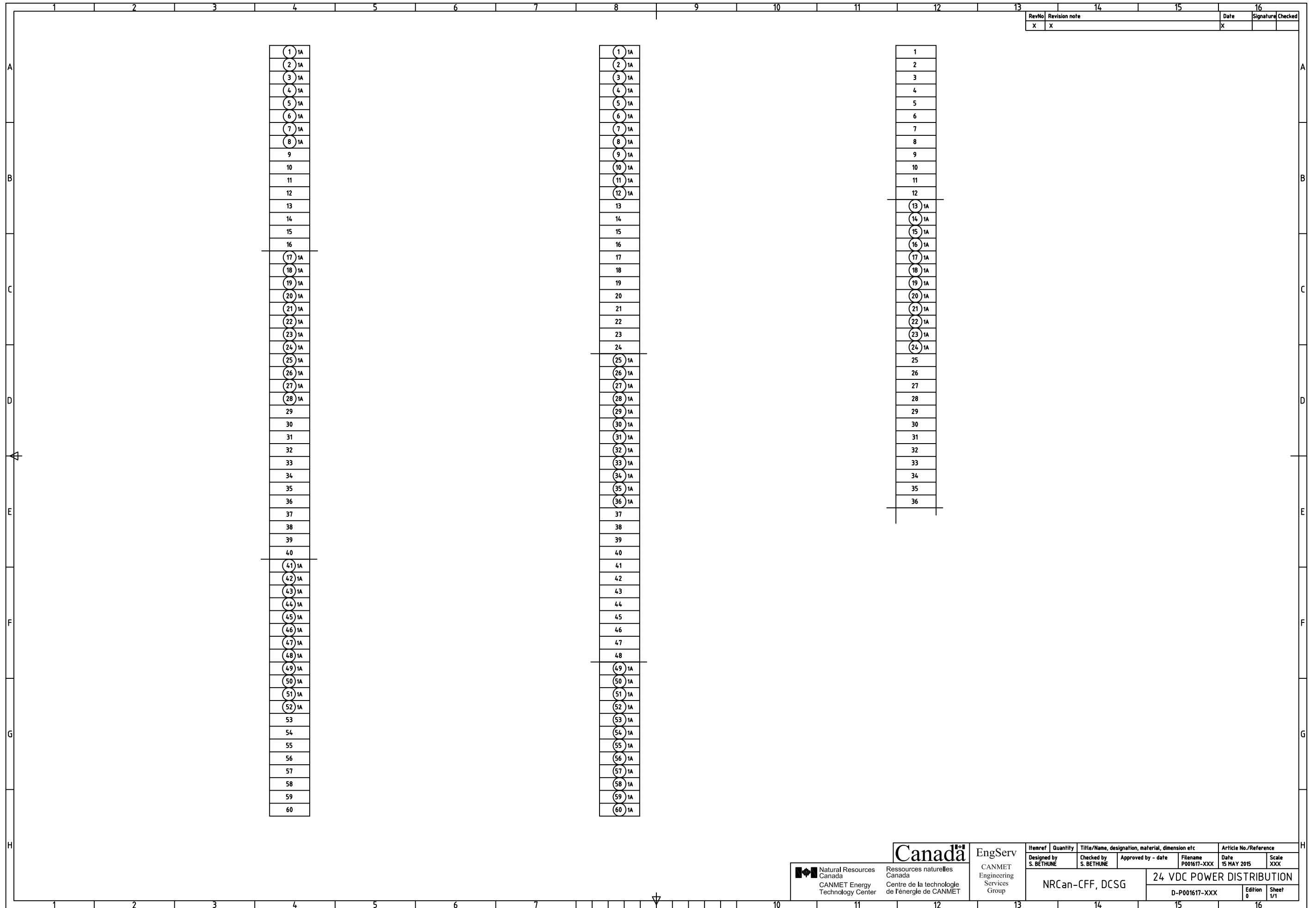
RevNo	Revision note	Date	Signature	Checked
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REFERENCE DRAWINGS		
DWG NO.	REV	DESCRIPTION

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NRCan-CFF, DCSG			120 VAC POWER DISTRIBUTION			D-P001617-XXX		
			Edition 0		Sheet 1/1			



RevNo	Revision note	Date	Signature	Checked
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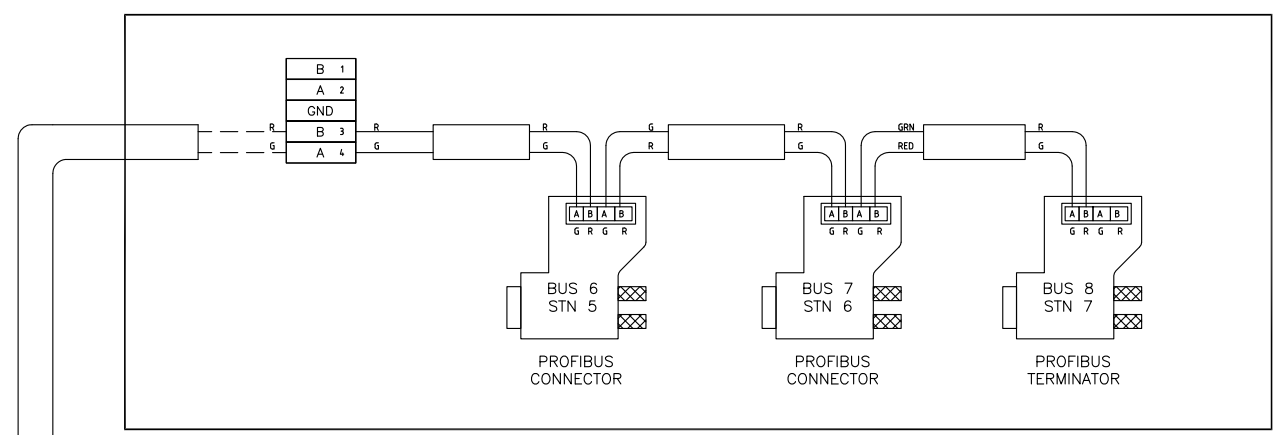
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		Date 15 MAY 2015	Scale XXX
		D-P001617-XXX	Edition 0
			Sheet 1/1

Natural Resources Canada
 Ressources naturelles Canada
 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

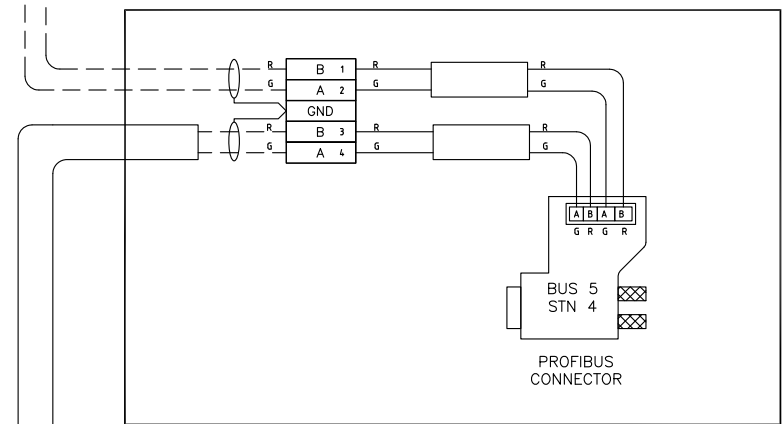
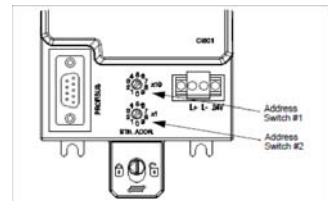
EngServ
 CANMET Engineering Services Group



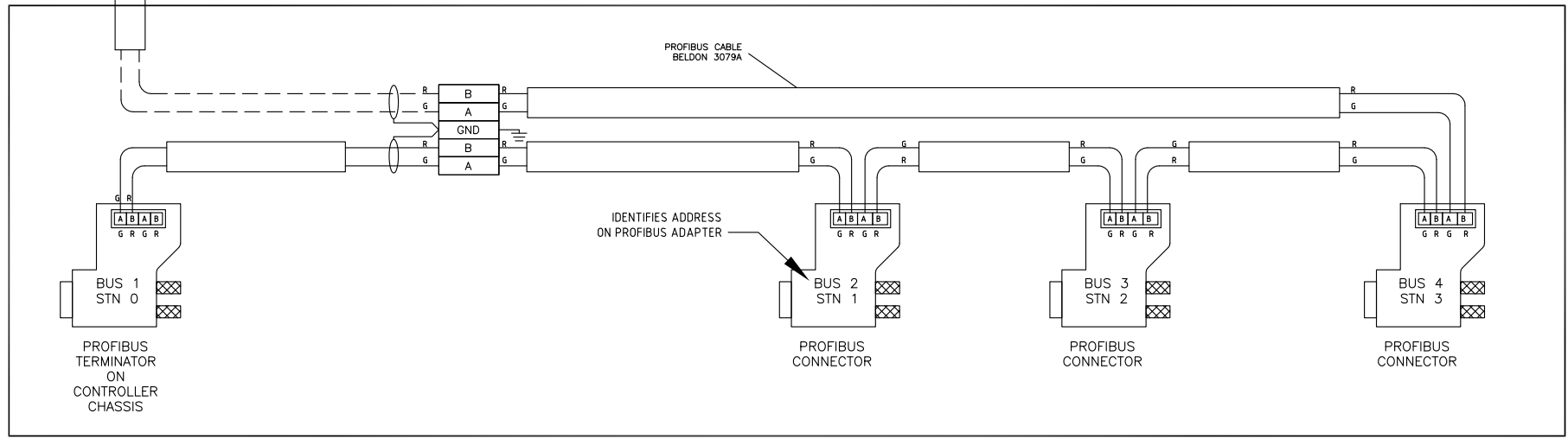
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THERMOCOUPLE JUNCTION BOX



DIGITAL I/O CABINET

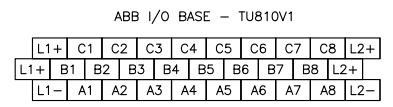
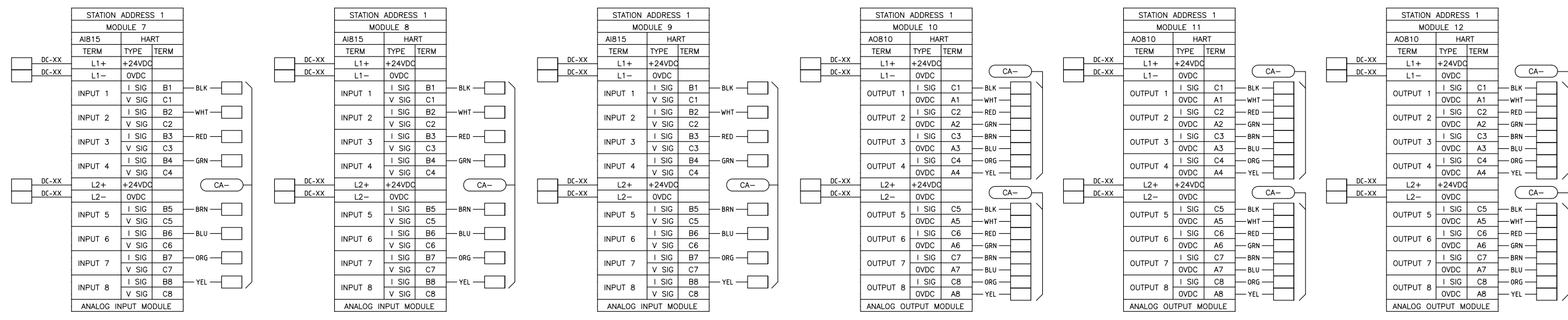
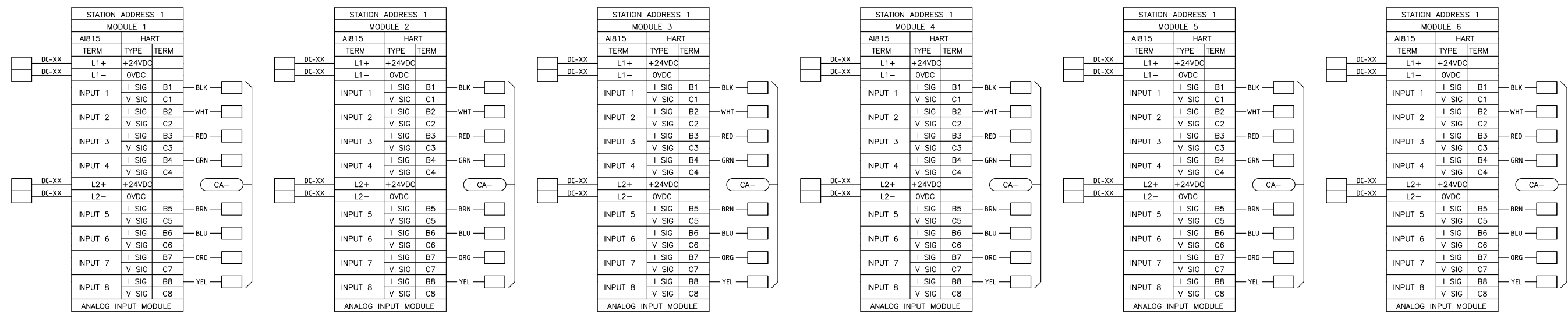
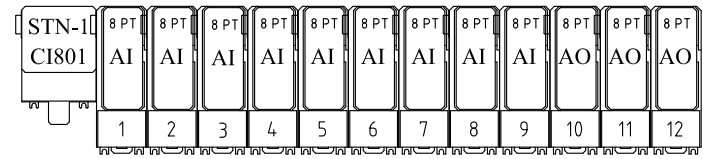


MAIN CONTROL CABINET

REFERENCE DRAWINGS		
DWG NO.	REV	DESCRIPTION

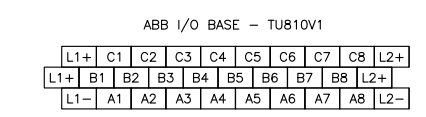
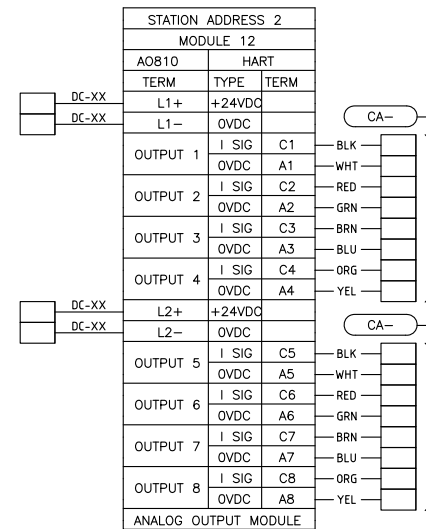
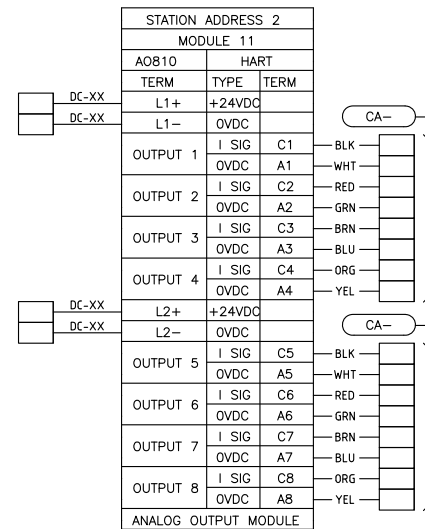
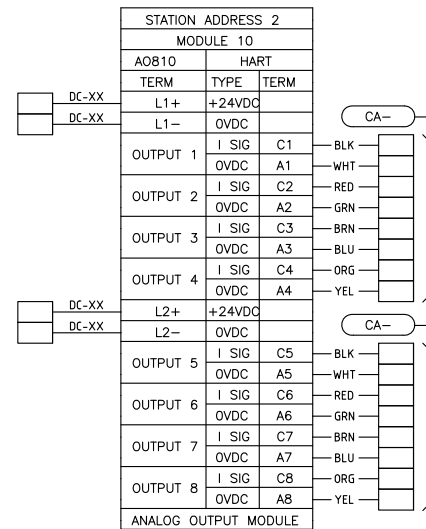
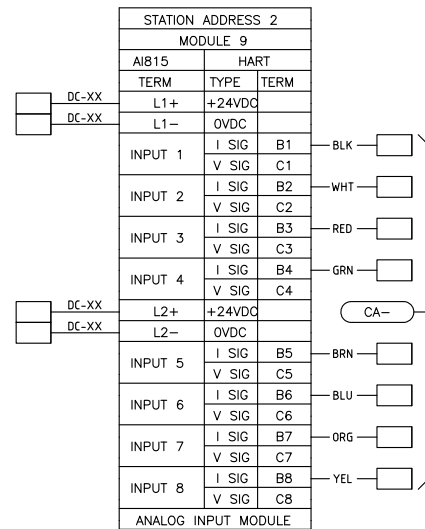
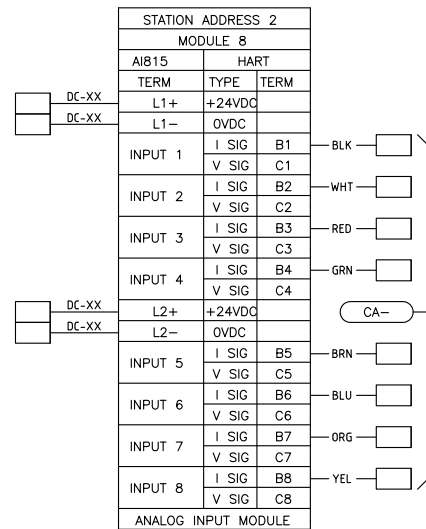
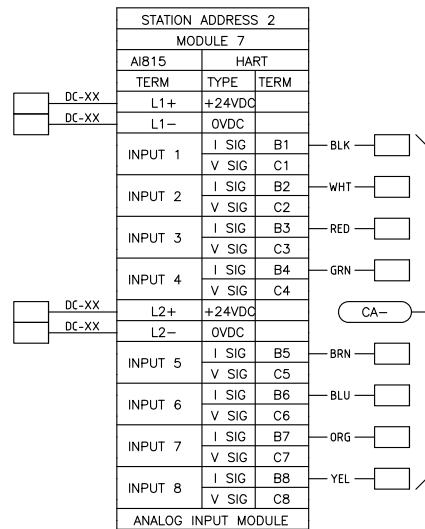
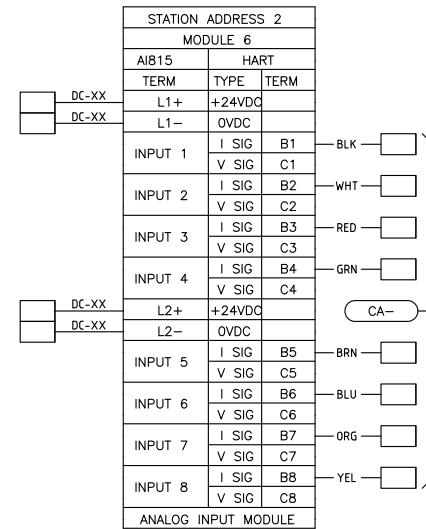
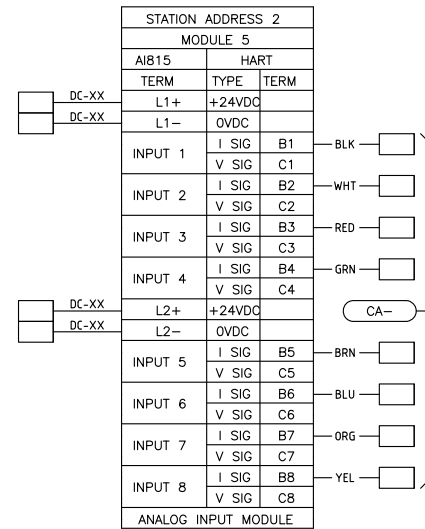
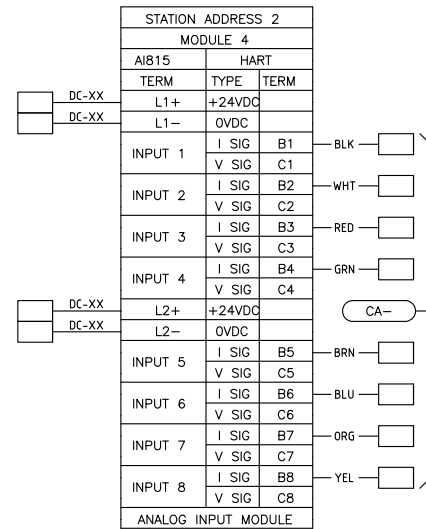
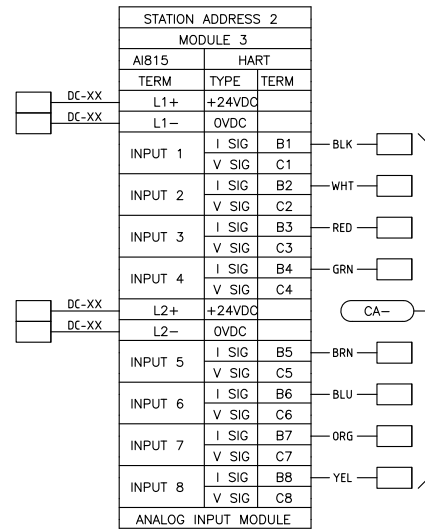
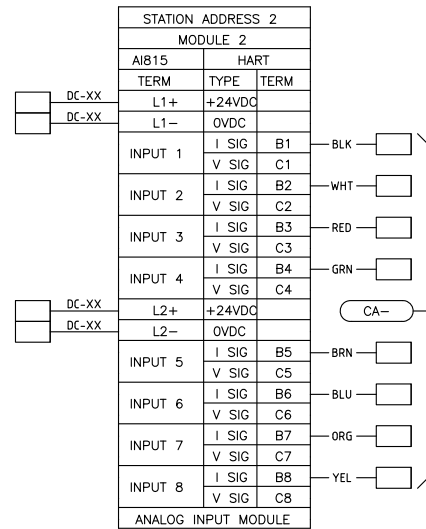
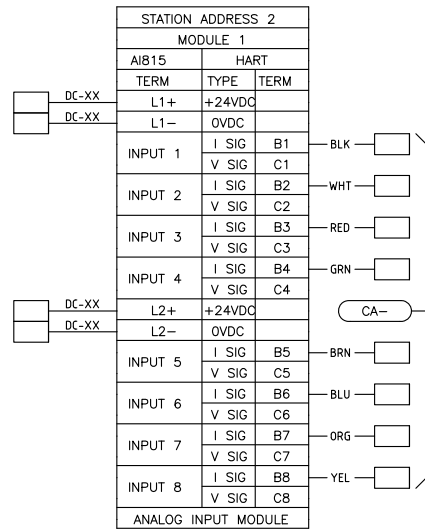
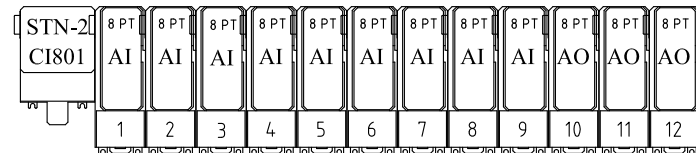
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NRCan-CFF, DCSG			PROFIBUS COMM. WIRING			D-P001617-XXX		
			Edition 2		Sheet 1/1			



REFERENCE DRAWINGS			NOTES:
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NRCan-CFF, DCSG				STN 1, I/O RACK WIRING				Edition 0 Sheet 1/1	



REFERENCE DRAWINGS			NOTES:
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				D-P001617-XXX				Sheet 1/1	

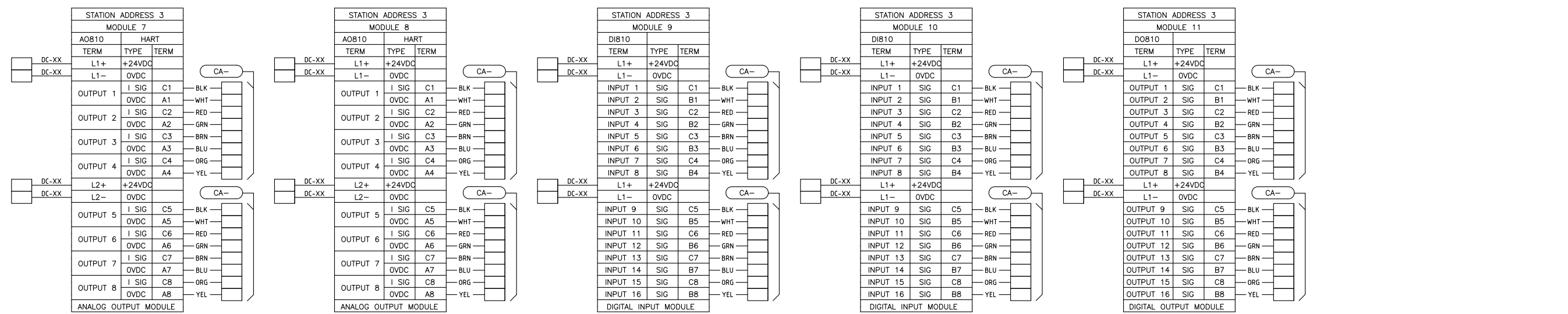
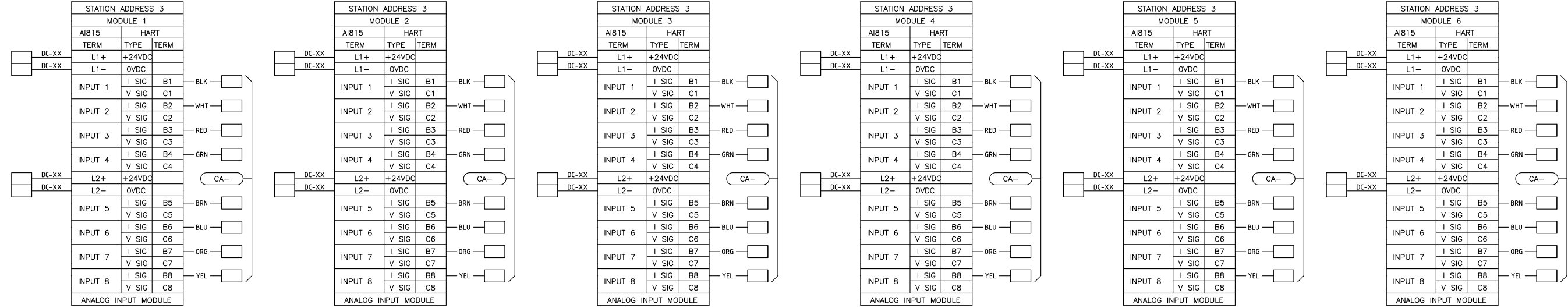
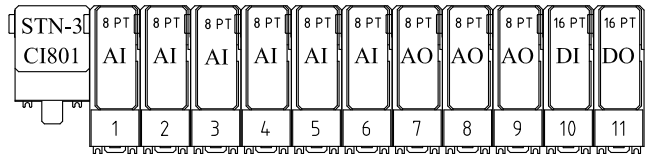
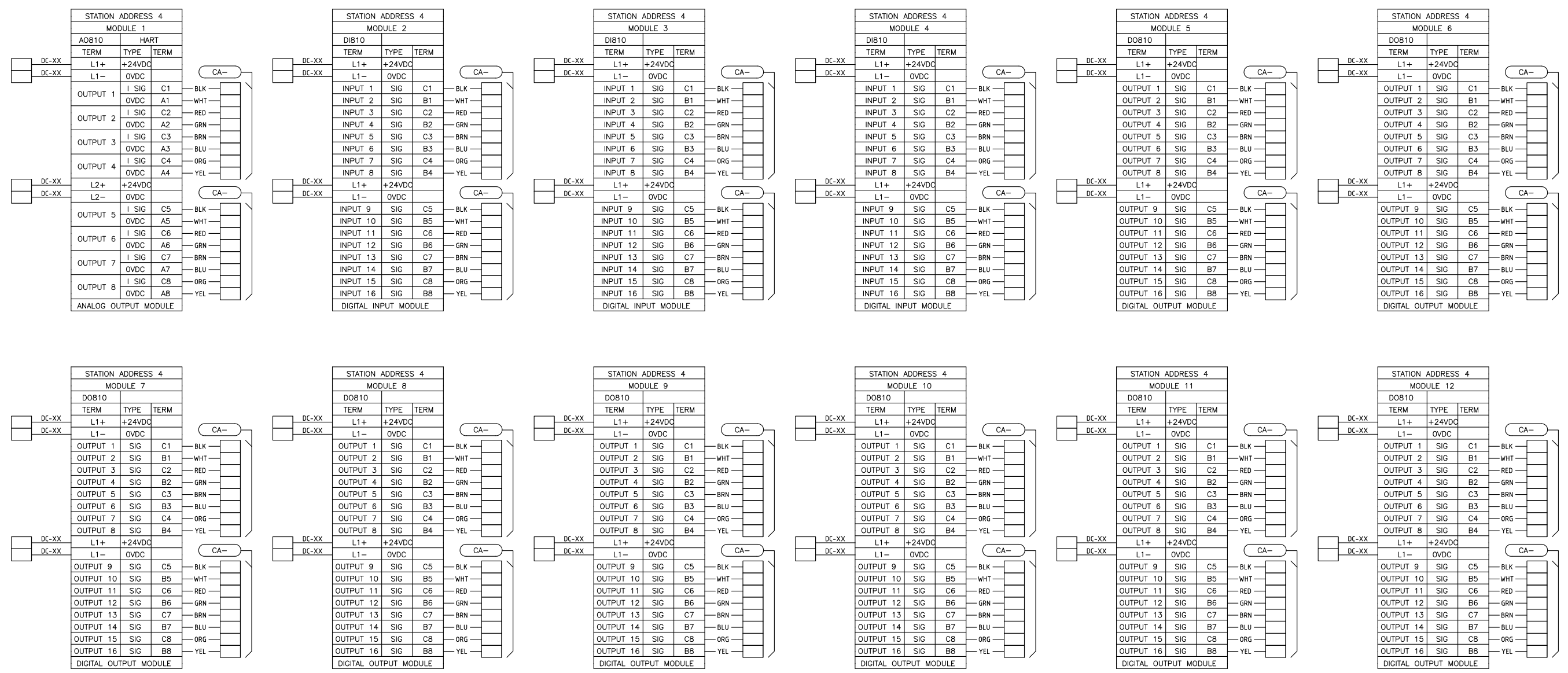
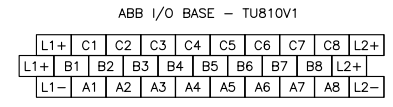
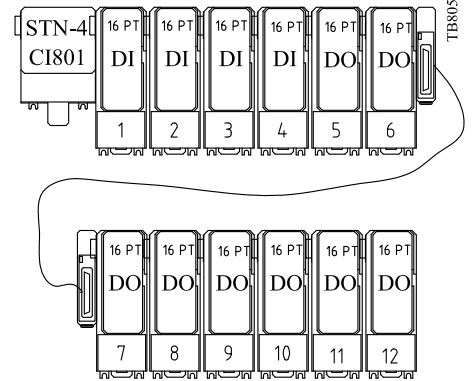


ABB I/O BASE - TU810V1

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L1+	B1	B2	B3	B4	B5	B6	B7	B8	L2+
L1-	A1	A2	A3	A4	A5	A6	A7	A8	L2-

REFERENCE DRAWINGS			NOTES:
DWG NO.	REV	DESCRIPTION	
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NRCan-CFF, DCSG				STN 3, I/O RACK WIRING				Edition 0 Sheet 1/1	



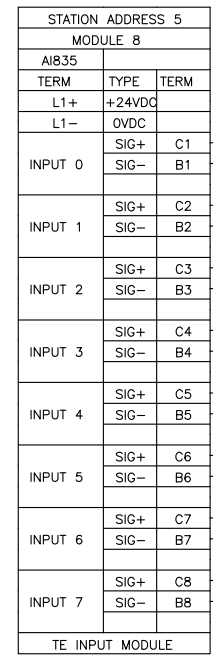
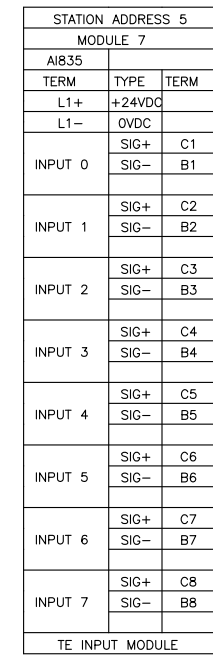
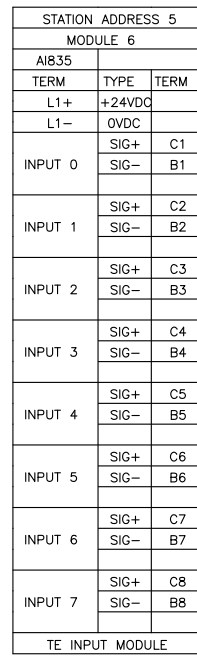
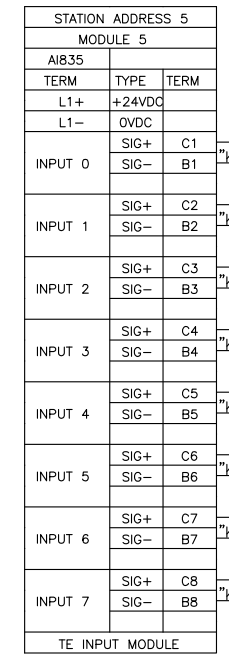
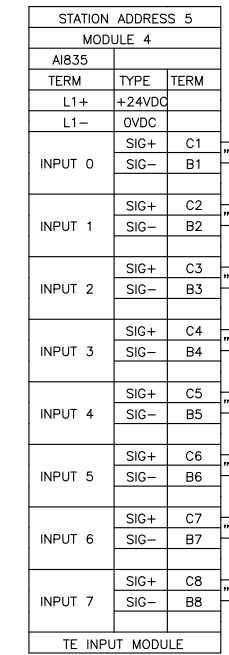
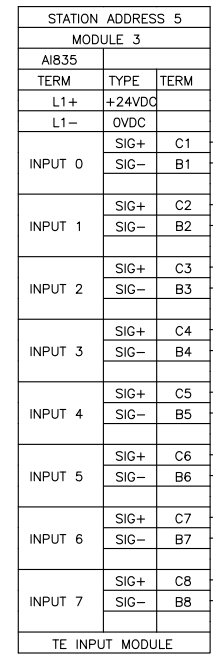
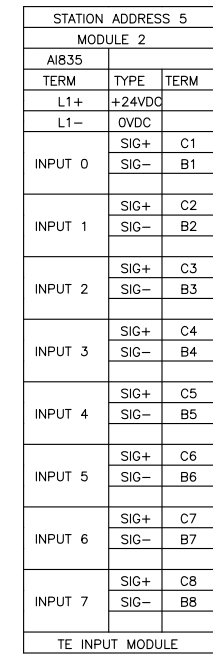
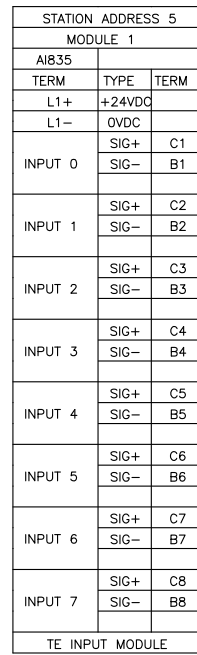
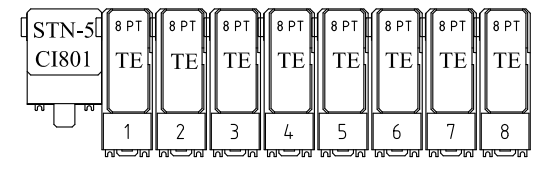
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DWG NO.	REV	DESCRIPTION

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RevNo	Revision note	Date	Signature	Checked
X	X			

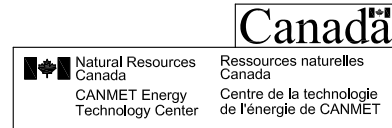
ABB I/O BASE - TUB10V1

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L1+	B1	B2	B3	B4	B5	B6	B7	B8	L2+
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DWG NO.	REV	DESCRIPTION

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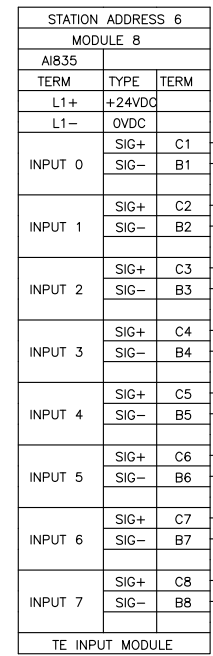
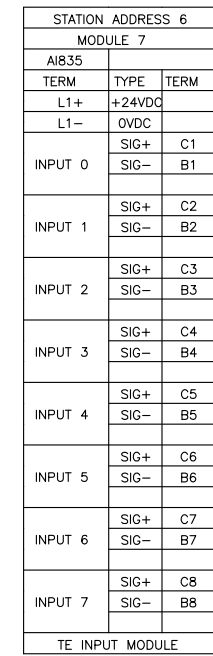
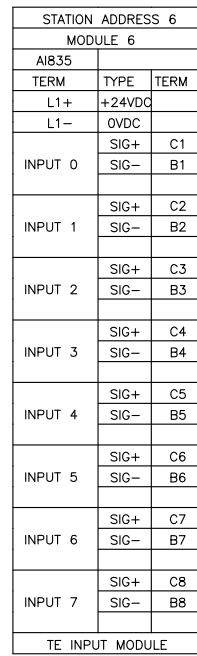
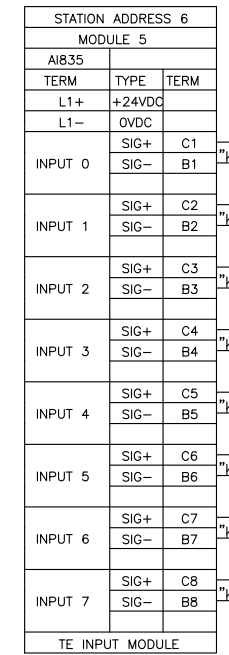
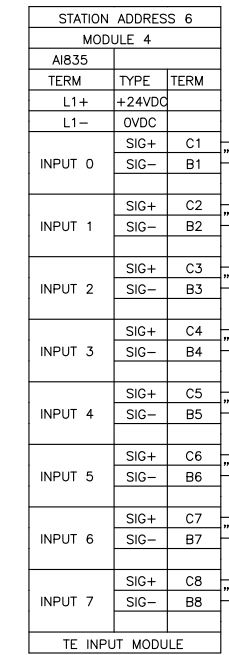
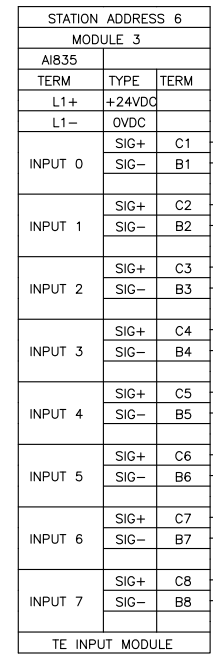
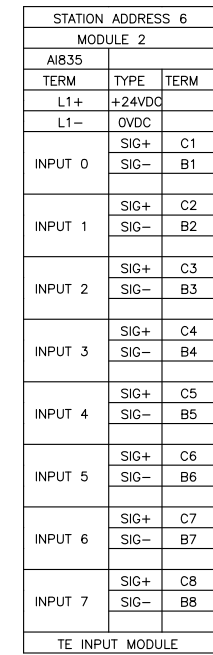
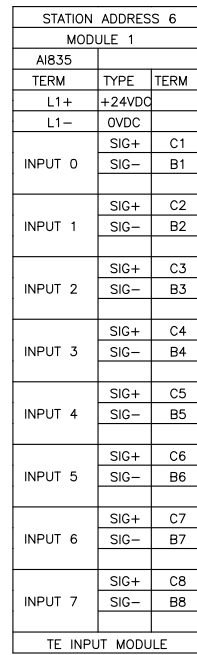
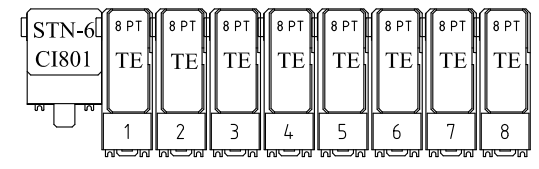
EngServ
CANMET Engineering Services Group

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
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NRCan-CFF, DCSG			STN 5, I/O RACK WIRING			
			D-P001617-XXX	Edition 0	Sheet 1/1	

RevNo	Revision note	Date	Signature	Checked
X	X			

ABB I/O BASE - TUB10V1

L1+	C1	C2	C3	C4	C5	C6	C7	C8	L2+
L1+	B1	B2	B3	B4	B5	B6	B7	B8	L2+
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DWG NO.	REV	DESCRIPTION

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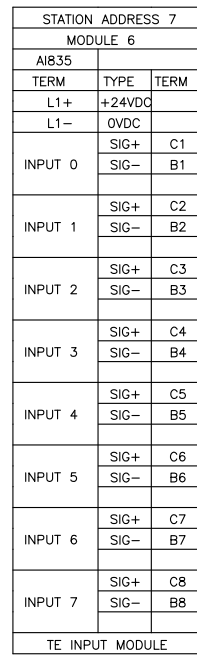
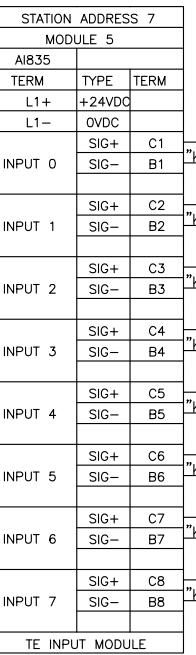
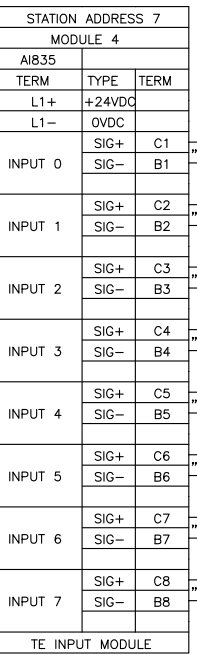
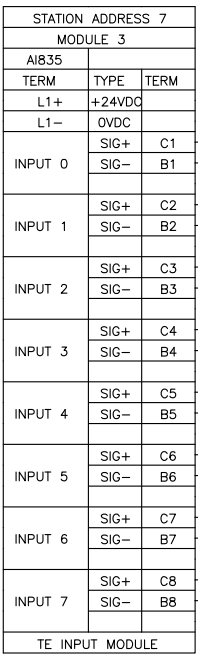
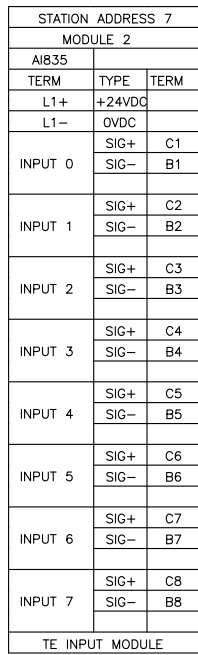
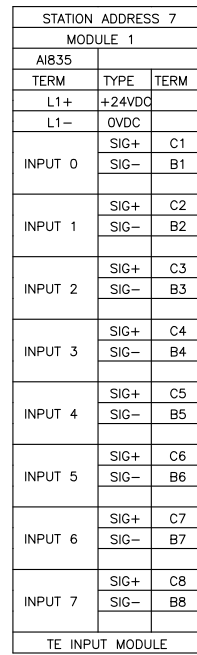
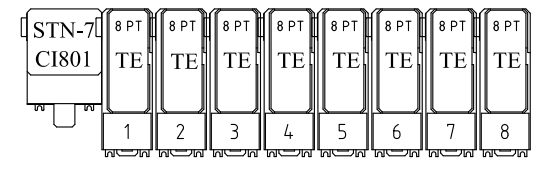
Canada
EngServ
CANMET Engineering Services Group

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
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NRCan-CFF, DCSG			STN 6, I/O RACK WIRING			
			D-P001617-XXX		Edition 0	Sheet 1/1

RevNo	Revision note	Date	Signature	Checked
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ABB I/O BASE - TUB10V1

L1+	C1	C2	C3	C4	C5	C6	C7	C8	L2+
L1+	B1	B2	B3	B4	B5	B6	B7	B8	L2+
L1-	A1	A2	A3	A4	A5	A6	A7	A8	L2-



REFERENCE DRAWINGS		
DWG NO.	REV	DESCRIPTION

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EngServ
CANMET Engineering Services Group

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
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			D-P001617-XXX		Edition 0	Sheet 1/1