



# Aasta Hansteen Topside EPC Project

 Aasta Hansteen Topsides EPC Project		
Engineering Review Status	By : ACV	
1 Accepted	Date : 07/06/2017	

COMPANY RETURN CODE:

Accepted 1




Accepted with comments incorporated - revise and Resubmit 2

Not Accepted - Revise and resubmit 3

Issued for Information 4

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

08	09.05.2017	Issued for Construction	RAGR	AUJO	AJR
07	10.03.2016	Issued for Construction	RAGR	AUJO	ARIV
06	20.05.2015	Issued for Construction	THKI	ROGR	ARIV
05	24.06.2014	Issued for Review	SURP	AUJO	ARIV
04	27.01.2014	Issued for Review	OPYE	AUJO	ARIV
03	05.12.2013	Issue for Review	AUJO	ROGR	ARIV
Rev	Date	Description	Prepared	Verified	Approved

		Document Title						
		Hardware Typicals						
	<b>ABB AS</b>	Document number						
		C134-FS-200001-XK-0001-01			08			
PO No. : WE536MA3AB01	Tag No. :	Sup. Rev.	Proj. Code	Orig. Code	Req ref.	Doc. Code	Seq. no.	Rev

**Notes**

1. The HW typical loops are common for both Marshalling and RIO cabinets
2. In Revision 01 comment it is mentioned to add a typical for AI not powered from SAS system. Need more specification regarding
  - IS/NonIS,
  - how the loop is powered?, whether from Field power supply of SAS or an external power supply (non-SAS) directly to field
3. Signal cables wire color is 'white' as defined according to NORSOK E-001. No special requirements in TR.

**Revision History**

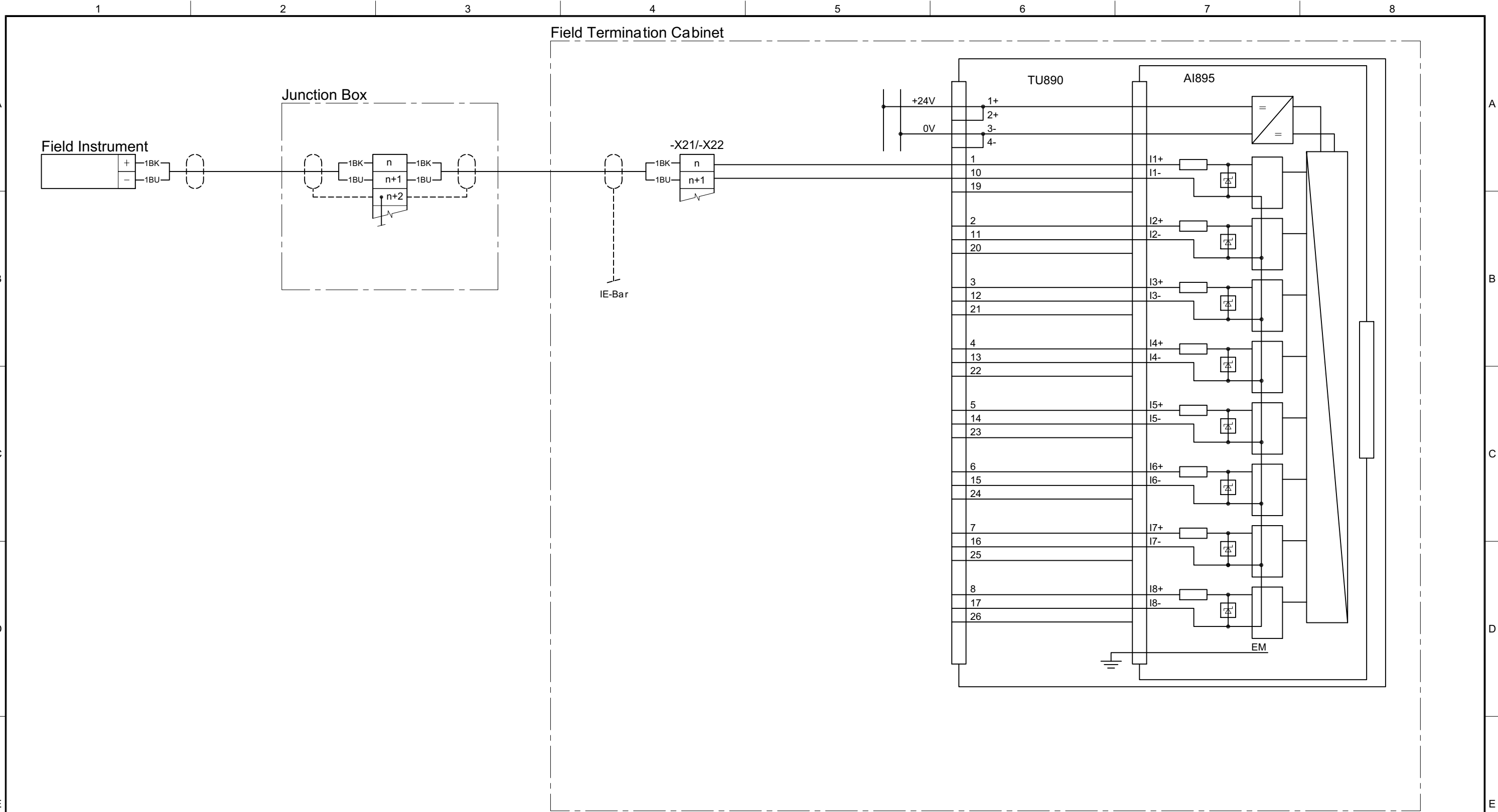
Revision	Page (P) Chapter (C)	Description on changes	Date Dept/Name
01	All	Issued for Approval	13.06.2013 PAOGP/ OYPE
02	All	Updated Revision 01 comments from customer: Removed AI893_001I & AI893_002I; Added new typicals AI880_007_AH, DI840_101I_AH, DI880_006I_AH; Updated AI880_007 & AI880_002I_AH typical; Updated Typical use column	01.11.2013 PAOGP/ AUJO
03		Updated with revision 2 comments	2013-12-05 PAOGP / AUJO
04		Updated with revision 03 comments Added 3 new typicals: AO820_003_AH and DO815_001 (Mooring system) DO880_001I_AH	2014-01-27 PAOGP / OYPE
05		Updated with revision 04 comments Added 3 new typicals: AI845_105I_AH, AI845_103_AH and AI845_203_AH	2014-06-24 PAOGP / SURP
06		Added 5 new typicals: DO840_104_AH, DO840_107_AH, AI845_106I_AH, AI845_401AH and DI880-006I.	2015-05-20 PAOGP / THKI
07		Added 2 new typicals: DI810_003 and DO810_002. New revision on AI895_001I, AI845_003, AO895_001I, DI890_001I, DO810_001, DO890_001I, DO815_001 and AUTRONICA_002I	2016-03-10 PAOGC / RAGR
08		Added new HW typicals AI880_203_AH, AI880_105I_AH, AI845_103I_AH, DI880_106I_AH, AI845_001_AH based requirements from site. Attached CAP typicals for information	2017-05-09 IAOG / AUJO

Title/Name	Doc nr	Rev	Termination Unit	Extended/Compact/Redundant	CardType	System Type	ESD	F&G	PSD	PCS	I/O Type	IS/Non-IS	SIL	Barrier /Relay	HART	Loop Supervise d	No. Of channels	Description	Typical Use
AI895_001I	3AJG000407-092	A	TU890	C	AI895	S800				X	AI	IS			X		8	Analog Input, 4-20 mA, 2 Wire, HART, Powered from SAS System, IS	Transmitters (FT,PT,LT,TT) -Passive input signal, Exi transmitters 2-Wire
AI880_004	3AJG000407-103	A	TU834_TU844_TU845	E/R	AI880	S800	X	X	X		AI	Non IS	SIL 1-3		X	X	8	Analog Input, 4-20mA, 2 wire, HART, Powered from SAS System, SIL 1-3, Non IS, NAMUR	Non IS Transmitters (FT,PT,LT,TT) to ESD/PSD/F&G
AI880_007	3AJG000407-105	A	TU834_TU844_TU845	E/R	AI880	S800	X	X			AI	Non IS	SIL 1-2			X	8	Analog Input, 0-20mA, 3 wire, SIL 1-2, Powered from SAS System, Non IS	Gas Detector, Flame detector, H2 detector,
AI845_003	3AJG000407-112	A	TU830	E	AI845	S800				X	AI	Non IS			X		8	Analog Input, 4-20mA, 2 wire, HART, Powered from SAS System, Non IS	Transmitters, NON-IS 2 Wire HART
AO895_001I	3AJG000407-115	A	TU890	C	AO895	S800				X	AO	IS			X		8	Analog Output, 4-20mA, 2 Wire, HART, Powered from SAS System, IS	Control Valves EXi (FY,PY,LY,TY)
DI890_001I	3AJG000407-121	A	TU890	C	DI890	S800	X	X	X	X	DI	IS				X	8	Digital input, 24V DC, 2 Wire, NAMUR, Input for dry contacts or proximity switches, Powered from SAS System, IS, Loop Supervised	Proximity Switch (GSL,GSH), Rupture disc status(PZE)
DI810_001	3AJG000407-127	A	TU830	E	DI810	S800				X	DI	Non IS					16	Digital input, 24V DC, 2 wire, Powered from SAS System, Non IS	Status signals from CAP, Manual reset of ESDV's
DI880_006I	3AJG000407-130	A	TU830_TU842_TU843	E/R	DI880	S800		X	X		DI	IS	SIL 1-2	5517		X	16	Digital Input, Loop Supervised, 24VDC, 2 wire NAMUR Proximity Switches, SOE SIL 1-2, Powered from SAS System, IS	NAMUR Proximity switches; 3rd channel will be used for Line fault detection. This typical shall be used only if there is a space limitation in the cabinet. Using dual channel barriers are against standard project requirements.
DI880_001	3AJG000407-131	A	TU830_TU842_TU843	E/R	DI880	S800	X	X	X		DI	Non IS	SIL 1-3				16	Digital Input, 24V DC, 2 wire, SIL 1-3, Powered from SAS System, Non IS	Running Signal from MCC, (Feedback to PSD/ESD/F&G, Input from PSD/F&G)
DI810_003	3AJG000407-134	A	TU810	C	DI810	S800				X	DI	Non IS					8	Digital input, 24V DC, 2 wire, Powered from SAS System, Non IS	Status signals from CAP, Manual reset of ESDV's
AI880_016	3AJG000407-137	A	TU834_TU844_TU845	E/R	AI880	S800		X	X		DI	Non IS	SIL 1-3			X	8	Digital Input, Loop Supervised, 24V DC, 2 wire, Powered from SAS System, SIL 1-3, Non IS	Potential free Proximity switch, Manual call point - ESD/PSD/F&G,
DO810_001	3AJG000407-140	A	TU830	E	DO810	S800				X	DO	Non IS					16	Digital Output, 2 Wire, 24VDC, Iout <0.5A, Powered from SAS System, Non-IS	Solenoid (Ex me), CAP status lamp, Interconn. of PCS panel, MCC start/stop
DO890_001I	3AJG000407-141	B	TU890	C	DO890	S800				X	DO	IS					8	Digital Output, 2 Wire, 12V DC, 40mA, Output load, Powered from SAS System, IS	Eexia Solenoids
DO815_001	3AJG000407-144	A	TU830	E	DO815	S800				X	DO	Non IS				X	8	Digital Output, Loop Supervised, 2 Wire, 24V DC, 2A, Powered from SAS System, Non IS, NE	Mooring System only. DO (1000mA)
DO880_012	3AJG000407-146	B	TU830_TU842_TU843	E/R	DO880	S800	X	X	X		DO	Non IS	SIL 1-3	D5091S		X	16	Digital Output, Loop Supervised, 2 Wire, NE, Powered from SAS System, Non IS, Potential Free Contact, SIL 1-3	Potential free output NE Internode signals
DO880_001	3AJG000407-148	A	TU830-TU842_TU843	E/R	DO880	S800	X	X	X		DO	Non IS	SIL 1-3	D5091S		X	16	Digital Output, Loop Supervised, Man Release of Fire Fighting Media, 24VDC 500mA, SIL 1-3	Potential free outputs(Manual Release of Deluge/Monitor/Water Mist from CAP, Start Fire Water Pump.)
DO880_003	3AJG000407-149	A	TU830-TU842_TU843	E/R	DO880	S800	X	X	X		DO	Non IS	SIL 1-3			X	16	Digital Output, Loop Supervised, 2 wire, 24 VDC, 500 mA, Powered from SAS System, SIL 1-3, Non IS	Watermist Water Valve(NDE),MCC Trip Signal(NE), Fire Dampersolenoid(NE), Solenoids, CAP status lamps
DO880_004	3AJG000407-150	B	TU830-TU842_TU843	E/R	DO880	S800	X	X	X	X	DO	Non IS	SIL 1-3	D5090S		X	16	Digital Output Loop Supervised, 2 wire, NE, Powered from SAS System, Non IS, Potential Free Contact, SIL 1-3	e.g. Potential free outputs(Electrical isolation, solenoids, dampers, Interconnection safety panels, etc.)
DO880_007	3AJG000407-152	B	TU830_TU842_TU843	E/R	DO880	S800	X	X	X	X	DO	Non IS	SIL 1-3	D5091S		X	16	Digital Output, Loop Supervised, 2 wire, NDE, Powered from SAS System, Non IS, Potential Free Contact, SIL 1-3	e.g.Potential free outputs(Electrical isolation, solenoids, dampers, Interconnection safety panels, etc.)
DO810_002	3AJG000407-153	A	TU810	C	DO810	S800				X	DO	Non IS					8	Digital Output, 2 Wire, 24VDC, Iout <0.5A, Powered from SAS System, Non-IS	Solenoid (Ex me), CAP status lamp, Interconn. of PCS panel, MCC start/stop
AUTRONICA_001	3AJG000407-155	A	Autrosafe	Autrosafe	Autrosafe	Autrosafe		X			SI	Non IS	SIL 1-2				1	AutoSafe Loop for addressable detectors, Non IS	BO,BQ,BC,BF,BR, Fire detection
AUTRONICA_002I	3AJG000407-156	B	Autrosafe	Autrosafe	Autrosafe	Autrosafe		X			SI	IS	SIL 1-2				1	AutoSafe Loop for addressable detectors, IS	BO,BQ,BC,BF,BR, Fire detection
AI880_005I_AH	P027288-TEC-0001	02	TU834_TU844_TU845	E/R	AI880	S800	X	X	X		AI	IS	SIL 1-3	5014S	X	X	8	Analog Input 4-20mA, 2 wire, HART, Powered from SAS System, SIL 1-3, IS, NAMUR	Transmitters ESD, PSD
AI845_003I_AH	P027288-TEC-0002	02	TU830	E	AI845	S800				X	AI	IS		5014S	X		8	Analog Input, 4-20mA, 2 wire, HART, Powered from SAS System, IS	Transmitters (FT,PT,LT,TT) in current sink mode
AI880_002I_AH	P027288-TEC-0004	02	TU834_TU844_TU845	E/R	AI880	S800	X	X	X		DI	IS	SIL 1-3	5014S		X	8	Digital Input, Loop Supervised Volt free contacts, 2 wire, SIL 1-3, Powered from SAS System, IS	Release Pushbuttons, CAP push buttons, Potential free Proximity switch, Manual call point -outdoor
AI845_101_AH	P027288-TEC-0006	01	TU844_TU845	E/R	AI845	S800				X	AI	Non IS			X		8	Analog Input, 4-20mA, 2 wire, HART, Powered from SAS System, Non IS,	Transmitters, NON-IS 2 Wire HART, Redundant
AO845_101_AH	P027288-TEC-0007	01	TU830_TU842_TU843	E/R	AO845	S800				X	AO	Non IS			X		8	Analog Output, 4-20mA, 2 Wire, HART, Powered from SAS System, Non-IS	Control valves with HART Non-IS
AO845_101I_AH	P027288-TEC-0008	01	TU830_TU842_TU843	E/R	AO845	S800				X	AO	IS		5020S	X		8	Analog Output, 4-20mA, 2 Wire, HART, Powered from SAS System, IS	Control valves with HART IS
DI818_101_AH	P027288-TEC-0009	01	TU818	C	DI818	S800				X	DI	Non IS					32	Digital Input 24V DC, 2 wire, Potential Free Contact, Powered from SAS System, Non IS	Running Signal from MCC, (Feedback to PSD/ESD/F&G, Input from PSD/F&G)
DO818_101_AH	P027288-TEC-0010	01	TU818	C	DO818	S800				X	DO	Non IS					32	Digital Output, 2 wire, 24V DC, 0,5A, Powered from SAS System, Non-IS	Solenoid (Ex me), CAP status lamp, Interconn. of PCS panel, MCC start/stop
AI845_101I_AH	P027288-TEC-0011	02	TU844_TU845	E/R	AI845	S800				X	AI	IS		5014S	X		8	Analog Input, 4-20mA, 2 wire, HART, Powered from SAS System, IS,	Transmitters (FT,PT,LT,TT) in current sink mode
DO840_101_AH	P027288-TEC-0012	01	TU830_TU842_TU843	E/R	DO840	S800				X	DO	Non IS					16	Digital Output, 2 wire, 24V DC, 0,5A, Powered from SAS System, Non-IS	Solenoids up to 6W
DI840_101_AH	P027288-TEC-0013	01	TU830_TU842_TU843	E/R	DI840	S800				X	DI	Non IS					16	Digital Input 24V DC, 2 wire, Powered from SAS System, Non IS, SOE	Dry contact digital input with sequence of event
DI880_006I_AH	P027288-TEC-0019	01	TU830_TU842_TU843	E/R	DI880	S800		X	X		DI	IS	SIL 1-2	D5030D		X	16	Digital Input, Loop Supervised, 24VDC, 2 wire NAMUR Proximity Switches, SOE SIL 1-2, Powered from SAS System, IS	NAMUR Proximity switches; 2nd channel will be used for Line fault detection
DI840_101I_AH	P027288-TEC-0020	01	TU830_TU842_TU843	E/R	DI840	S800				X	DI	IS		D5030D		X	16	Digital Input, Loop Supervised, 24VDC, 2 wire NAMUR Proximity Switches, SOE, Powered from SAS System, IS	NAMUR Proximity switches; 2nd channel will be used for Line fault detection
AI880_007_AH	P027288-TEC-0021	02	TU834_TU844_TU845	E/R	AI880	S800		X			AI	Non IS	SIL 1-2			X	8	Analog Input, 0-20mA, 5 wire, SIL 1-2, Powered from SAS System, Non IS	Line of Sight detector
AO820_003_AH	P027288-TEC-0022	01	TU830	E	AO820	S800				X	AO	Non IS					4	Analog Output, 0-10V, 2 wire, Individually galvanically isolated channels, Powered from SAS System, Non IS	Mooring System Only. AO (0 - 10 V)



Title/Name	Doc nr	Rev	Termination Unit	Extended/ Compact/ Redundant	Card Type	System Type	ESD	F&G	PSD	PCS	I/O Type	IS/ NON-IS	SIL	Barrier /Relay	HART	Loop Supervise d	No. Of channels	Description	Typical Use
DO880_0011_AH	P027288-TEC-0023	01	TU830_TU842_TU843	E/R	DO880	S800	X	X	X		DO	IS	SIL 1-3	D5048S			16	Digital Output, NE, SIL 1-3, Powered from SAS System, IS	Solenoid Valves, Output Limite to: 45ma / 8.5V-13V
AI845_105I_AH	P027288-TEC-0028	01	TU844_TU845	E/R	AI845	S800				X	AI	IS		D5072S			8	Analog Input, 4-20mA, 3 wire, Powered from SAS System, IS	3 Wire RTD input(GE System)
AI845_103_AH	P027288-TEC-0034	01	TU830	E	AI845	S800				X	AI	Non IS					8	Analog Input, 4-20mA, 4 wire, Powered from External System, Non IS	Externally Powered XTRin Current Source Mode.
AI845_203_AH	P027288-TEC-0035	01	TU844_TU845	E/R	AI845	S800				X	AI	Non IS					8	Analog Input, 4-20mA, 4 wire, Powered from External System, Non IS	Externally Powered XTRin Current Source Mode.
DO840_104_AH	P027288-TEC-0038	01	TU830_TU842_TU843	E/R	DO840	S800				X	DO	Non IS		D5090S		X	16	Digital Output, Loop Supervised, 2 Wire, NE, Powered from SAS System, Non IS, Potential Free Contact,	Normally Energized Relay Outputs
DO840_107_AH	P027288-TEC-0039	01	TU830_TU842_TU843	E/R	DO840	S800				X	DO	Non IS		D5091S		X	16	Digital Output, Loop Supervised, 2 Wire, NDE, Powered from SAS System, Non IS, Potential Free Contact,	Normally DeEnergized Relay Outputs
AI845_106I_AH	P027288-TEC-0040	01	TU844_TU845	E/R	AI845	S800				X	AI	IS		KFD2-STC4-Ex1			8	Analog Input, 4-20mA, 3 wire, Powered from SAS System, IS	3 Wire input. Only for use in 43JF071
AI845_401_AH	P027288-TEC-0041	01	TU844_TU845	E/R	AI845	S800				X	AI	Non IS					8	Analog Input, 0-5V, 4 wire, 2 channel, Powered from SAS System, Non IS	TECHNI ROTAC-MK II Only
AUTRONICA_103_AH	P027288-TEC-0042	01	NA	NA	NA	S800		X			NA	Non IS					NA	Autrosafe communication single mode FO	Autrosafe communication single mode FO
AI880_203_AH	P027288-TEC-0047	01	TU844_TU845	E/R	AI880	S800		X	X		AI	Non IS	SIL 1-2		X	X	8	Analog Input, 4-20mA, SIL 1-2, 4 wire, Powered from External System, Non IS	Externally Powered XTRin Current Source Mode. SWCR4715,4840,4924,4939,5004
AI880_105I_AH	P027288-TEC-0048	01	TU844_TU845	E/R	AI880	S800	X	X	X		AI	IS	SIL 1-3	D5014S	X	X	8	Analog Input 4-20mA, 4 wire, HART, Powered from External System, SIL 1-3, IS	SWCR4958
AI845_103I_AH	P027288-TEC-0049	01	TU834_TU844_TU845	E/R	AI845	S800				X	AI	IS		5014S	X		8	Analog Input 4-20mA, 4 wire, HART, Powered from External System, IS	SWCR4951,4952
DI880_106I_AH	P027288-TEC-0050	01	TU830_TU842_TU843	E/R	DI880	S800		X	X		DI	IS	SIL 1-2	D5030D			16	Digital Input, 24VDC, 2 wire NAMUR Proximity Switches or Potential free contact, SOE SIL 1-2, Powered from SAS System, IS	NAMUR Proximity switches, Potential free contacts. No line fault detection. Used for typical signalsin SWCR4822.
AI845_001_AH	P027288-TEC-0051	01	TU844_TU845	E/R	AI845	S800				X	AI	Non IS					8	Analog Input 4-20mA, 3 wire, HART, Powered from SAS, Non IS	SWCR5062
CAP Wiring Typical	3AJG000407-0254	-	-	-	-	-												Cap wiring typicalsincludes typical hardware componentslike Push buttons, lampsetc and their wiring scheme together with standard HWtypicals	

© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

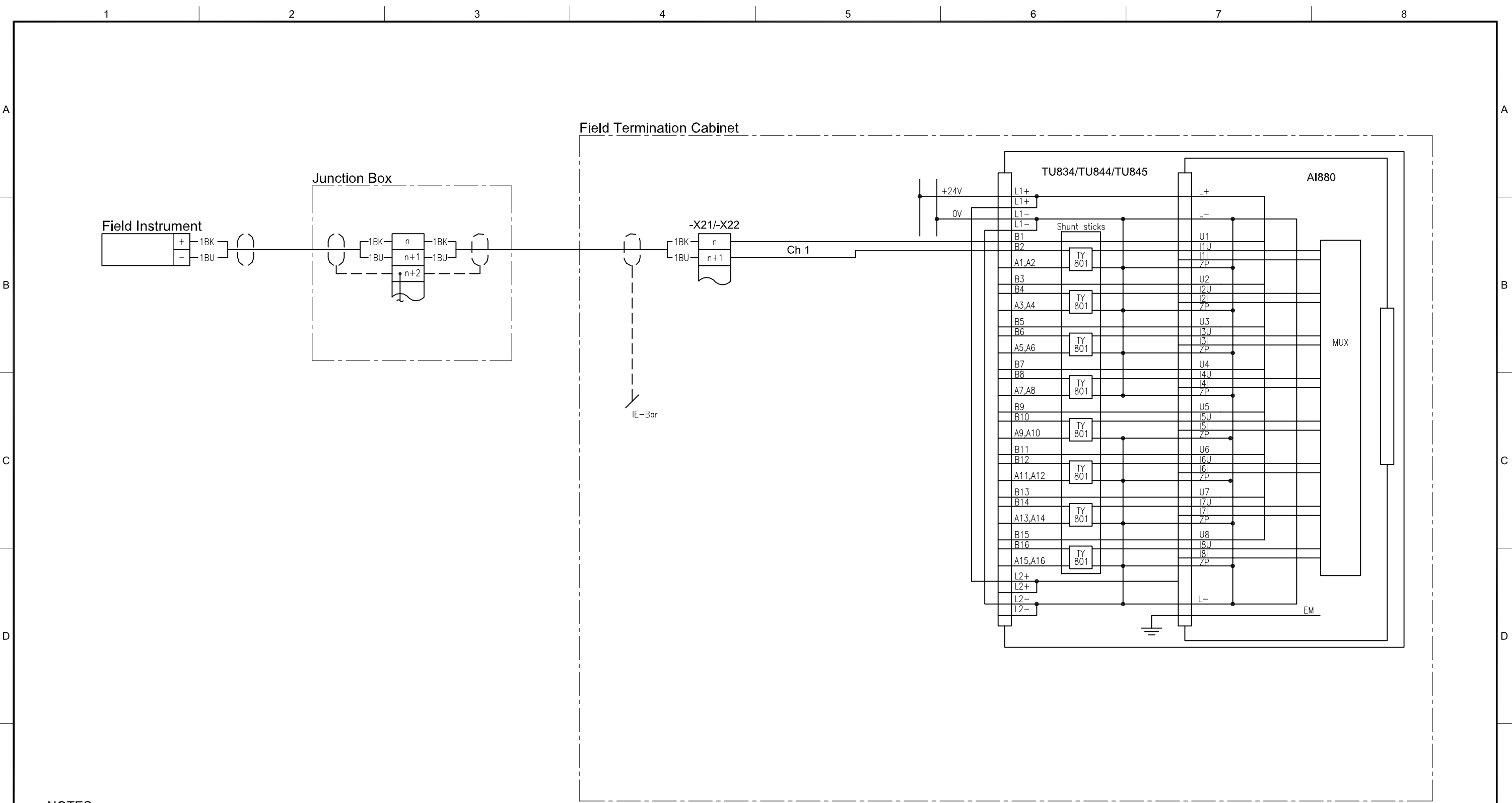


Loop Description:  
Analog Input, 4-20mA, 2 wire, HART, Powered from SAS, IS

AI895_0011	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	1	2	3	4	5	6	7	8
Signal	10	11	12	13	14	15	16	17
0V								

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>				Tagno.				Doc. Ref.			
Rev. A Issued for Engineering 2015-06-26 SINIC ERHAR OVLAS						AI895_0011				Doc. Owner PAOG				Area System Format DWG Dwg Size A3 Language EN Scale N/A Rev A			
Rev. - Approved 2012-09-20 ALDJ KJHA ROAN						ABB				Doc. no. 3AJG000407-092				Sheet 1 Next sh. -			

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

- Valid for single and redundant configuration.
- Shunt sticks TY801 configured for current input.

**Loop Description:**

Analog Input 4-20mA, 2 wire, HART, Powered from SAS, SIL 1-3, Non IS, NAMUR NE43

AI880_004	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	B1	B3	B5	B7	B9	B11	B13	B15
Signal (mA)	B2	B4	B6	B8	B10	B12	B14	B16
0V								

						Project/Package Title <b>ENGINEERING HANDBOOK</b>		Drawing Title <b>LOOP TYPICAL</b>			Tag no.		Doc. Ref. <b>3AJG000407-132</b>						
								AI880_004			Doc. Owner <b>PAIS</b>		Area	System	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>EN</b>	Scale <b>N/A</b>	Rev <b>A</b>
Rev.											Description						Issue Date		
A						Issued for Engineering						2014-09-05							
-						Approved						2013-02-13							
Rev.						Description						Issue Date							
												3AJG000407-103							
												Sheet 1							
												Total sh. 1							

© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

1 2 3 4 5 6 7 8

A A

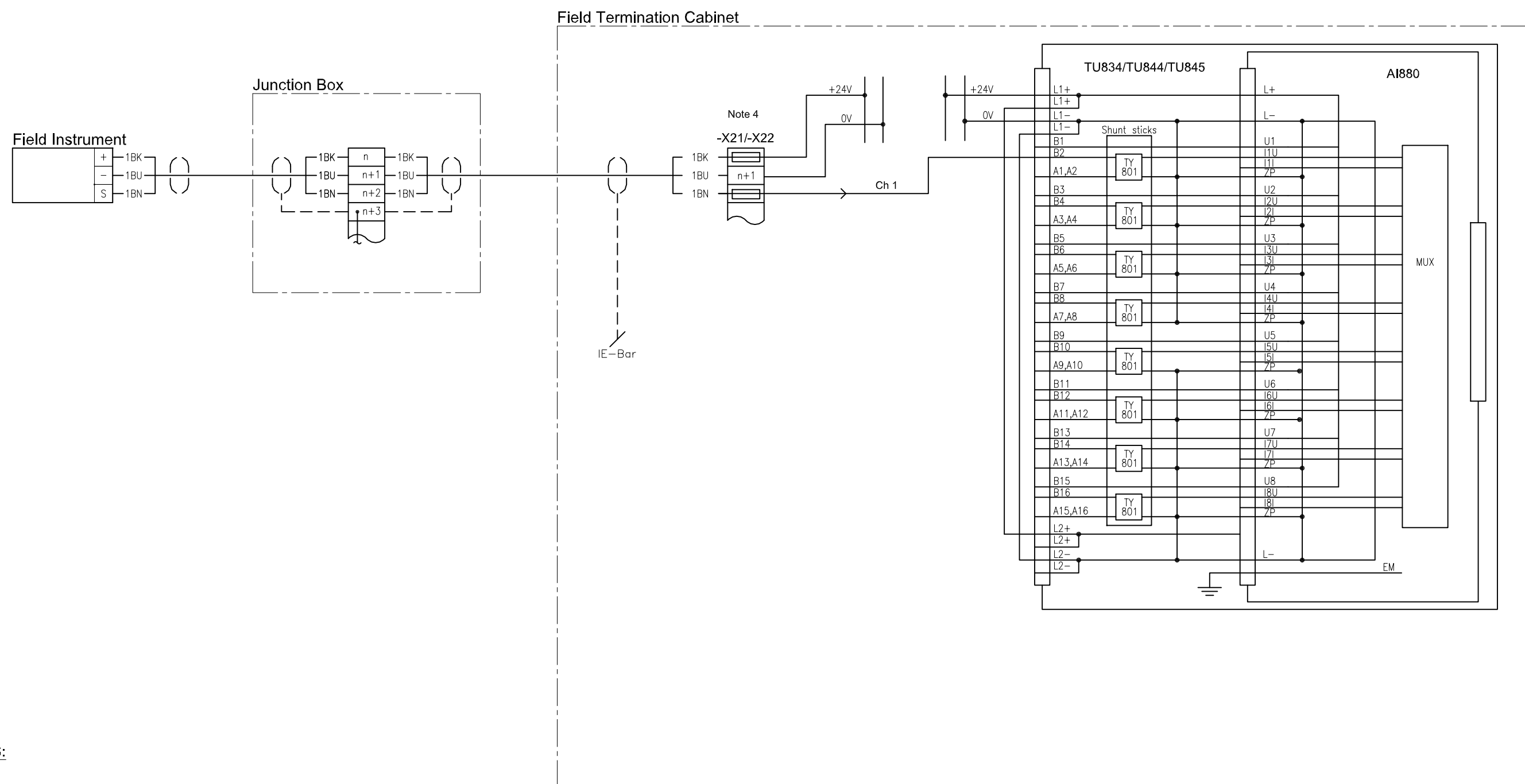
B B

C C

D D

E E

F F



**NOTES:**

1. Valid for single and redundant configuration.
2. Shunt sticks TY801 configured for current input.
3. I/O module and field instrument powered from same source with separate MCB on 24V DC.
4. +24V fuse for field supply: Rate according to field instrument.  
Signal fuse: 40mA - 100mA.

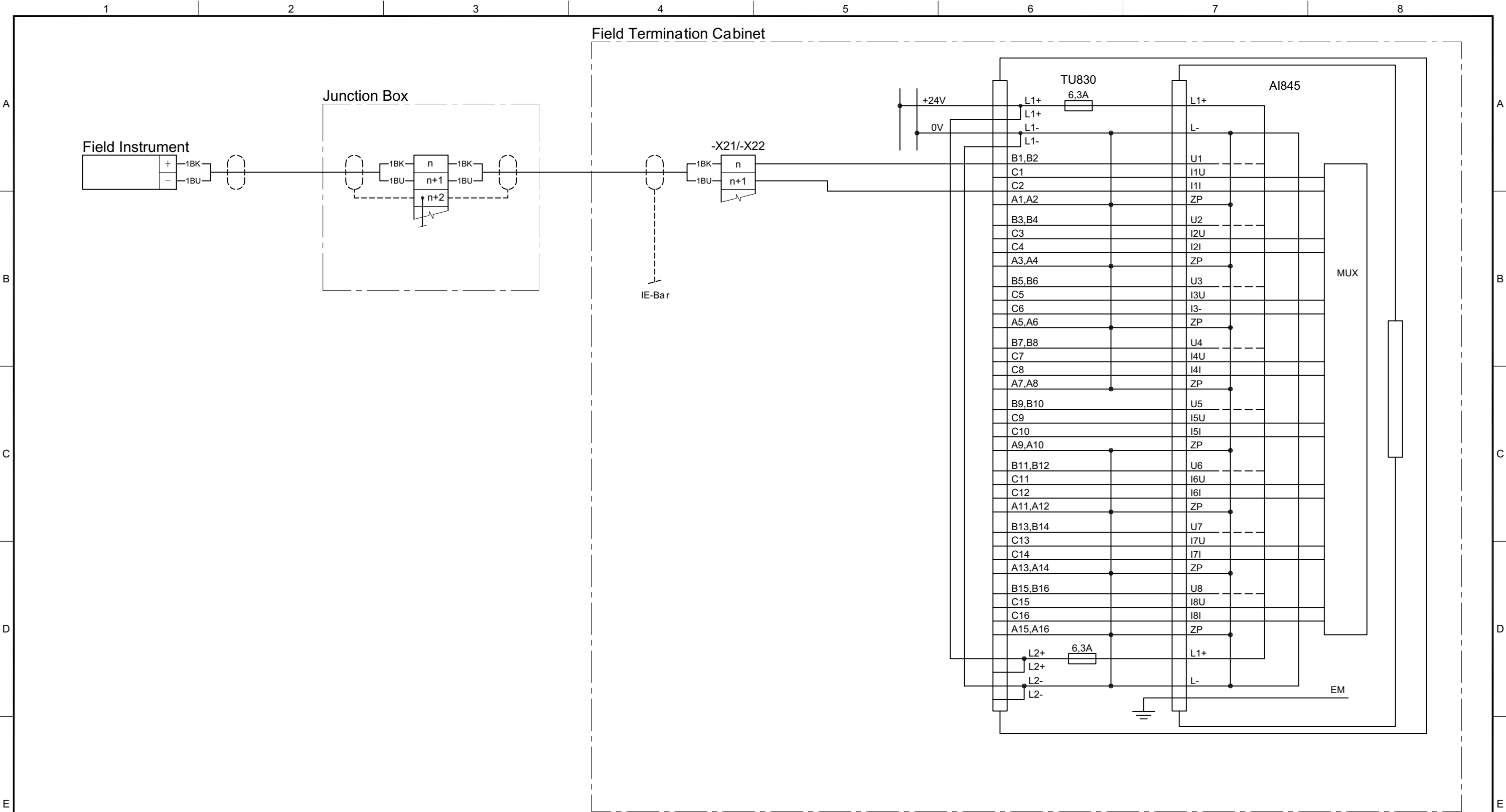
**Loop Description:**  
Analog Input 4-20mA, 3 wire, HART, Powered from SAS, SIL 1-2, Non IS, NAMUR NE43

AI880_007	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V								
Signal (mA)	B2	B4	B6	B8	B10	B12	B14	B16
0V								

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>				Tag no.				Doc. Ref. <b>3AJG000407-132</b>			
A Issued for Engineering 2014-09-05 SINI ERHA OVLA						AI880_007				Doc. Owner <b>PAIS</b>				Area System Format Dwg Size Language Scale Rev <b>DWG A3 EN N/A A</b>			
- Approved 2012-09-20 ALDJ KJHA ROAN										Doc. no. <b>3AJG000407-105</b>				Sheet 1			
Rev. Description Issue Date Prep. by Chk'd. by Proj. appr.														Total sh. 1			


1 2 3 4 5 6 7 8

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

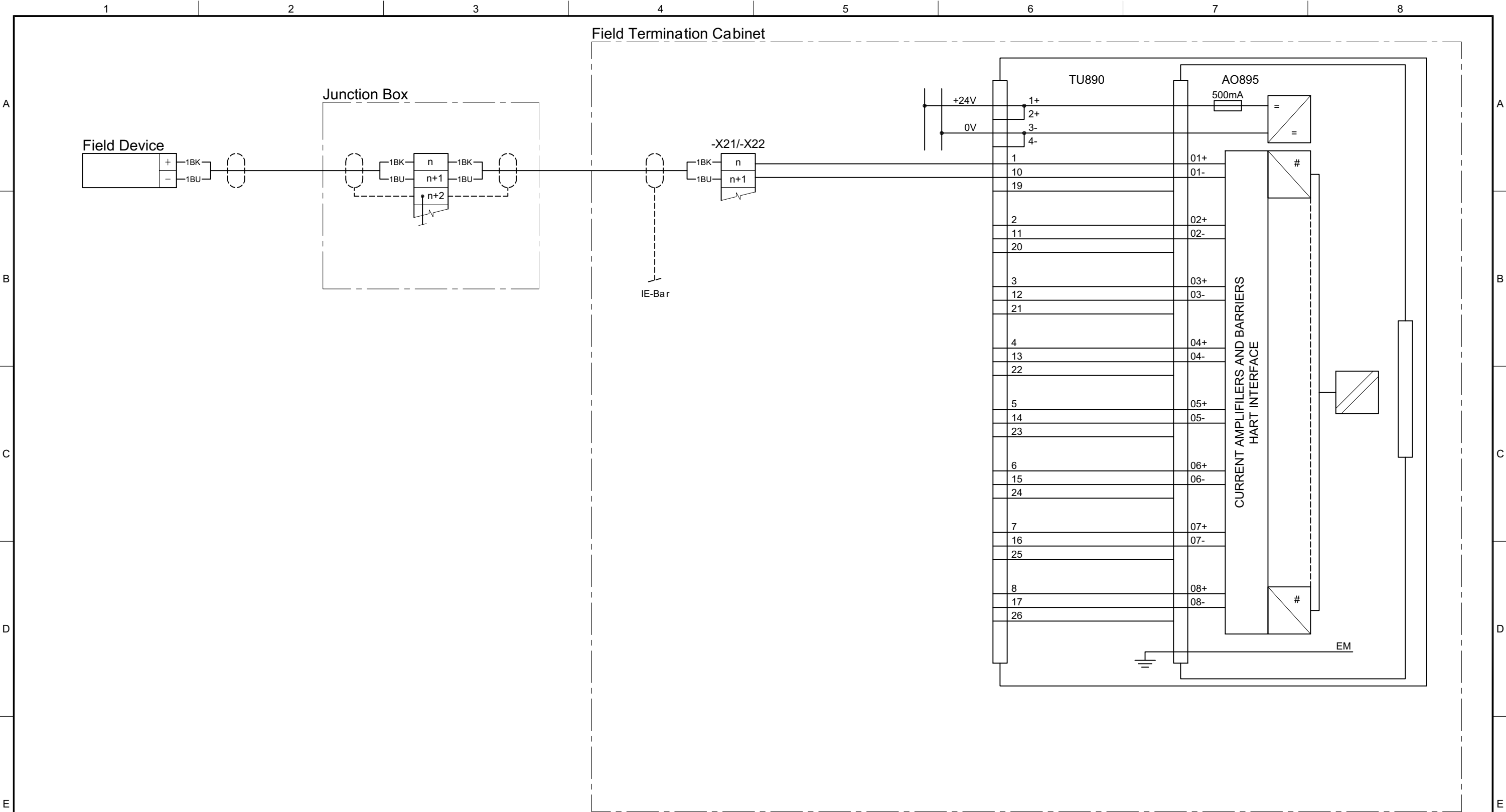


Loop Description:  
Analog Input 4-20mA, 2 wire, HART, Powered from SAS, Non IS

AI845_003	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	B1	B3	B5	B7	B9	B11	B13	B15
Signal	C2	C4	C6	C8	C10	C12	C14	C16
0V								

Project/Package Title ENGINEERING HANDBOOK					Drawing Title LOOP TYPICAL				Tagno.			Doc. Ref.																											
Rev. A Issued for Engineering 2015-07-28 SINIC ERHAR OVLAS					Rev. - Approved 2013-02-13 ALDJ KJHA ROAN				Doc. Owner PAOG			Area	System	Format DWG	Dwg Size A3	Language EN	Scale N/A	Rev A																					
Rev. Description					Issue Date					Prep. by					Chk'd. by					Proj. appr.																			
1					2					3					4					5					6					7					8				
															3AJG000407-112			Sheet 1		Next sh. -																			

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

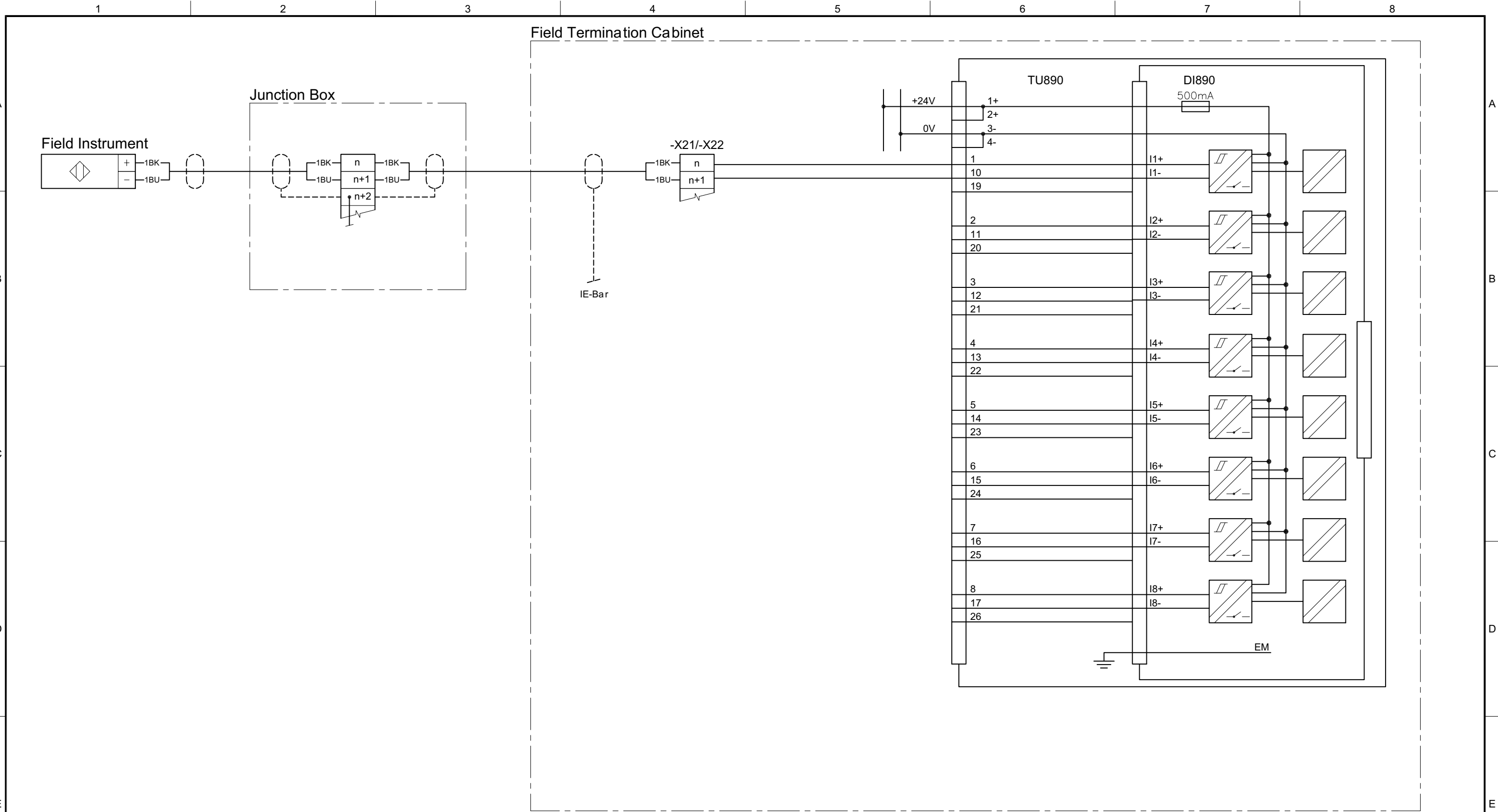


Loop Description:  
Analog Output, 4-20mA, 2 wire, HART, Powered from SAS, IS

AO895_0011	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	1	2	3	4	5	6	7	8
Signal	10	11	12	13	14	15	16	17
0V								

						Project/Package Title <b>ENGINEERING HANDBOOK</b>		Drawing Title <b>LOOP TYPICAL</b>				Tag no.		Doc. Ref.													
								AO895_0011				Doc. Owner <b>PAOG</b>		Area		System		Format <b>DWG</b>		Dwg Size <b>A3</b>		Language <b>EN</b>		Scale <b>N/A</b>		Rev <b>A</b>	
Rev.								Description		Issue Date		Prep. by		Chk'd. by		Proj. appr.		Doc. no. <b>3AJG000407-115</b>						Sheet <b>1</b>		Next sh. <b>-</b>	

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

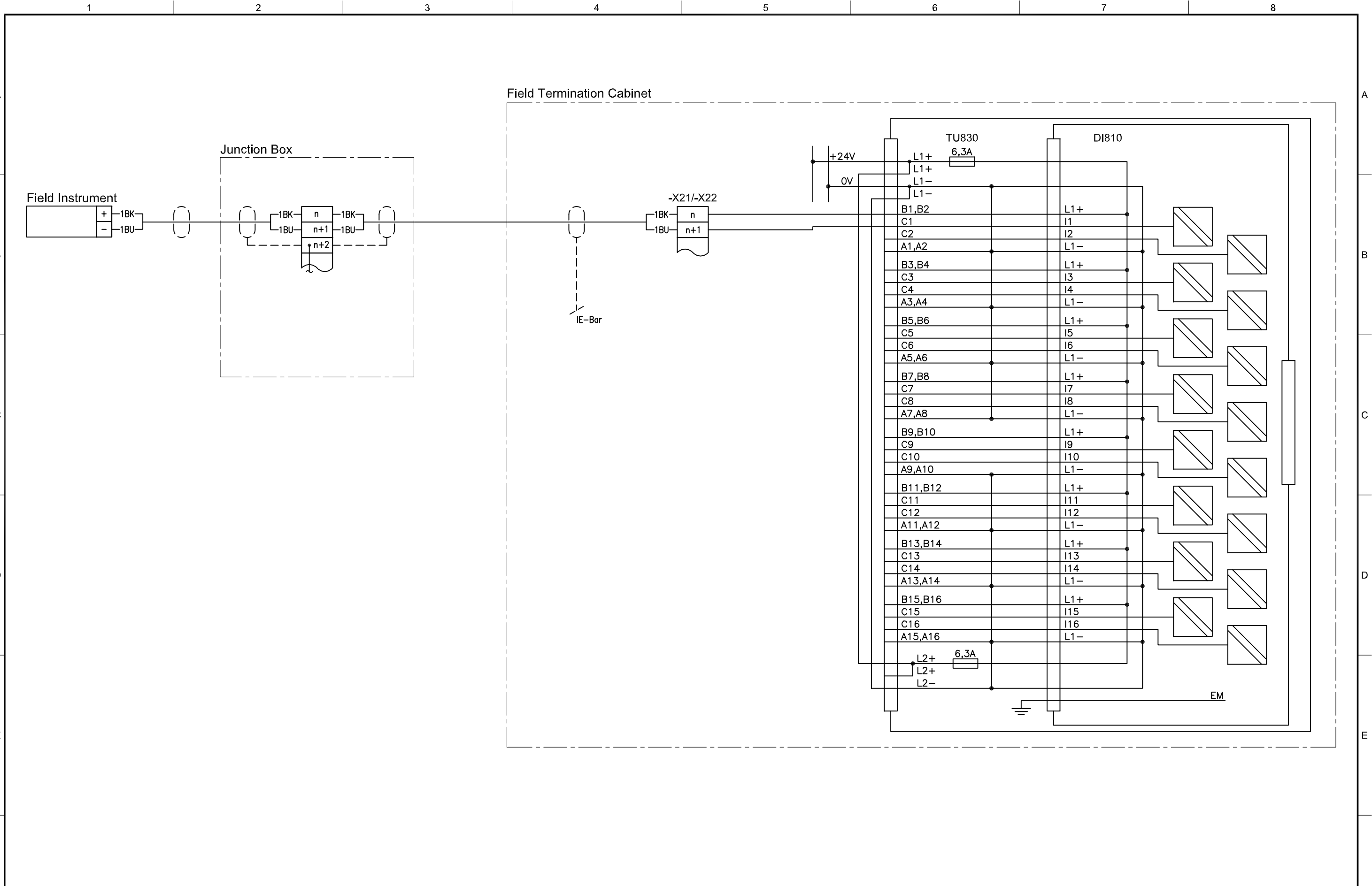
1. Type of input: Proximity sensor (NAMUR) or voltage-free contact.
2. Fault detection with volt-free contacts requires 1 kohm series plus 10 kohm parallel resistors, ref. 3BSE020927\*.

Loop Description:  
Digital Input, Loop Supervised, 24V DC, 2 wire, NAMUR Proximity Switches, Powered from SAS, IS

DI890_001I	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	1	2	3	4	5	6	7	8
Signal	10	11	12	13	14	15	16	17
0V								

						Project/Package Title <b>ENGINEERING HANDBOOK</b>		Drawing Title <b>LOOP TYPICAL</b>				Tagno.		Doc. Ref.													
								DI890_001I				Doc. Owner <b>PAOG</b>		Area		System		Format <b>DWG</b>		Dwg Size <b>A3</b>		Language <b>EN</b>		Scale <b>N/A</b>		Rev <b>A</b>	
Rev.												Description						Doc. no. <b>3AJG000407-121</b>						Sheet <b>1</b>		Next sh. <b>-</b>	
A						Issued for Engineering						2015-06-29						SINIC		ERHAR		OVLAS					
-						Approved						2013-02-13						ALDJ		KJHA		ROAN					

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



Based on: ABB MANUAL		Prepared ALDJ	Checked KJHA	Digital input, 24V DC, 2 wire, Non IS Powered from SAS System		Doc.ref. 3AJG000407-132	
		Date 2011-11-24	Approved RVA			Doc. Owner. PAOG	Rev.ind. -
		Title OGP HARDWARE SOLUTIONS DI810_001				Language EN	Sheet 1
Revision						Doc.no. 3AJG000407-127	Next sheet -
Ind.	Description	Date	App.				

1

2

3

4

5

6

7

8

A

B

C

D

E

F

A

B

C

D

E

F

1

2

3

4

5

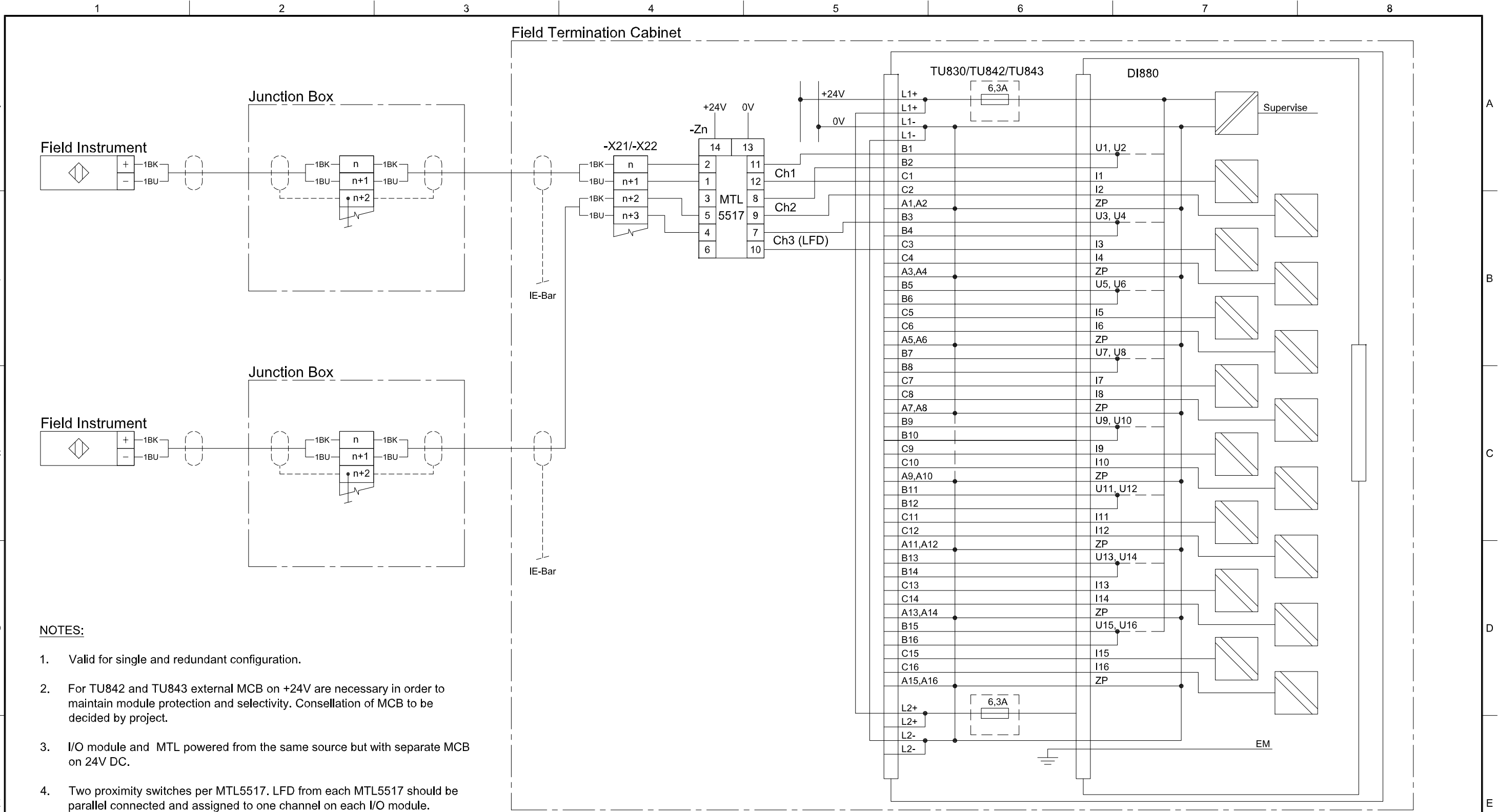
6

7

8



© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

- Valid for single and redundant configuration.
- For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Consellation of MCB to be decided by project.
- I/O module and MTL powered from the same source but with separate MCB on 24V DC.
- Two proximity switches per MTL5517. LFD from each MTL5517 should be parallel connected and assigned to one channel on each I/O module.
- If this typical is used for switches, resistors in series and parallel with switch is required for line fault detection (LFD), ref. MTL5517 datasheet. Alternatively use AI880\_002I.
- DIP switch setting for MTL5517: 1=OFF, 2=ON, 3=OFF, 4=ON. If LFD is not required, set switch 2 (channel 1) and 4 (channel 2) to OFF.
- DI880 is SIL certified for normally closed input loops only.

**Loop Description:**

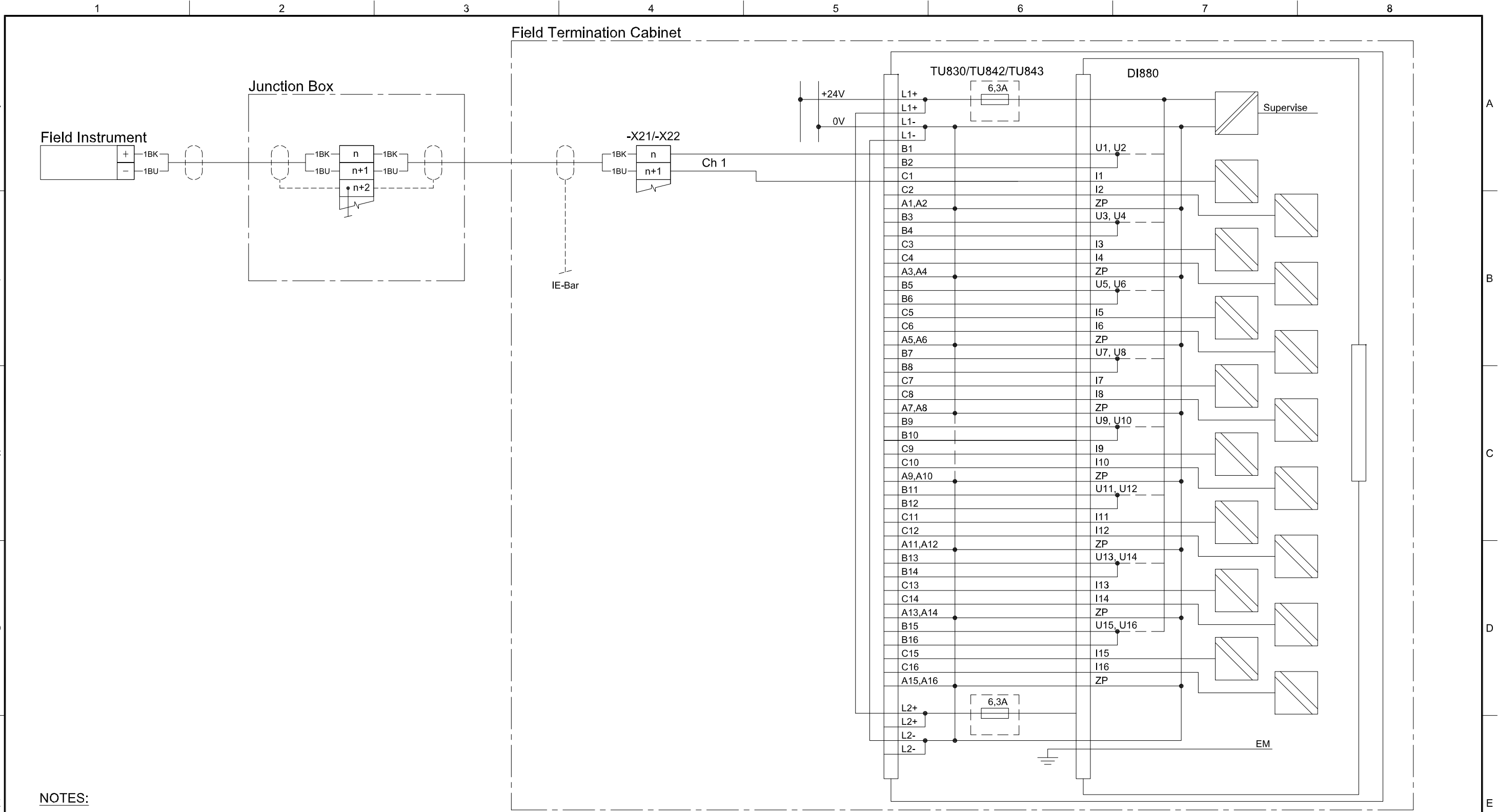
Digital Input, Loop Supervised, 24V DC, 2 wire, NAMUR Proximity Switches, SOE, SIL1-2, Powered from SAS, IS

DI880_006I	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13C	C14	C15	C16
0V																

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>						Tag no.				Doc. Ref. <b>3AJG000407-132</b>																			
Rev.						Description						Issue Date						Prep. by		Chk'd. by		Proj. appr.		Doc. no. <b>3AJG000407-130</b>				Sheet 1		Next sh. -					
A Issued for Engineering						2014-11-13						SINI		ERHA		OVLA		Doc. Owner <b>PAIS</b>				Area		System		Format <b>DWG</b>		Dwg Size <b>A3</b>		Language <b>EN</b>		Scale <b>N/A</b>		Rev <b>A</b>	
-						2013-02-13						ALDJ		KJHA		ROAN		Doc. no. <b>3AJG000407-130</b>				Sheet 1		Next sh. -											



© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

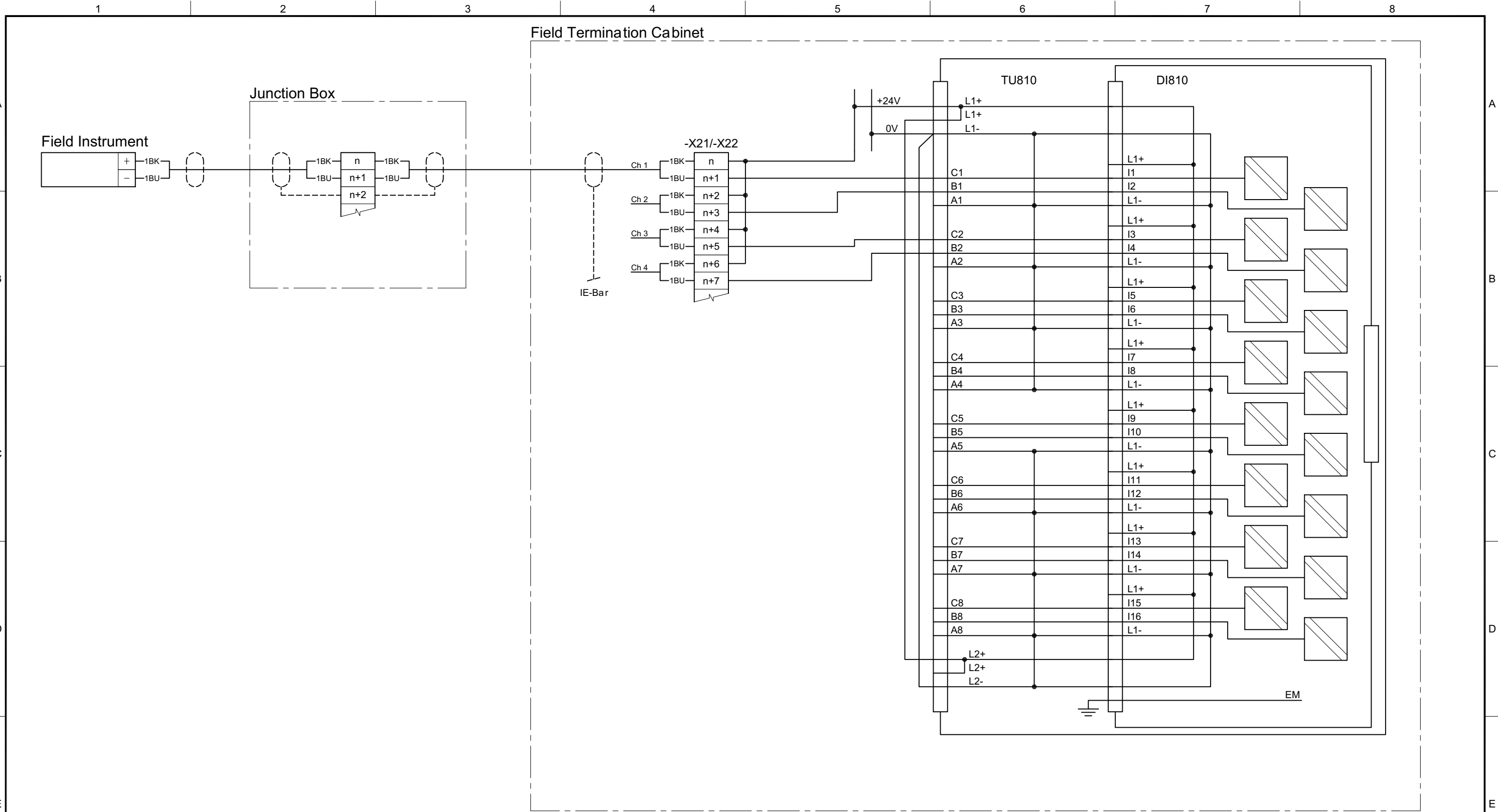
- Valid for single and redundant configuration.
- For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Constellation of MCB to be decided by project.
- DI880 is SIL certified for normally closed input loops only.

**Loop Description:**  
Digital Input, 24V DC, 2 wire, SIL 1-3, Powered from SAS, Non IS

DI880_001	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V																

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>				Tag no.			Doc. Ref. <b>3AJG000407-132</b>													
Rev.						DI880_001				Doc. Owner <b>PAIS</b>			Area		System		Format <b>DWG</b>		Dwg Size <b>A3</b>		Language <b>EN</b>		Scale <b>N/A</b>		Rev <b>A</b>	
Description						Issue Date				Doc. no. <b>3AJG000407-131</b>			Sheet <b>1</b>		Next sh. <b>-</b>											

© Copyright 2011 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

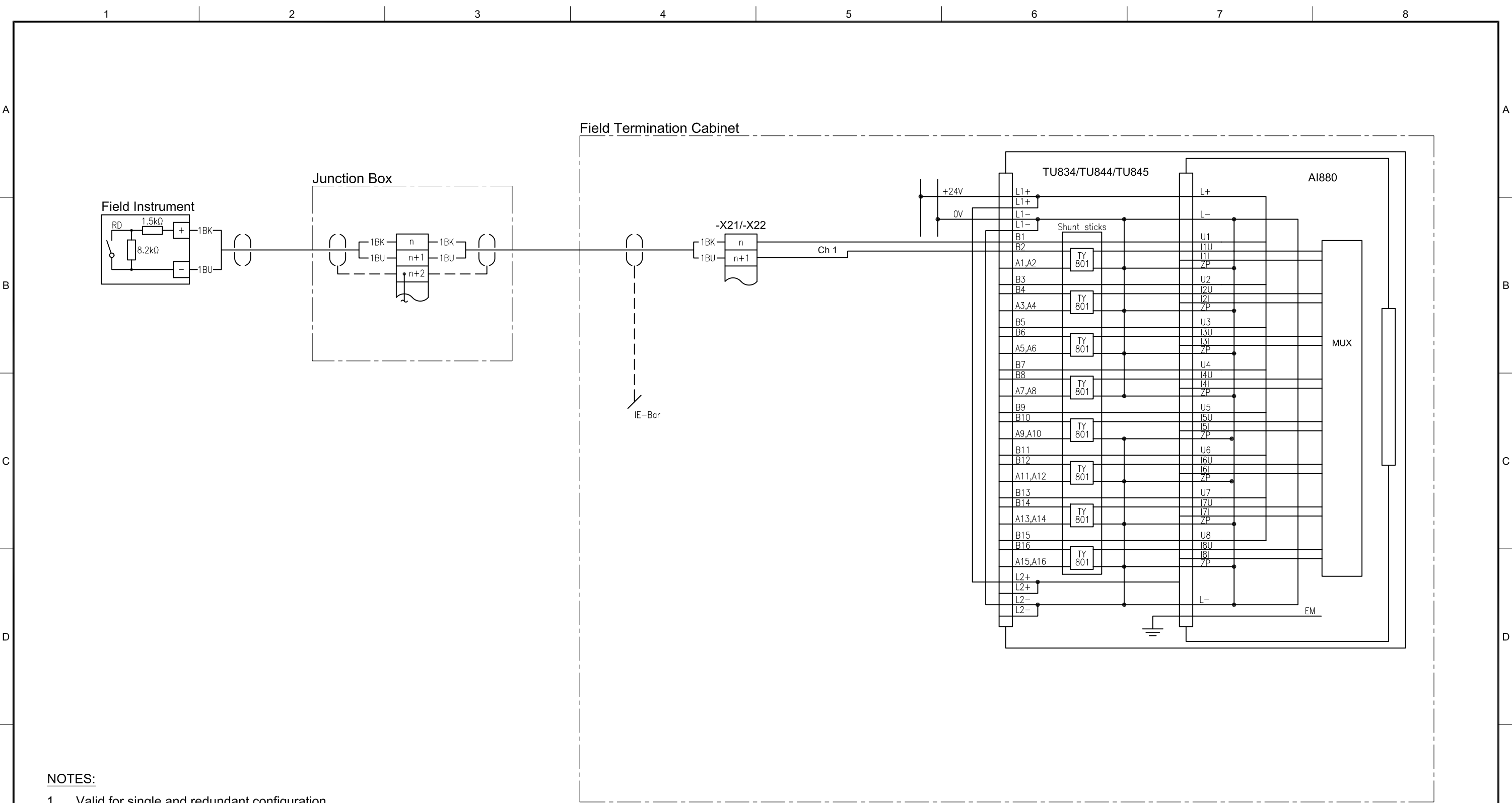


Loop Description:  
Digital Input, 24V DC, 2 wire, Powered from SAS, Non IS

DI810_003	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	B1	C2	B2	C3	B3	C4	B4	C5	B5	C6	B6	C7	B7	C8	B8
0V																

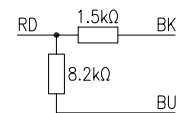
				Project/Package Title ENGINEERING HANDBOOK				Drawing Title LOOP TYPICAL				Tagno.				Doc. Ref.											
								DI810_003				Doc. Owner PAOG		Area		System		Format DWG		Dwg Size A3		Language EN		Scale N/A		Rev A	
Rev.												Description				Issue Date				Prep. by				Chk'd. by			
A				2015-07-29				SINIC ERHAR OVLAS																			
-				2012-10-23				ALDJ KJHA ROAN																			
												Doc. no. 3AJG000407-134				Sheet 1 Next sh. -											

© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

1. Valid for single and redundant configuration.
2. Shunt sticks TY801 configured for current input.
3. Resistor assembly RU9:

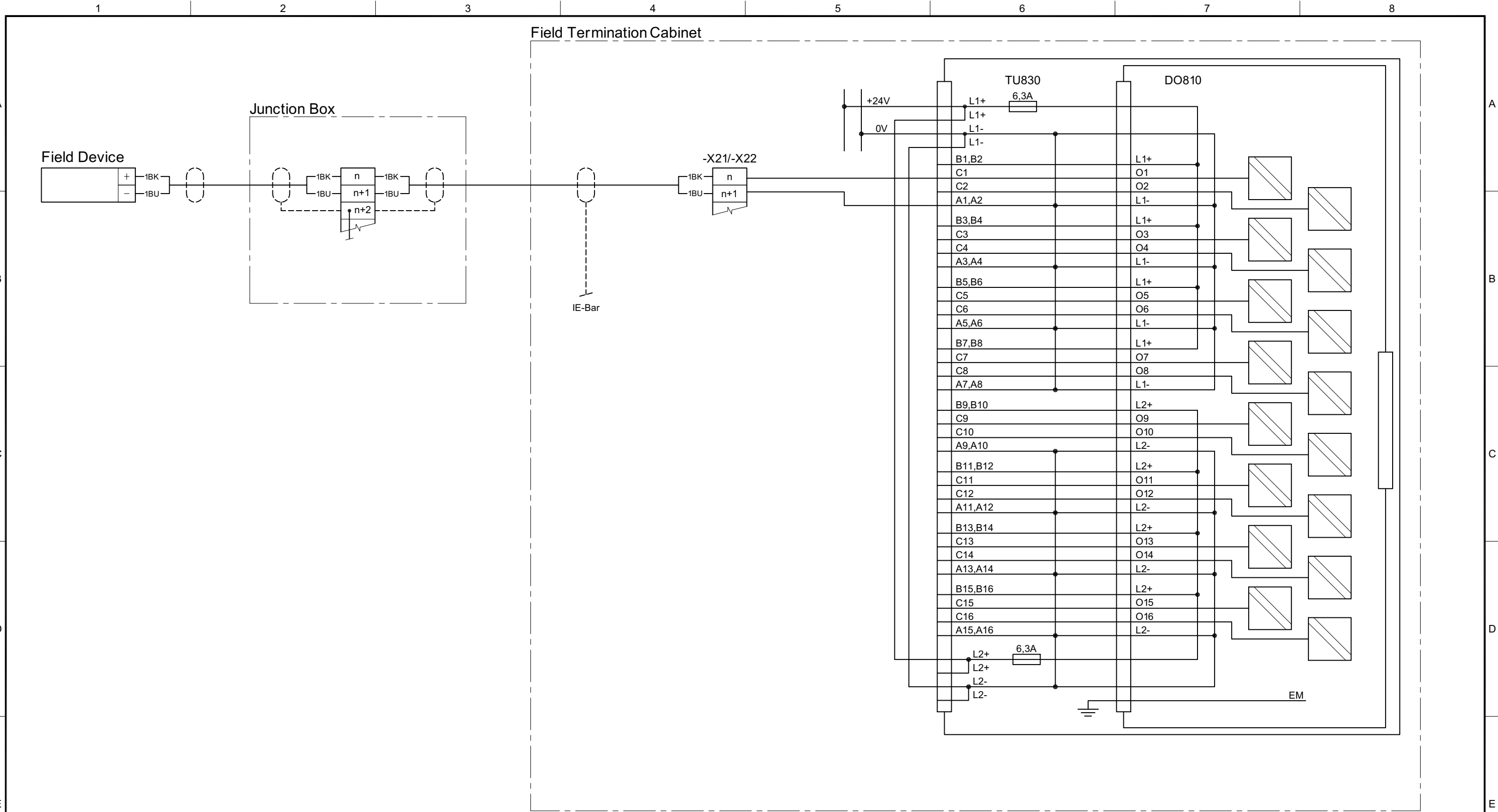


**Loop Description:**  
Digital Input, Loop Supervised, 24V DC, 2 wire, Powered from SAS, SIL 1-3, Non IS

AI880_016	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V	B1	B3	B5	B7	B9	B11	B13	B15
Signal (mA)	B2	B4	B6	B8	B10	B12	B14	B16
0V								

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>			Tag no.		Doc. Ref. <b>3AJG000407-132</b>						
Rev. Description						AI880_016			Doc. Owner <b>PAIS</b>		Area	System	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>EN</b>	Scale <b>N/A</b>	Rev <b>A</b>
A Issued for Engineering		2014-09-05	SINI	ERHA	OVLA										Sheet <b>1</b>	Total sh. <b>1</b>	
- Approved		2012-09-20	ALDJ	KJHA	ROAN												

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

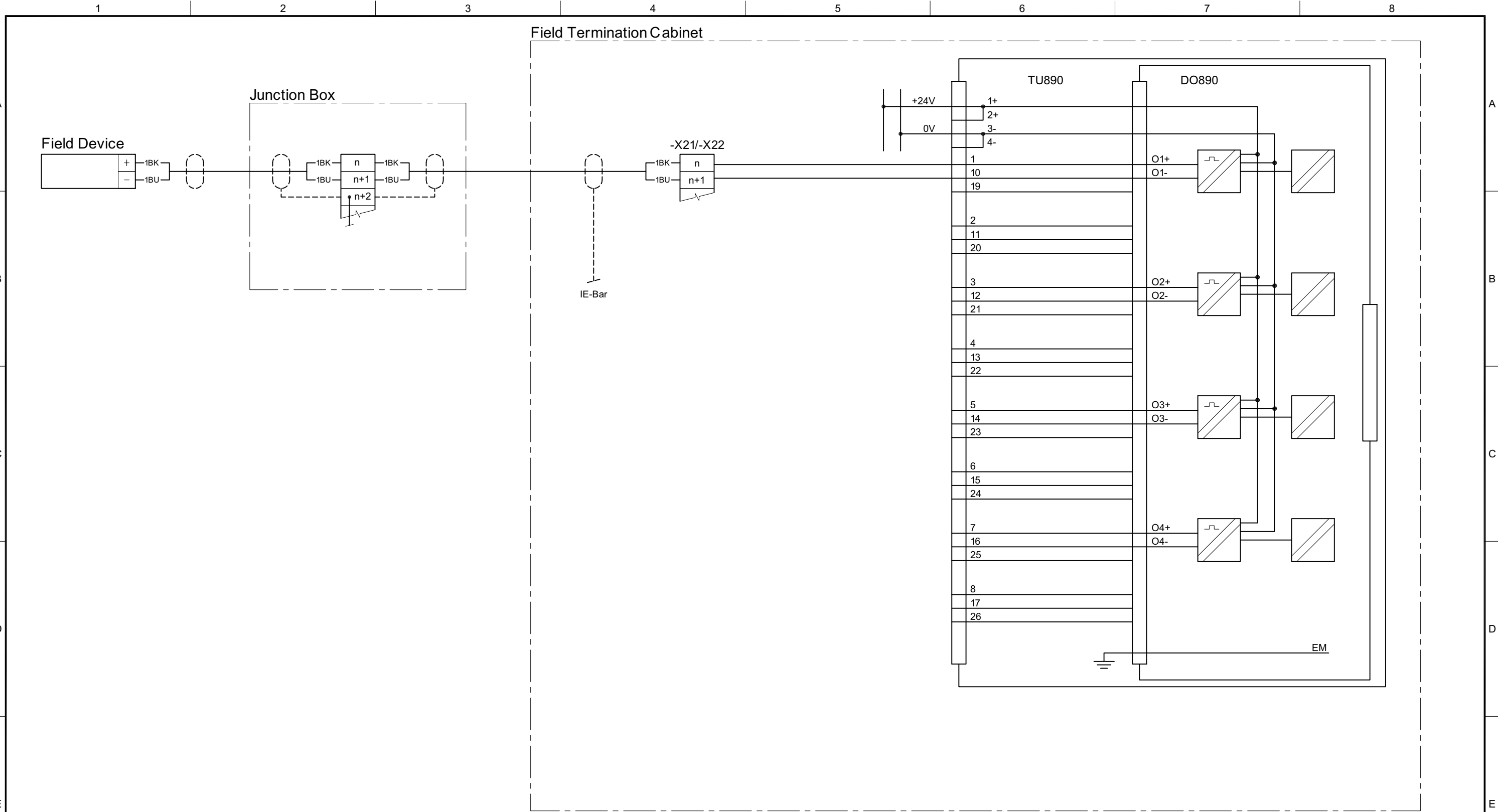


Loop Description:  
Digital Output, 24V DC, 2 wire, ≤500mA, Powered from SAS, Non IS

DO810_001	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

				Project/Package Title ENGINEERING HANDBOOK				Drawing Title LOOP TYPICAL				Tag no.		Doc. Ref.						
								DO810_001				Doc. Owner PAOG		Area	System	Format DWG	Dwg Size A3	Language EN	Scale N/A	Rev A
												Doc. no. 3AJG000407-140								
Rev.	Description			Issue Date	Prep. by	Chk'd. by	Proj. appr.													

© Copyright 2011 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

- Output load characteristic, ref. 3BSE020927\*:
- 100Ω < Load < 5000Ω
  - 20V at 8mA
  - 11V at 40mA
  - 7,5V at 50mA (max)

Loop Description:  
Digital Output, 2 wire, Powered from SAS, IS

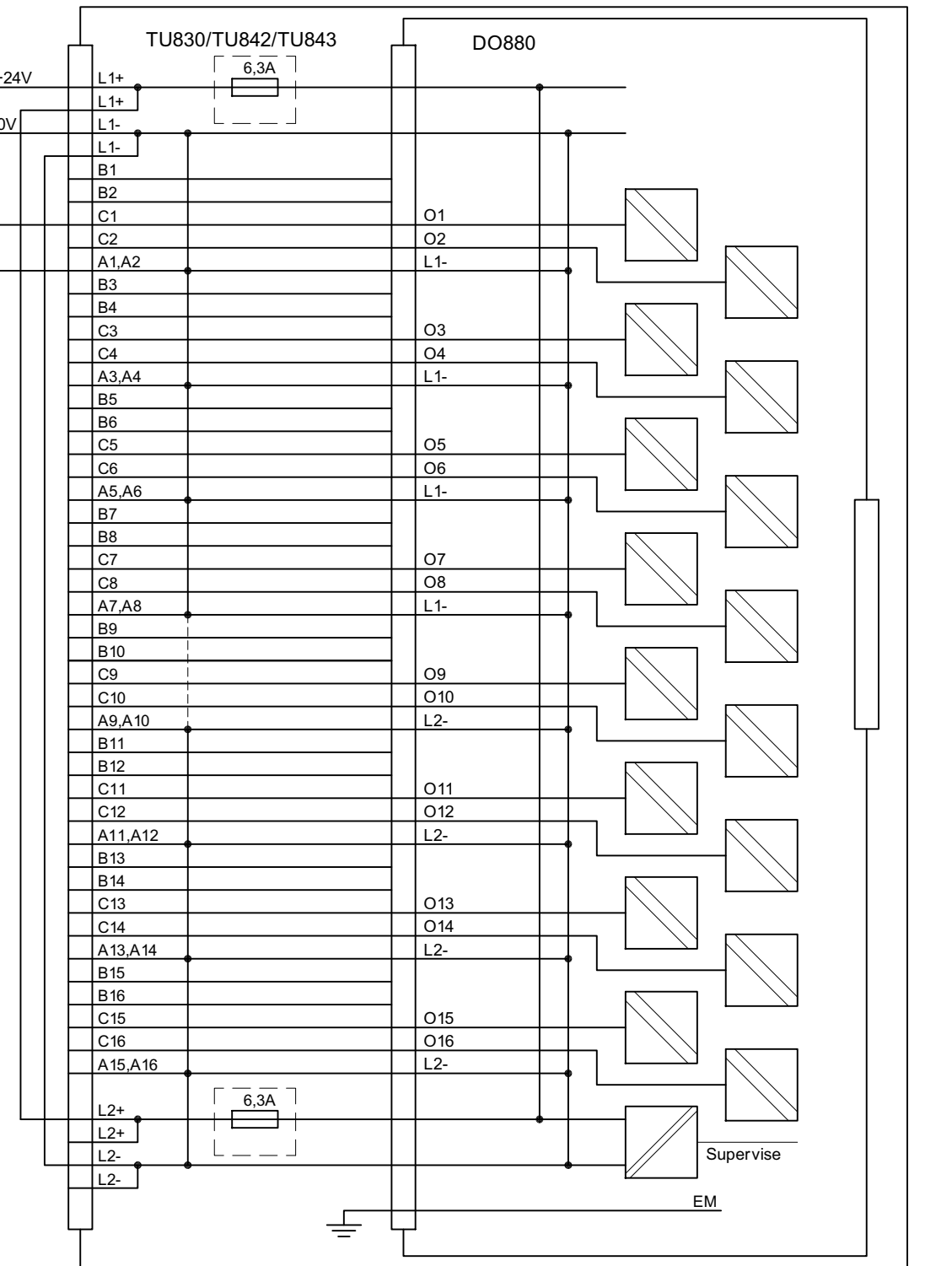
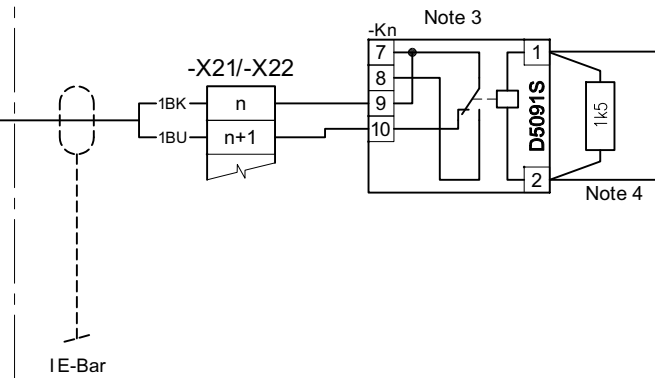
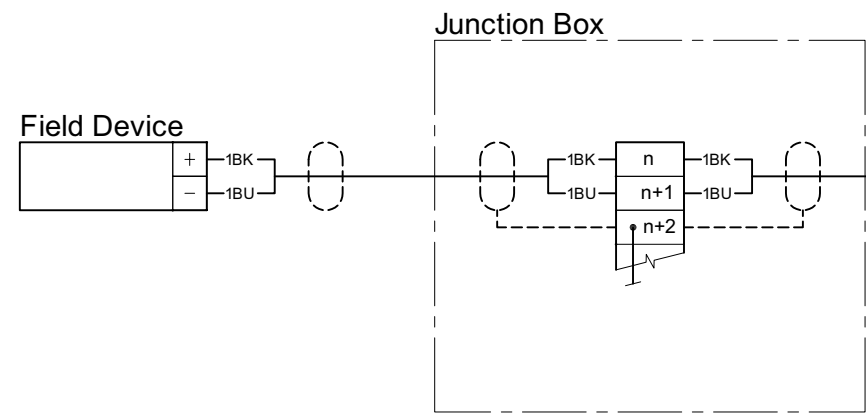
DO890_001	Ch 1	Ch 2	Ch 3	Ch 4
+24V				
Signal	1	3	5	7
0V	10	12	14	16

						Project/Package Title <b>ENGINEERING HANDBOOK</b>		Drawing Title <b>LOOP TYPICAL</b>				Tag no.		Doc. Ref.						
B	Issued for Engineering		2015-08-18	SINIC	ERHAR	OVLAS	<b>ABB</b>	DO890_001				Doc. Owner		Area	System	Format	Dwg Size	Language	Scale	Rev
A	Issued for Engineering		2015-06-26	SINIC	ERHAR	OVLAS						PAOG				DWG	A3	EN	N/A	B
-	Approved		2011-12-09	ALDJ	KJHA	RVA														
Rev.	Description		Issue Date	Prep. by	Chk'd. by	Proj. appr.					Doc. no. <b>3AJG000407-141</b>				Sheet 1	Next sh. -				



© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

### Field Termination Cabinet



#### NOTES:

- Valid for single and redundant configuration.
- For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Constellation of MCBs to be decided by project.
- GM International D5091S relay. Principle diagram only, see data sheet for details. D5091S contact rating: 4A 250V AC (1000VA resistive load), 0.1A 250V DC (25W resistive load) or 4A 30V DC (120W resistive load).
- Resistor in parallel with relay coil. Type: RU1k5, ref. assembly drawing 3AJG000407-241.
- DIP switch setting for D5091S: 1=OFF, 2=OFF, 3=OFF, 4=OFF, 5=OFF, 6=OFF, 7=ON, 8=ON (factory default).



#### Loop Description:

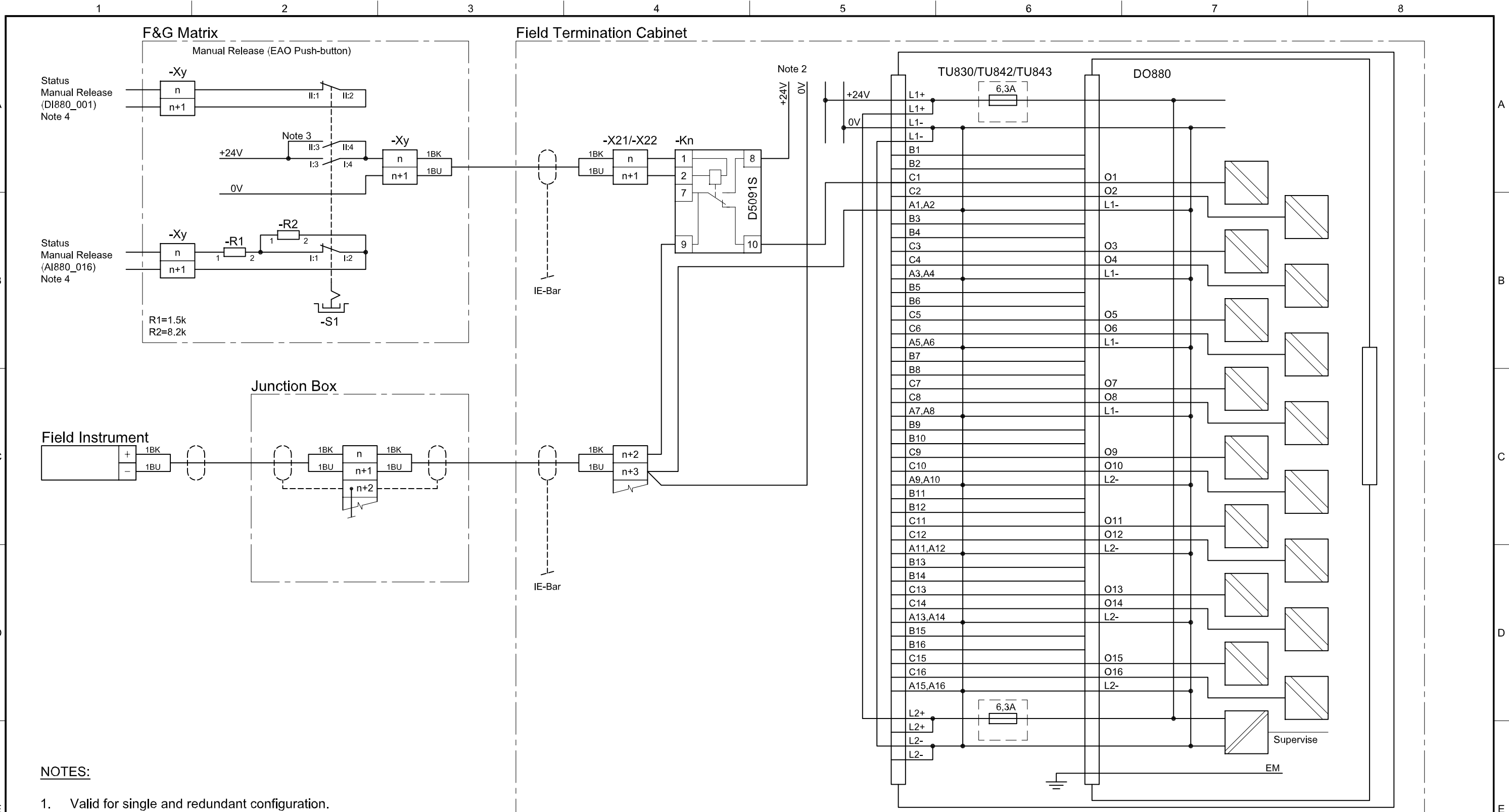
Digital Output, 2 wire, Normally energized relay with open contact (reversed logic), SIL 1-3, Non IS

DO880_012	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

Project/Package Title ENGINEERINGHANDBOOK				Drawing Title LOOP TYPICAL				Tag no.				Doc. Ref. 3AJG000407-132											
B Issued for Engineering		2015-05-26		SINI ERHA		OVLA		Doc. Owner PAIS		Area		System		Format DWG		Dwg Size A3		Language EN		Scale N/A		Rev B	
A Issued for Engineering		2014-11-13		SINI ERHA		OVLA		Doc. no. 3AJG000407-146				Sheet 1		Next sh. -									
- Approved		2012-12-02		ALDJ KJHA		ROAN																	
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.	ABB																	



© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**


1. Valid for single and redundant configuration.
2. For redundant configuration external fuses on +24V are necessary in order to maintain card protection and selectivity. Constellation of fuses to be decided by project.
3. Option: Parallel contacts depending on SIL requirements.
4. Project specific options depending on SIL solution/requirements. Ref note 4.

**Loop Description:**  
**Digital Output Loop Supervised Manual Release of Fire Fighting Media. 24VDC 500mA, SIL 1-3**

DO880_001	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal (mA)	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

A	Issued for Review	2014-09-23	SINI		
-	Approved	2013-02-13	PEK2	STLE	ROAN
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.

Project/Package Title  
**ENGINEERING HANDBOOK**

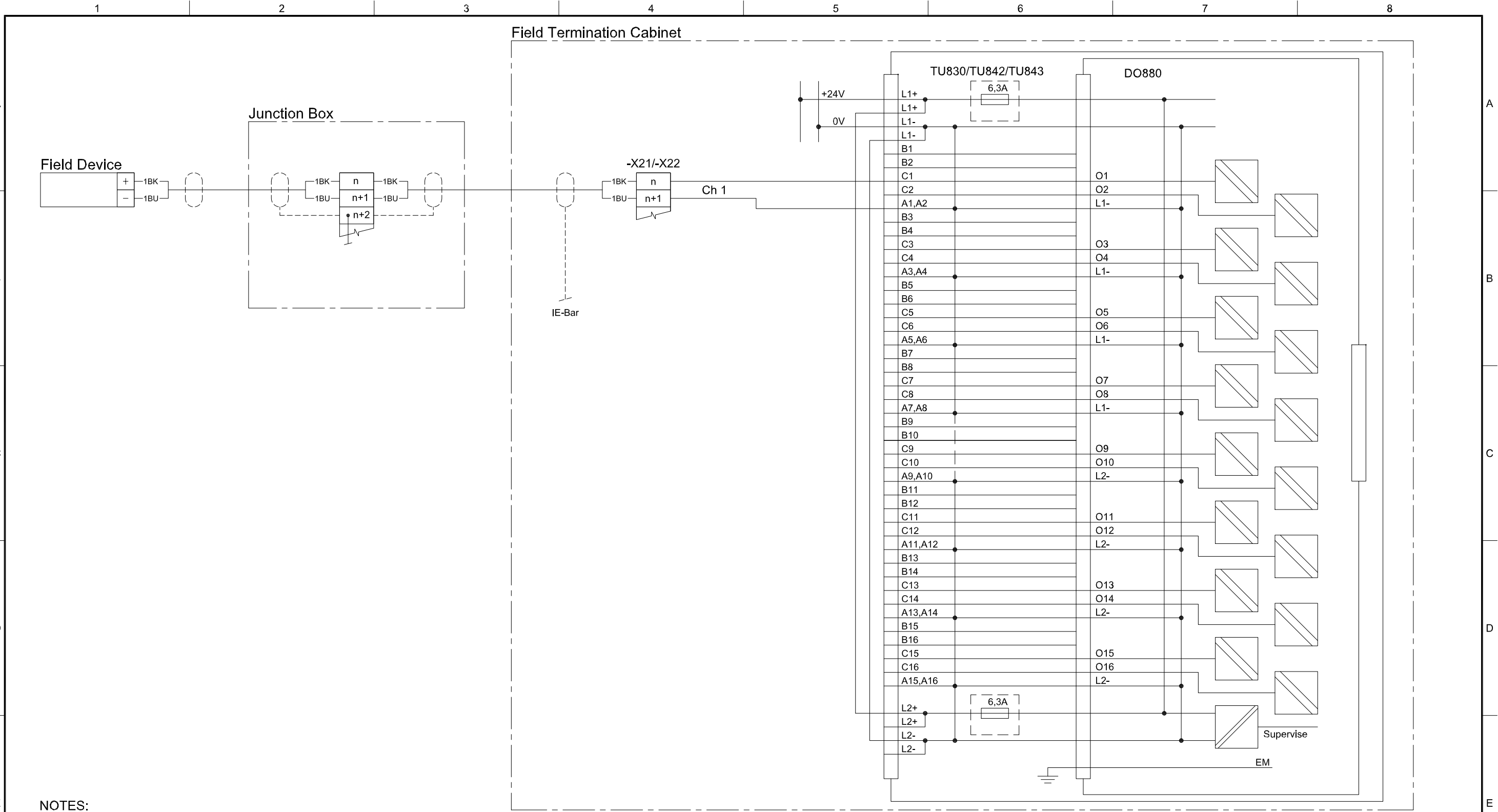


Drawing Title  
**LOOP TYPICAL**

DO880\_001

Tag no.				Doc. Ref. 3AJG000407-132			
Doc. Owner PAIS	Area	System	Format DWG	Dwg Size A3	Language EN	Scale N/A	Rev A
Doc. no. 3AJG000407-148						Sheet 1	Next sh. -

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

- Valid for single and redundant configuration.
- For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Constellation of MCBs to be decided by project.
- Maximum loop resistance (de-energized channel): <math><2000\Omega</math>.

**Loop Description:**

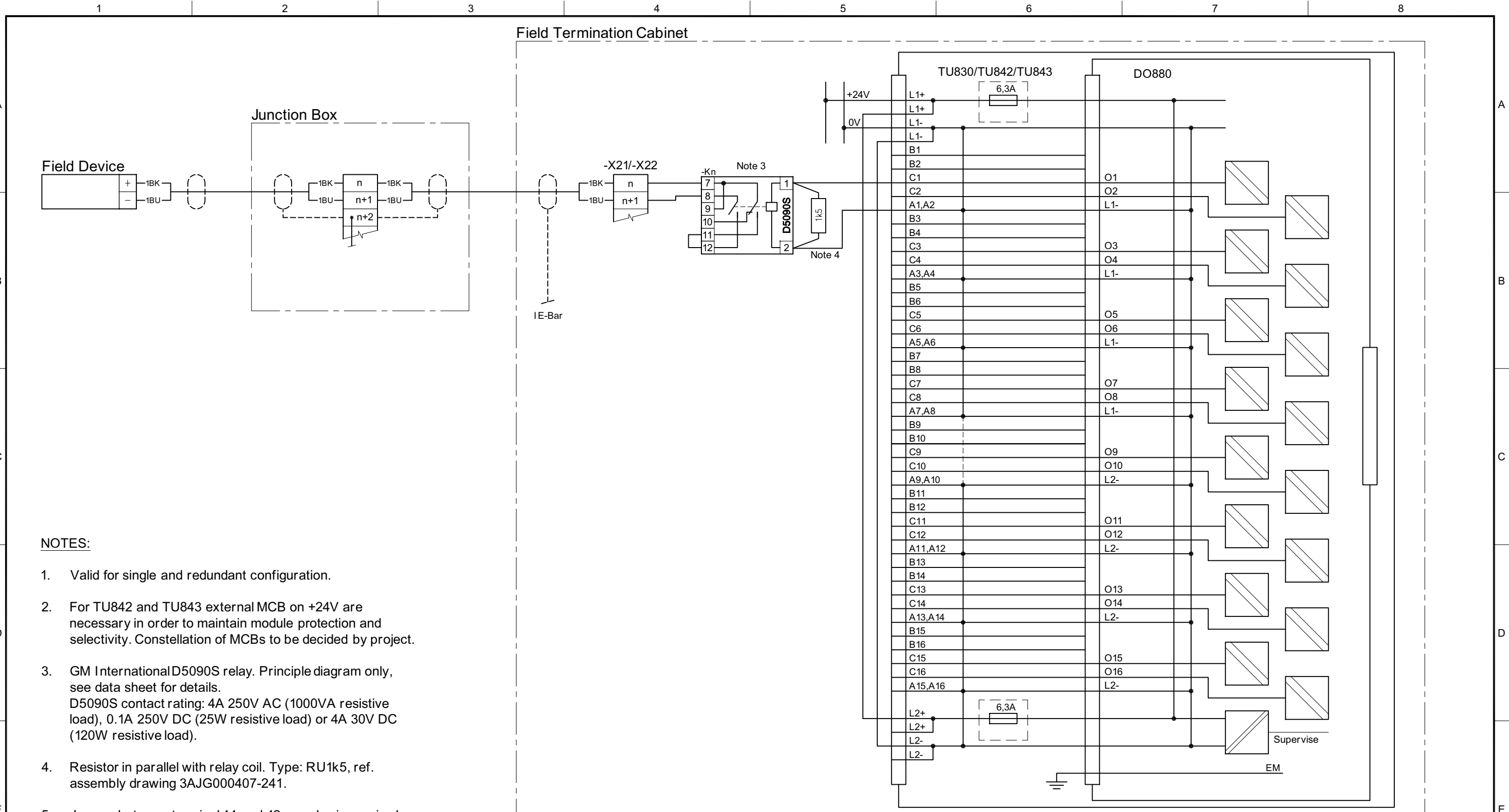
Digital Output, Loop Supervised, 24V DC, 2 wire,  $\leq 500$  mA, SIL 1-3, Powered from SAS, Non IS

DO880_003	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

Project/Package Title <b>ENGINEERING HANDBOOK</b>						Drawing Title <b>LOOP TYPICAL</b>				Tag no.			Doc. Ref. <b>3AJG000407-132</b>			
Rev.						DO880_003				Doc. no. <b>3AJG000407-149</b>			Scale   Rev <b>N/A   A</b>			
Description						A				Area   System   Format <b>PAIS     DWG</b>			Dwg Size   Language   Sheet   Next sh. <b>A3   EN   1   -</b>			

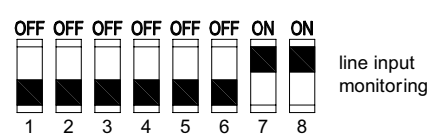


© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.




**NOTES:**

1. Valid for single and redundant configuration.
2. For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Constellation of MCBs to be decided by project.
3. GM International D5090S relay. Principle diagram only, see data sheet for details.  
D5090S contact rating: 4A 250V AC (1000VA resistive load), 0.1A 250V DC (25W resistive load) or 4A 30V DC (120W resistive load).
4. Resistor in parallel with relay coil. Type: RU1k5, ref. assembly drawing 3AJG000407-241.
5. Jumper between terminal 11 and 12 on relay is required.
6. DIP switch setting for D5091S: 1=OFF, 2=OFF, 3=OFF, 4=OFF, 5=OFF, 6=OFF, 7=ON, 8=ON (factory default).

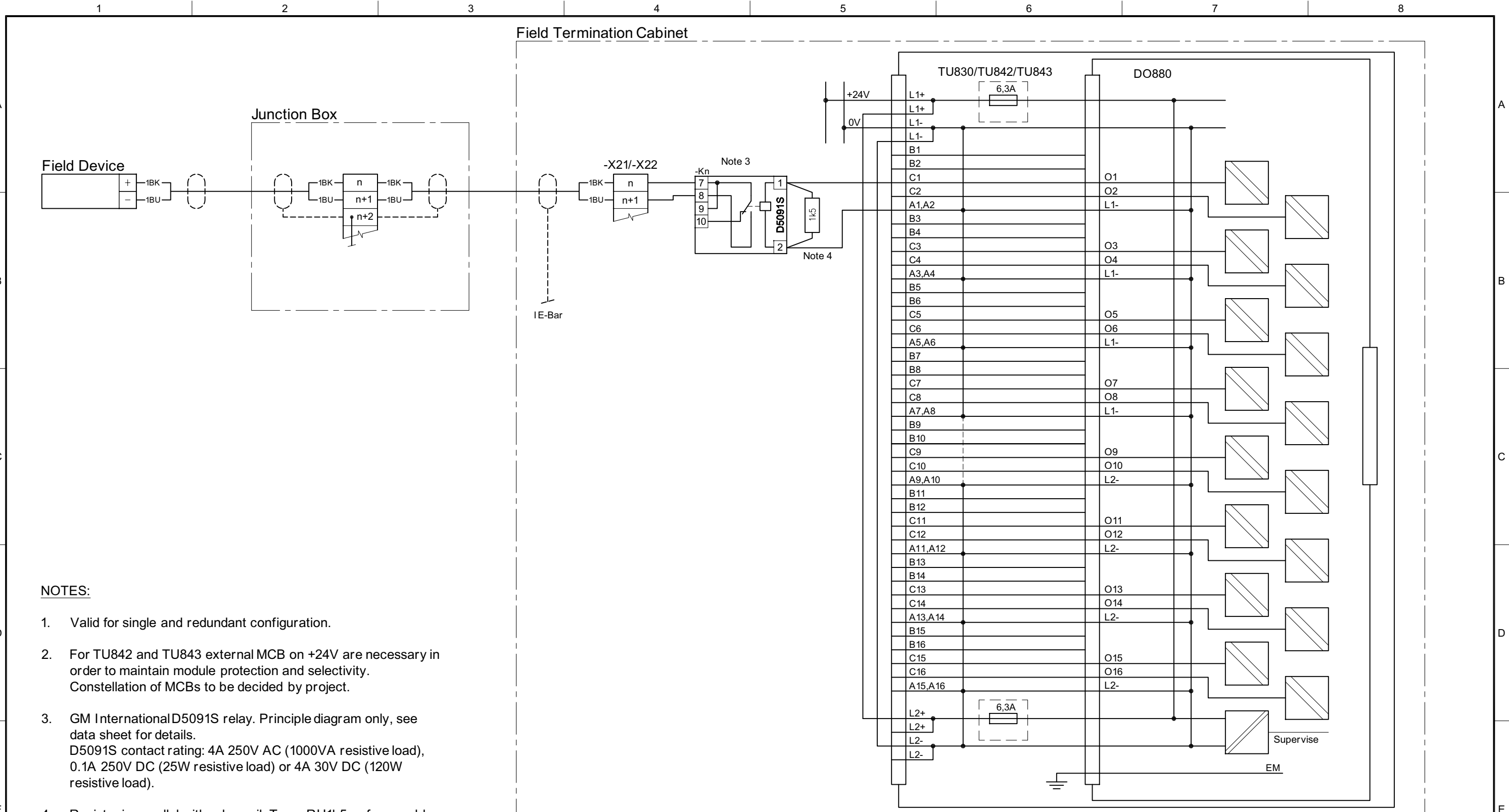


**Loop Description:**  
Digital Output, 2 wire, Normally Energized, Potential Free Contact, SIL 1-3, Non IS

DO880_004	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

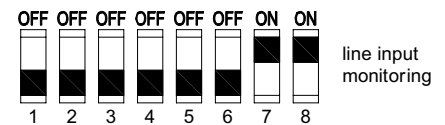
Project/Package Title <b>ENGINEERINGHANDBOOK</b>			Drawing Title <b>LOOP TYPICAL</b>			Tag no.			Doc. Ref. <b>3AJG000407-132</b>							
B	Issued for Engineering	2015-05-26	SINI	ERHA	OVLA		Doc. Owner <b>PAIS</b>			Area	System	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>EN</b>	Scale <b>N/A</b>	Rev <b>B</b>
A	Issued for Engineering	2014-11-13	SINI	ERHA	OVLA		Doc. no. <b>3AJG000407-150</b>			Sheet <b>1</b>						
-	Approved	2013-02-13	ALDJ	KJHA	ROAN		Next sh. <b>-</b>									
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.											

© Copyright 2013 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



**NOTES:**

1. Valid for single and redundant configuration.
2. For TU842 and TU843 external MCB on +24V are necessary in order to maintain module protection and selectivity. Constellation of MCBs to be decided by project.
3. GM International D5091S relay. Principle diagram only, see data sheet for details. D5091S contact rating: 4A 250V AC (1000VA resistive load), 0.1A 250V DC (25W resistive load) or 4A 30V DC (120W resistive load).
4. Resistor in parallel with relay coil. Type: RU1k5, ref. assembly drawing 3AJG000407-241.
5. DIP switch setting for D5091S: 1=OFF, 2=OFF, 3=OFF, 4=OFF, 5=OFF, 6=OFF, 7=ON, 8=ON (factory default).



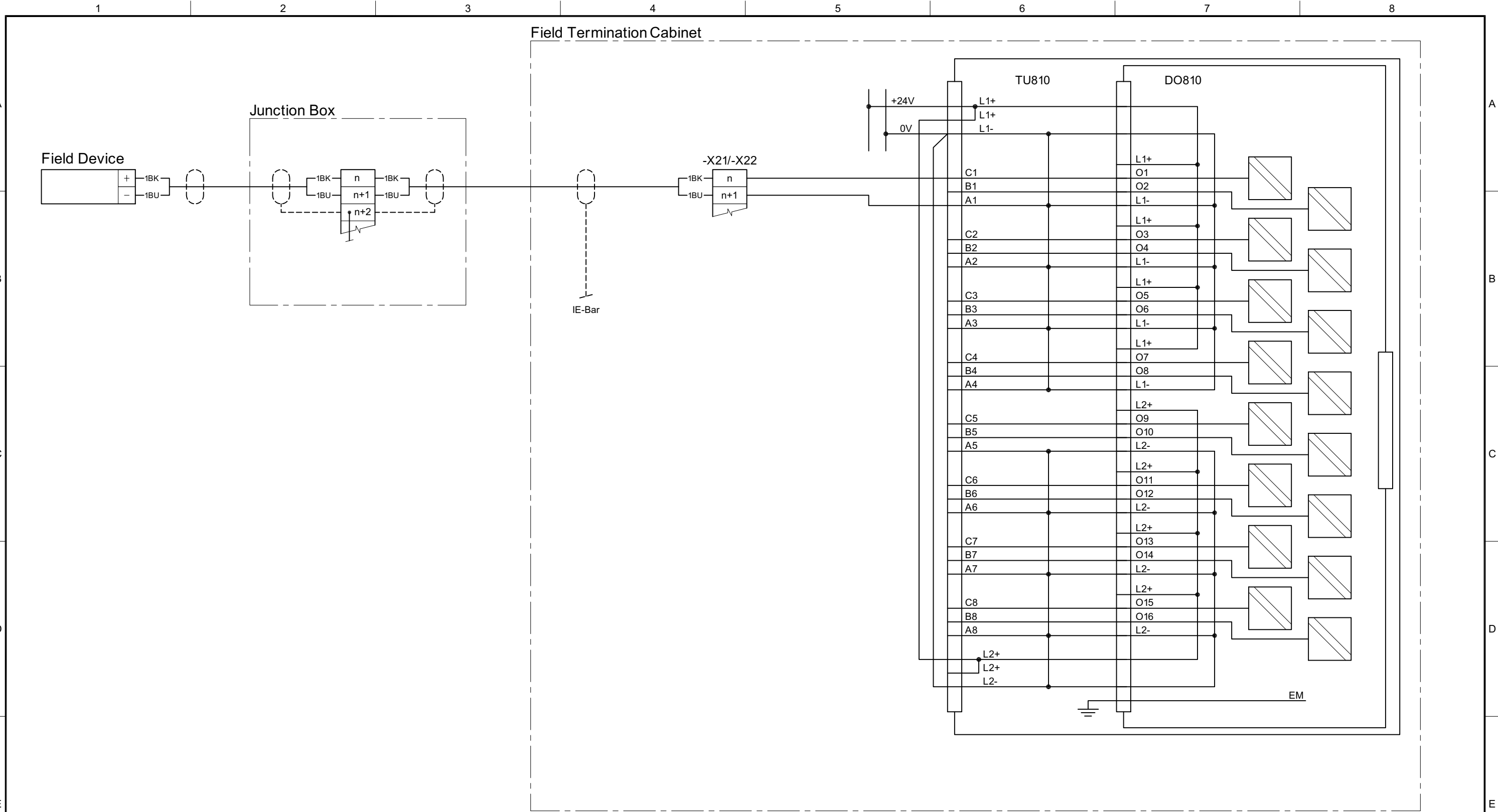
**Loop Description:**  
Digital Output, 2 wire, Normally De-energized, Potential Free Contact, SIL 1-3, Non IS

DO880_007	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
+24V																
Signal	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0V	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

Project/Package Title <b>ENGINEERINGHANDBOOK</b>			Drawing Title <b>LOOP TYPICAL</b>			Tag no.		Doc. Ref. <b>3AJG000407-132</b>					
B	Issued for Engineering	2015-05-26	SINI	ERHA	OVLA	Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev
A	Issued for Engineering	2014-11-13	SINI	ERHA	OVLA	<b>PAIS</b>			<b>DWG</b>	<b>A3</b>	<b>EN</b>	<b>N/A</b>	<b>B</b>
-	Approved	2013-02-13	ALDJ	KJHA	ROAN	Doc. no. <b>3AJG000407-152</b>						Sheet 1	
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.							Next sh. -	



© Copyright 2011 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.



Loop Description:  
Digital Output, 24V DC, 2 wire, ≤500mA, Powered from SAS, Non IS

DO810_002	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
+24V								
Signal	C1	C2	C3	C4	C5	C6	C7	C8
0V	A1	A2	A3	A4	A5	A6	A7	A8

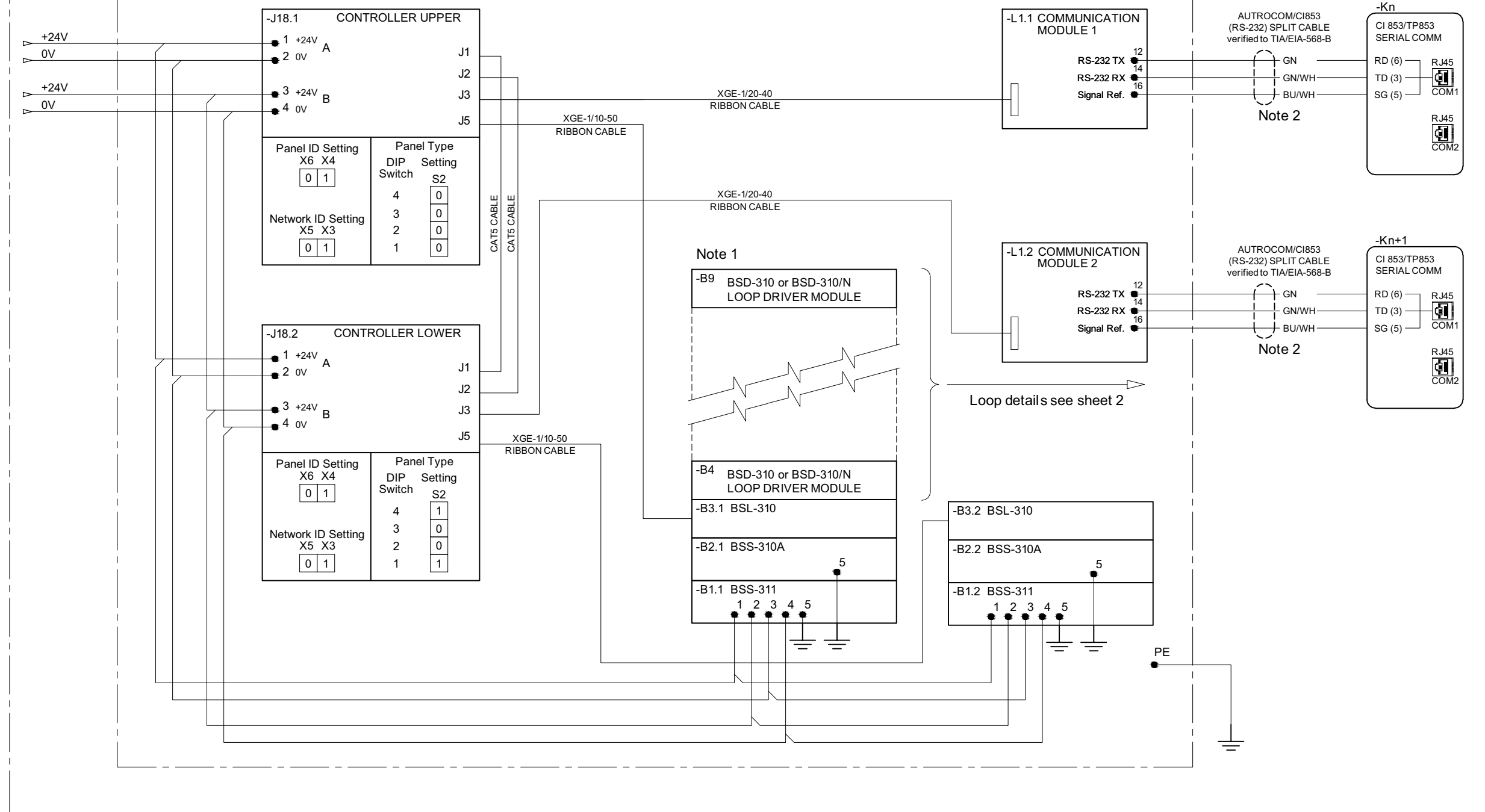
Project/Package Title ENGINEERING HANDBOOK						Drawing Title LOOP TYPICAL				Tag no.				Doc. Ref.			
Rev. Description						DO810_002				Doc. Owner PAOG				Area System Format Dwg Size Language Scale Rev DWG A3 EN N/A A			
2015-08-18 SINIC ERHAR OVLAS						2011-12-09 ALDJ KJHA RVA				Doc. no. 3AJG000407-153				Sheet 1 Next sh. -			



SIS Cabinet

AutoSafe - Fire Alarm Control Panel

BS-420G2-C



NOTES:

- Capacity/limitations to loop driver modules BSD-310 and BSD-310/N, see notes on sheet 2.
- Direct cable connection between AC 800M and AutoSafe maximum 10m length according to AutoSafe integration in 800xA user and safety manual- 3BNP100158D0028 and AutoSafe installation handbook - cable specifications. For transmission distances longer than 10m see 3AJG000407-0259
- 24V DC power A and B from redundant source, ref. Power Distribution Principle 3AJG000407-189.

Loop Description:

AutoSafe Power, Communication and Loop for Addressable Detectors, Non IS

						Project/Package Title ENGINEERING HANDBOOK		Drawing Title LOOP TYPICAL				Tag no.		Doc. Ref. 3AJG000407-132										
								AUTRONICA_001				Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev					
A												Issued for Engineering		2014-11-10		SINI		KJHA		OVLA		PAIS		
-						Draft		2012-10-30		ALDJ												Doc. no. 3AJG000407-155		Sheet 1
Rev.						Description		Issue Date		Prep. by		Chk'd. by		Proj. appr.								Next sh. 2		

© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

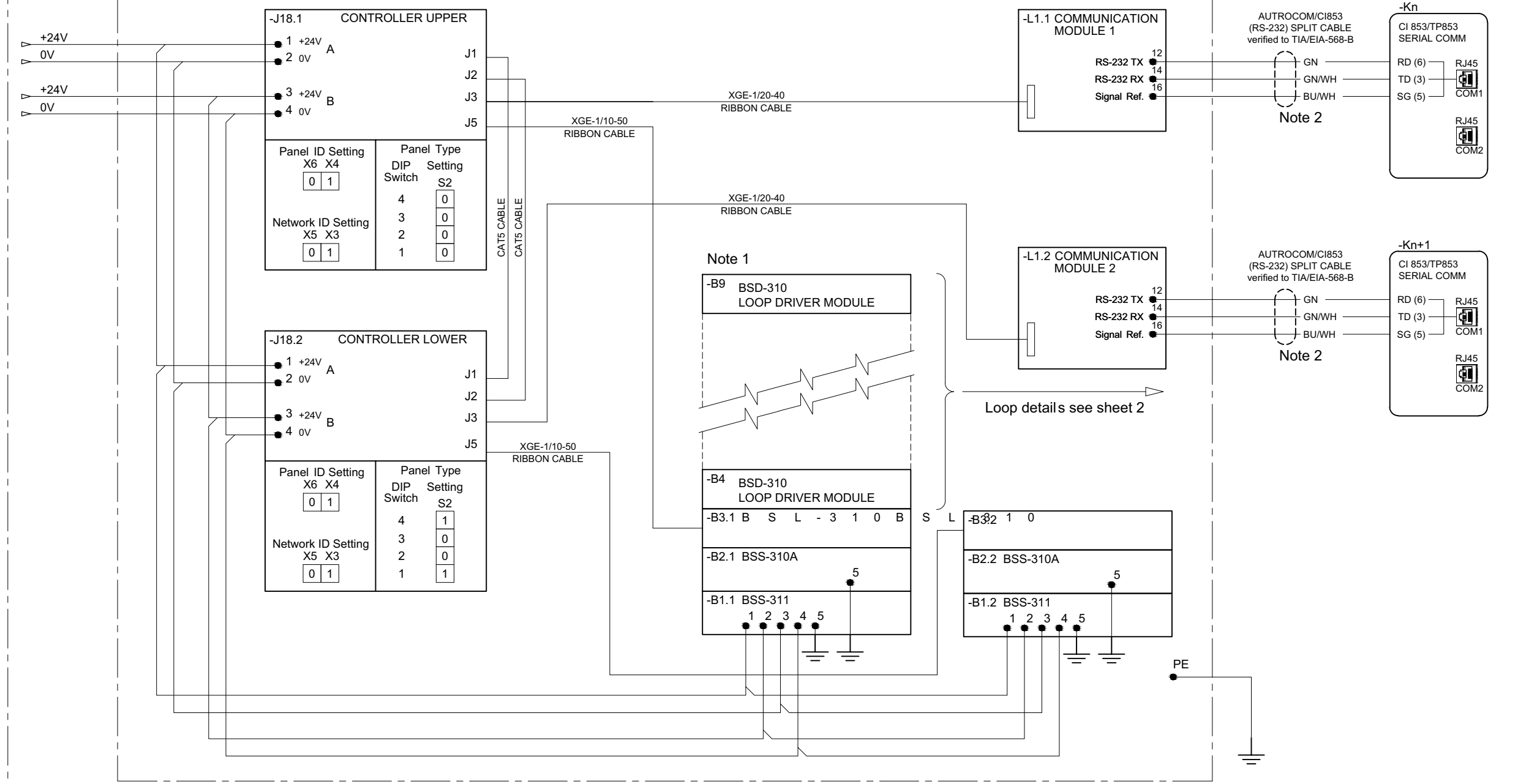




SIS Cabinet

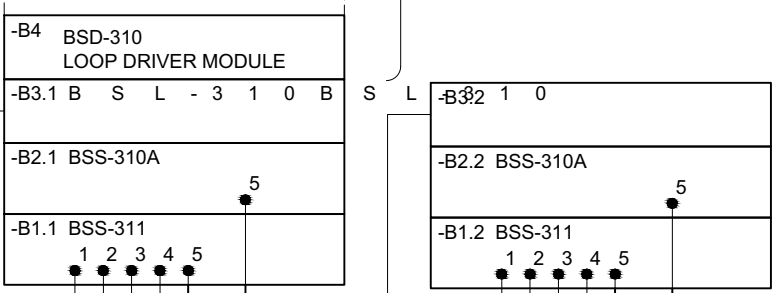
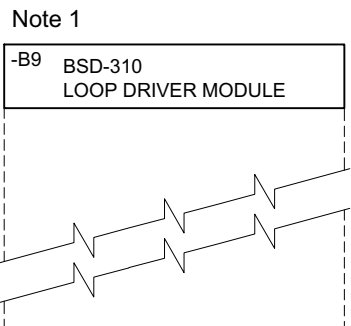
AutoSafe - Fire Alarm Control Panel

BS-420G2-C



Panel ID Setting		Panel Type	
X6	X4	DIP Switch	Setting S2
0	1	4	0
Network ID Setting		3	0
X5	X3	2	0
0	1	1	0

Panel ID Setting		Panel Type	
X6	X4	DIP Switch	Setting S2
0	1	4	1
Network ID Setting		3	0
X5	X3	2	0
0	1	1	1



Loop details see sheet 2

NOTES:

- Capacity/limitations to loop driver modules BSD-310, see notes on sheet 2.
- Direct cable connection between AC 800M and AutoSafe maximum 10m length according to AutoSafe integration in 800xA user and safety manual- 3BNP100158D0028 and AutoSafe installation handbook - cable specifications. For transmission distances longer than 10m see 3AJG000407-0259.
- 24V DC power A and B from redundant source, ref. Power Distribution Principle 3AJG000407-189.

Loop Description:  
AutoSafe Power, Communication and Loop for Addressable Detectors, IS

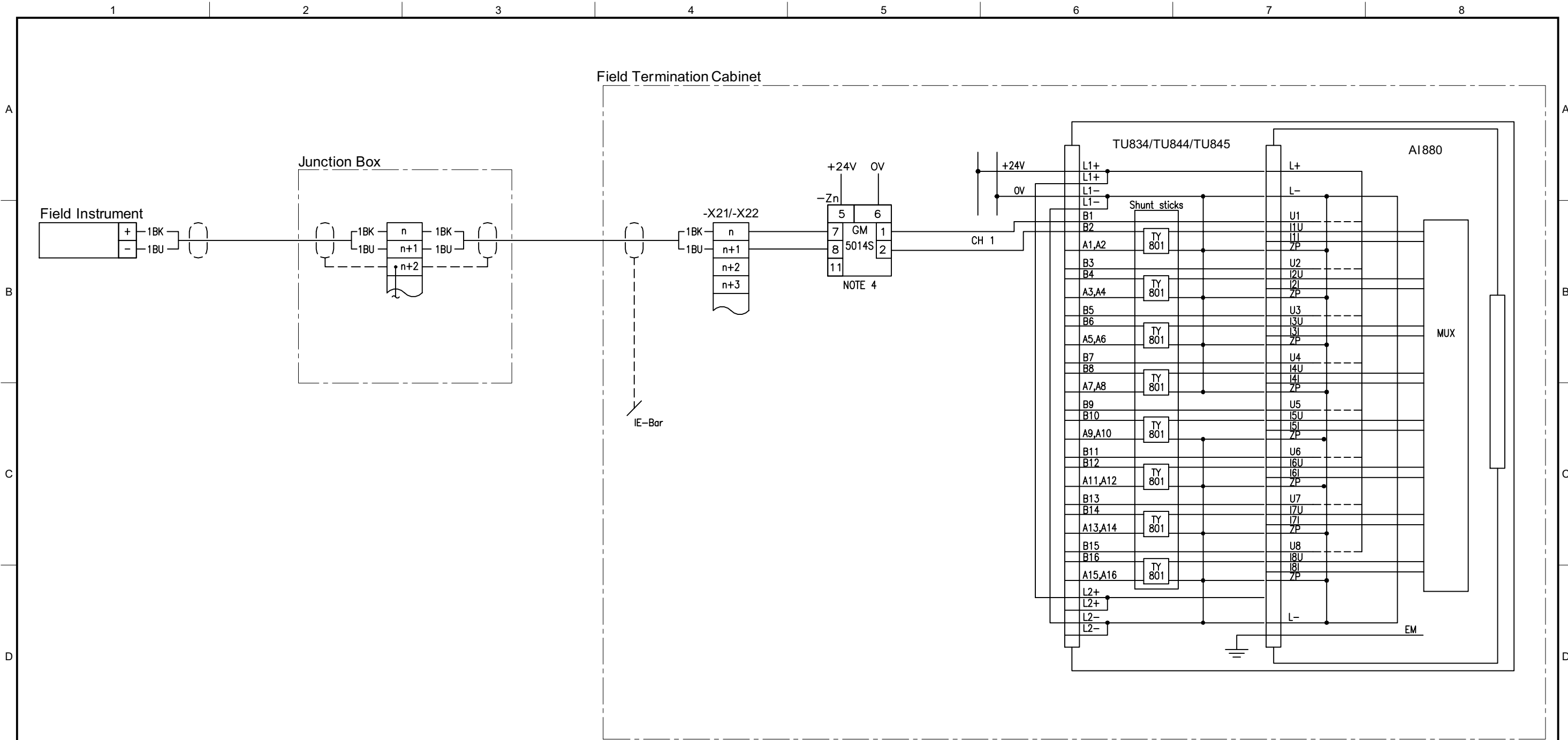
					Project/Package Title		Drawing Title				Tag no.		Doc. Ref.					
					ENGINEERING HANDBOOK		LOOP TYPICAL						3AJG000407-132					
B	Issued for Engineering		2015-06-05	SINI	KJHA	OVLA	AUTRONICA_002I				Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev
A	Issued for Engineering		2014-11-10	SINI	KJHA	OVLA					PAOG			DWG	A3	EN	N/A	B
-	Draft		2012-10-30	ALDJ							Doc. no. 3AJG000407-156							
Rev.	Description		Issue Date	Prep. by	Chk'd. by	Proj. appr.					Sheet 1							
											Next sh. 2							

© Copyright 2012 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.





We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



**NOTES:**

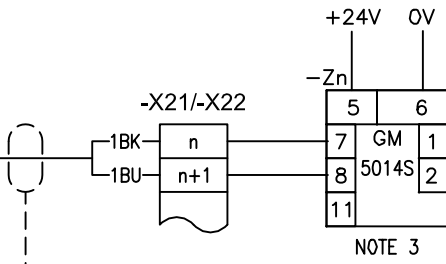
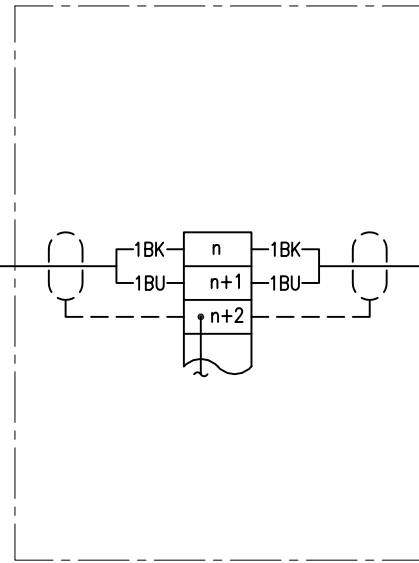
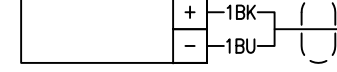
1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION
2. IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
3. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
4. GM 5014S TO BE CONFIGURED FOR 4-20mA SINK MODE WITH INTERNAL DIP SWITCHES:



Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Input, 4-20mA, 2 Wire, HART, Powered from SAS System, SIL 1-3, IS NAMUR	Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV		Doc. Owner.	Rev.ind. 02
Revision	02	2013-08-16	Project AASTA HANSTEEN HARDWARE SOLUTION AI880_005I_AH			
	01	2013-06-13	ARIV		Sheet	1
Ind.	Description	Date	App.		Doc.no. P027288-TEC-0001	Next sheet -

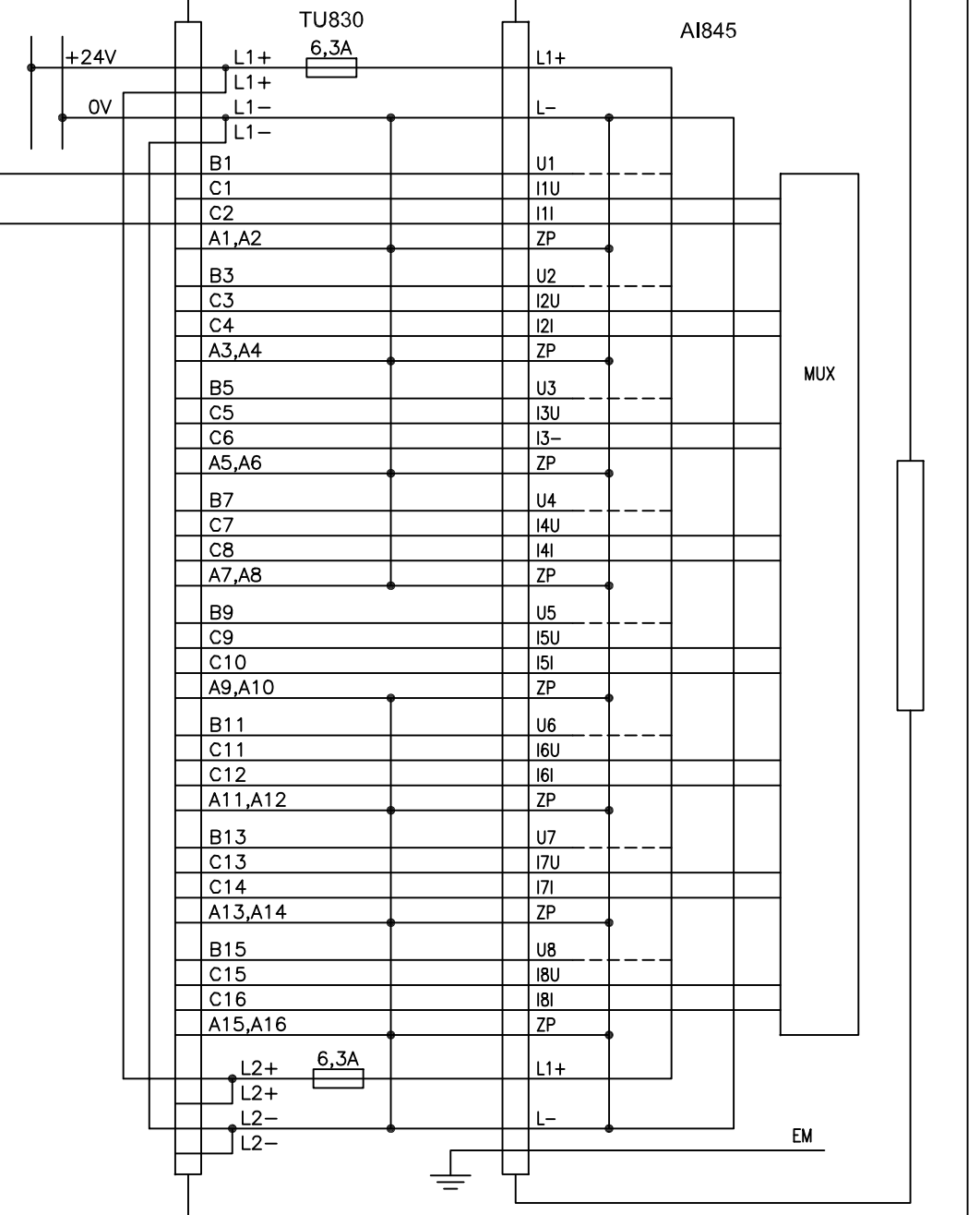
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

Field Instrument



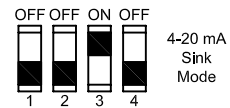
NOTE 3

IE-Bar



NOTES:

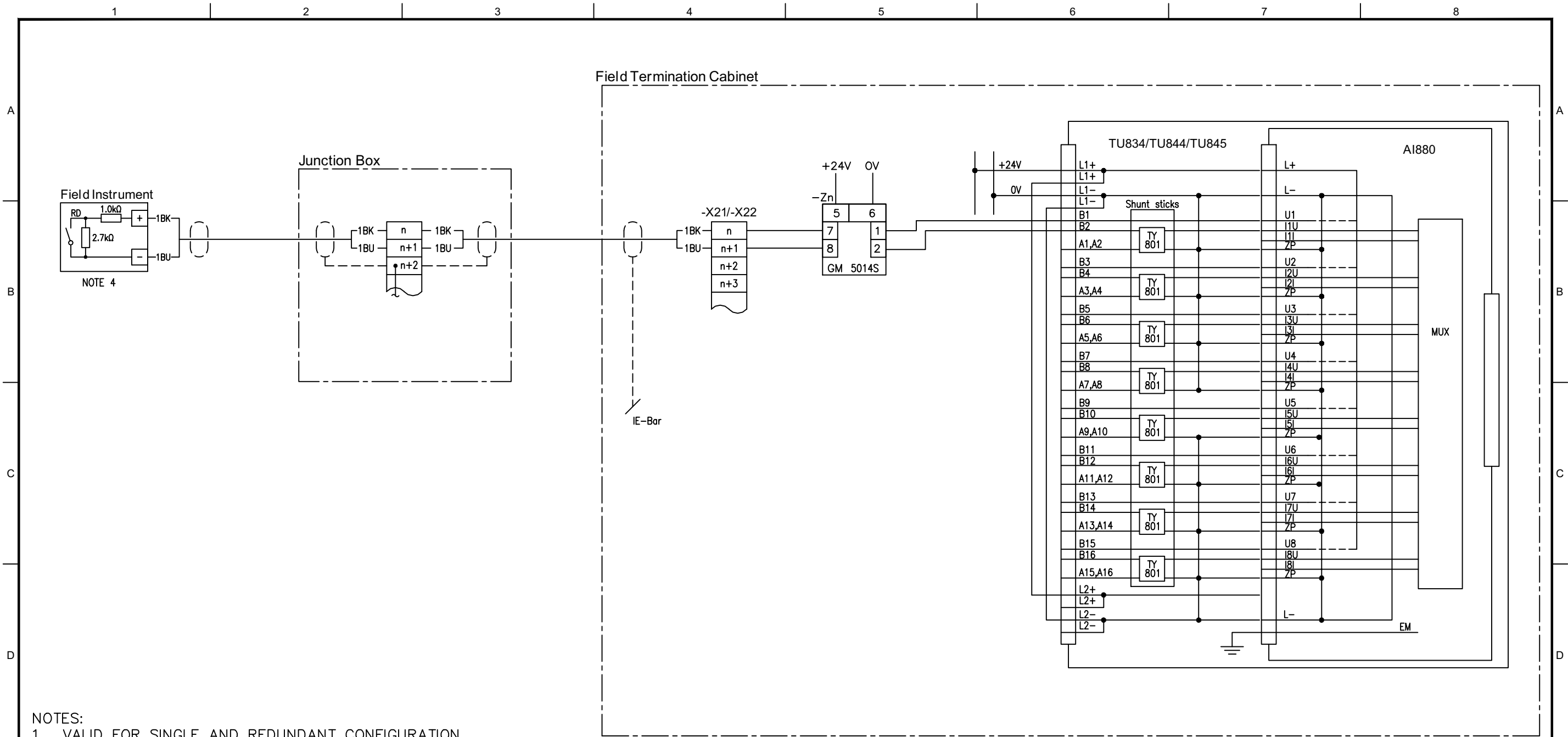
1. VALID FOR SINGLE CONFIGURATION
2. IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
3. GM 5014S TO BE CONFIGURED FOR 4-20mA SINK MODE WITH INTERNAL DIP SWITCHES:



4-20 mA Sink Mode

Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Input, 4-20mA, 2 Wire, HART, Powered from SAS System, IS	Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV		Doc. Owner.	Rev.ind. 02
Revision		Date	App.		Doc.no. P027288-TEC-0002	
02		2013-08-19			Sheet 1	
01	APPROVED	2013-08-13	ARIV		Next sheet -	
Ind.	Description	Date	App.	Project AASTA HANSTEEN HARDWARE SOLUTION AI845_003I_AH		

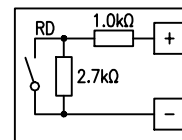
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



**NOTES:**

- VALID FOR SINGLE AND REDUNDANT CONFIGURATION
- IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
- SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT

4. RESISTOR ASSEMBLY RU8:  
(FOR LINE SUPERVISION)



5. CURRENT LIMITS:

- SHORT >14,6mA
- 1: >7,17mA
- 0: <7,17mA
- OPEN: <4,48mA

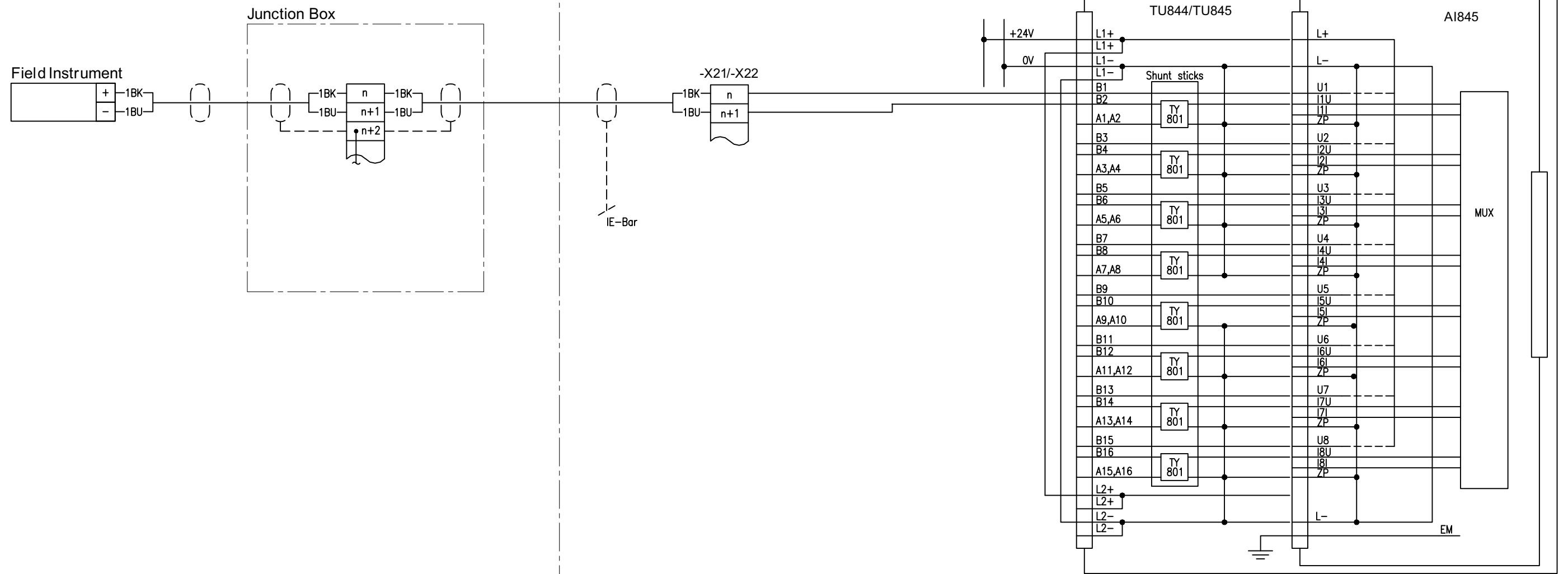
6. DIP SWITCH SETTINGS ON 5014S ACCORDING TO GM5014S DATA SHEET



Based on: <b>ABB MANUAL</b>				Prepared <b>OYPE</b>	Checked <b>STLE</b>	Digital Input, Loop Supervised, Volt free contacts, 2 Wire, SIL 1-3, Powered from SAS System, IS	Doc.ref. C134-FS-200001-XK-0001	
				Date <b>2013-06-13</b>	Approved <b>ARIV</b>		Doc. Owner.	Rev.ind. <b>02</b>
Revision	<b>02</b>	<b>DRAFT</b>	<b>2013-11-04</b>	<b>ARIV</b>	Project <b>AASTA HANSTEEN HARDWARE SOLUTION AI880_002I_AH</b>			Sheet <b>1</b>
	<b>01</b>	<b>APPROVED</b>	<b>2013-08-13</b>	<b>ARIV</b>				Doc.no. <b>P027288-TEC-0004</b>
Ind.	Description			Date	App.			

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

Field Termination Cabinet



NOTES:

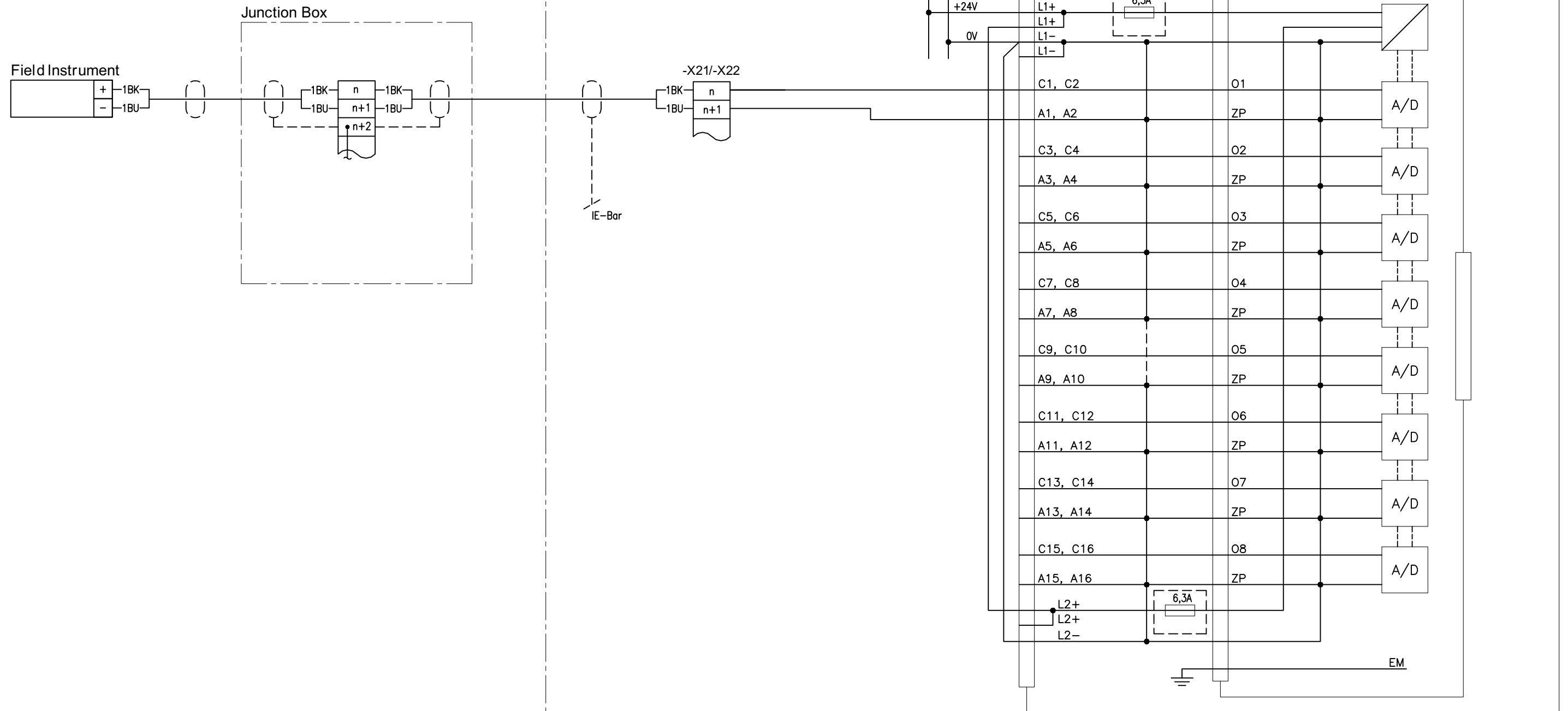
1. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
2. REDUNDANT CONFIGURATION

Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Input, 4-20mA, 2 Wire, HART, Powered from SAS System, Non IS	Doc.ref. C134-FS-200001-XK-0001			
		Date 2013-06-13	Approved ARIV					
Revision	01	APPROVED	2013-06-13	ARIV	Project AASTA HANSTEEN HARDWARE SOLUTION AI845_101_AH	Doc. Owner.	Rev.ind. 01	Language EN
	Ind.	Description	Date	App.		Doc.no. P027288-TEC-0006	Sheet 1	Next sheet -



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

Field Termination Cabinet

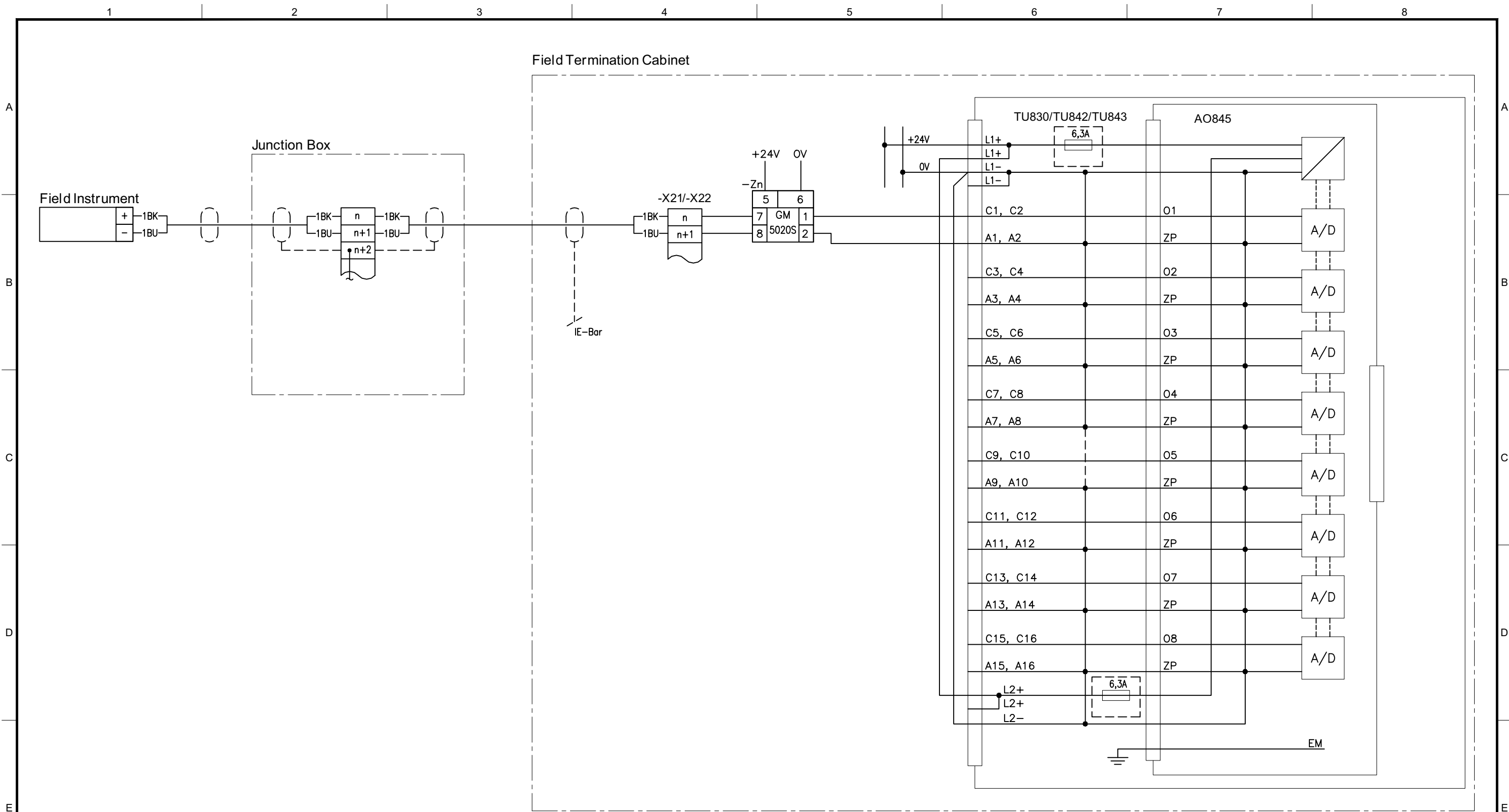


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.

Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Output, 4-20mA, 2 Wire, HART, Powered from SAS System, Non-IS	Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV		Doc. Owner.	Rev.ind. 01
Revision		Project AASTA HANSTEEN HARDWARE SOLUTION AO845_101_AH		<b>ABB</b>	Doc.no. P027288-TEC-0007	Sheet 1
01	APPROVED	2013-06-13	ARIV		Next sheet -	
Ind.	Description	Date	App.			

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

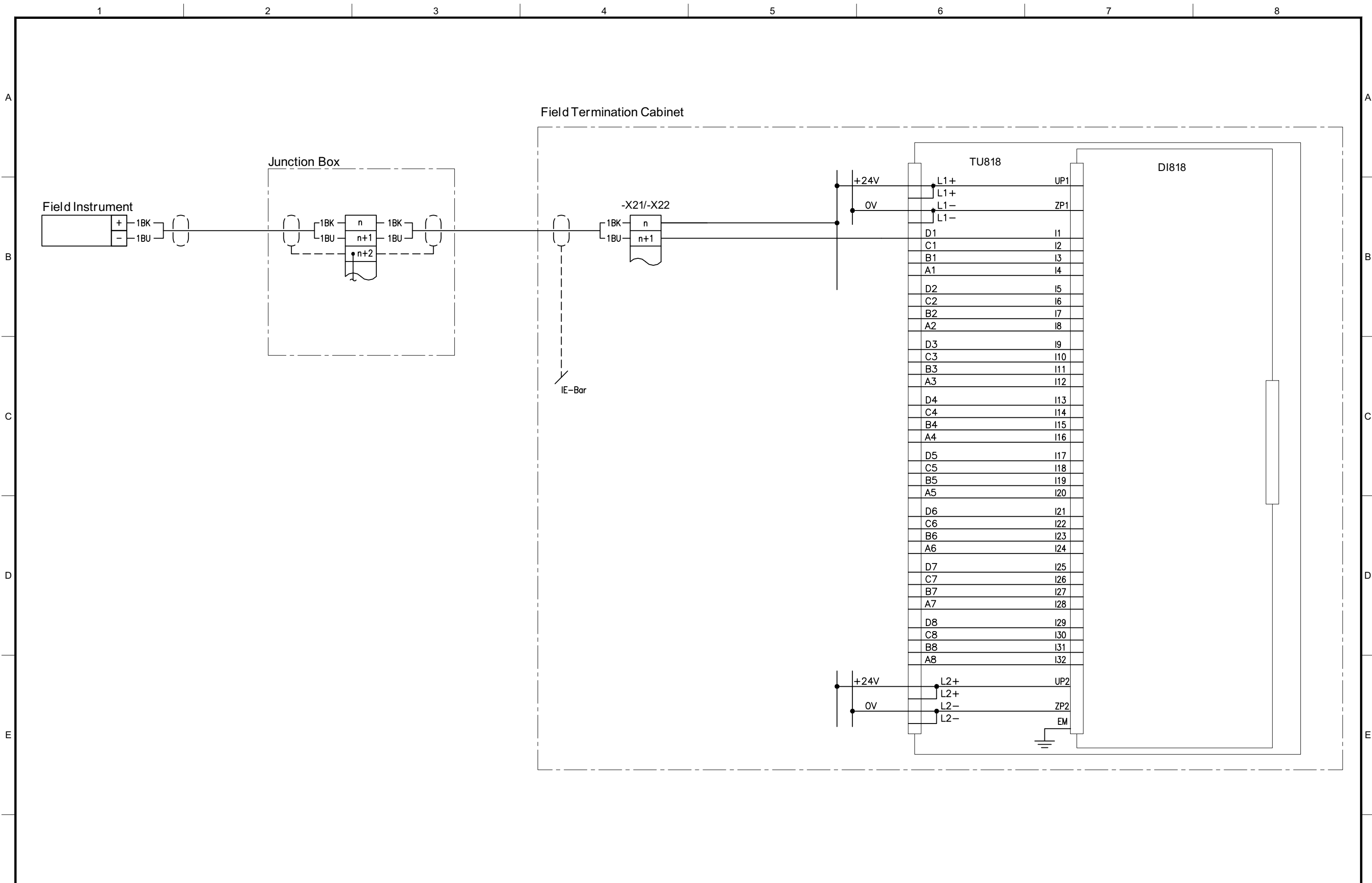


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.
3. IO CARD AND GM POWERED FROM SAME SOURCE BUT WITH SEPERATE FUSES ON +24V.

Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Output, 4-20mA, 2 Wire, HART, Powered from SAS System, IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV			Doc. Owner.	Rev.ind. 01
		Project AASTA HANSTEEN HARDWARE SOLUTION AO845_101I_AH				Language EN	Sheet 1
Revision	Ind. Description	Date	App.			Doc.no. P027288-TEC-0008	Next sheet -

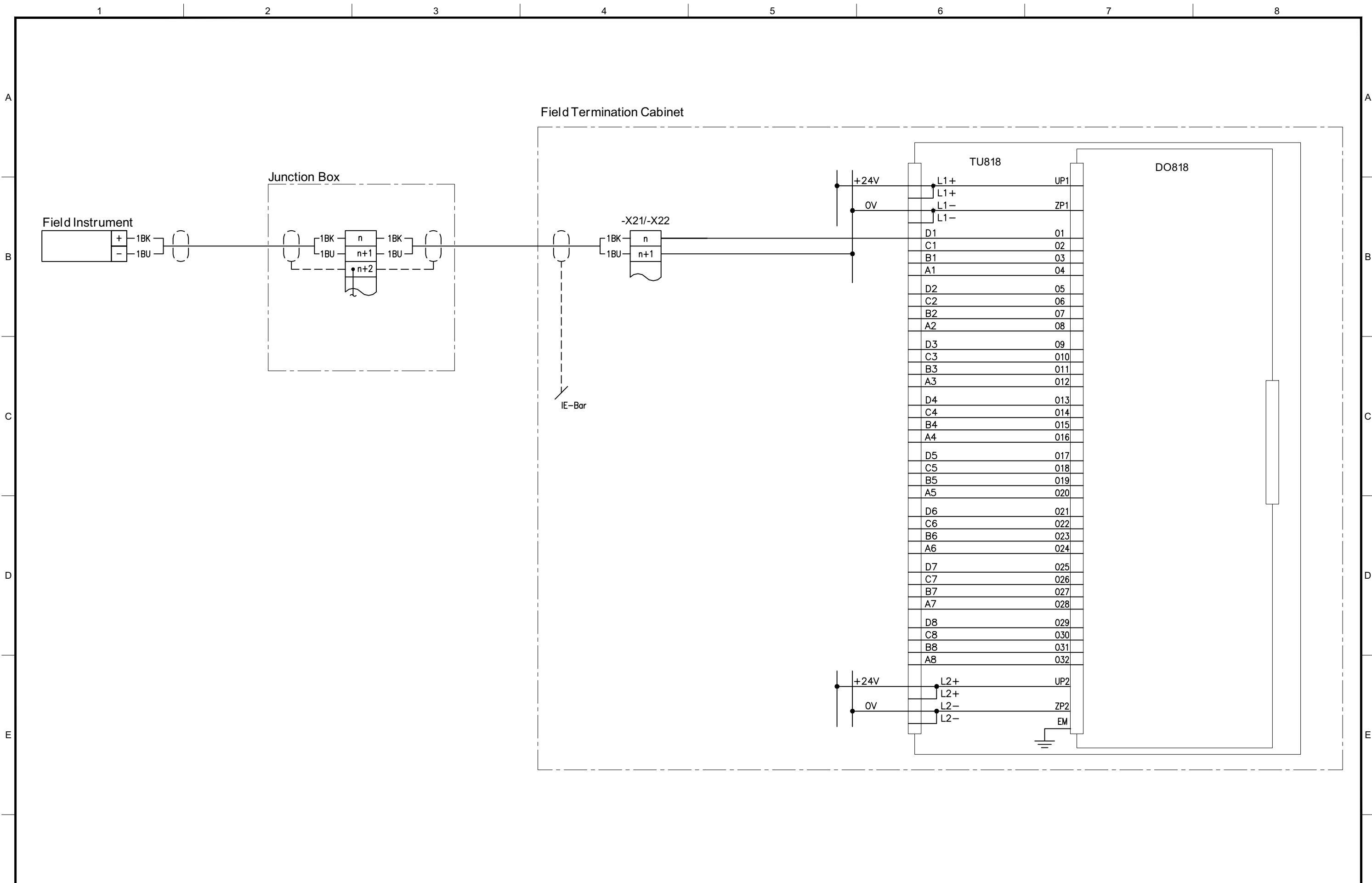
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.




Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Digital Input, 24V DC 2 Wire, Potential Free Contact, Powered from SAS System, NON IS		Doc.ref. C134-FS-200001-XK-0001		
		Date 2013-06-13	Approved ARIV			Doc. Owner.	Rev.ind. 01	Language EN
Revision		Project AASTA HANSTEEN HARDWARE SOLUTION DI818_101_AH		<b>ABB</b>		Doc.no. P027288-TEC-0009		Sheet 1
01	APPROVED	2013-06-13	ARIV			Next sheet -		
Ind.	Description	Date	App.					

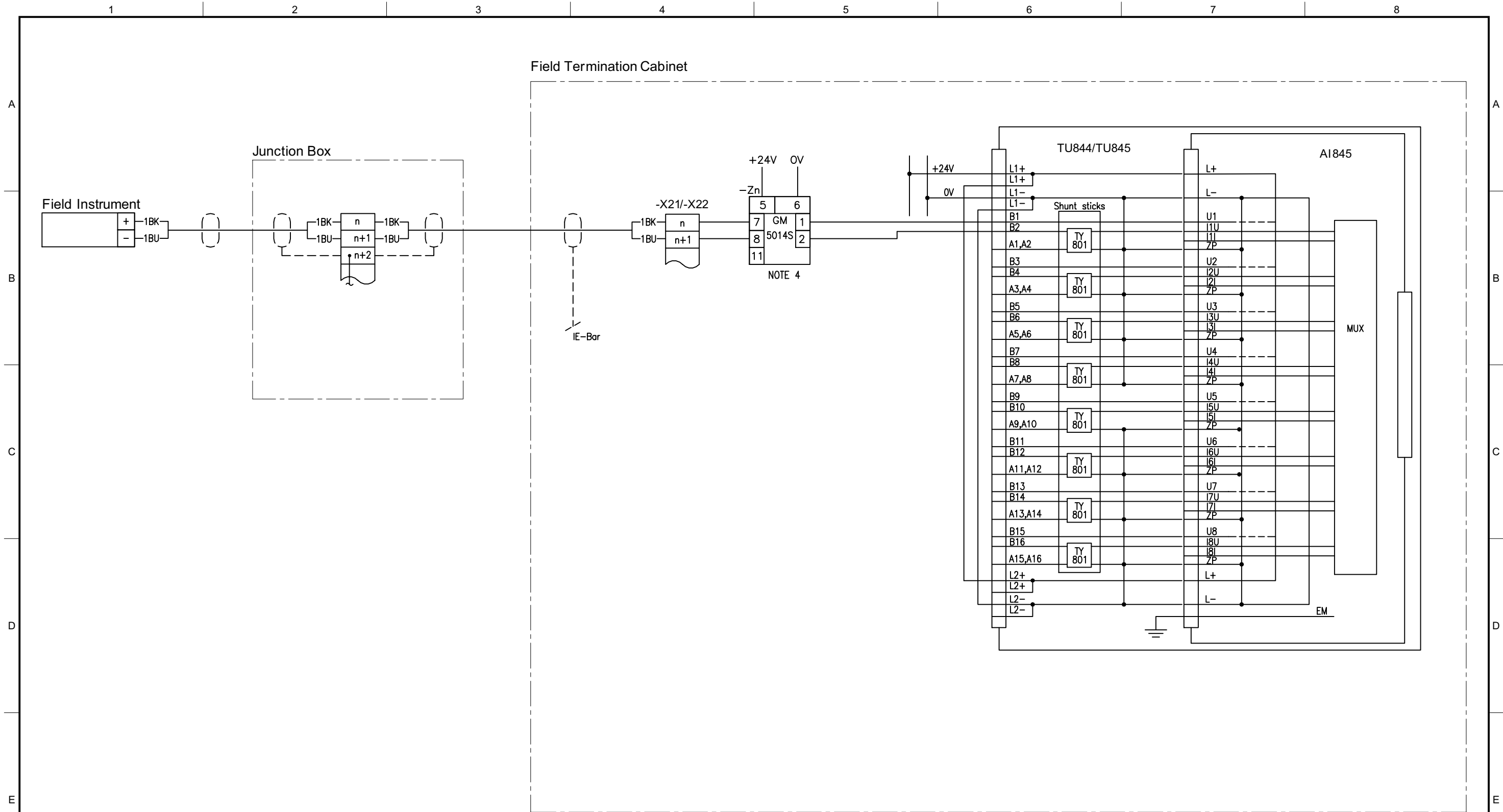


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Digital Output, 24V DC 2 Wire, 0,5A Powered from SAS System, NON IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV			Doc. Owner.	
		Project AASTA HANSTEEN HARDWARE SOLUTION DO818_101_AH				Rev.ind. 01	
						Language EN	
Revision						Sheet 1	
01	APPROVED	2013-06-13	ARIV			Next sheet -	
Ind.	Description	Date	App.			Doc.no. P027288-TEC-0010	

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



**NOTES:**

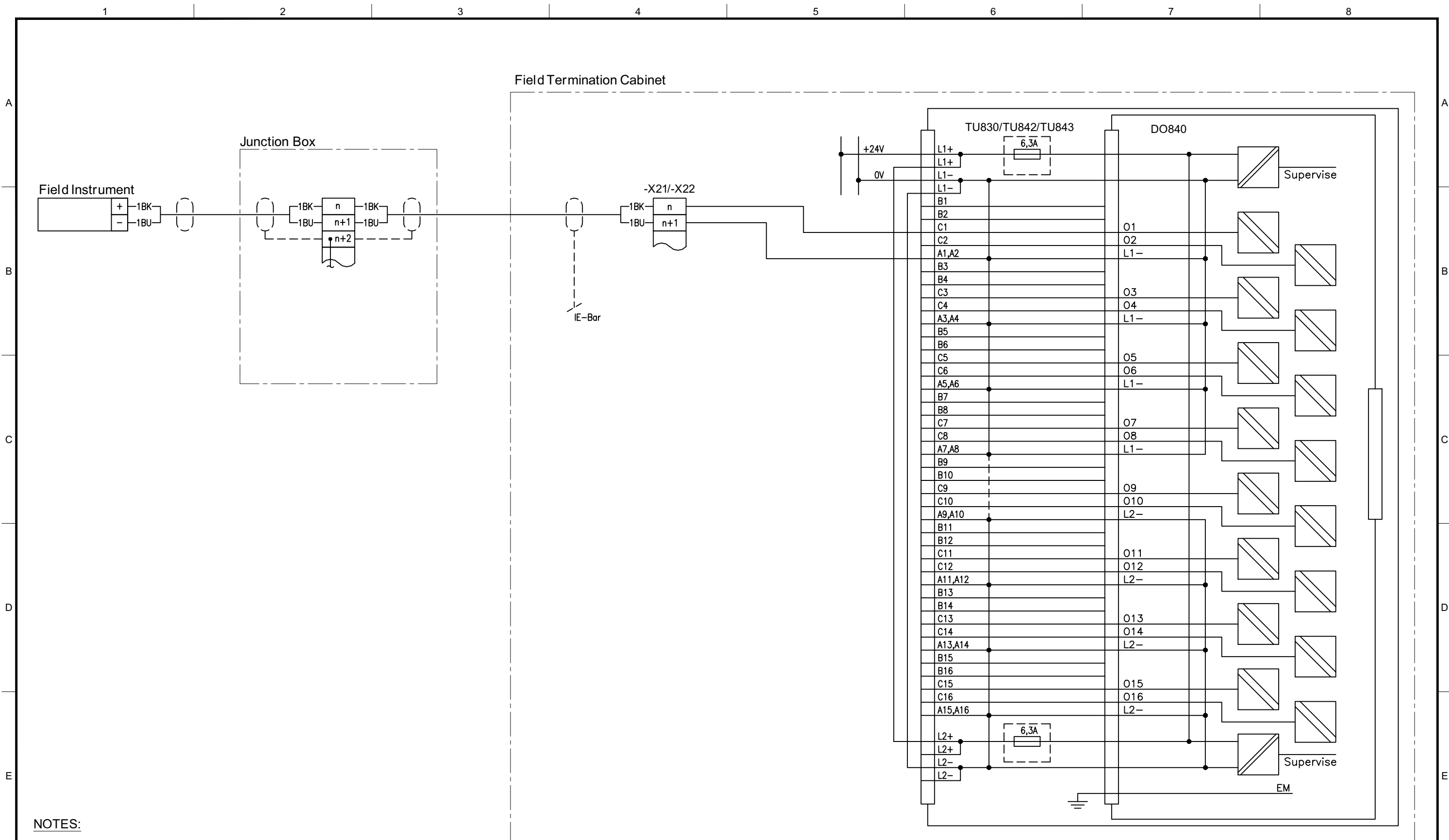
1. VALID FOR REDUNDANT CONFIGURATION
2. IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
3. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
4. GM 5014S TO BE CONFIGURED FOR 4-20mA SINK MODE WITH INTERNAL DIP SWITCHES:



Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Analog Input, 4-20mA, 2 Wire, HART, Powered from SAS System, IS		Doc.ref. C134-FS-200001-XK-0001		
		Date 2013-06-13	Approved ARIV			Doc. Owner.	Rev.ind. 02	Language EN
Revision		2013-08-19	Project AASTA HANSTEEN HARDWARE SOLUTION AI845_101I_AH				Sheet 1	
02		2013-06-13			ARIV			1
01	APPROVED							
Ind.	Description	Date	App.	Doc.no. P027288-TEC-0011		Next sheet -		



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

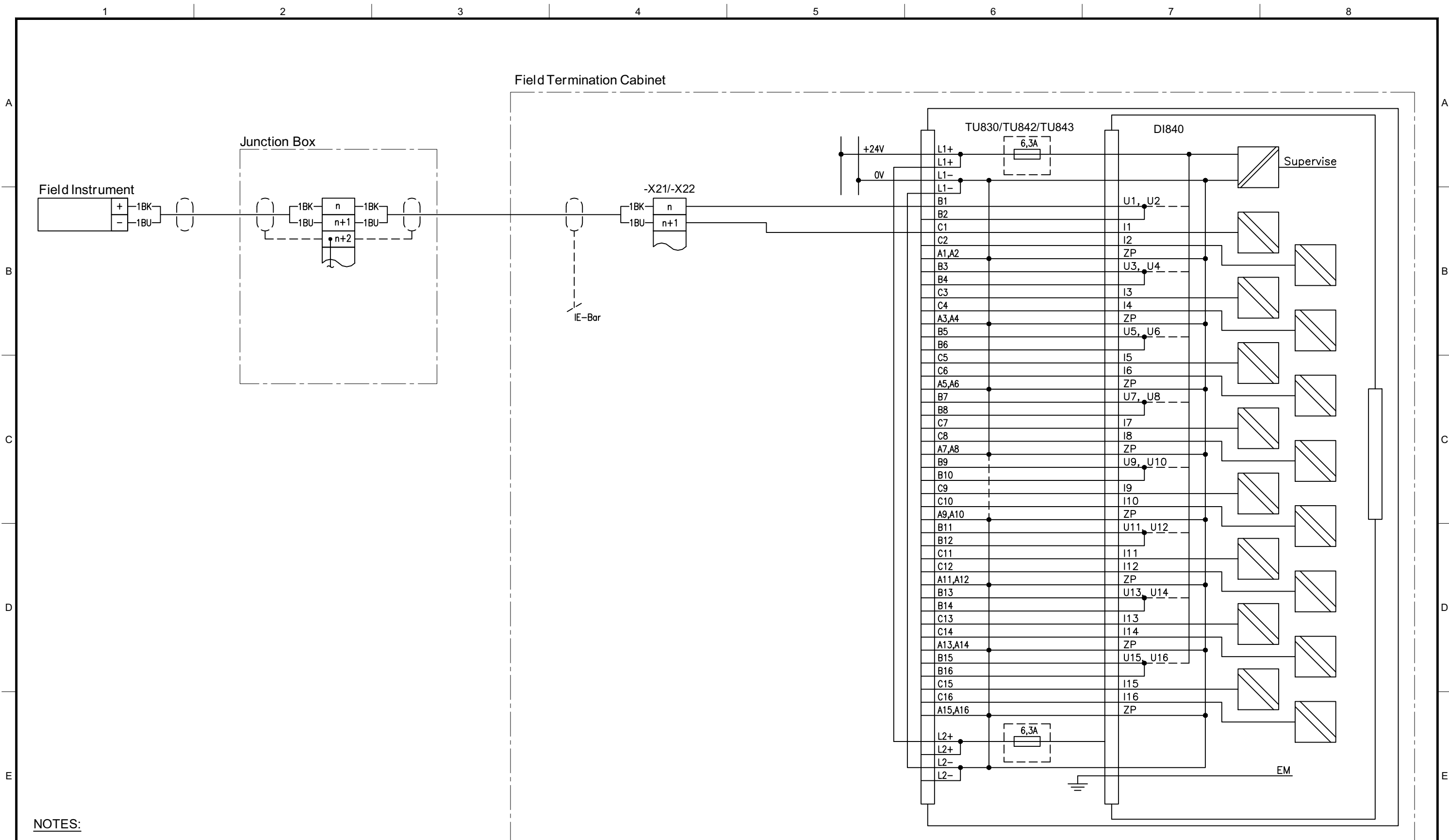


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.

Based on: ABB MANUAL		Prepared OYPE	Checked STLE	Digital Output, 24V DC, Loop Supervised, 2 Wire, 500mA Powered from SAS System, Non IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-06-13	Approved ARIV	<b>ABB</b>		Doc. Owner.	
		Project AASTA HANSTEEN HARDWARE SOLUTION DO840_101_AH				Rev.ind. 01	
Revision	01	APPROVED	2013-06-13	ARIV	<b>P027288-TEC-0012</b>		Sheet 1
Ind.	Description	Date	App.				Next sheet -

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

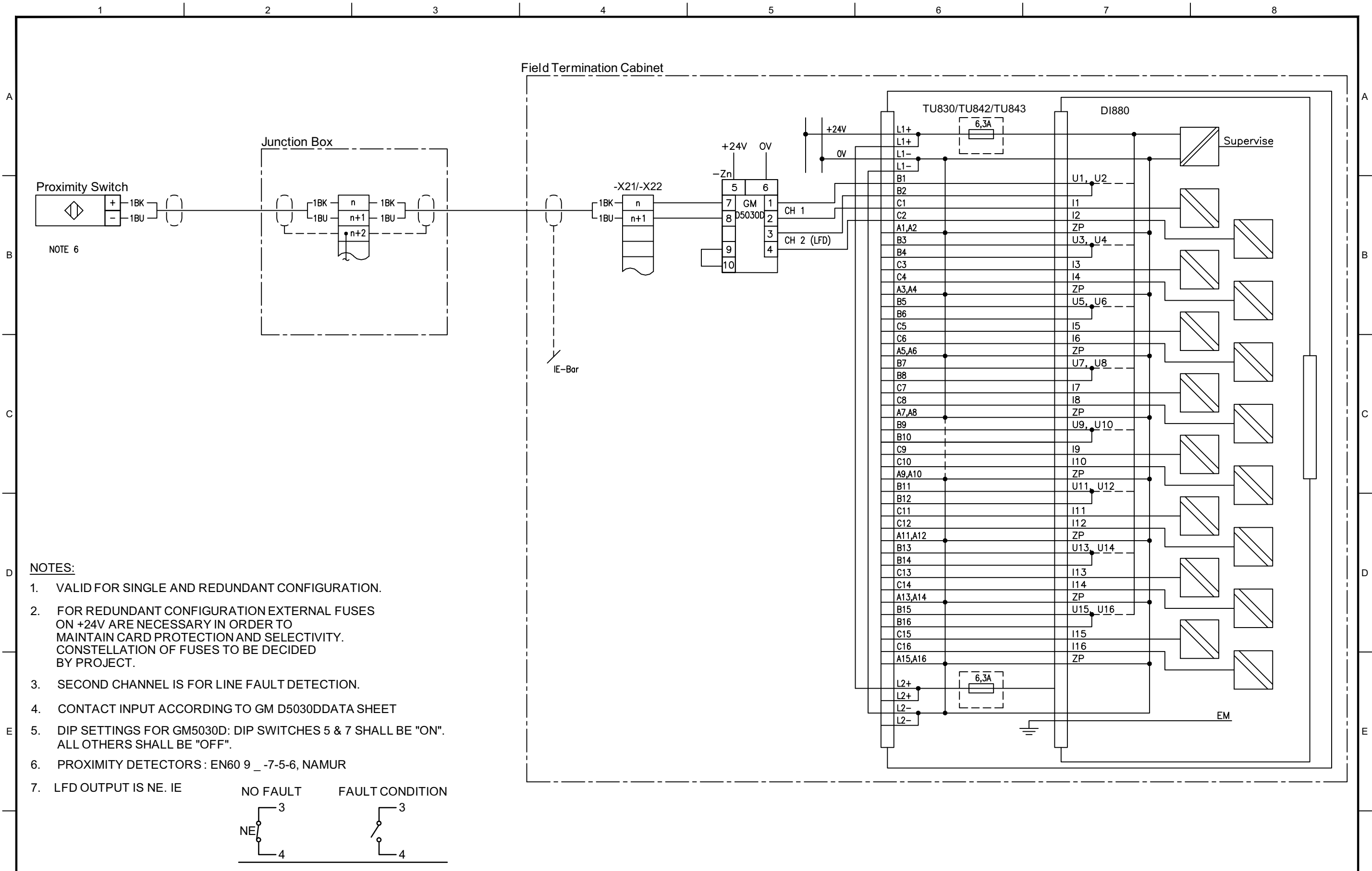


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.

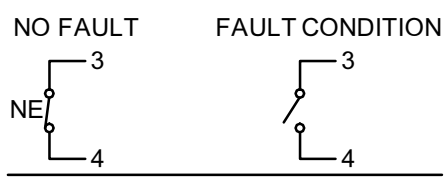
Based on: <b>ABB MANUAL</b>		Prepared <b>OYPE</b>	Checked <b>STLE</b>	Digital Input, 24V DC, 2 Wire, Powered from SAS System, Non IS, SOE		Doc.ref. <b>C134-FS-200001-XK-0001</b>	
		Date <b>2013-06-13</b>	Approved <b>ARIV</b>	<b>ABB</b>		Doc. Owner.	
		Project <b>AASTA HANSTEEN HARDWARE SOLUTION DI840_101_AH</b>				Rev.ind. <b>01</b>	Language <b>EN</b>
Revision	Ind.	Description	Date	App.	Doc.no. <b>P027288-TEC-0013</b>		Sheet <b>1</b>
<b>01</b>	<b>APPROVED</b>		<b>2013-06-13</b>	<b>ARIV</b>			Next sheet <b>-</b>

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



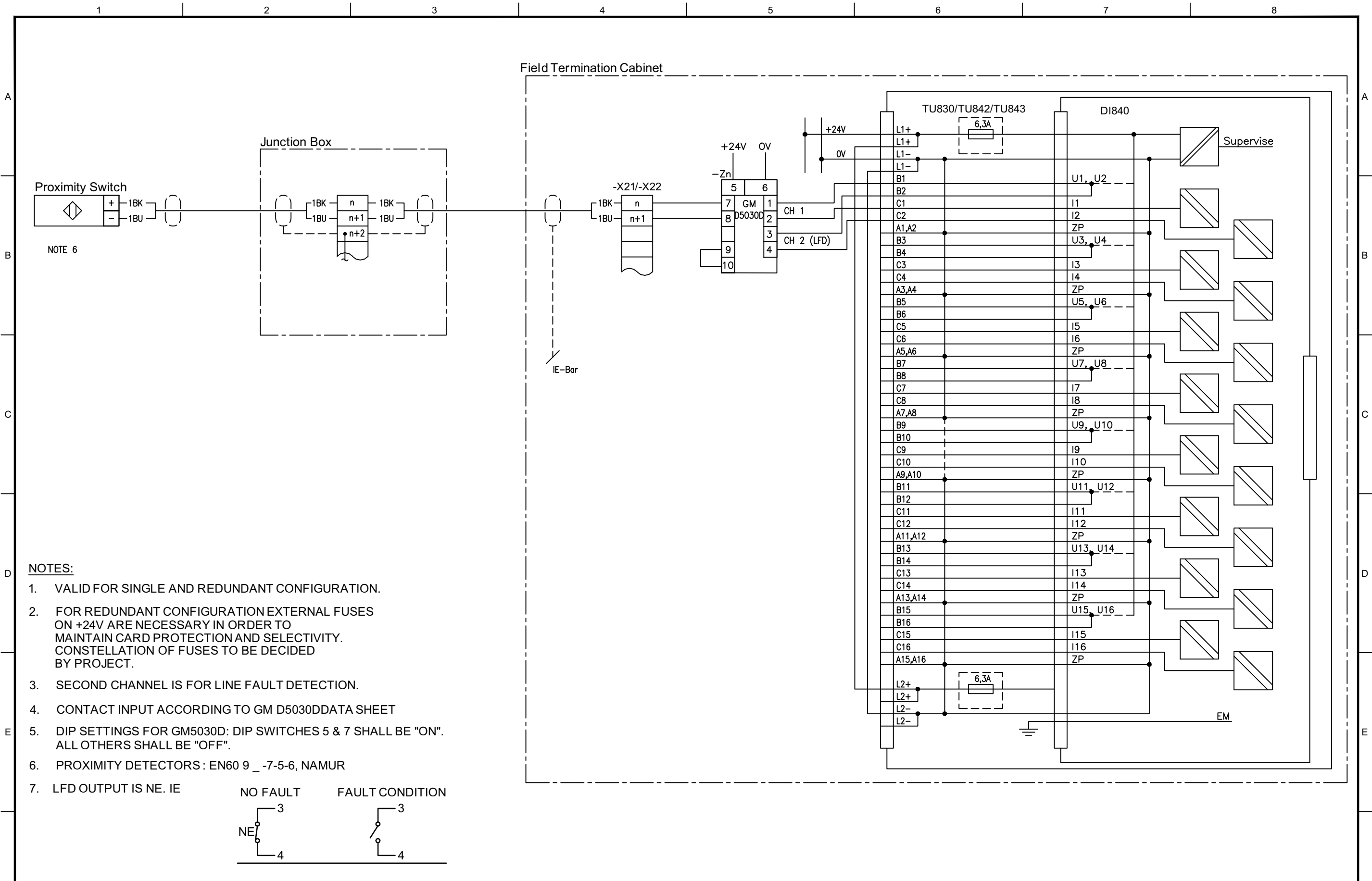
**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.
3. SECOND CHANNEL IS FOR LINE FAULT DETECTION.
4. CONTACT INPUT ACCORDING TO GM D5030DDATA SHEET
5. DIP SETTINGS FOR GM5030D: DIP SWITCHES 5 & 7 SHALL BE "ON". ALL OTHERS SHALL BE "OFF".
6. PROXIMITY DETECTORS: EN60 9\_-7-5-6, NAMUR
7. LFD OUTPUT IS NE. IE



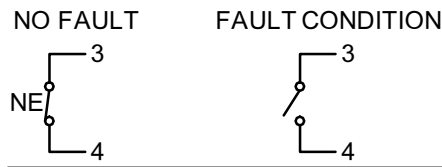
Based on: <b>ABB MANUAL</b>		Prepared <b>RAGR</b>	Checked <b>AUJO</b>	Digital Input, Loop Supervised, 24V DC, 2 wire NAMUR Proximity Switches, SOE SIL 1-2 Power for SAS System, IS	Doc.ref. <b>C134-FS-200001-XK-0001</b>	
		Date <b>2013-11-04</b>	Approved <b>ARIV</b>		Doc. Owner.	Rev.ind. <b>01</b>
Revision		Project <b>AASTA HANSTEEN HARDWARE SOLUTION DI880_006I_AH</b>				Sheet <b>1</b>
01	APPROVED	2013-11-04	ARIV	<b>ABB</b>	Doc.no. <b>P027288-TEC-0019</b>	Next sheet <b>-</b>
Ind.	Description	Date	App.			

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.
3. SECOND CHANNEL IS FOR LINE FAULT DETECTION.
4. CONTACT INPUT ACCORDING TO GM D5030DDATA SHEET
5. DIP SETTINGS FOR GM5030D: DIP SWITCHES 5 & 7 SHALL BE "ON". ALL OTHERS SHALL BE "OFF".
6. PROXIMITY DETECTORS: EN60 9\_-7-5-6, NAMUR
7. LFD OUTPUT IS NE. IE



Based on: ABB MANUAL		Prepared RAGR	Checked AUJO	Digital Input, Loop Supervised, 24V DC, 2 wire NAMUR Proximity Switches, SOE, from Powered SAS System, IS	Doc.ref. C134-FS-200001-XK-0001	
		Date 2013-11-04	Approved ARIV		Doc. Owner.	Rev.ind. 01
Revision		Project AASTA HANSTEEN HARDWARE SOLUTION DI840_101I_AH				Sheet 1
01	APPROVED	2013-11-04	ARIV			
Ind.	Description	Date	App.		Doc.no. P027288-TEC-0020	Next sheet -

1 2 3 4 5 6 7 8

A A

B B

C C

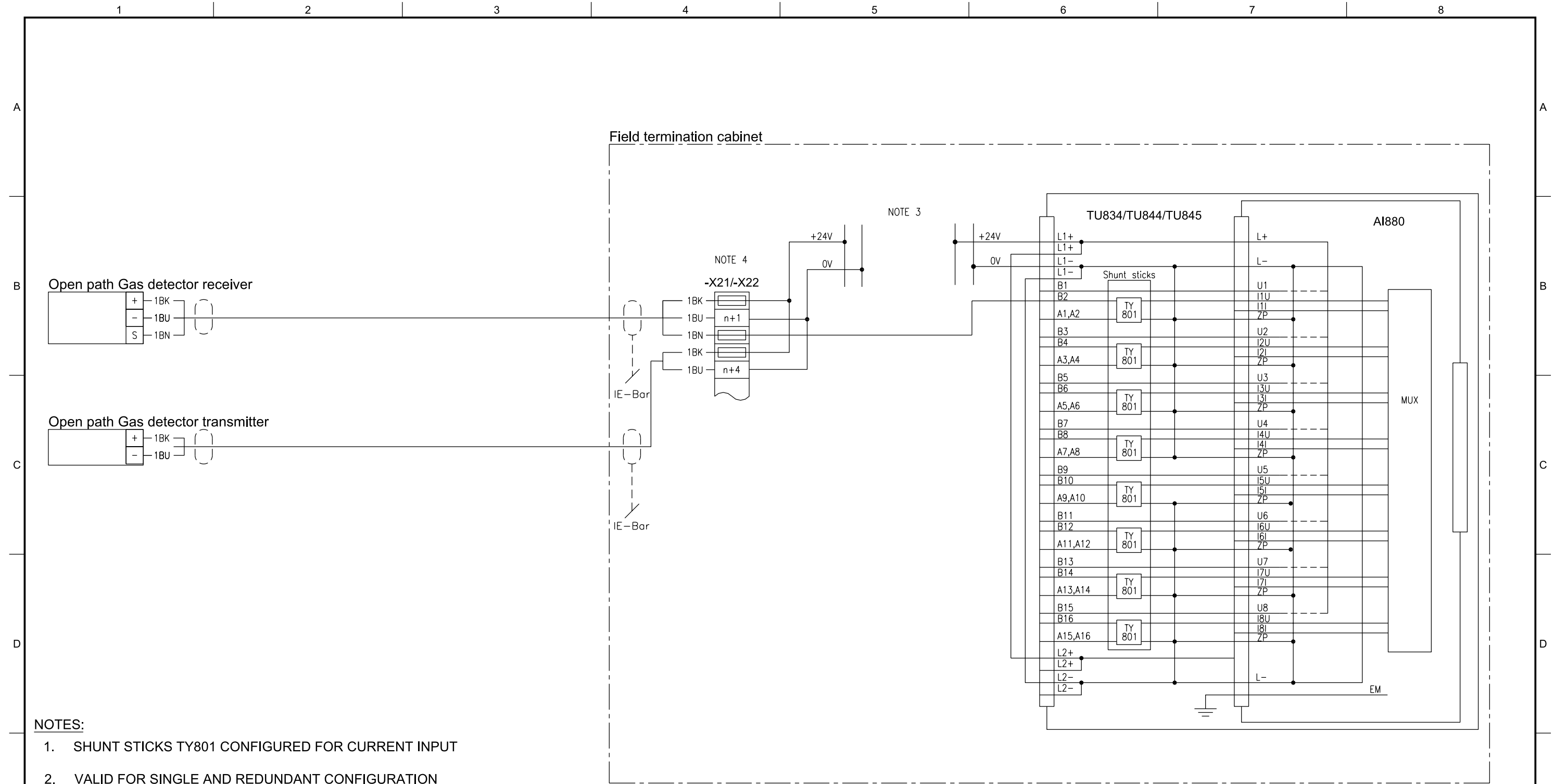
D D

E E

F F

1 2 3 4 5 6 7 8

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



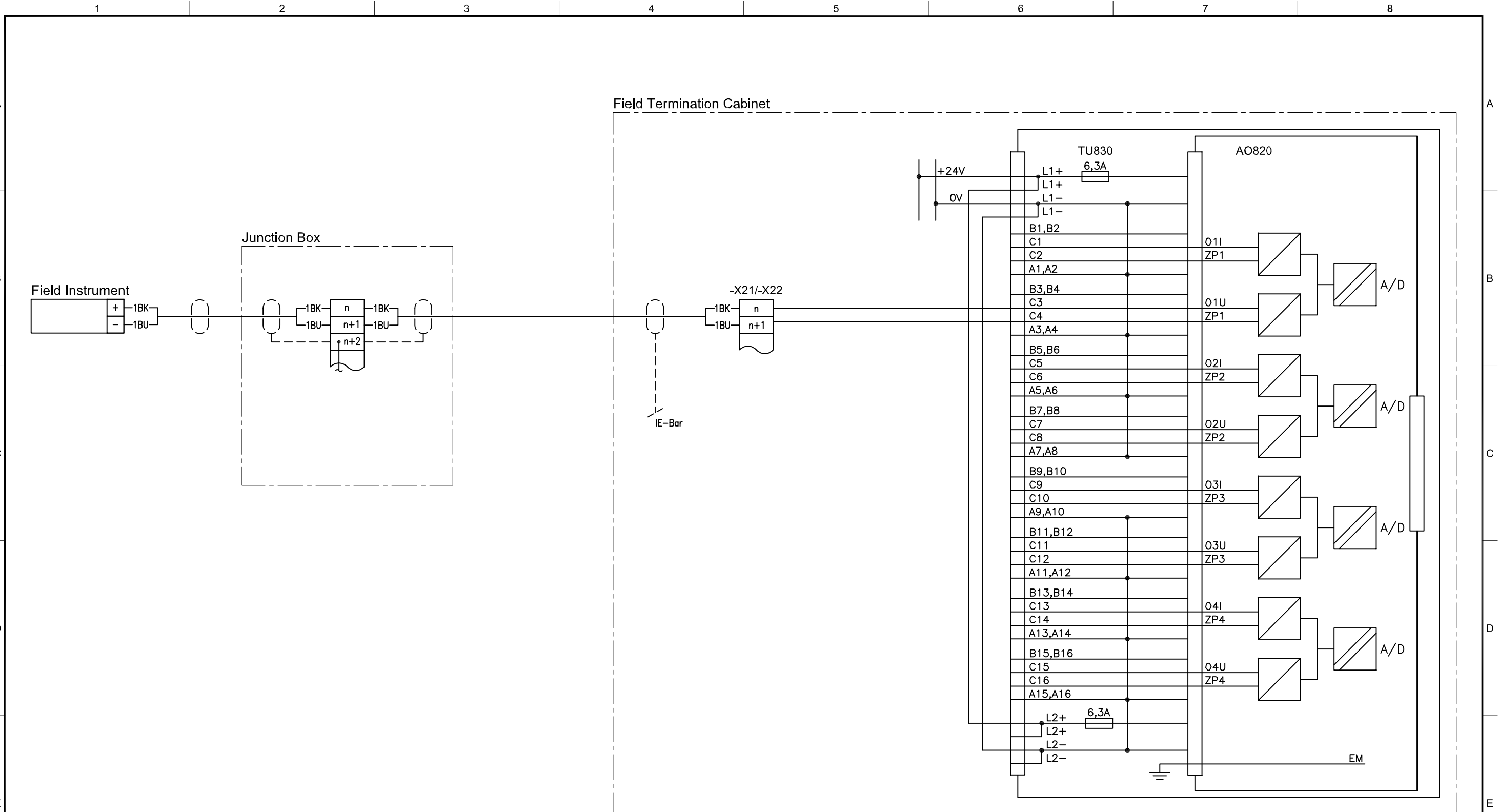
**NOTES:**

1. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
2. VALID FOR SINGLE AND REDUNDANT CONFIGURATION
3. IO CARD AND FIELD INSTRUMENT POWERED FROM SAME SOURCE WITH SEPARATE FUSES ON +24V.
4. FUSE TERMINALS SHOWN AS EXAMPLE IS CONSISTING OF:
  - TERMINAL PHOENIX UT 4 TG-P/P (3046168)
  - FUSE HOLDER PHOENIX P-FU 5X20 LED 24 (3036819)
  - FUSES: (FAST GLASS TUBE 5x20mm)
  - +24V FUSE FOR FIELD SUPPLY: RATE ACCORDING TO FIELD INSTRUMENT (n AND n+3 TERMINAL)
  - SIGNAL FUSE: 40-100mA (n+2 TERMINAL)

Based on: ABB MANUAL		Prepared THKI		Checked AUJO		Analog Input, 0-20mA, 5 wire, SIL 1-2 Powered from SAS System, Non IS		Doc.ref.C134-FS-200001-XK-0001		
		Date 2015-04-16		Approved ARIV						
Revision	02	APPROVED	2015-04-16	ARIV	Title OGP HARDWARE SOLUTIONS AI880_007_AH		Doc. Owner.		Rev.ind. 02	Language EN
	01	APPROVED	2013-11-04	ARIV			Sheet 1			
	Ind.	Description	Date	App.			Doc.no. P027288-TEC-0021		Next sheet -	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

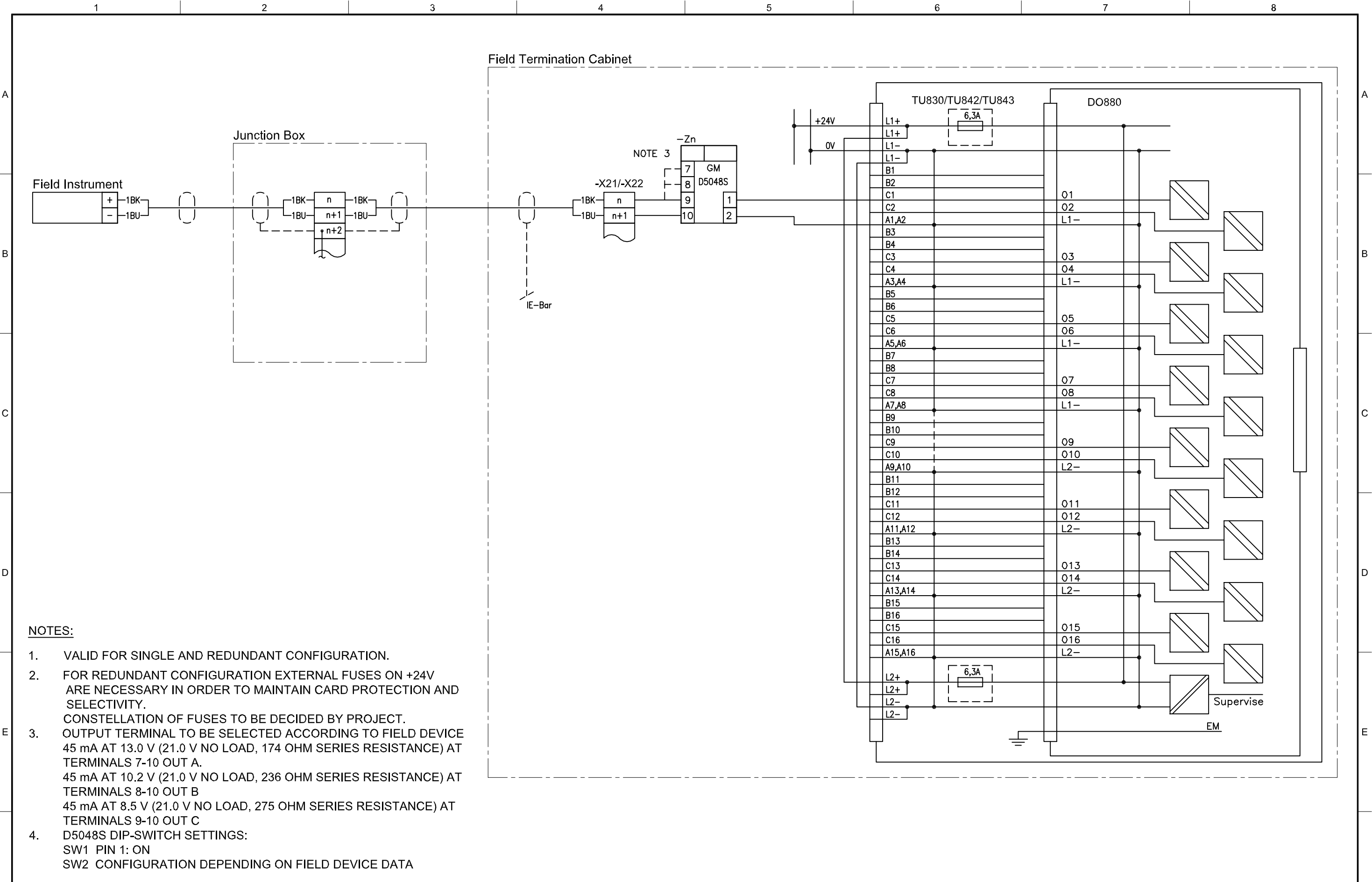


Based on: ABB MANUAL		Prepared OYPE	Checked AUJO	Analog Output, 0-10V, 2 WIRE, Individually galvanically isolated channels Powered from SAS System, Non IS	Doc.ref. C134-FS-200001-XK-0001
		Date 2014-01-23	Approved ARIV		
		Title OGP HARDWARE SOLUTIONS AO820_003_AH		Doc. Owner. PAOG	Rev.ind. -
Revision				Language EN	Sheet 1
01	APPROVED	2014-01-23	ARIV	Doc.no. P027288-TEC-0022	Next sheet -
Ind.	Description	Date	App.		





We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

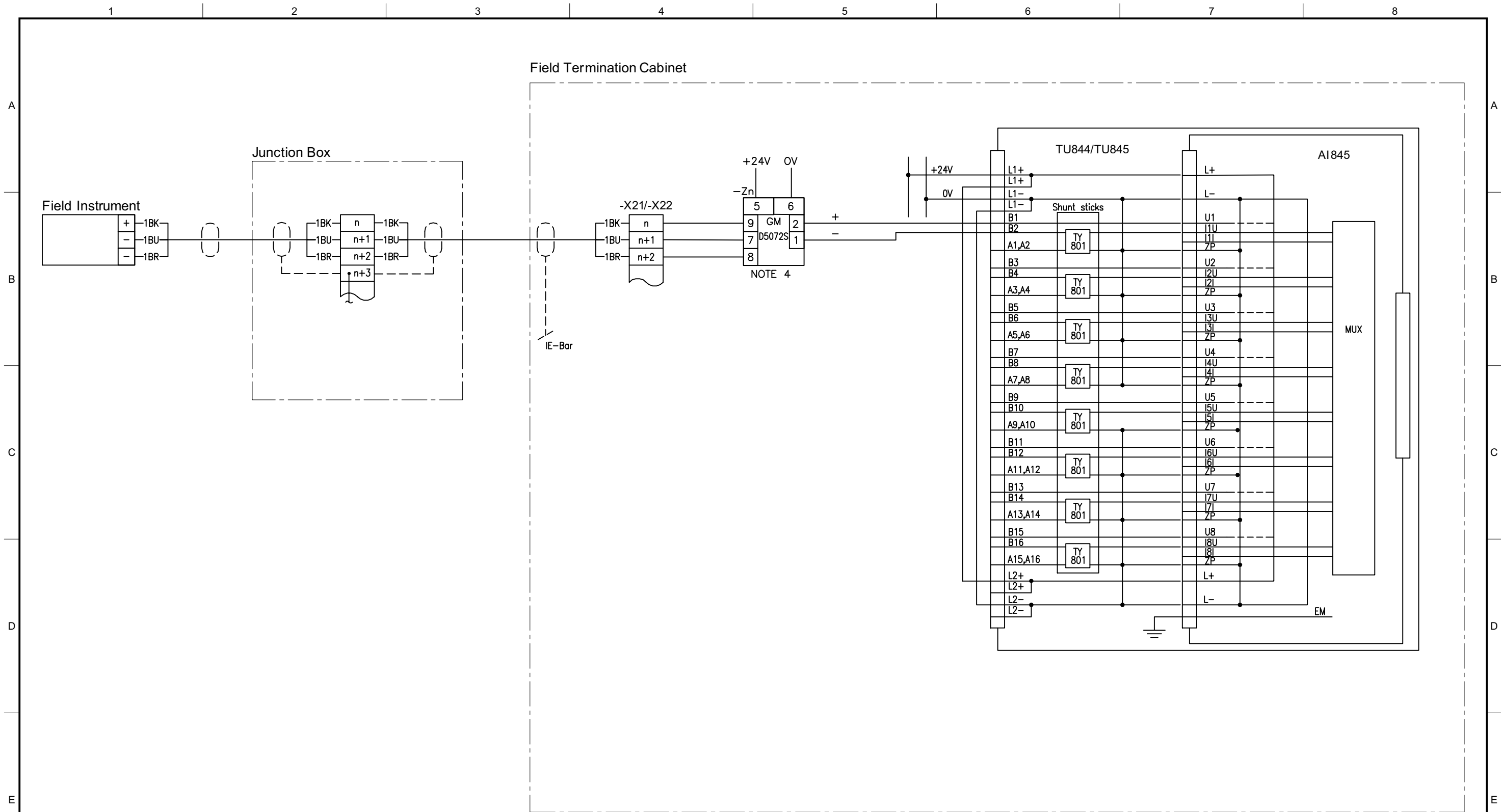


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY.  
CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.
3. OUTPUT TERMINAL TO BE SELECTED ACCORDING TO FIELD DEVICE  
45 mA AT 13.0 V (21.0 V NO LOAD, 174 OHM SERIES RESISTANCE) AT TERMINALS 7-10 OUT A.  
45 mA AT 10.2 V (21.0 V NO LOAD, 236 OHM SERIES RESISTANCE) AT TERMINALS 8-10 OUT B  
45 mA AT 8.5 V (21.0 V NO LOAD, 275 OHM SERIES RESISTANCE) AT TERMINALS 9-10 OUT C
4. D5048S DIP-SWITCH SETTINGS:  
SW1 PIN 1: ON  
SW2 CONFIGURATION DEPENDING ON FIELD DEVICE DATA

Based on: ABB MANUAL		Prepared OYPE	Checked AUJO	Digital Output, NE, SIL 1-3 Powered from SAS System, IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2014-01-23	Approved ARIV			Doc. Owner. PAOG	Rev.ind. -
		Project OGP HARDWARE SOLUTIONS DO880_001I_AH				Language EN	Sheet 1
Revision	01 APPROVED	2014-01-23	ARIV			Doc.no. P027288-TEC-0023	Next sheet -
Ind.	Description	Date	App.				

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

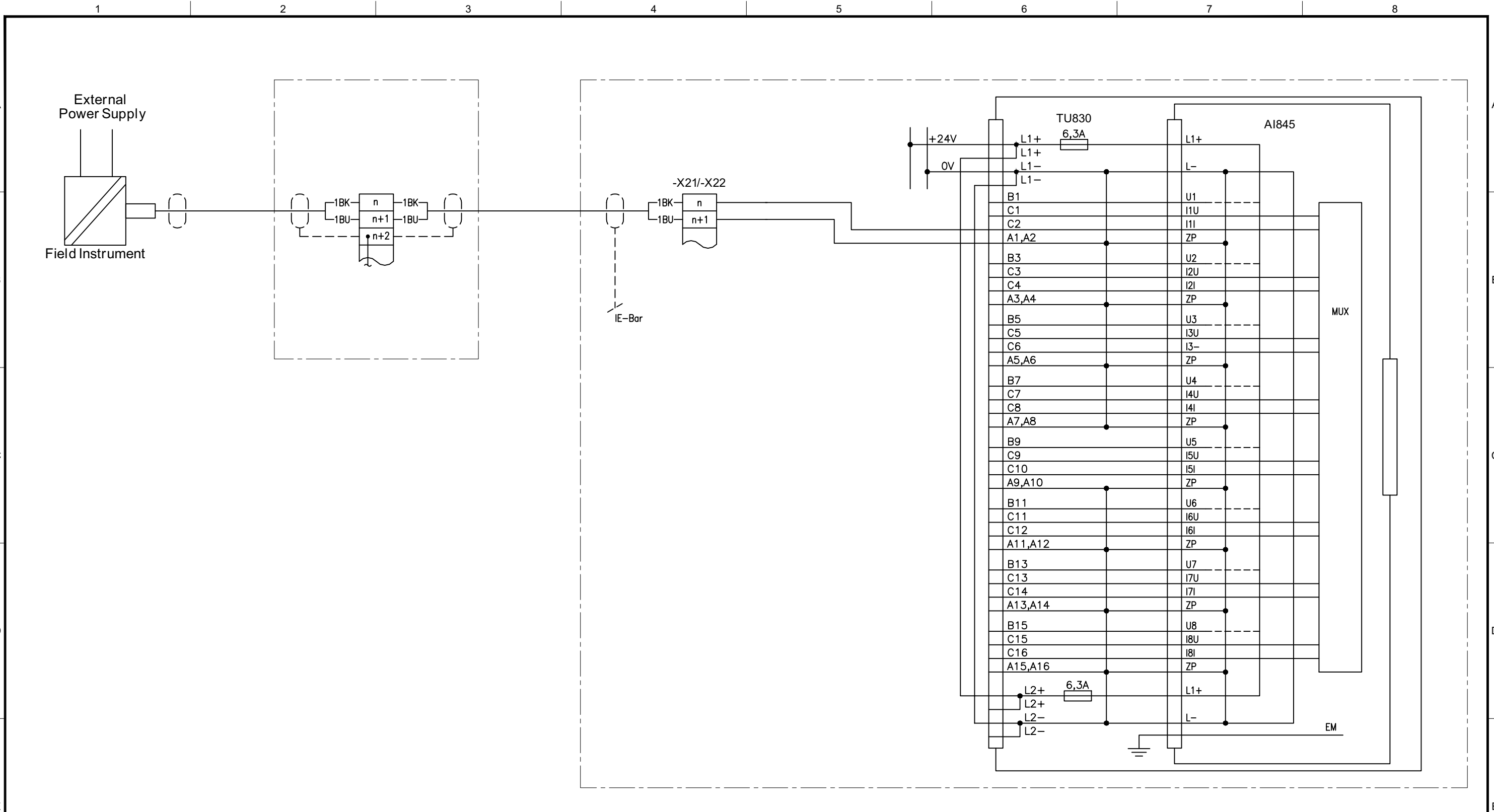


**NOTES:**

1. VALID FOR REDUNDANT CONFIGURATION
2. IO CARD, AND GM D5072S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
3. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
4. GM D5072S CONFIGURED FOR 4-20mA SINK MODE

Based on: <b>ABB MANUAL</b>		Prepared: <b>ZEKA</b>	Checked: <b>RAGR</b>	<b>Analog Input, 4-20mA, 3 Wire, Powered from SAS System, IS</b>	Doc.ref. <b>Draft</b>	
		Date: <b>2013-04-15</b>	Approved: <b>AUJO</b>		Doc. Owner.	Rev.ind. <b>01</b>
Revision	<b>01</b>	<b>ISSUED FOR APPROVAL</b>	<b>2013-04-15</b>	<b>AUJO</b>	<b>ABB</b>	
	Ind.	Description	Date	App.		

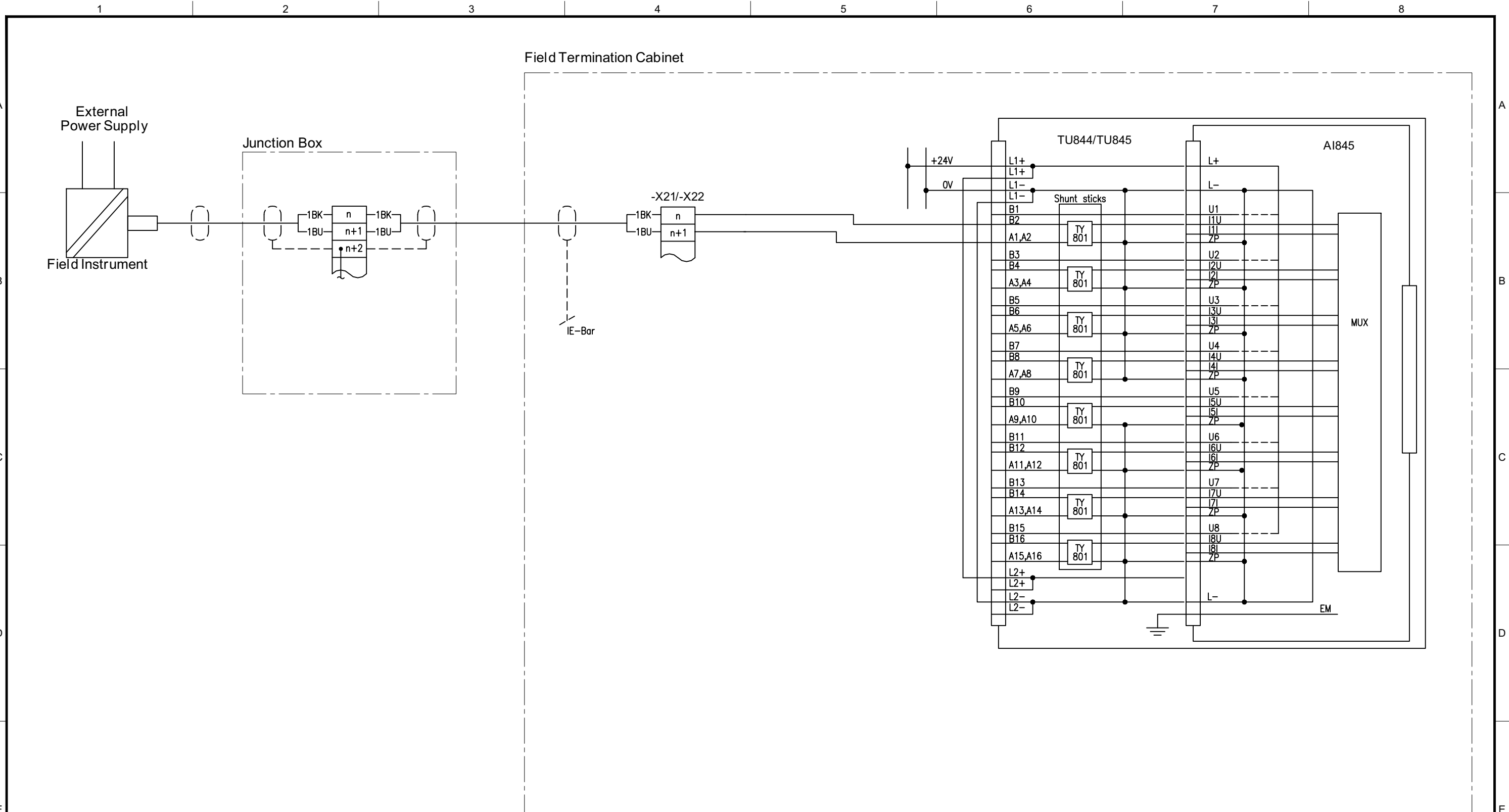
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



NOTES:  
1. VALID FOR SINGLE CONFIGURATION

Based on: ABB MANUAL		Prepared ZEKA	Checked SURP	Analog Input, 4-20mA, 4 Wire, Powered from External System, Non IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2014-06-20	Approved ARIV			Doc. Owner.	Rev.ind. 01
		Project AASTA HANSTEEN HARDWARE SOLUTION AI845_103_AH				Language EN	Sheet 1
Revision						Doc.no. P027288-TEC-0034	Next sheet -
01	APPROVED	2014-06-20	ARIV				
Ind.	Description	Date	App.				

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

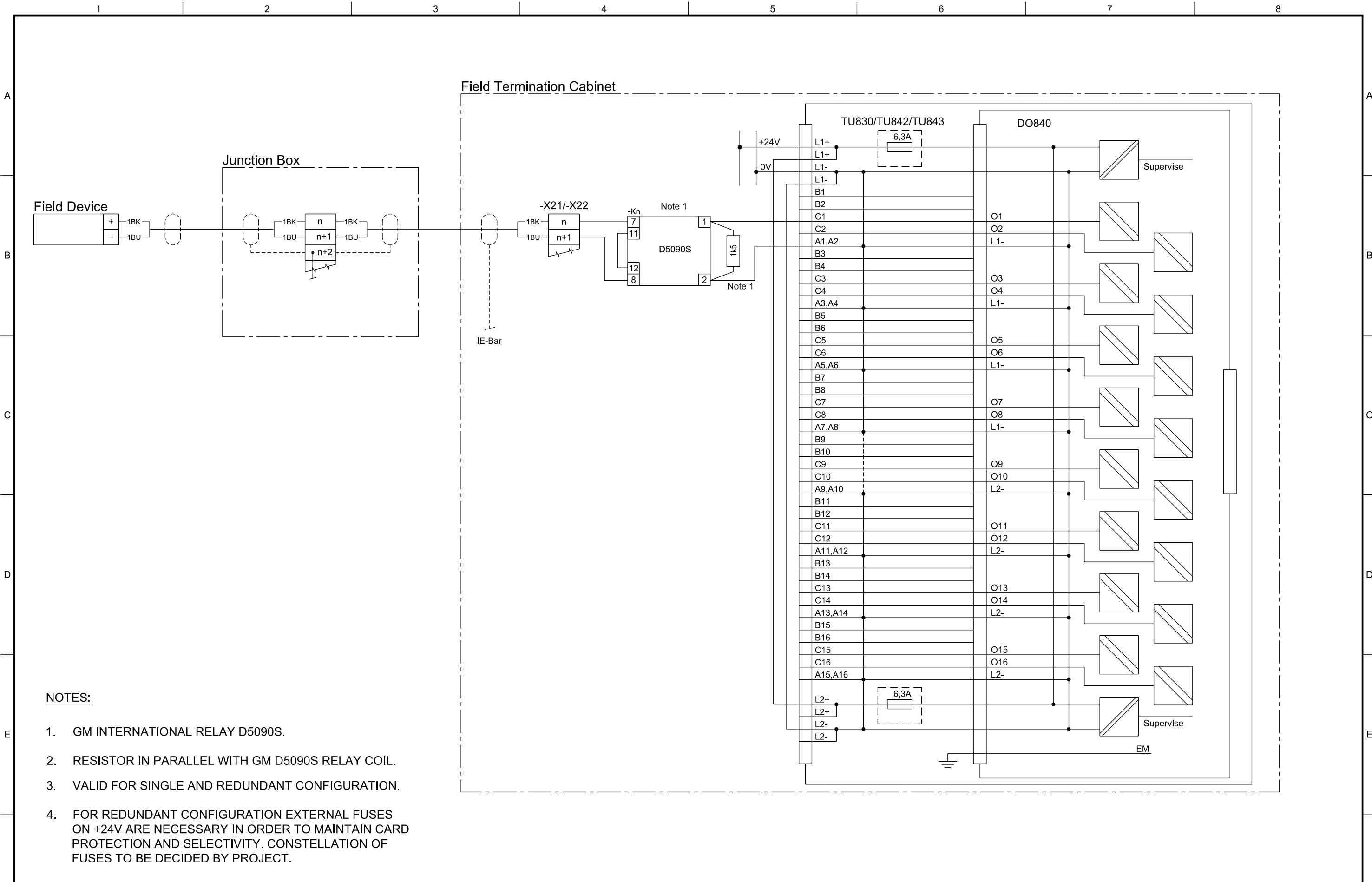


**NOTES:**

1. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
2. REDUNDANT CONFIGURATION

Based on: ABB MANUAL		Prepared ZEKA	Checked SURP	Analog Input, 4-20mA, 4 Wire, Powered from External System, Non IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2014-06-20	Approved ARIV			Doc. Owner.	Rev.ind. 01
		Project AASTA HANSTEEN HARDWARE SOLUTION AI845_203_AH				Language EN	Sheet 1
Revision						Doc.no. P027288-TEC-0035	Next sheet -
01	APPROVED	2014-06-20	ARIV				
Ind.	Description	Date	App.				

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

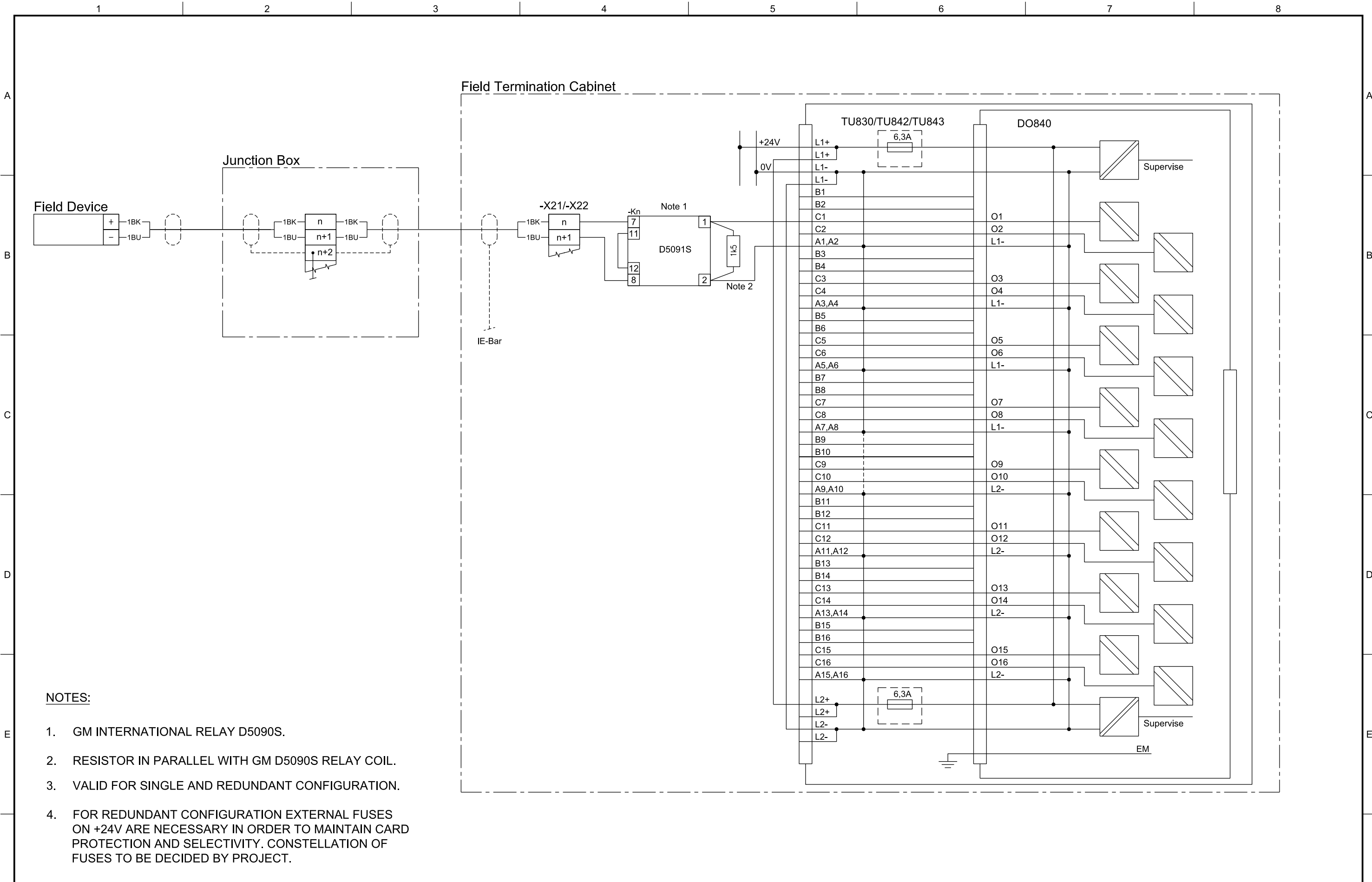


**NOTES:**

1. GM INTERNATIONAL RELAY D5090S.
2. RESISTOR IN PARALLEL WITH GM D5090S RELAY COIL.
3. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
4. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.

Based on: ABB MANUAL				Prepared THKI	Checked SURP	Digital Output Monitored, 2 wire, NE Powered from SAS System, Non IS Potential Free Contact	Doc.ref. C134-FS-200001-XK-0001	
				Date 2014-11-07	Approved ARIV		Doc. Owner.	Rev.ind. 01
Revision				Project AASTA HANSTEEN HARDWARE SOLUTION DO840_104_AH		<b>ABB</b>		
01	APPROVED	2014-11-07	ARIV				Doc.no. P027288-TEC-0038	Sheet 1
Ind.	Description	Date	App.				Next sheet -	

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

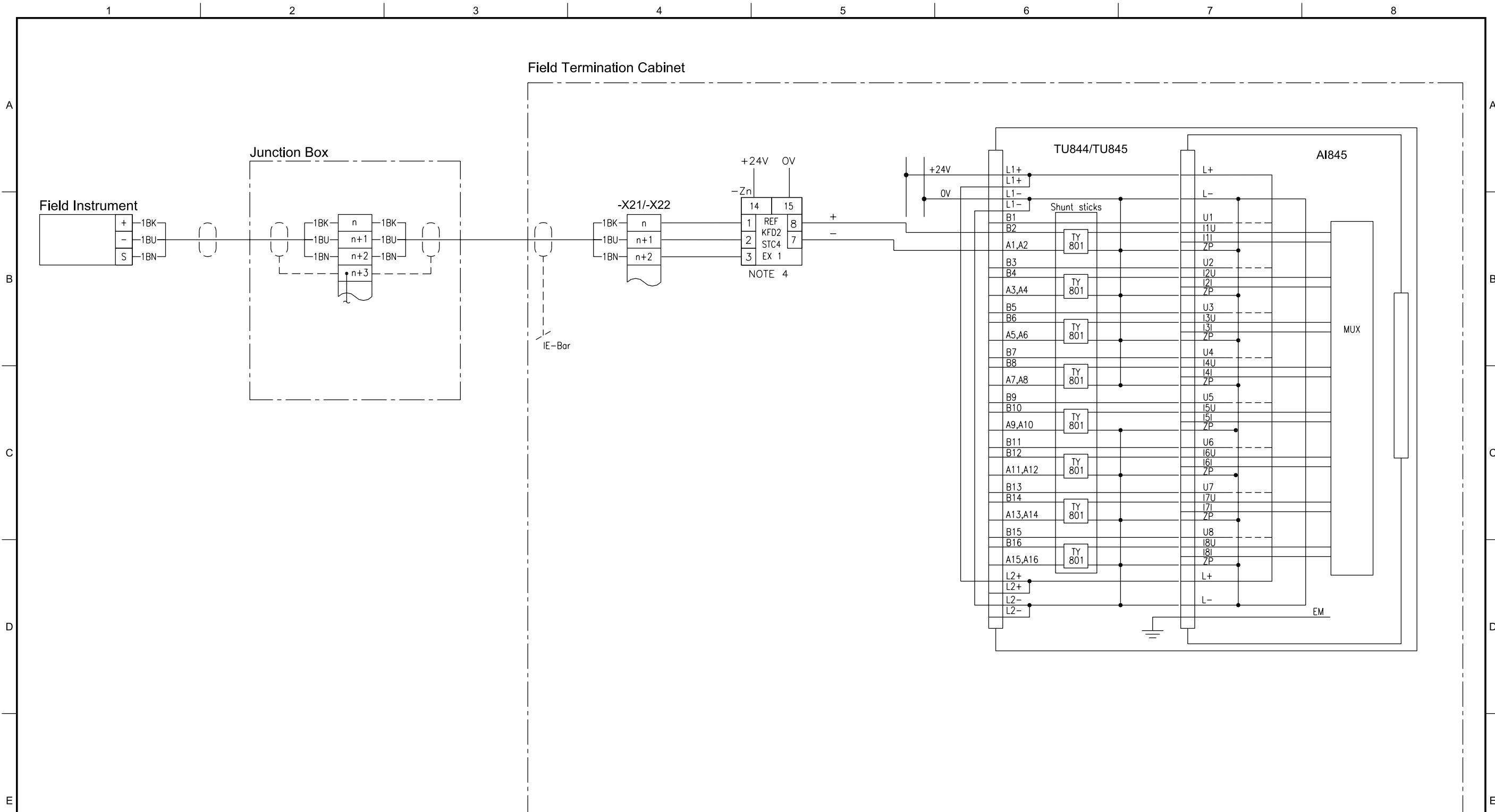


**NOTES:**

1. GM INTERNATIONAL RELAY D5090S.
2. RESISTOR IN PARALLEL WITH GM D5090S RELAY COIL.
3. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
4. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.

Based on: ABB MANUAL				Prepared THKI	Checked SURP	Digital Output Loop Supervised, 2 Wire, NDE Powered from SAS System, Non IS Potential Free Contact	Doc.ref. C134-FS-200001-XK-0001	
				Date 2014-11-07	Approved ARIV		Doc. Owner.	Rev.ind. 01
				Project AASTA HANSTEEN HARDWARE SOLUTION DO840_107_AH		<b>ABB</b>	Doc.no. P027288-TEC-0039	
Revision							Sheet	1
01	APPROVED	2014-11-07	ARIV				Next sheet	-
Ind.	Description	Date	App.					

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



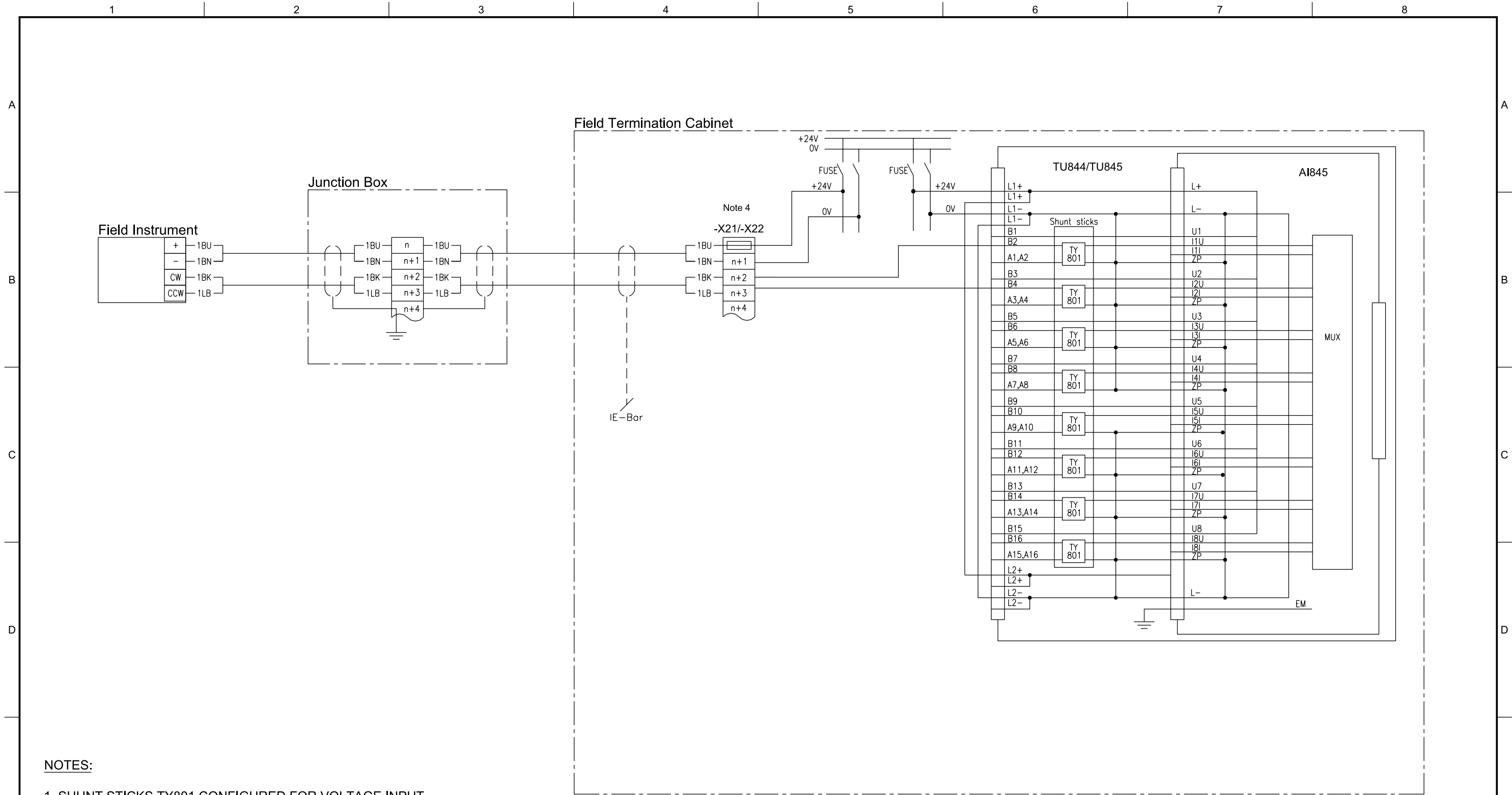
NOTES :

1. VAL ID FOR REDUNDANT CONF IGURAT ION
2. IO CARD, AND P&S KFD2 STC4 POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
3. SHUNT STICKS TY801 CONF IGURED FOR CURRENT INPUT
4. P&S KFD2 STC4 CONF IGURED FOR 4-20mA SINK MODE
5. ONLY FOR USE IN CABINET 43JF071.

Based on: <b>ABB MANUAL</b>		Prepared <b>THKI</b>	Checked <b>RAGR</b>	Analog Input, 4-20mA, 3 Wire, Powered from SAS System, IS	Doc.ref. <b>Draft</b>		
		Date <b>2015-05-04</b>	Approved <b>AUJO</b>				
Revision		Project <b>AASTA HANSTEEN HARDWARE SOLUTION AI845_106I_AH</b>			Doc. Owner.	Rev.ind. <b>01</b>	Language <b>EN</b>
	<b>01</b>	<b>ISSUED FOR APPROVAL</b>	<b>2015-05-04</b>	<b>AUJO</b>	Doc.no. <b>P027288-TEC-0040</b>		Sheet <b>1</b>
Ind.	Description	Date	App.			Next sheet <b>-</b>	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



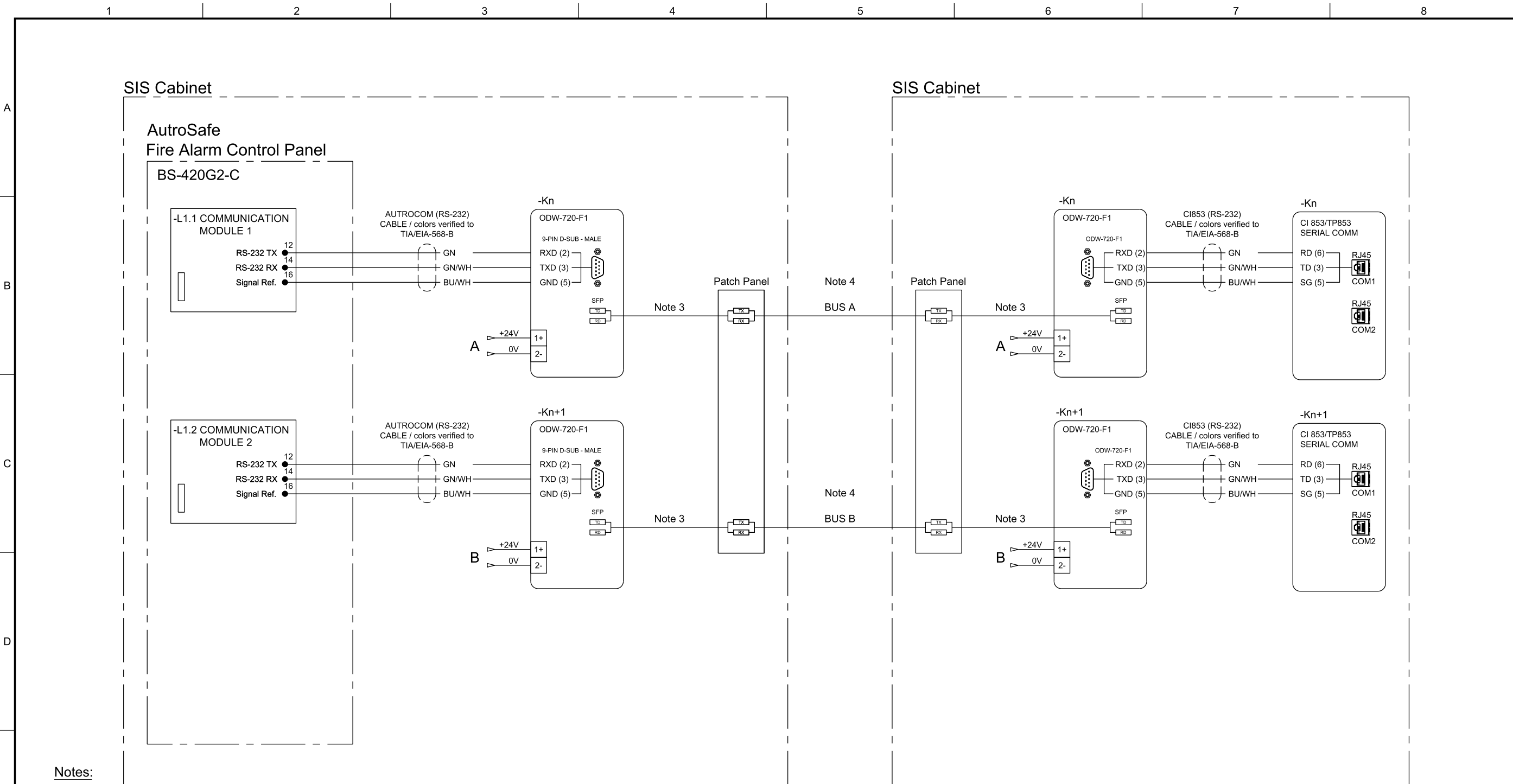
**NOTES:**

1. SHUNT STICKS TY801 CONFIGURED FOR VOLTAGE INPUT
2. VALID FOR REDUNDANT CONFIGURATION.
3. IO CARD AND FIELD INSTRUMENT POWERED FROM SAME SOURCE BUT WITH SEPARATE MCB ON +24V.
4. FUSE TERMINAL 1.5A SHOWN AS EXEMPLE IS CONSISTING OF:
  - TERMINAL PHOENIX UT 4 TG-P/P (3D46138)
  - FUSE HOLDER PHOENIX P-FU 5X20 LED 24 (3D36819)
  - FUSE. 1.5A (FAST GLASS TUBE 5x20mm)

Based on: ABB MANUAL		Prepared THKI	Checked AUJO	Analog Input, 0-5V, 4 wire Powered from SAS System, Non IS		Doc.ref.C134-FS-200001-XK-0001	
		Date 2015-03-25	Approved ARIV			Doc. Owner.	Rev.ind. 01
		Title AASTA HANSTEN HARDWARE SOLUTIONS AI845_401_AH				Language EN	Sheet 1
Revision						Doc.no. P027288-TEC-0041	Next sheet -
01	APPROVED	2015-03-25	ARIV				
Ind.	Description	Date	App.				



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



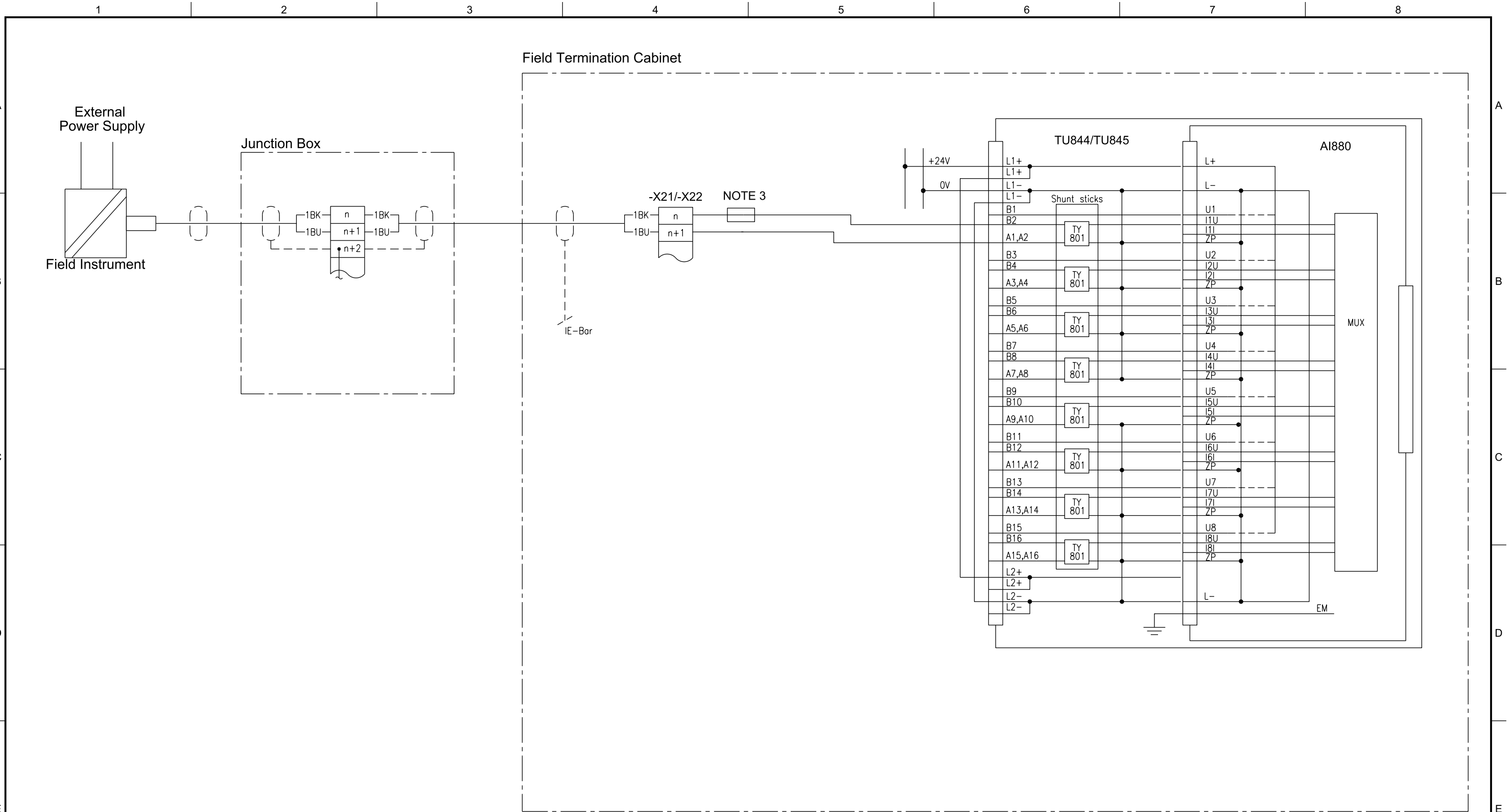
**Notes:**

1. Fiber optical communication between AC 800M and AutoSafe when transmission distances are longer than 10m. To be used with typicals 3AJG000407-155 and 3AJG000407-156.
2. Westermo ODW-720-F1 fiber optic converter art.no.6651-2221.
3. This SFP is Single mode 1310nm (9/125) for up to 20km range. Art.no. 1100-0132 SLC20. For higher specification refer Westermo product range.
4. Fiberoptic patch panel type, connectors and bus A/B cables to be specified by project.
5. Based on AutoSafe intergration in 800xA manual - 3BNP100158D0028 Rev.E.
6. 24V DC power A and B from redundant source, ref. Power Distribution Principle 3AJG000407-189.

**Loop Description:**  
 AutoSafe to AC 800M Communication with Fiber Optical Interface

Based on: ABB MANUAL		Prepared THKI	Checked AUJO	Autosafe communication, single mode FO		Doc.ref. C134-FS-200001-XK-0001	
		Date 2015-09-01	Approved ARIV			Doc. Owner.	Rev.ind. 01
		Project AASTA HANSTEEN HARDWARE SOLUTION AUTRONICA_103_AH		<b>ABB</b>		Language EN	Sheet 1
Revision	01 APPROVED	Date 2015-09-01	App. ARIV			Doc.no. P027288-TEC-0042	Next sheet -

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

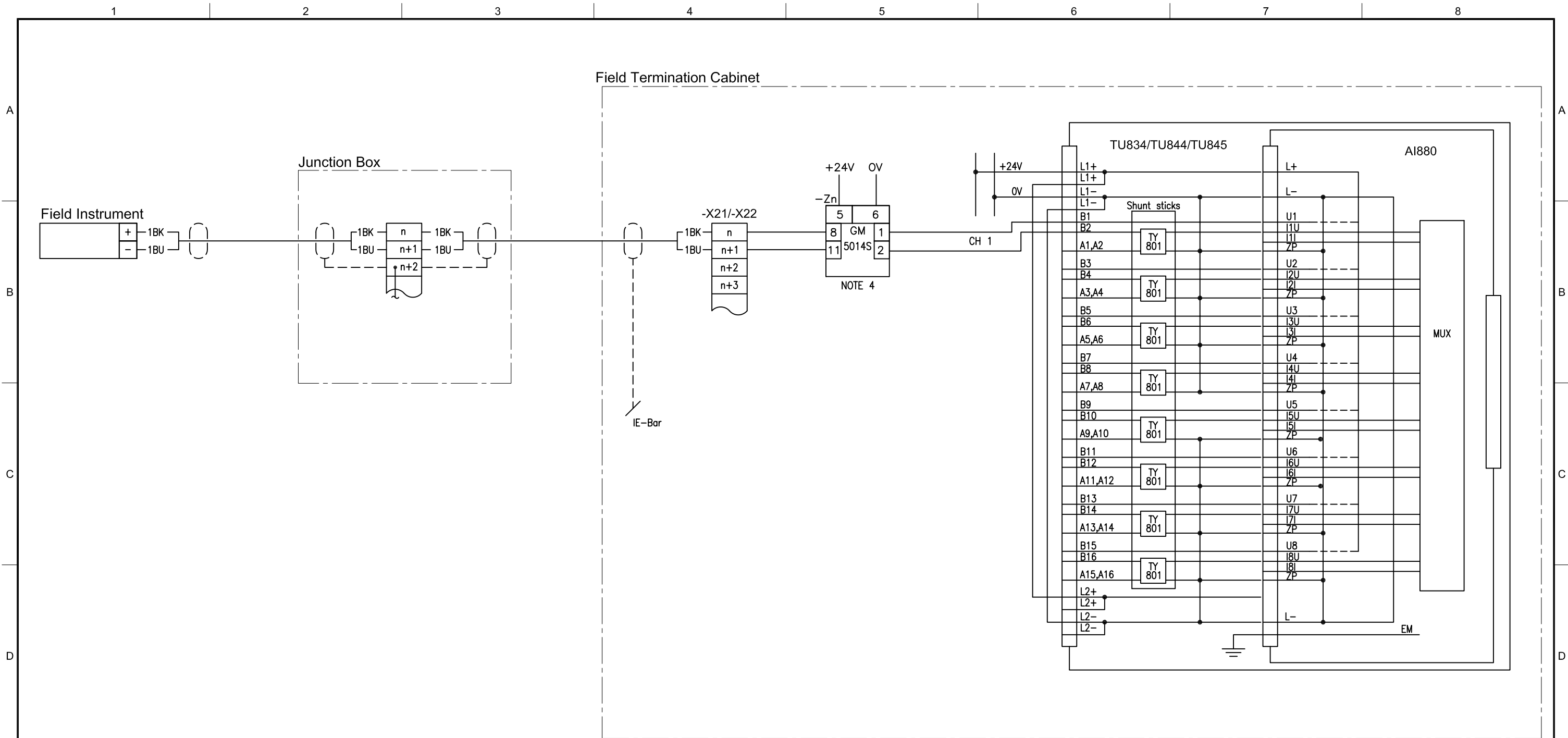


**NOTES:**

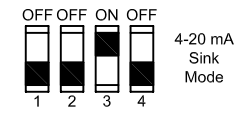
1. SHUNT STICKS TY801 CONF IGURED FOR CURRENT INPUT
2. REDUNDANT CONF IGURAT ION
3. SIGNAL FUSE 40mA - 100mA

Based on: <b>ABB MANUAL</b>		Prepared <b>JAHA</b>	Checked <b>AUJO</b>	Analog Input, 4-20mA, 4 Wire, SIL 1-2 Powered from External System, Non IS	Doc.ref. <b>C134-FS-200001-XK-0001</b>	
		Date <b>2017-02-21</b>	Approved <b>ARIV</b>		Doc. Owner.	Rev.ind. <b>01</b>
Revision	<b>01</b>	<b>APPROVED</b>	<b>2017-02-21</b>	<b>ARIV</b>	<b>ABB</b> Doc.no. <b>P027288-TEC-0047</b>	
	Ind.	Description	Date	App.		
		Project <b>AASTA HANSTEEN HARDWARE SOLUTION AI880_203_AH</b>				Next sheet <b>-</b>

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

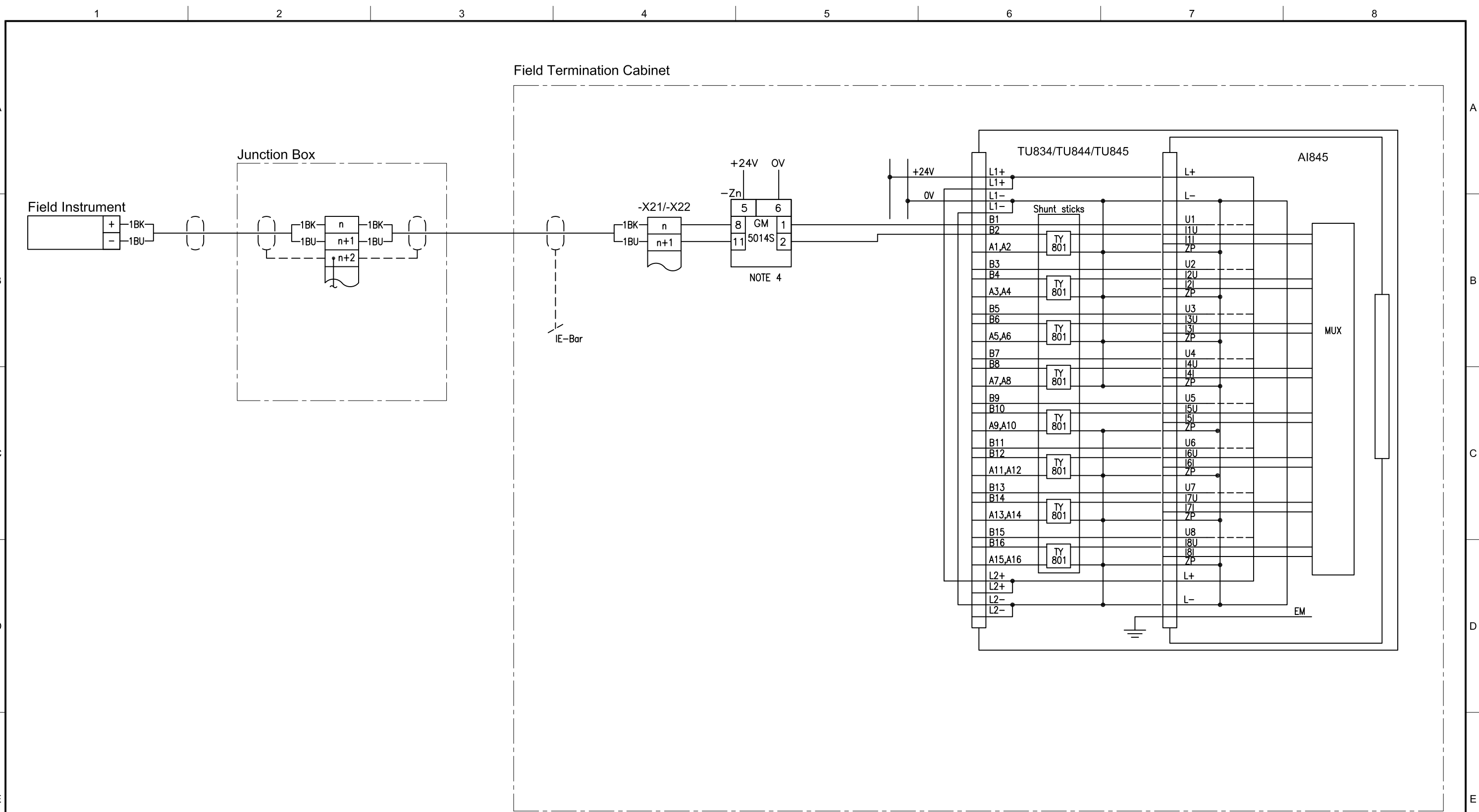


- NOTES:
1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION
  2. IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
  3. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
  4. GM 5014S TO BE CONFIGURED FOR 4-20mA SINK MODE WITH INTERNAL DIP SWITCHES:

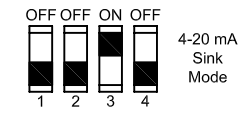


Based on: ABB MANUAL		Prepared AUJO	Checked STLE	Analog Input, 4-20mA, 4 Wire, HART, Powered from external System, IS SIL 1-3	Doc.ref. C134-FS-200001-XK-0001	
		Date 2017-04-19	Approved ARIV		Doc. Owner.	Rev.ind. 01
Revision		Project AASTA HANSTEEN HARDWARE SOLUTION AI880_105I_AH			Doc.no. P027288-TEC-0048	Sheet 1
01	APPROVED	2017-04-19	ARIV		Next sheet -	
Ind.	Description	Date	App.			

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



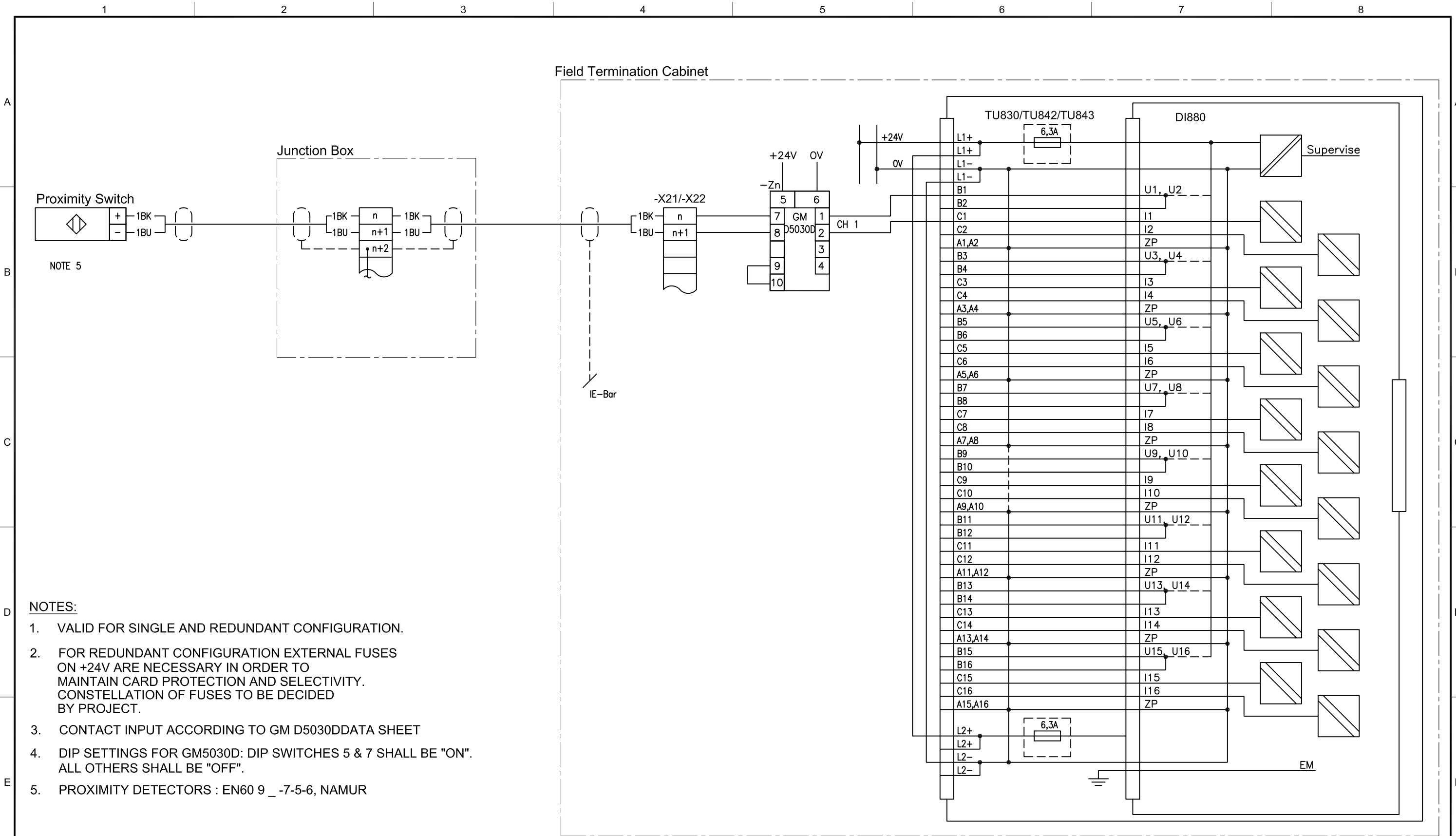
- NOTES:
1. VALID FOR REDUNDANT CONFIGURATION
  2. IO CARD AND GM 5014S POWERED FROM SAME SOURCE BUT WITH SEPARATE FUSES ON +24V
  3. SHUNT STICKS TY801 CONFIGURED FOR CURRENT INPUT
  4. GM 5014S TO BE CONFIGURED FOR 4-20mA SINK MODE WITH INTERNAL DIP SWITCHES:



Based on: ABB MANUAL		Prepared AUJO	Checked JOHA	Analog Input, 4-20mA, 4 Wire, HART, Powered from external System, IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2017-04-19	Approved ARIV			Doc. Owner.	
		Project AASTA HANSTEEN HARDWARE SOLUTION AI845_103I_AH				Rev.ind. 01	
Revision						Language EN	
01	APPROVED	2017-04-19	ARIV			Sheet 1	
Ind.	Description	Date	App.			Next sheet -	
						Doc.no. P027288-TEC-0049	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

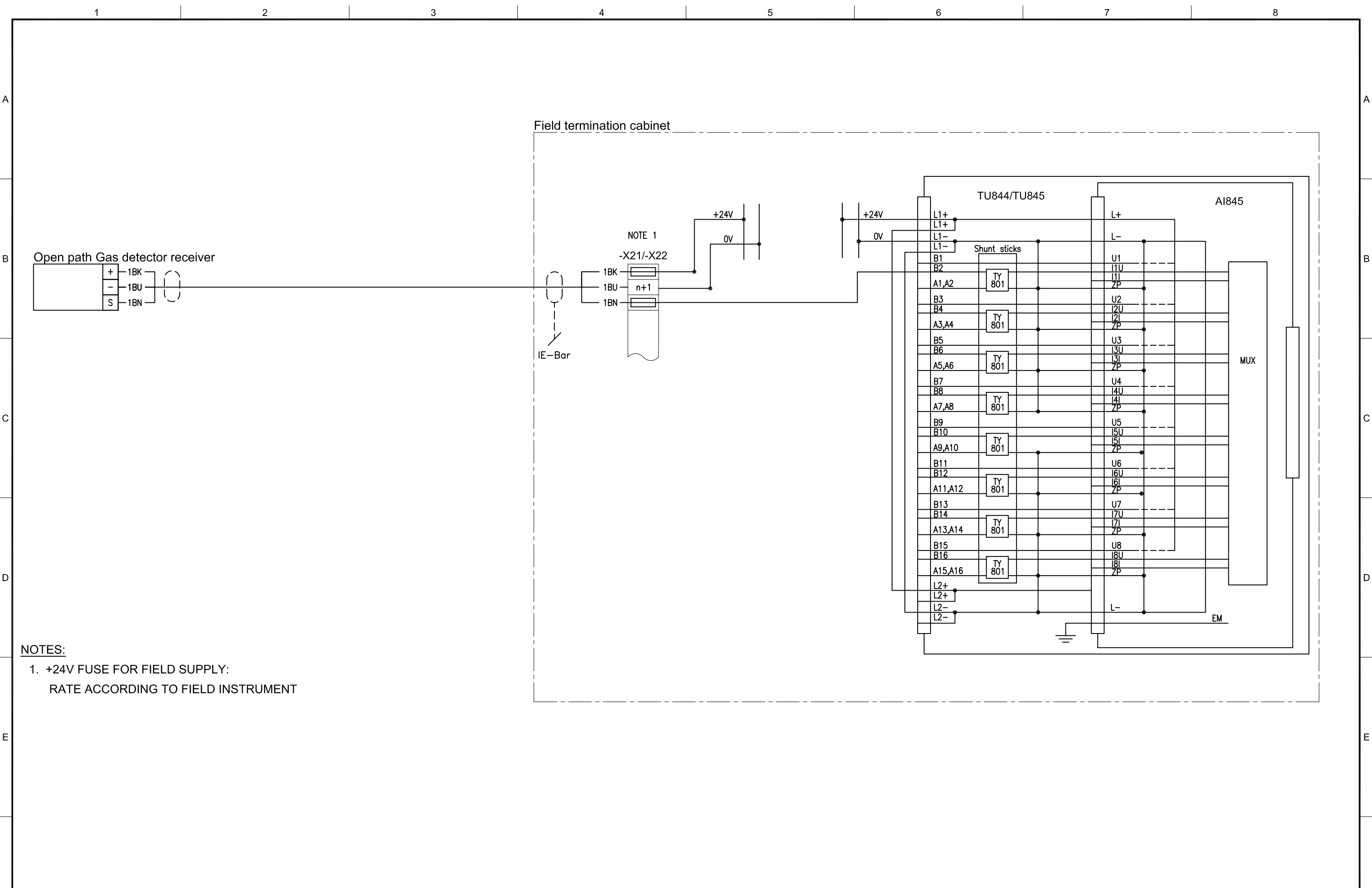


**NOTES:**

1. VALID FOR SINGLE AND REDUNDANT CONFIGURATION.
2. FOR REDUNDANT CONFIGURATION EXTERNAL FUSES ON +24V ARE NECESSARY IN ORDER TO MAINTAIN CARD PROTECTION AND SELECTIVITY. CONSTELLATION OF FUSES TO BE DECIDED BY PROJECT.
3. CONTACT INPUT ACCORDING TO GM D5030DDATA SHEET
4. DIP SETTINGS FOR GM5030D: DIP SWITCHES 5 & 7 SHALL BE "ON". ALL OTHERS SHALL BE "OFF".
5. PROXIMITY DETECTORS : EN60 9 \_ -7-5-6, NAMUR

Based on: ABB MANUAL		Prepared AUJO	Checked JOHA	Digital Input, 24V DC, 2 wire NAMUR Proximity Switches or Potential free contact, SOE SIL 1-2, Powered from SAS System, IS	Doc.ref. C134-FS-200001-XK-0001
		Date 2017-04-25	Approved ARIV		
Revision	01	APPROVED	2017-04-25	ARIV	Doc. Owner.
	Ind.	Description	Date	App.	
				Project AASTA HANSTEEN HARDWARE SOLUTION DI880_1061_AH	Doc.no. P027288-TEC-0050
					Sheet 1
					Next sheet -

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.



Field termination cabinet

NOTE 1

-X21/-X22

IE-Bar

TU844/TU845

AI845

Shunt sticks

MUX

EM

**NOTES:**


- +24V FUSE FOR FIELD SUPPLY:  
RATE ACCORDING TO FIELD INSTRUMENT

Based on: ABB MANUAL		Prepared AUJO	Checked RAGR	Analog Input, 4-20mA, 3 wire, HART, Powered from SAS, Non IS		Doc.ref. C134-FS-200001-XK-0001	
		Date 2017-05-02	Approved ARIV			Doc. Owner.	Rev.ind. 02
Revision		Title				Language	EN
01	APPROVED	2017-05-02	ARIV			Sheet	1
Ind.	Description	Date	App.	Doc.no. P027288-TEC-0051		Next sheet	-


© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

SHEET DESCRIPTION	DOCUMENT TYPE	SHEET
FRONT PAGE / LIST OF CONTENTS	WIRING DIAGRAM AND PARTS LIST	1
PUSH-BUTTON S11, BLACK	WIRING DIAGRAM AND PARTS LIST	2
PUSH-BUTTON S12, WHITE	WIRING DIAGRAM AND PARTS LIST	3
PUSH-BUTTON S14, RED	WIRING DIAGRAM AND PARTS LIST	4
PUSH-BUTTON S15, GREEN	WIRING DIAGRAM AND PARTS LIST	5
BUZZER P1, ALARM SOUNDER	WIRING DIAGRAM AND PARTS LIST	6
DIGITAL DISPLAY P2, 4..20mA	WIRING DIAGRAM AND PARTS LIST	7
DIGITAL TIMER P3, 30 min.	WIRING DIAGRAM AND PARTS LIST	8
DIGITAL TIMER P4, CONFIGURABLE	WIRING DIAGRAM AND PARTS LIST	9
SELECTOR SWITCH S16, 2 POS.	WIRING DIAGRAM AND PARTS LIST	11
INDICATORS P20-P22, LED LAMP	WIRING DIAGRAM AND PARTS LIST	12
INDICATORS P6, P7, P8, P15, 1 LED	WIRING DIAGRAM AND PARTS LIST	13
PUSH-BUTTON S17, BLUE	WIRING DIAGRAM AND PARTS LIST	26

Notes/Legend:

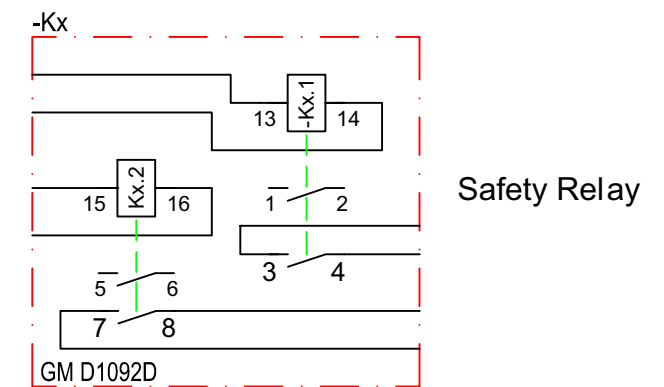
 Actuator, Maintained Action, Protective Cover


 Lamp, LED

 Actuator, Momentary Action

 LED

 Resistor




 Protective Cover (Layout symbol)

Project/Package Title PROJECT SOLUTIONS						Drawing Title WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) List of Contents and Notes/Legend				Tag no. -				Doc. Ref. -				
-						-				Doc. Owner PAOG		Area -	System -	Format DWG	Dwg Size A3	Language en	Scale N/A	Rev -
- For Aasta Hansteen project		2017-03-28	PEK2	RAGR	ARIV	-				Doc. no. 3AJG000407-0254				Sheet 01				
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.	-				Next sh. 02								



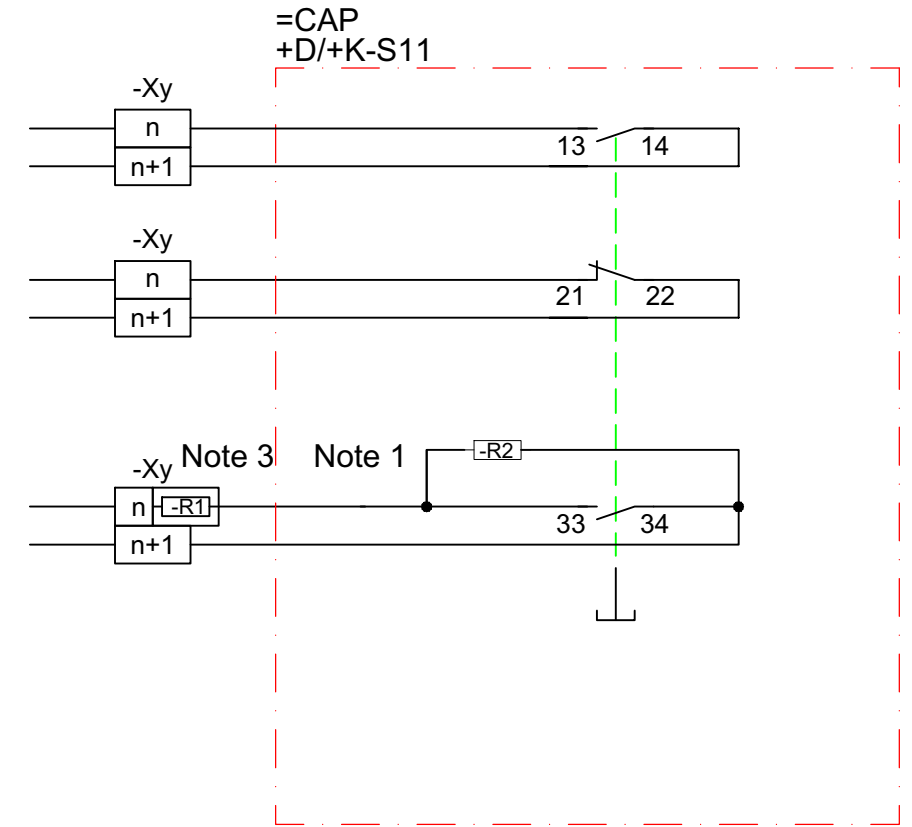
© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-S11-BK	 PUSH-BUTTON MOMENTARY ACTION	ACKNOWLEDGE, LAMP TEST, SILENCE, TIMER RESET	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
PUSH-BUTTON	ACTUATOR/61-1150.0 <sup>4)</sup>	KONTRAM	EAO
SWITCH BLOCK	1NC+2NO/61-8490.22	KONTRAM	EAO
LENS	BLACK/61-9351.1	KONTRAM	EAO
ADAPTER	SWISSTAC/400.800.160	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
COMP. CONNECTOR <sup>3)</sup>	P-CO/3036796	PHOENIX	PHOENIX
RESISTOR -R1 <sup>1)</sup>	1.5k 1W/60-599-02	ELFA	VISHAY
RESISTOR -R2 <sup>1)</sup>	8.2k 1W/60-599-20	ELFA	VISHAY

To DI  
Ref. typical: DI880\_001  
Doc: 3AJG000407-131


To e.g. electrical equipment  
Note 2

To AI  
Ref. typical: AI880\_016  
Doc: 3AJG000407-137  
Note 1




**NOTES:**  
For alternatives used in the project ref. cross wiring doc. and specifications.

- When using other input unit than AI880, e.g. DI880, resistors R1/R2 are omitted
- Options: NO or NC contact depending on application.
- Component connector for R1
- Actuator model 61-1350 is convertible from momentary to maintained action only, not maintained to momentary. Can replace model 61-1150 (momentary) and 61-1250 (maintained)
- Adapter for flush mounting of raised type push-buttons.

						Project/Package Title <b>PROJECT SOLUTIONS</b>		Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Push-button S11, Black</b>				Tag no. -		Doc. Ref. -					
												Doc. Owner <b>PAOG</b>	Area -	System -	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>en</b>	Scale <b>N/A</b>	Rev <b>-</b>
												Doc. no. <b>3AJG000407-0254</b>				Sheet <b>02</b>	Next sh. <b>03</b>		
Rev.	Description		Issue Date	Prep. by	Chk'd. by	Proj. appr.													



© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-S12-WH	 PUSH BUTTON MOMENTARY ACTION	INITIATE, START, ABORT	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
PUSH-BUTTON	ACTUATOR/61-1350.0 <sup>5)</sup>	KONTRAM	EAO
SWITCH BLOCK	1NC+2NO/61-8490.22	KONTRAM	EAO
LENS	WHITE/61-9351.7	KONTRAM	EAO
LED	WHITE/10-2J12.1069	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
ADAPTER <sup>6)</sup>	SWISSTAC/400.800.160	KONTRAM	EAO
COMP. CONNECTOR <sup>3)</sup>	P-CO/3036796	PHOENIX	PHOENIX
RESISTOR -R1 <sup>1)</sup>	1.5k 1W/60-599-02	ELFA	VISHAY
RESISTOR -R2 <sup>1)</sup>	8.2k 1W/60-599-20	ELFA	VISHAY
RESISTOR -R3 <sup>4)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

**NOTES:**  
 For alternatives used in the project ref. cross wiring doc. and specifications.

- When using other input unit than AI880, e.g. DI880, resistors R1/R2 are not required
- Options: NO or NC contact depending on application.
- Component connector for resistor R1 located on terminal block
- When using DO units other than DO880, e.g. DO810 resistor R3 is not required.
- Actuator model 61-1350 is convertible from momentary to maintained action only, not maintained to momentary. Can replace model 61-1150 (momentary) and 61-1250 (maintained)
- Adapter for flush mounting of raised type push-buttons.

To e.g. electrical equipment

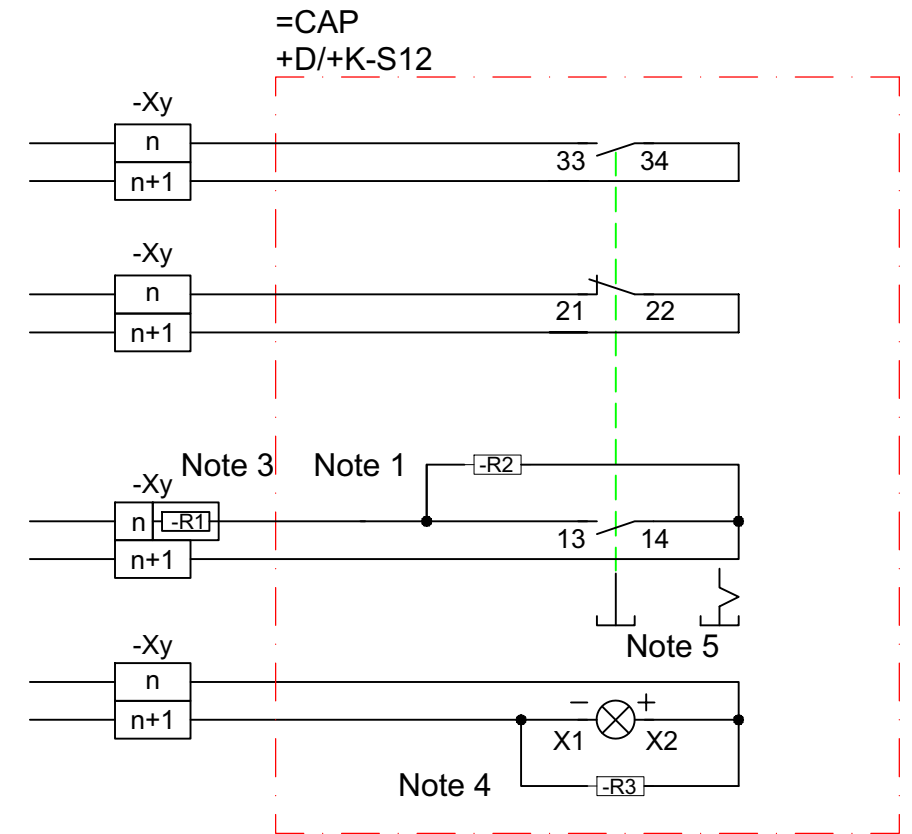
Note 2

To AI

Ref. typical: AI880\_016  
 Doc: 3AJG000407-137

From DO


Ref. typical: DO880\_003  
 Doc: 3AJG000407-149



						Project/Package Title		Drawing Title				Tag no.		Doc. Ref.			
						PROJECT SOLUTIONS		WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP)				-		-			
								Push-button S12, White		Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev
- For Aasta Hansteen project										2017-03-28	PEK2	RAGR	ARIV	PA OG	-	-	DWG
Rev.	Description					Issue Date	Prep. by	Chk'd. by	Proj. appr.	Doc. no.						Sheet	Rev
										3AJG000407-0254						03	
																Next sh.	04



© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-S15-GN	 ILLUMINATED (LED) PUSH-BUTTON MOMENTARY ACTION	START PUMPS	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
PUSH-BUTTON	ACTUATOR/61-1150.0 <sup>5)</sup>	KONTRAM	EAO
SWITCH BLOCK	1NC+2NO/61-8490.22	KONTRAM	EAO
LENS	GREEN/61-9351.5	KONTRAM	EAO
LED	GREEN/10-2J12.1065	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
ADAPTER <sup>6)</sup>	SWISSTAC/400.800.160	KONTRAM	EAO
COMP. CONNECTOR <sup>3)</sup>	P-CO/3036796	PHOENIX	PHOENIX
RESISTOR -R1 <sup>1)</sup>	1.5k 1W/60-599-02	ELFA	VISHAY
RESISTOR -R2 <sup>1)</sup>	8.2k 1W/60-599-20	ELFA	VISHAY
RESISTOR -R3 <sup>4)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

**NOTES:**  
 For alternatives used in the project, ref. cross wiring doc. and specifications.

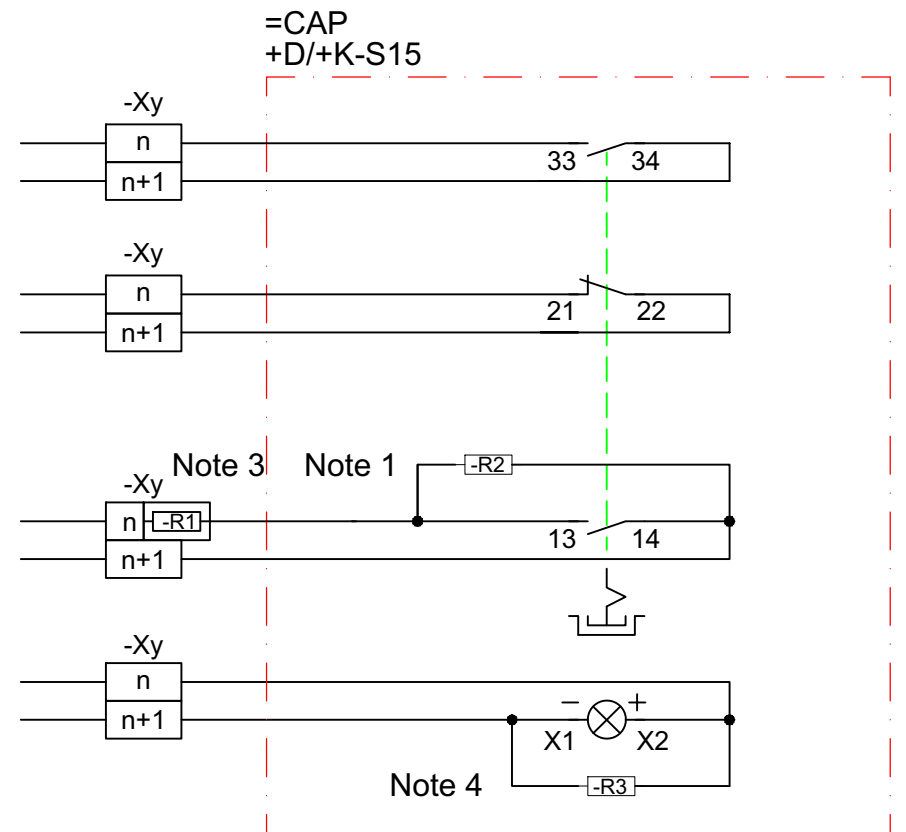
- When using other input unit than AI880, e.g. DI880, resistors R1/R2 are omitted
- Options: NO or NC contact depending on application..
- Component connector for resistor R1 attached to terminal block
- When using DO units other than DO880, e.g. DO810 resistor R3 is not required.
- Actuator model 61-1350 is convertible from momentary to maintained action only, not maintained to momentary. Can replace model 61-1150 (momentary) and 61-1250 (maintained)
- Adapter for flush mounting of raised type push-buttons.


To e.g. electrical equipment

Note 2  
 To e.g. FWP Start, independent of logic solver.


To AI  
 Ref. typical: AI880\_016  
 Doc: 3AJG000407-137

From DO  
 Ref. typical: DO880\_003  
 Doc:3AJG000407-149



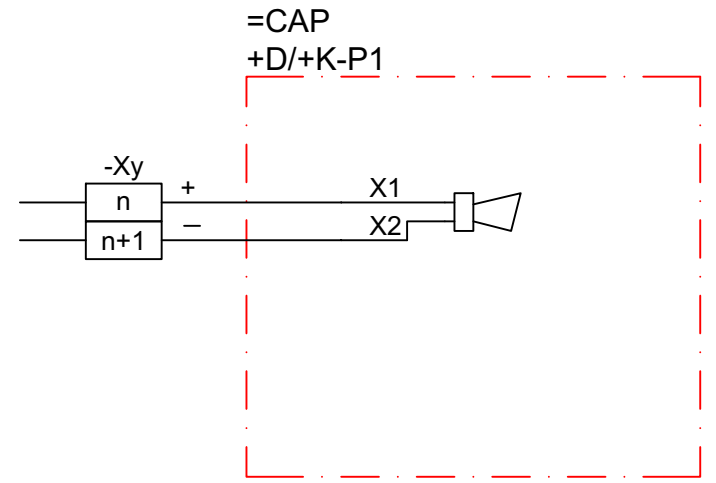
Project/Package Title <b>PROJECT SOLUTIONS</b>						Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Push-button S15, Green</b>			Tag no. -		Doc. Ref. -			
						Doc. Owner <b>PAOG</b>		Area -	System -	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>en</b>	Scale <b>N/A</b>	Rev -
						Doc. no. <b>3AJG000407-0254</b>								
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.									

© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION
CAP-P01-BZ	 BUZZER	ALARM SOUNDER

TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
BUZZER	ACTUATOR/970-.000-K0	KONTRAM	EAO
BUZZER ELEMENT	24V BLACK/970-0024-00	KONTRAM	EAO
FRONT BEZEL	BLACK/200-0000-00	KONTRAM	EAO

From DO  
 Ref. Typical DO880\_003  
 Doc: 3AJG000407-149



NOTES:

						Project/Package Title		Drawing Title				Tag no.		Doc. Ref.					
						PROJECT SOLUTIONS		WIRING DIAGRAM AND PARTS LIST				-		-					
								Critical Action Panel (CAP)				Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev
								Buzzer P1, Alarm Sounder				PAOG	-	-	DWG	A3	en	N/A	-
												Doc. no.				Sheet	06		
												3AJG000407-0254				Next sh.	07		

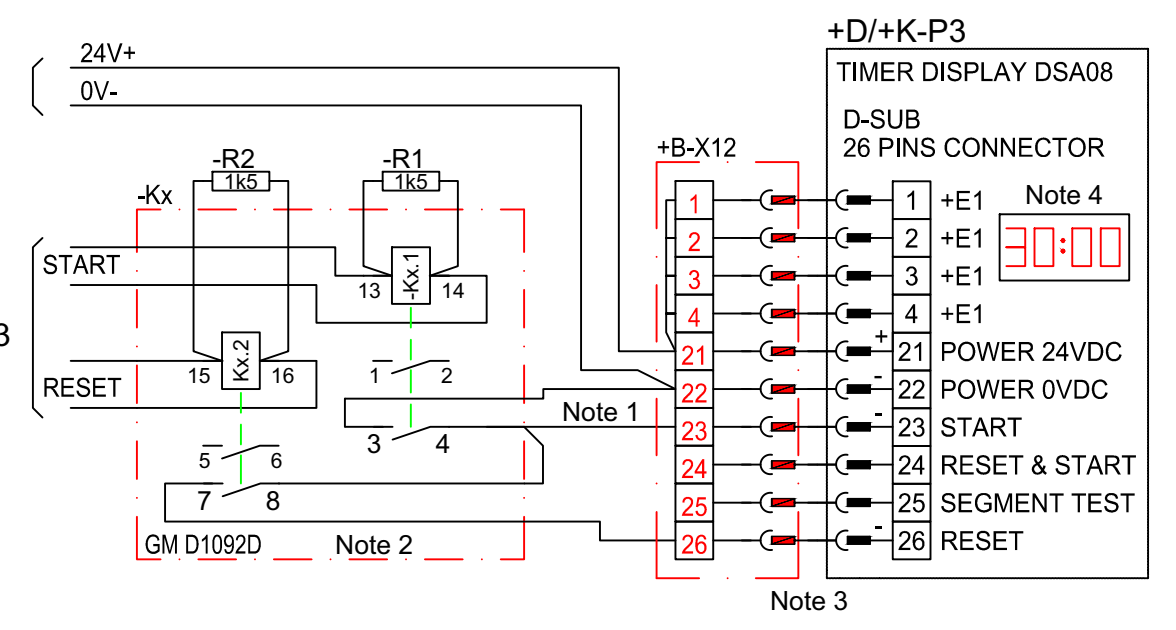




© Copyright 2016 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P3-DT	<div style="border: 1px solid black; padding: 2px; display: inline-block; color: red; font-weight: bold;">30:00</div> TIMER DISPLAY, FIXED TIME 30 min.	APS TIMER	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
TIMER	DIGITAL/DSA08-NZ40/B1R-02	KONTRAM	GEBH.&SCHÄFER
RESISTOR -R1, -R2	1.5k 1W/60-599-02	ELFA	VISHAY
INTERFACE MODULE <sup>3)</sup>	VIP-3/PT/HD26SUB/F-2904273	PHOENIX	PHOENIX
RELAY	GM/D1092D	TORMATIC	G.M.I

From power supply  
From DO  
Ref. typical: DO880\_003  
Doc: 3AJG000407-149




NOTES:

- 0V signal must be common with power supply
- SIL3 contacts: 1-2,5-6 for NE signals, 3-4,7-8 for NDE signals. If SIL contacts are occupied by other functions Non-SIL contacts can be used for indicator/display. Principle for relay only. Refer to data sheet for internal details.
- Cable with DA26 plugs, one male and one female plug, is required for connection between interface module and timer display.
- Count down time is factory set to 30 min. Not programmable by user

Project/Package Title <b>PROJECT SOLUTIONS</b>				Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Digital Timer P3, Fixed time: 30 min.</b>				Tag no. -				Doc. Ref. -			
- For Aasta Hansteen project		2017-03-28	PEK2	RAGR	ARIV	Doc. Owner PAOG		Area -	System -	Format DWG	Dwg Size A3	Language en	Scale N/A	Rev -	
Rev.	Description	Issue Date	Prep. by	Chk'd. by	Proj. appr.	Doc. no. <b>3AJG000407-0254</b>							Sheet 08	Next sh. 11	



© Copyright 2016 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-S16-SW	 SELECTOR SWITCH 2 POS. MAINTAINED ACTION	MAINTENANCE OVERRIDE, DUTY/STANDBY	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
ACTUATOR	2 POS, 90deg./61-4210.0	KONTRAM	EAO
LEVER	BLACK/61-9028.0	KONTRAM	EAO
SWITCH BLOCK	1NC+2NO/61-8490.22	KONTRAM	EAO
ADAPTER <sup>5)</sup>	SWISSTAC/400.800.160	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
COMP. CONNECTOR <sup>3)</sup>	P-CO/3036796	PHOENIX	PHOENIX
RESISTOR -R1 <sup>1)</sup>	1.5k 1W/60-599-02	ELFA	VISHAY
RESISTOR -R2 <sup>1)</sup>	8.2k 1W/60-599-20	ELFA	VISHAY

**NOTES:**  
 For alternatives used in the project, ref. cross wiring doc. and specifications.

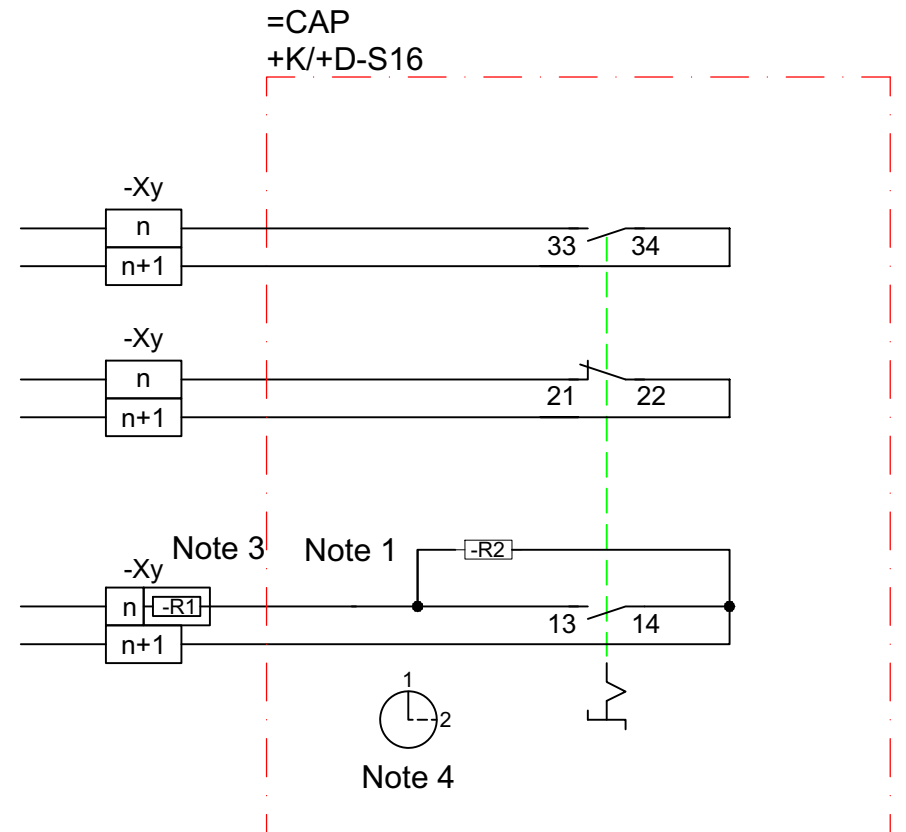
- When using other input unit than AI880, e.g. DI880, resistors R1/R2 are omitted
- Options: NO or NC contact depending on application..
- Component connector for resistor R1 attached to terminal block
- Lever can be installed rotated 45° or 90°. Ref. matrix layout. Contacts are shown with selector switch in pos. 1.
- Adapter for flush mounting of raised type push-buttons.


To e.g. electrical equipment

Note 2

To AI  
 Ref. typical: AI880\_016  
 Doc: 3AJG000407-137


Note 1




						Project/Package Title <b>PROJECT SOLUTIONS</b>		Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Selector Switch S16, 2 Positions</b>		Tag no. -		Doc. Ref. -					
										Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev
										PAOG	-	-	DWG	A3	en	N/A	-
										Doc. no. <b>3AJG000407-0254</b>						Sheet	11
																Next sh.	12



© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

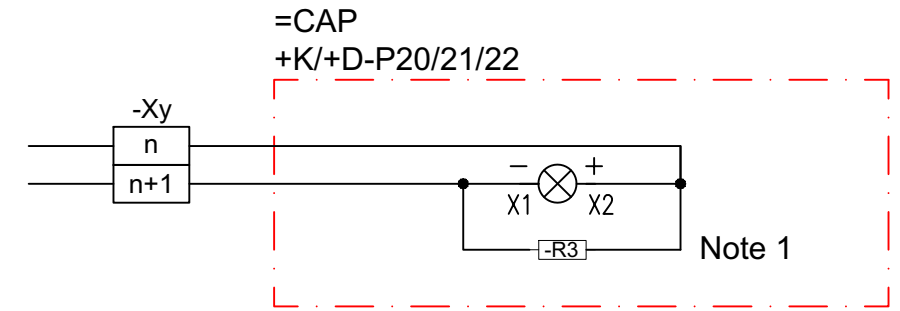
TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P20-RD	 ILLUMINATED INDICATOR, RED	ALARM, FIRE	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
INDICATOR	PLUG IN/61-0050.02	KONTRAM	EAO
LENS	RED/61-9351.2	KONTRAM	EAO
LED LAMP	RED/10-2J12.1062	KONTRAM	EAO
ADAPTER	SWISSTAC/400.800.160	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY


TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P21-BU	 ILLUMINATED INDICATOR, BLUE	OVERRIDE	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
INDICATOR	PLUG IN/61-0050.02	KONTRAM	EAO
LENS	BLUE/61-9351.6	KONTRAM	EAO
LED LAMP	BLUE/10-2J12.1066	KONTRAM	EAO
ADAPTER	SWISSTAC/400.800.160	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY


**NOTES:**

1. When using other units than DO880, e.g. DO810 resistor R3 is omitted. Ref. cross wiring doc. and spec. for the project.

From DO  
 Ref. typical: DO880\_003  
 Doc: 3AJG000407-149  
 Note 1



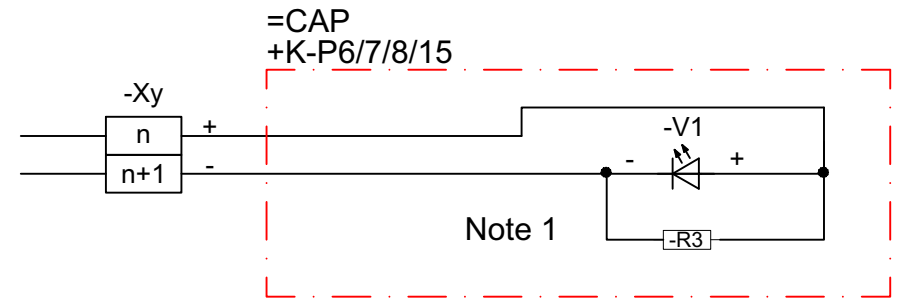
TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P22-GN	 ILLUMINATED INDICATOR, GREEN	SELECTED	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
INDICATOR	PLUG IN/61-0050.02	KONTRAM	EAO
LENS	GREEN/61-9351.5	KONTRAM	EAO
LED LAMP	GREEN/10-2J12.1065	KONTRAM	EAO
ADAPTER	SWISSTAC/400.800.160	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

					Project/Package Title <b>PROJECT SOLUTIONS</b>		Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Indicators P20-P22, LED lamps</b>		Tag no. -		Doc. Ref. -					
									Doc. Owner <b>PAOG</b>	Area -	System -	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>en</b>	Scale <b>N/A</b>	Rev -
									Doc. no. <b>3AJG000407-0254</b>						Sheet <b>12</b>	Next sh. <b>13</b>
Rev.	Description		Issue Date	Prep. by	Chk'd. by	Proj. appr.										



© Copyright 2017 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

From DO  
 Ref. typical: DO880\_003  
 Doc: 3AJG000407-149  
 Note 2



TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P6-RD	LED INDICATOR, RED	FIRE	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
LED	RED/17-020350	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P8-YE	LED INDICATOR, YELLOW	GAS	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
LED	YELLOW/17-020352	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

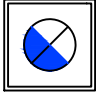
TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P7-GN	LED INDICATOR, GREEN	SELECTED	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
LED	GREEN/17-020351	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-P15-BU	LED INDICATOR, BLUE	OVERRIDE	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
LED	BLUE/17-020357	KONTRAM	EAO
RESISTOR -R3 <sup>1)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

NOTES:  
 1. When using other units than DO880, e.g. DO810 resistor R3 is omitted.  
 Ref. cross wiring doc. and spec. for the project.

Project/Package Title <b>PROJECT SOLUTIONS</b>					Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Indicators P6, P7,P8, P15, 1 LED</b>			Tag no. -		Doc. Ref. -							
								Doc. Owner	Area	System	Format	Dwg Size	Language	Scale	Rev		
								PAOG	-	-	DWG	A3	en	N/A	-		
Rev.					Description					Issue Date		Prep. by		Chk'd. by		Proj. appr.	
-					For Aasta Hansteen project					2017-03-28		PEK2		RAGR		ARIV	
														Sheet 13		Next sh. 26	
														3AJG000407-0254			

© Copyright 2016 ABB. All rights reserved. Reproduction, use or disclosure to third parties without prior express authority is strictly forbidden.

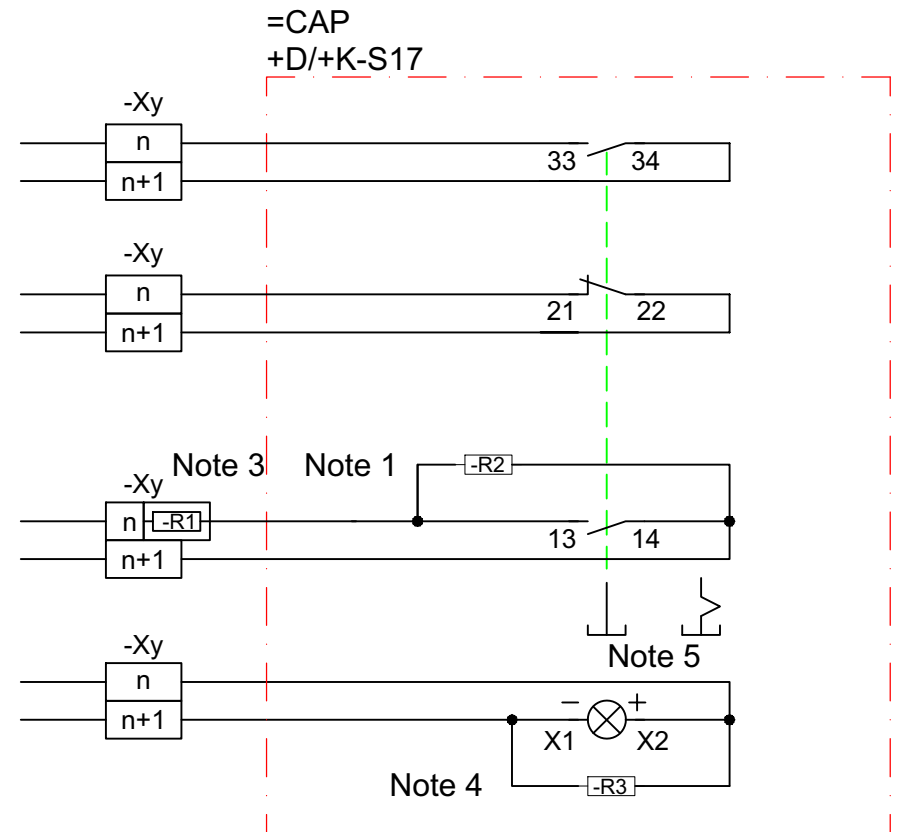
TYPICAL	LEGEND/TYPE	TYPICAL FUNCTION	
CAP-S17-BU	 ILLUMINATED (LED) PUSH-BUTTON MAINTAINED ACTION	FIRE FIGHTING	
TECHNICAL SPECIFICATION			
ARTICLE	MODEL/PART NO.	SUPPLIER	MANUFACTURER
PUSH-BUTTON	ACTUATOR/61-1350.0 <sup>5)</sup>	KONTRAM	EAO
SWITCH BLOCK	1NC+2NO/61-8490.22	KONTRAM	EAO
LENS	BLUE/61-9351.6	KONTRAM	EAO
LED	BLUE/10-2J12.1066	KONTRAM	EAO
MULTI-PLUG HOUSE	6 Connections/61-9830	KONTRAM	EAO
ADAPTER <sup>6)</sup>	SWISSTAC/400.800.160	KONTRAM	EAO
COMP. CONNECTOR <sup>3)</sup>	P-CO/3036796	PHOENIX	PHOENIX
RESISTOR -R1 <sup>1)</sup>	1.5k 1W/60-599-02	ELFA	VISHAY
RESISTOR -R2 <sup>1)</sup>	8.2k 1W/60-599-20	ELFA	VISHAY
RESISTOR -R3 <sup>4)</sup>	1.5k 2W/60-795-11	ELFA	VISHAY

To Electrical Equipment  
e.g. MCC or Valve

Note 2

To AI  
Ref. typical: AI880\_016  
Doc:3AJG000407-137

From DO  
Ref. typical: DO880\_003  
Doc:3AJG000407-149



- NOTES:**  
For alternatives used in the project, ref. cross wiring doc. and specifications.
- When using other input unit than AI880, e.g. DI880, resistors R1/R2 are omitted
  - Options: NO or NC contact depending on application..
  - Component connector for resistor R1 attached to terminal block
  - When using DO units other than DO880, e.g. DO810 resistor R3 is not required.
  - Actuator model 61-1350 is convertible from momentary to maintained action only, not maintained to momentary. Can replace model 61-1150.0 (momentary) and 61-1250.0 (maintained)
  - Adapter for flush mounting of raised type push-buttons.

Project/Package Title <b>PROJECT SOLUTIONS</b>						Drawing Title <b>WIRING DIAGRAM AND PARTS LIST Critical Action Panel (CAP) Push-button S17, Blue</b>			Tag no. -		Doc. Ref. -			
						Doc. Owner <b>PAOG</b>		Area -	System -	Format <b>DWG</b>	Dwg Size <b>A3</b>	Language <b>en</b>	Scale <b>N/A</b>	Rev -
						Doc. no. <b>3AJG000407-0254</b>								
Rev.	Description		Issue Date	Prep. by	Chk'd. by	Proj. appr.								