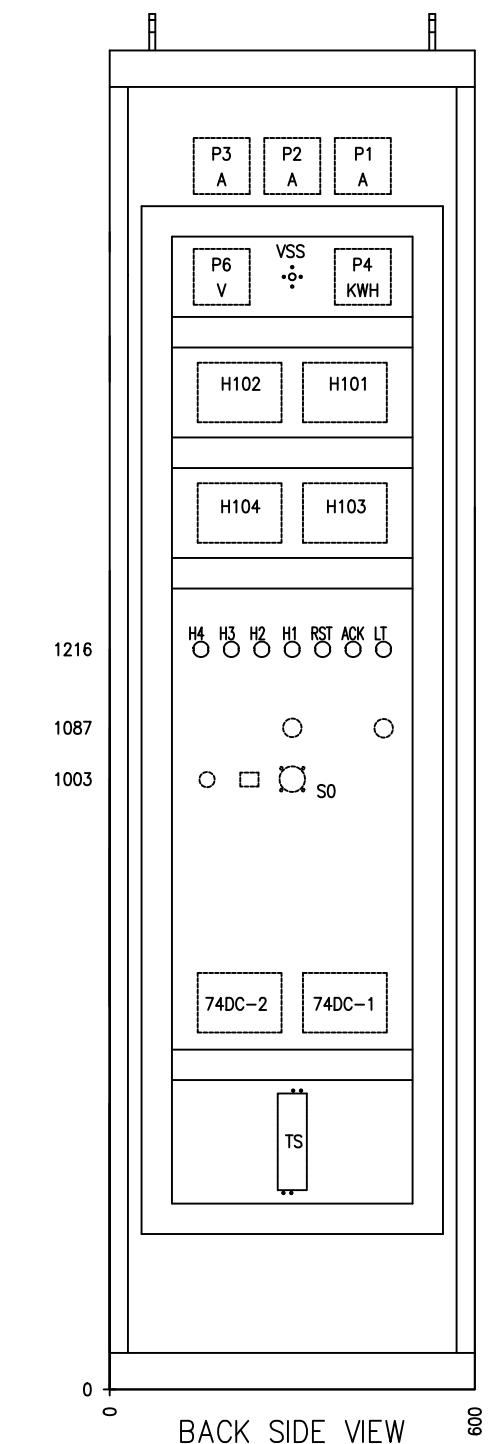
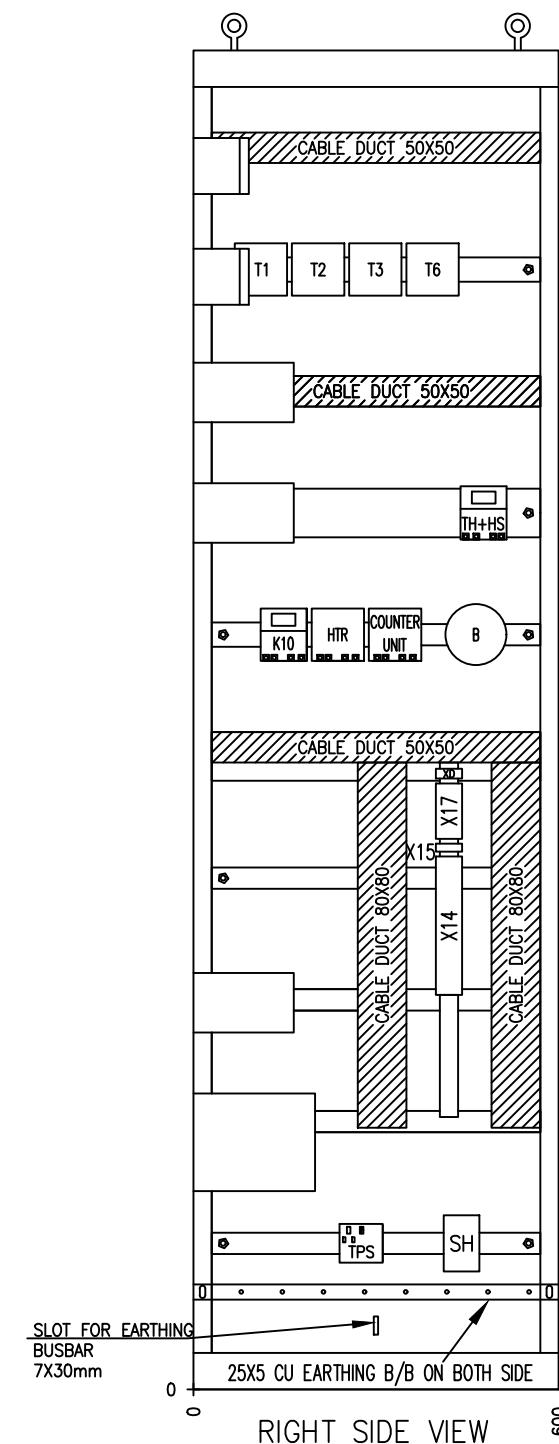
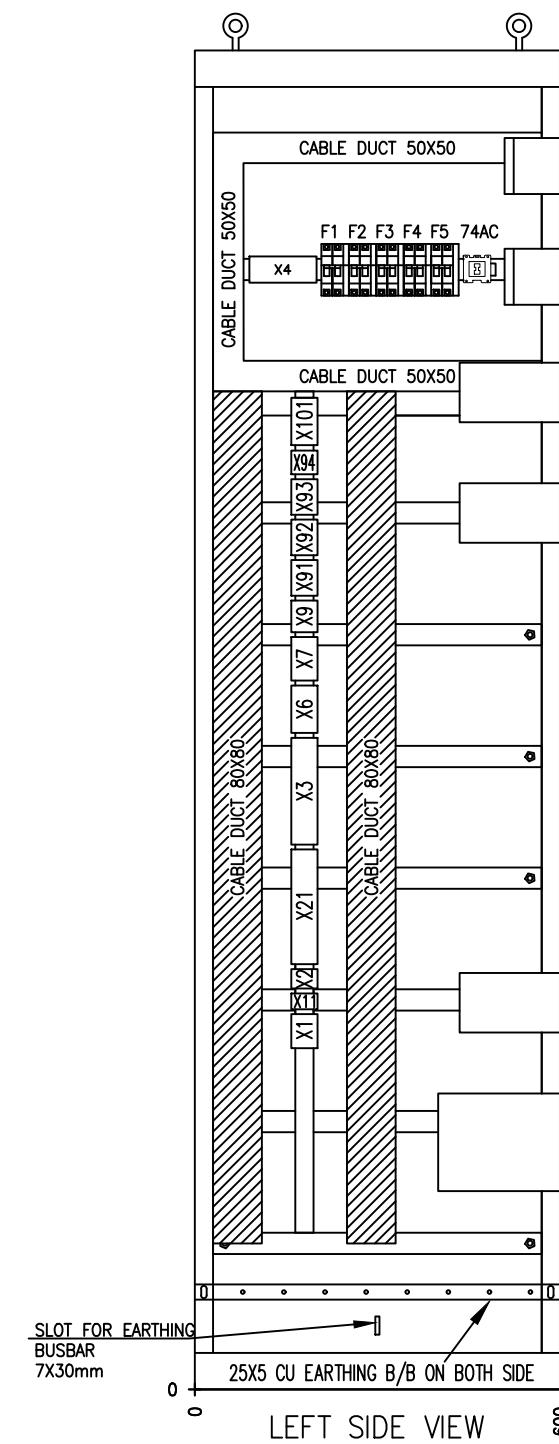
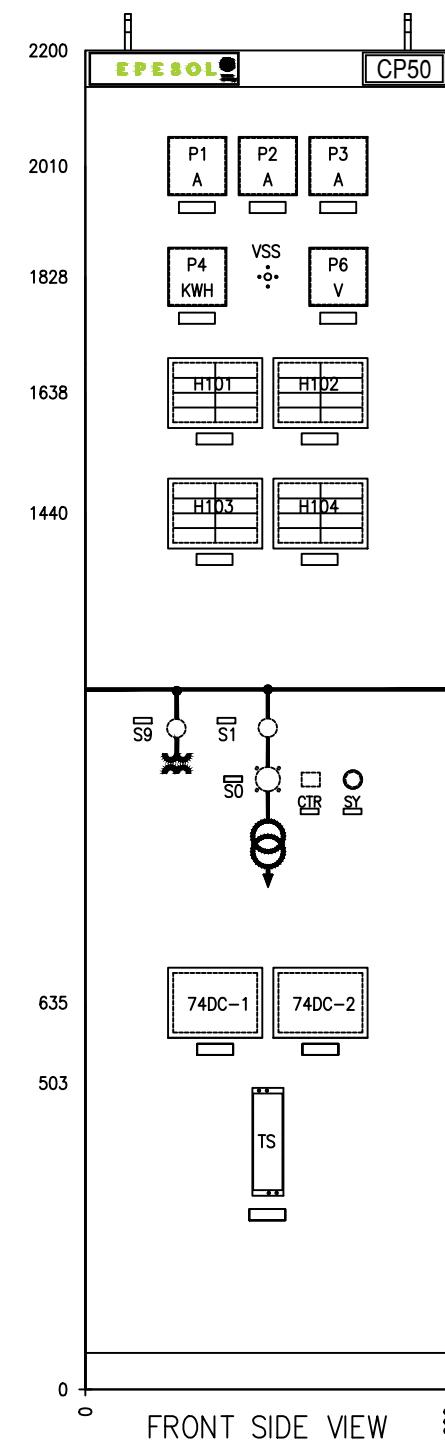


LAYOUT DRAWING

132/11kV TRANSFORMER CONTROL PANEL

TYPE CP50

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132kV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: COVER SHEET 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1399	SHT: 01 OF 03
NAH	ABA	MSC		 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE:27.01.2018	FOR APPROVAL REV: 0



NOTES

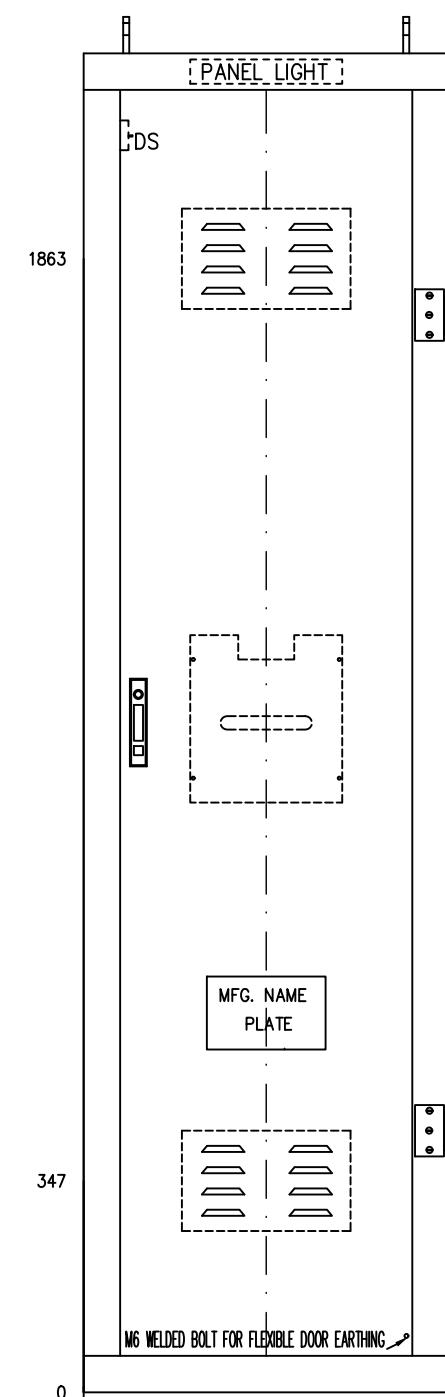
1. CONTROL PANEL: 600x600x2200 mm
2. FACE SHEET: 600x2200 mm
3. EARTHING BUSBAR 25x5 mm²
4. FLEXIBLE EARTHING STRAP 16mm²
5. COLOUR: RAL7032
6. CLASS OF PROTECTION: IP51
7. APPLICABLE SPECS: P-151 : 2008
8. MIMIC BUS 6mm(W)x4mm(D) COLOURED RED FOR 132kV & BLUE FOR 11kV
9. PANEL SHEET THICKNESS 2.5 mm

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: GENERAL ARRANGEMENT 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1399	SHT: 02 OF 03
NAH	ABA	MSC				



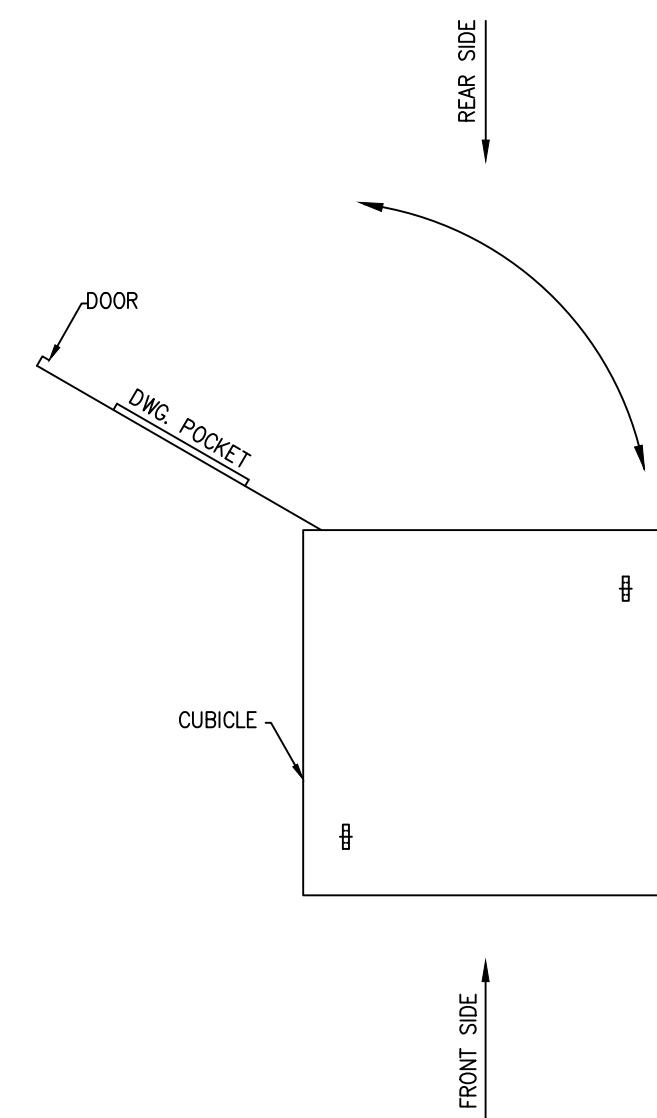
EPE SOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DATE: 27.01.2018 FOR APPROVAL
REV: 0



REAR VIEW (WITH DOOR)

[::PANEL LIGHT::]

TOP VIEW
DOOR OPENING DETAIL

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: GENERAL ARRANGEMENT 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1399	SHT: 03 OF 03	
NAH	ABA	MSC	E P E S O L P v t . L t d 71-B Garden Block, New Garden Town, Lahore, Pakistan			DATE:27.01.2018 FOR APPROVAL	REV: 0
1	2	3	4	5	6	7	8

LIST OF APPARATUS

132/11kV TRANSFORMER CONTROL PANEL

TYPE CP50

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: COVER SHEET 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1400	SHT: 01 OF 04
NAH	ABA	MSC	 EPESOL Pvt. Ltd. <i>71-B Garden Block, New Garden Town, Lahore, Pakistan</i>		DATE:27.01.2018	FOR APPROVAL
						REV: 0

		1	2	3	4	5	6	7	8		
SR. #	ITEM DESIGNATION	DESCRIPTION				QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A											A
1	P1+T1, P3+T3	METER: 240 DEGREE TRANSDUCER OPERATED ANALOGUE AMPERE METER, AUX. VOLTAGE 110 VDC, INPUT 0...20/3mA ACCURACY CLASS 1, SCALE 0...150/225 A. CURRENT TRANSDUCER: NOMINAL INPUT CURRENT 0...5/7.5 A, OUTPUT 0...20/30 mA, AUX. VOLTAGE 110 VDC, ACCURACY CLASS 1			2	A96MMA+	FRER	ITALY	A96MMA+MCOEAQ	05	
B							MCOEAQ				B
2	P2+T2	METER: TRANSDUCER OPERATED DIGITAL AMPERE METER, AUX. VOLTAGE 110 VDC, INPUT 0...20/30 mA ACCURACY CLASS 1, SCALE 0...150/225 A, CURRENT TRANSDUCER: NOMINAL INPUT CURRENT 0...5/7.5 A, OUTPUT 0...20/30 mA, AUX. VOLTAGE 110 VDC, ACCURACY CLASS 1		1	D96MMA+	FRER	ITALY	D96MMA+MCOEAQ	05		
B							MCOEAQ				B
3	P4	THREE PHASE DIGITAL POWER METER, ACCURACY CLASS 0.5s, INPUT NOMINAL CURRENT 1/5A, INPUT NOMINAL VOLTAGE 100–480 VAC, AUXILIARY VOLTAGE 110–375 VDC		1	ENERIUM 150	ENERDIS	FRANCE	ENERIUM 150	05		
D											D
4	P6+T6	METER: 240 DEGREE TRANSDUCER OPERATED ANALOG VOLT METER, AUX. VOLTAGE 110 VDC, INPUT 0...20/30mA ACCURACY CLASS 1, SCALE 0...132/198 kV (MARKED RED AT 132 kV). VOLTAGE TRANSDUCER: NOMINAL INPUT VOLTAGE 0...110/165 VAC (L-L), OUTPUT 0...20/30 mA AUXILIARY VOLTAGE 110 VDC, ACCURACY CLASS 1		1	A96MMA+	FRER	ITALY	A96MMA+MCOEVQ	05		
c							MCOEVQ				c
5	H101, H102, H103	EIGHT WINDOW ANNUNCIATOR, RATED VOLTAGE 110 VDC		3	AM101	ELABS	PAKISTAN	AM-101	11,12,13		
6	H104	EIGHT WINDOW ANNUNCIATOR, RATED VOLTAGE 240 VAC		1	AM101	ELABS	PAKISTAN	AM-101	14		
7	TS	TEST BLOCK (14 FINGER) FOR METERING CIRCUIT		1	sotech-TSB14	ARTECHE	SPAIN	TSB14-222211111AAAB-V	05,17		
8	F1, F2, F3	DC MCB, 2POLE, 10A, WITH ONE C/O CONTACT, 10kA		3	EP-100	GE	HUNGRY	EP102UCC10+(CAH1)	06		
D											D
9	F4, F5	AC MCB, 2POLE, 10A, WITH ONE C/O CONTACT, 10kA		2	G60	GE	HUNGRY	G62C10+(CAH1)	16		
10	74DC-1, 74DC-2	DC SUPPLY SUPERVISION RELAY, RATED VOLTAGE 110 VDC		2	TS101	ELABS	PAKISTAN	TS101	10,13		
E											E
11	74AC	AC SUPPLY SUPERVISION RELAY, RATED VOLTAGE 240 VAC, 3 C/O CONTACTS		1	MCR	GE	POLAND	MCRA022ATN	14		
12	K10	FLASHER RELAY, 1 C/O CONTACT, RATED VOLTAGE 110 VDC		1		ELABS	PAKISTAN		09		
E											E
13	S0	CONTROL AND DISCREPANCY SWITCH FOR CIRCUIT BREAKER CONTROL AND INDICATION, FOUR CONTACTS FOR COMMAND AND FOUR CONTACTS FOR INDICATION		1	YS-IC-4456	YONGSUNG	KOREA	YS-IC-4456-S4(49)-PM-K-G-D11-G	07		
F											F
14	S1, S9	SEMAPHORE INDICATOR FOR ISOLATOR POSITION INDICATION		2	SPR-30S	FUJI	JAPAN		09		
15	VSS	7 POSITION VOLTMETER SELECTOR SWITCH POSITION INSCRIPTION RY, YB, BR, RN, YN, BN, OFF		1	PO	GIOVENZANA	ITALY	PO-160023R001	05		
F											F
16	TH+HS	THERMOSTAT AND HUMIDSTAT		1	ELH220	ELABS	PAKISTAN	ELH220	16		
APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132kV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: LIST OF APPARATUS 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1400	SHT: 02 OF 04				
NAH	ABA	MSC				DATE: 27.01.2018	FOR APPROVAL	REV: 0			



PROJECT:
PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
132kV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4

	1	2	3	4	5	6	7	8			
SR. #	ITEM DESIGNATION		DESCRIPTION			QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A	17	SH	SPACE HEATER			1	ELH220	ELABS	PAKISTAN	ELH220	16
	18	DS	DOOR SWITCH			1	YSP+YSMS	YONGSUNG	SOUTH KOREA	YSP3315GW-B+YSMS-C	16
	19	IL	ILLUMINATION LIGHT, 5W, 260 VAC			1	YST8	YONGSUNG	SOUTH KOREA	YST8-30-5W	16
B	20	TPS	THREE PIN SOCKET OUTLET, 240 VAC, 16A			1		LEAR	CHINA		16
	21	HI,H2,H3,H4	INDICATION LAMPS COLOURED RED			4	YSPL	YONGSUNG	SOUTH KOREA	YSPL2-DL12RW	09,10,13
	22	LT, ACK, RST	PUSH BUTTON FOR ANNUNCIATORS LAMP TEST, ACKNOWLEDGE AND RESET, FOUR NO CONTACTS EACH			3	YSAP1	YONGSUNG	SOUTH KOREA	YSAP1240RDW+YSAP1240GDW +YSAP1240YDW	11
c	23	CTR	COUNTER FOR CIRCUIT BREAKER			1		ELABS	PAKISTAN		07
	24	SY	KEY OPERATED SWITCH FOR BREAKER LOCAL-OFF-REMOTE CONTROL			1	YSAK	YONGSUNG	SOUTH KOREA	YSAK2380D	07
	25	HTR	HOOTER, RATED VOLTAGE 110VDC			1	AH-101	ELABS	PAKISTAN		11
	26	B	BELL, RATED VOLTAGE 240VAC			1	YSMB	YONGSUNG	SOUTH KOREA	YSMB-722A	14
D	27	X1	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR CT CIRCUIT WITH SHORTENING ARRANGEMENT			7	SCB-6	CABUR	ITALY		
	28	X2	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR VT CIRCUIT			4	SCB-6	CABUR	ITALY		
	29	X3	TERMINAL BLOCKS FOR CONTROL FUNCTION			24	CBD-4	CABUR	ITALY		
	30	X6	TERMINAL BLOCKS FOR TRIP CIRCUIT-1			12	CBD-4	CABUR	ITALY		
E	31	X7	TERMINAL BLOCKS FOR TRIP CIRCUIT-2			11	CBD-4	CABUR	ITALY		
	32	X9	TERMINAL BLOCKS FOR ANNUNCIATION SUPPLY DISTRIBUTION			8	CBD-4	CABUR	ITALY		
	33	X11	TERMINAL BLOCKS FOR CURRENT METERING CIRCUIT			4	CBD-4	CABUR	ITALY		
	34	X14	TERMINAL BLOCKS FOR SCADA/TELECOM			27	CBD-4	CABUR	ITALY		
F	35	X17	TERMINAL BLOCKS FOR AC SUPPLY DISTRIBUTION			16	CBD-4	CABUR	ITALY		
APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: LIST OF APPARATUS 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1400	SHT: 03 OF 04				
NAH	ABA	MSC				DATE:27.01.2018	FOR APPROVAL	REV: 0			

		1	2	3	4	5	6	7	8		
SR. #	ITEM DESIGNATION	DESCRIPTION				QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A											A
36	X21	TERMINAL BLOCKS FOR VOLTAGE METERING CIRCUIT				22	CBD-4	CABUR	ITALY		
37	X91	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT				10	CBD-4	CABUR	ITALY		
38	X92	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT				11	CBD-4	CABUR	ITALY		
B	39	X93	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT			9	CBD-4	CABUR	ITALY		B
40	X94	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT				6	CBD-4	CABUR	ITALY		
41	X101	TERMINAL BLOCKS FOR DC SUPPLY DISTRIBUTION				22	CBD-4	CABUR	ITALY		
42	XD	TERMINAL BLOCKS WITH DIODE TYPE IN-D4007, RATED MAXIMUM VOLTAGE 350VDC, RATED BREAK DOWN VOLTAGE 430VDC				2	DAS.4/6	CABUR	ITALY		
c	43	X4	SPARE TERMINAL BLOCKS			15	CBD-4	CABUR	ITALY		c
44	X15	TERMINAL BLOCKS FOR RS485 COMMUNICATION				4	CBD-4	CABUR	ITALY		
D											D
E											E
F											F
APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: LIST OF APPARATUS 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1400	SHT: 04 OF 04				
NAH	ABA	MSC				DATE: 27.01.2018	FOR APPROVAL	REV: 0			

SCHEMATIC DIAGRAMS

132/11kV TRANSFORMER CONTROL PANEL

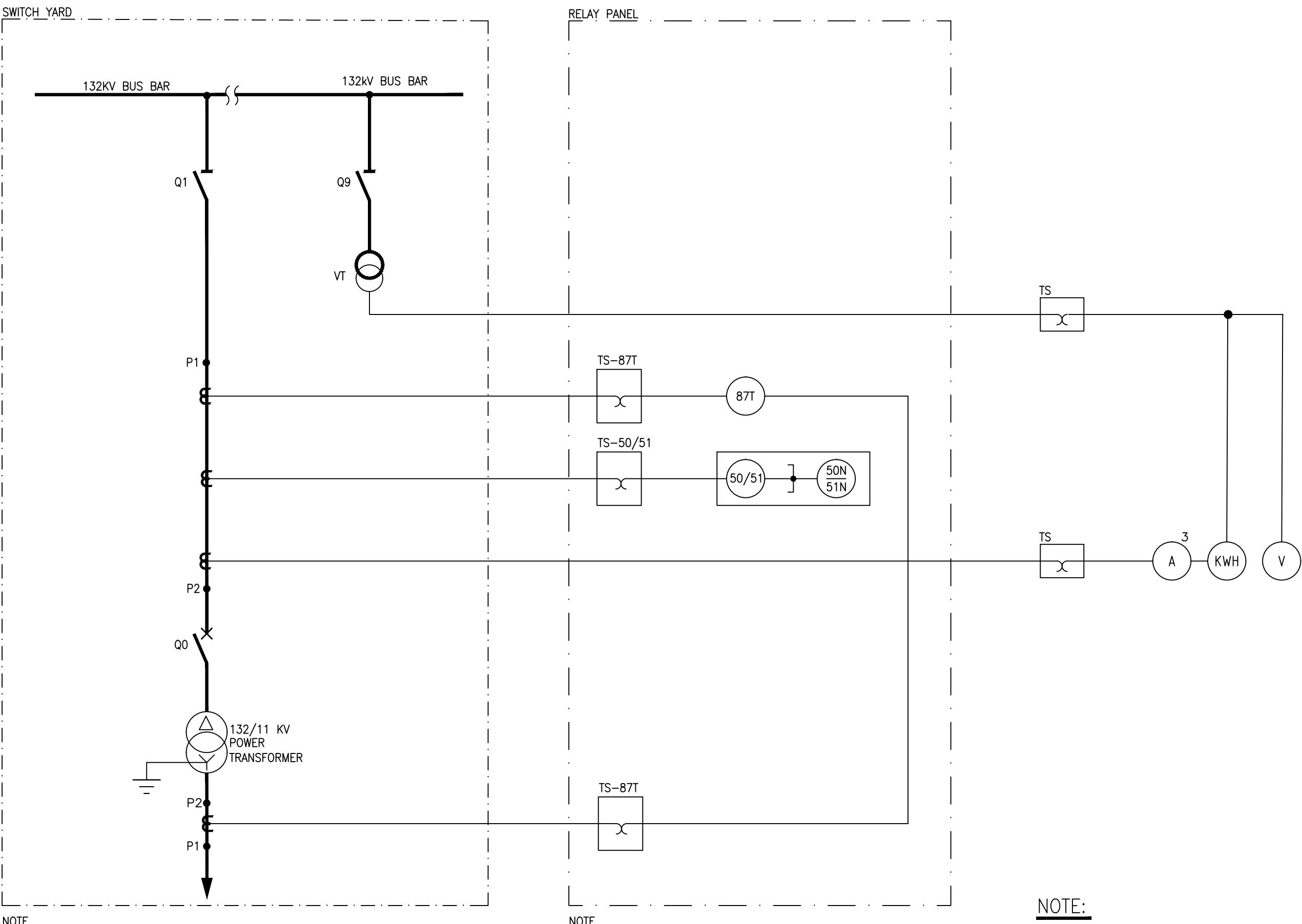
TYPE CP50

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: COVER SHEET 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 01 OF 18
NAH	ABA	MSC	 EPESOL Pvt Ltd. <i>71-B Garden Block, New Garden Town, Lahore, Pakistan</i>		DATE:27.01.2018	FOR APPROVAL
						REV: 0

DESCRIPTION	SHEET NO
COVER SHEET	01
LIST OF CONTENTS	02
LIST OF SYMBOLS	03
SINGLE LINE DIAGRAM	04
AC SCHEMATIC DIAGRAM	05
DC SUPPLY DISTRIBUTION	06
CB CONTROL & TRIP CIRCUIT – 1	07
CB TRIP CIRCUIT – 2	08
DEVICE POSITION INDICATION	09
ISOLATOR & EARTH SWITCH INTERLOCKING	10
ANNUCIATOR UNIT – 1	11
ANNUCIATOR UNIT – 2	12
ANNUCIATOR UNIT – 3	13
ANNUCIATOR UNIT – 4	14
TERMINAL BLOCKS FOR SCADA/TELECOM	15
AC SUPPLY DISTRIBUTION	16
TEST BLOCK TYPE TSB14 DETAILS	17

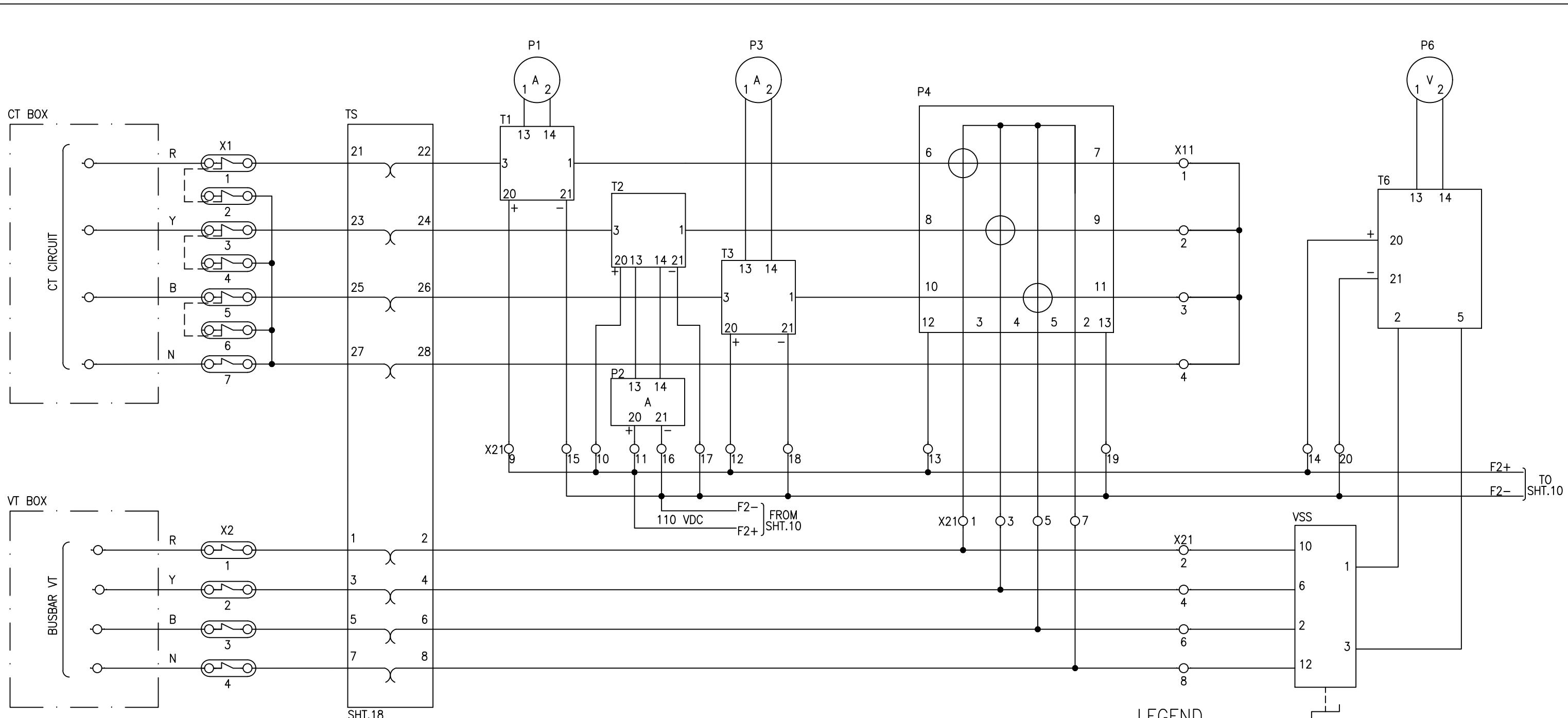
LIST OF SYMBOLS

A		HV DISCONNECTOR		EQUIPMENT WITHIN PANEL
B		HV CIRCUIT BREAKER		INDEPENDENT PANEL
C		CURRENT TRANSFORMER		INDEPENDENT PANEL
D		POWER TRANSFORMER	87T	TRANSFORMER DIFFERENTIAL RELAY
E		RELAY PANEL TERMINAL BLOCK	50/51	OVER CURRENT & EARTH FAULT RELAY
F		CONTROL PANEL TERMINAL BLOCK	TS	TEST BLOCK
		EARTH CONNECTION	74DC-1/2	DC SUPPLY SUPERVISION RELAY
		TEST BLOCK TERMINAL	X	TERMINAL BLOCK
		NORMALLY CLOSED CONTACT		ENERGY METER
		NORMALLY OPEN CONTACT		VOLT METER
		CHANGE OVER CONTACT		
		MINIATURE CIRCUIT BREAKER		
		INDICATING BULB/LED		
		240 VAC SOCKET		
		SPACE HEATER		
		VOLTAGE SELECTOR SWITCH		
		COIL		
		AMPERE METER		

NOTE:

THE SWITCH YARD AND THE RELAY PANEL PART OF THE DRAWING HAS BEEN INCLUDED ONLY FOR CONCEPTUAL UNDERSTANDING OF AC SCHEME.

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: NOTE SINGLE LINE DIAGRAM 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 04 OF 18
NAH	ABA	MSC		 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 27.01.2018	FOR APPROVAL REV: 0

ANALOGUE
AMMETERDIGITAL
AMMETERANALOGUE
AMMETERDIGITAL
POWER METERANALOGUE
VOLT METERNOTE:

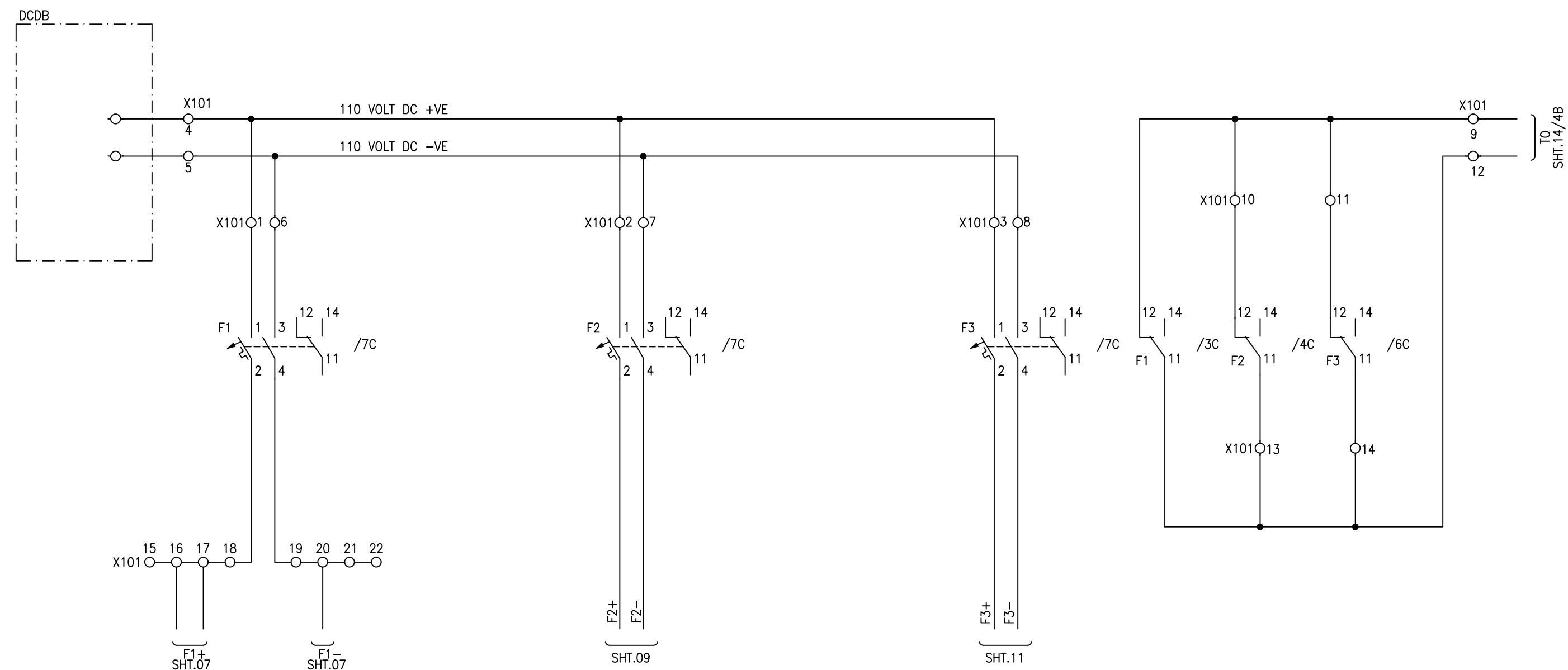
1. CT CIRCUIT WIRE SIZE IS 4mm² (COLOURED RED, YELLOW, BLUE AND BLACK).
2. VT CIRCUIT WIRE SIZE IS 2.5mm² (COLOURED RED, YELLOW, BLUE AND BLACK).

DES.	DESCRIPTION	TYPE	MAKE
TS	TEST BLOCK	TSB14	ARTECHE
P1+T1, P3+T3	ANALOGUE AMMETER WITH TRANSDUCER	A96MMA+MC0FAQ	FRER
P2+T2	DIGITAL AMMETER WITH TRANSDUCER	D96MMA+MC0FAQ	FRER
P4	DIGITAL POWER METER	ENERIUM150	ENERDIS
P6+T6	ANALOGUE VOLT METER WITH TRANSDUCER	A96MMA+MC0EVQ	FRER
VSS	VOLT METER SELECTOR SWITCH	PO	GIOVENZANA

**CB & ISOLATORS
CONTROL SUPPLY**

POSITION INDICATION & DEVICE INTERLOCKING SUPPLY

ANNUNCIATION SUPPLY



LEGEND

DES:	DESCRIPTION	TYPE	MAKE
F1,F2, F3	DC MCB, 2P, 10A	EP-100	GE

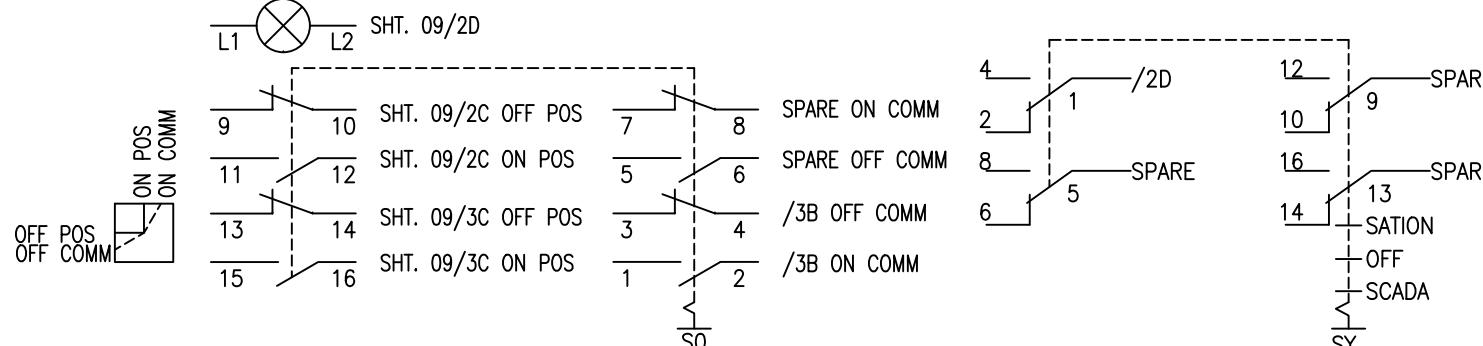
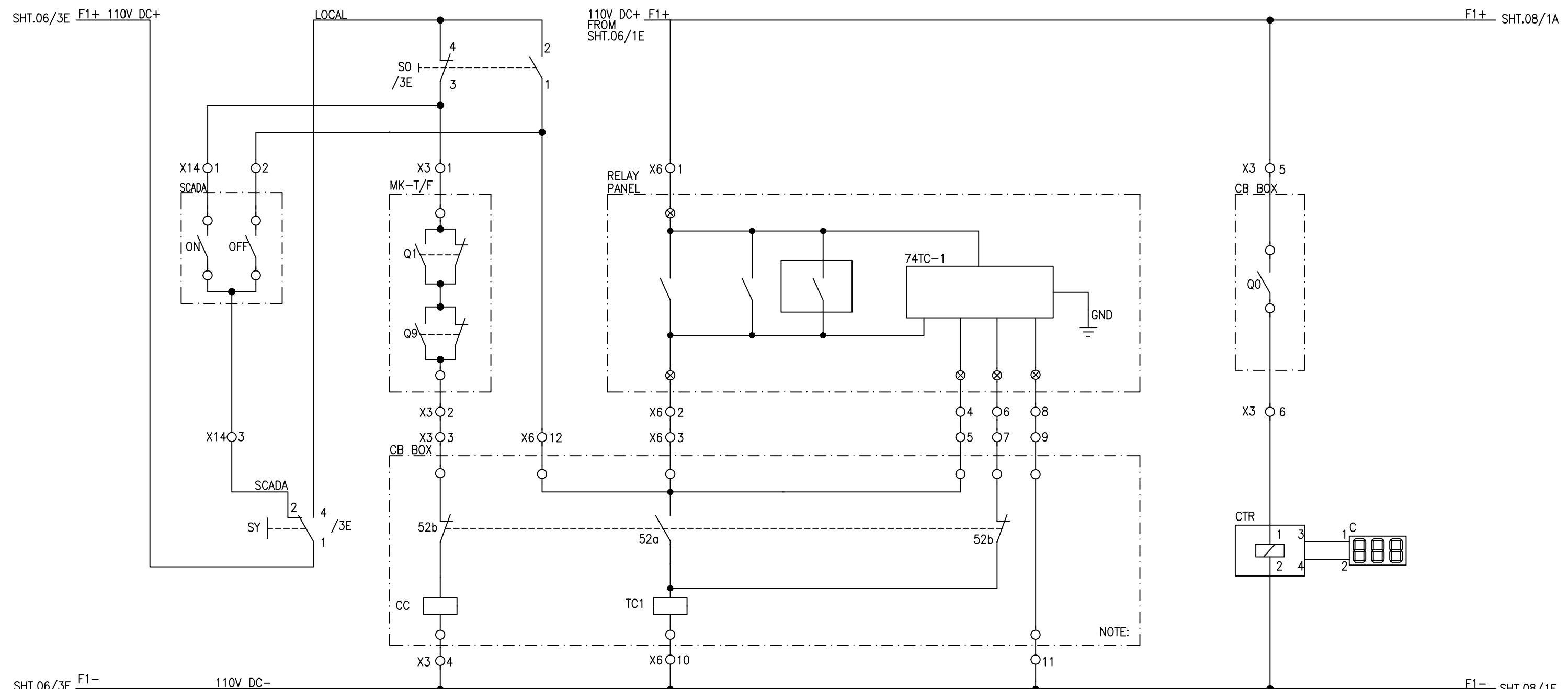
APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132kV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: DC SUPPLY DISTRIBUTION 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1401	SHT: 06 OF 18
NAH	ABA	MSC				DATE:27.01.2018	FOR APPROVAL

C.B Q0
ON OFF

PROTECTION TRIPPINGS

TRIP CIRCUIT-1

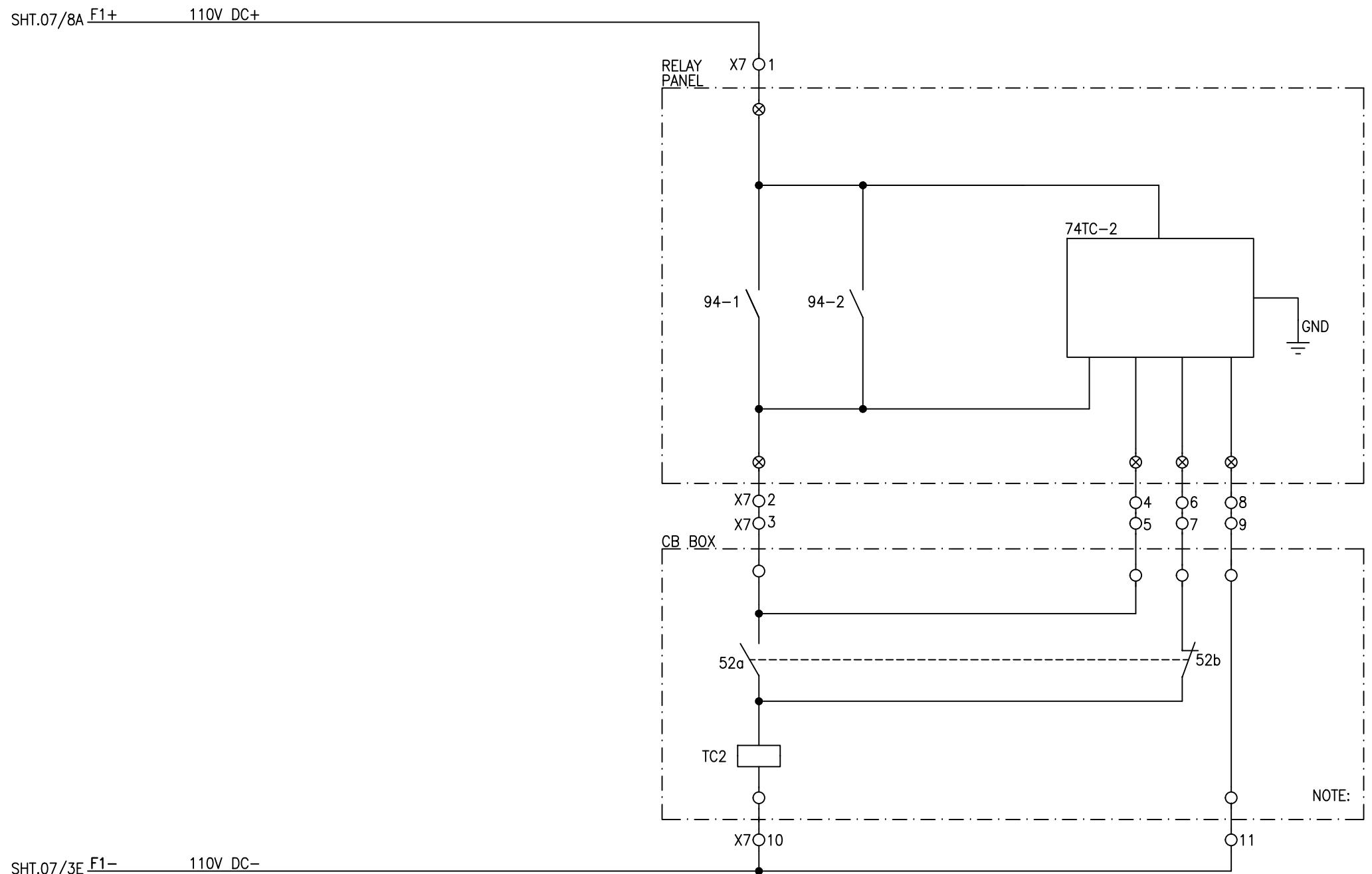
SUPERVISION

CB OPERATION
COUNTER

NOTE:
THE INTERNAL MECHANISM OF CIRCUIT BREAKER CONTROL
IS NOT THE PART OF CONTROL PANEL.
IT HAS BEEN SHOWN ONLY FOR CLARITY OF SCHEME.

DES.	DESCRIPTION	TYPE	MAKE
S0	CONTROL & DESCREPANCY SWITCH	YS-IC-4456	YONGSUNG
CTR	COUNTER	-	ELABS
SY	KEY OPERATED SWITCH FOR LOCAL/REMOTE	YSAK	YONSUNG

PROTECTION TRIPPINGS

TRIP CIRCUIT-2
SUPERVISION

NOTE:
THE INTERNAL MECHANISM OF CIRCUIT BREAKER CONTROL
IS NOT THE PART OF CONTROL PANEL.
IT HAS BEEN SHOWN ONLY FOR CLARITY OF SCHEME.

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: CB TRIP CIRCUIT-2 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1401	SHT: 08 OF 18
NAH	ABA	MSC				DATE: 27.01.2018	FOR APPROVAL

DESCREPANCY
LIGHTDESCREPANCY INITIATION
CIRCUIT BREAKER
Q0CIRCUIT BREAKER
TRIP CKT HEALTHY
TC-1 TC-2

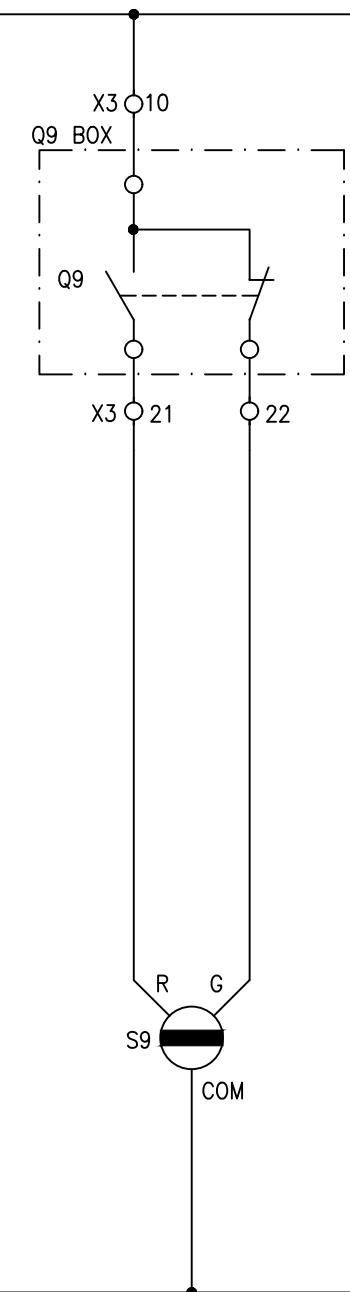
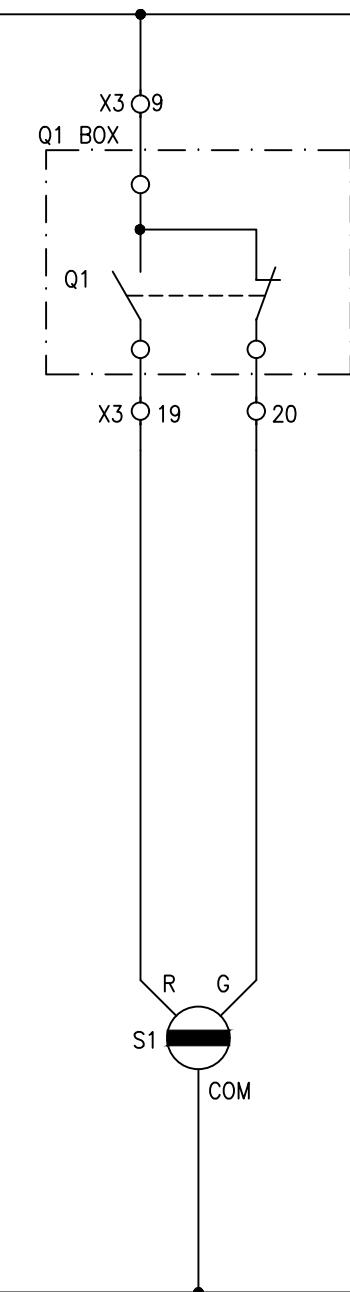
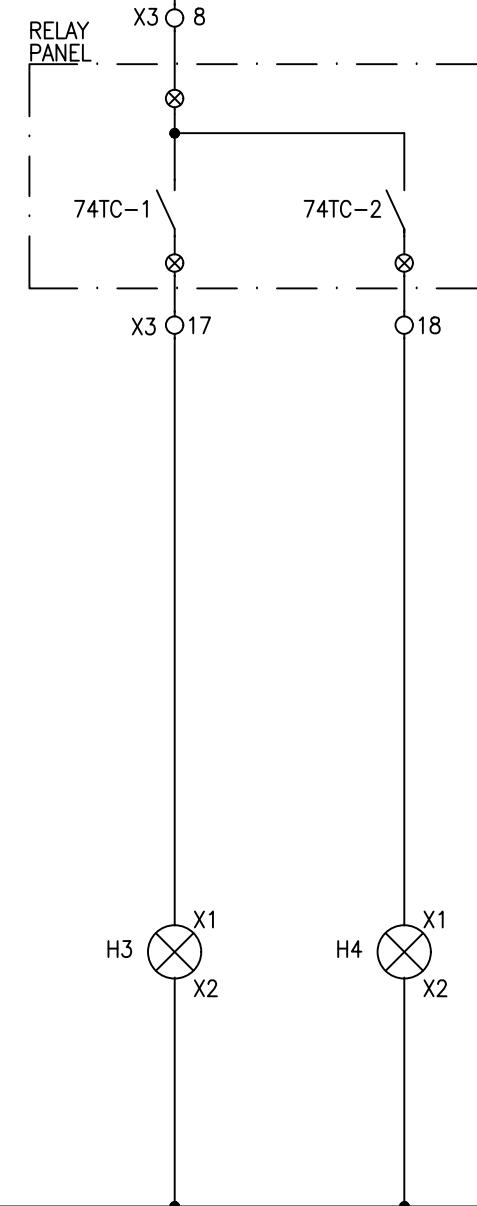
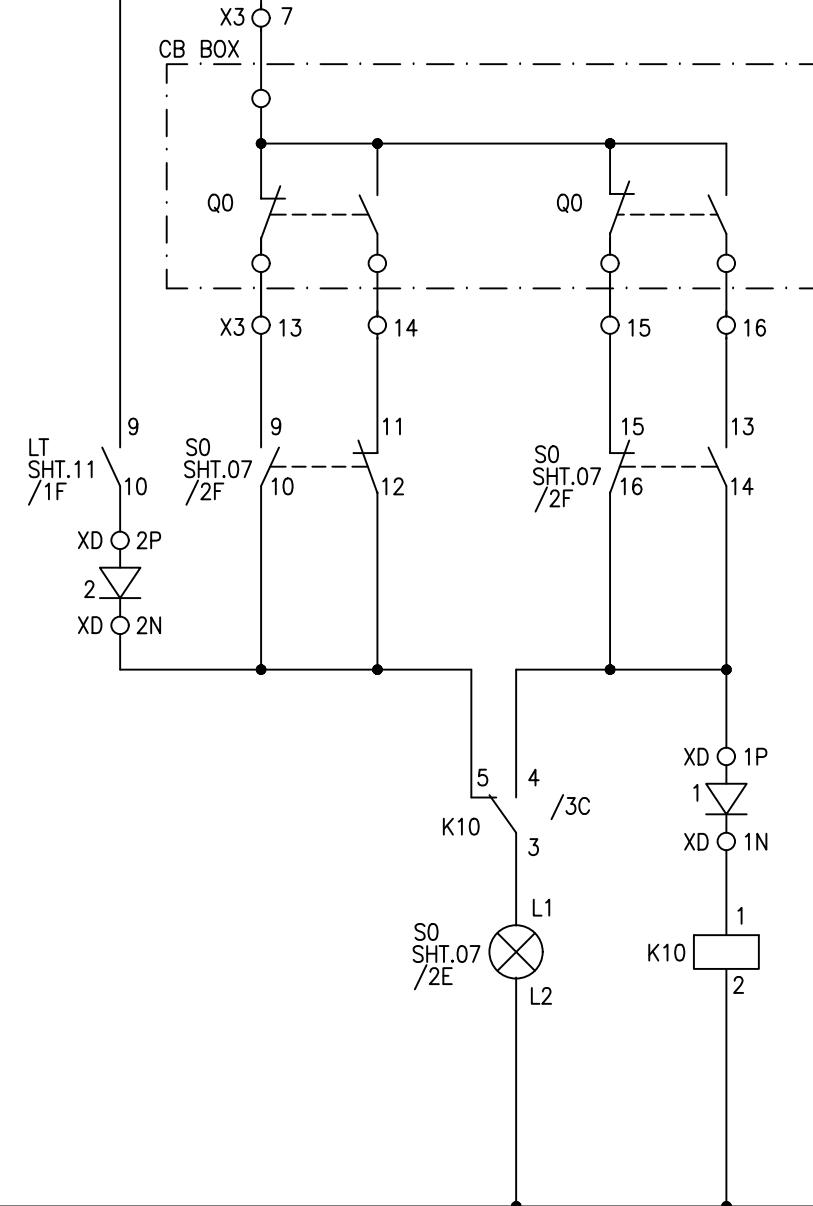
POSITION INDICATION

BUS ISOLATOR
Q1BUS VT ISOLATOR
Q9

A

A

SHT.06/4E F2+ 110V DC+



SHT.06/4E F2-

F2- SHT.10/1E

LEGEND

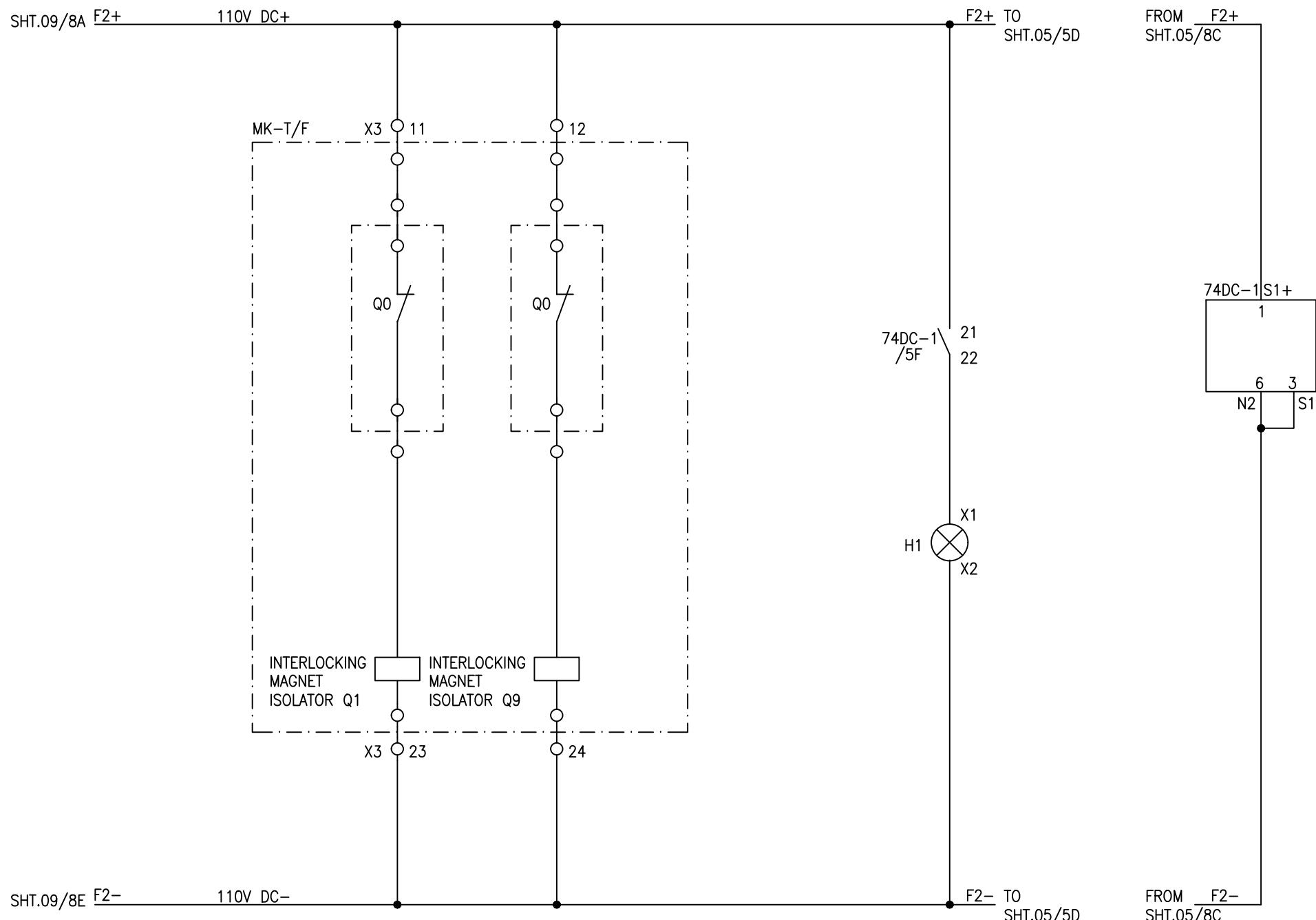
DES.	DESCRIPTION	TYPE	MAKE
S0	CONTROL & DESCRENANCY SWITCH, SQUARE TYPE	YS-IC-4456	YONGSUNG
S1, S9	SEMAPHORE INDICATOR	SPR30S	FUJI
K10	FLASHER RELAY	-	ELABS

LEGEND

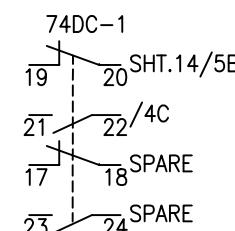
DES.	DESCRIPTION	TYPE	MAKE
H3, H4	INDICATION LAMP	YSPL	YONGSUNG



ISOLATOR Q1 INTERLOCKING	ISOLATOR Q9 INTERLOCKING	INDICATION SUPPLY HEALTHY	INDICATION SUPPLY SUPERVISION
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NOTE:

THE ISOLATOR INTERLOCKING DETAILS ARE ONLY SHOWN FOR CLARITY OF SCHEME.
THE CONTROL PANEL IS ONLY EQUIPPED WITH TERMINAL BLOCKS FOR THIS PURPOSE.

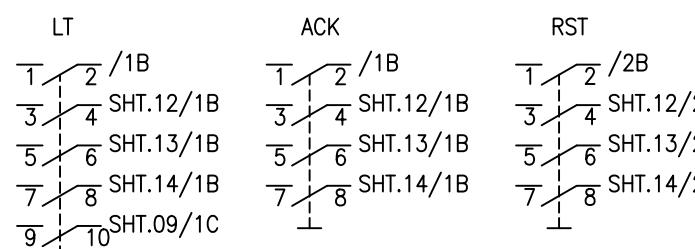
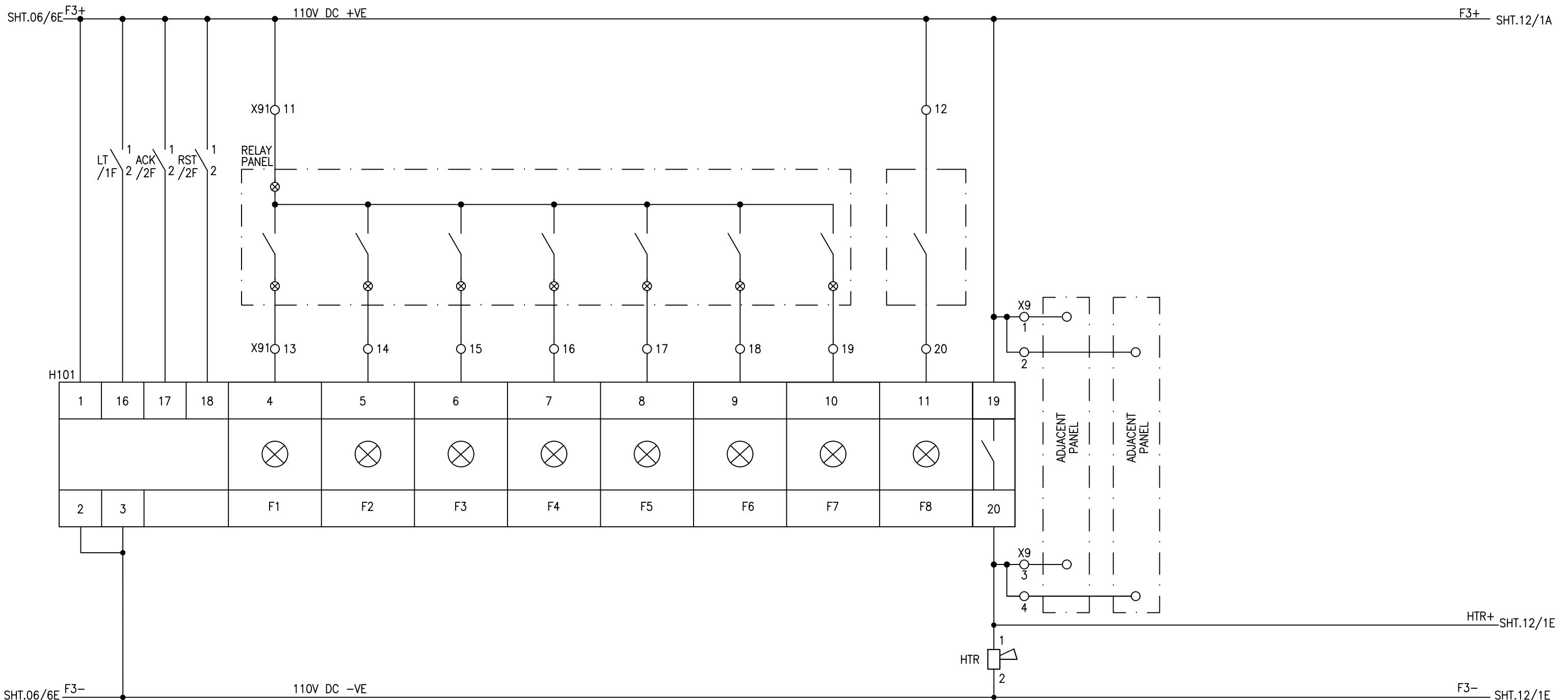


DES.	DESCRIPTION	TYPE	MAKE
74DC-1	DC SUPPLY SUPERVISION RELAY	TS101	ELABS
H1	INDICATION LAMP	YSPL	YONGSUNG

LEGEND

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: ISOLATOR & EARTH SWITCH INTERLOCKING 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 10 OF 18
NAH	ABA	MSC		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 27.01.2018	FOR APPROVAL REV: 0

LAMP TEST	ACK RESET	87T RELAY TRIP	50/51 RELAY TRIP	T/F MAIN BUCH. TRIP	T/F T/C BUCH. TRIP	T/F OIL TEMP. TRIP	T/F WINDING TEMP. TRIP	T/F PRESSURE RELIEF VALVE TRIP	LV PROT. TRIP	HOOTER INITIATION
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DES.	DESCRIPTION	TYPE	MAKE
LT,ACK RST	PUSH BUTTONS	YSAP1	YONGSUNG

DES.	DESCRIPTION	TYPE	MAKE
H101	DC ANNUNCIATOR	AM-101	EELABS

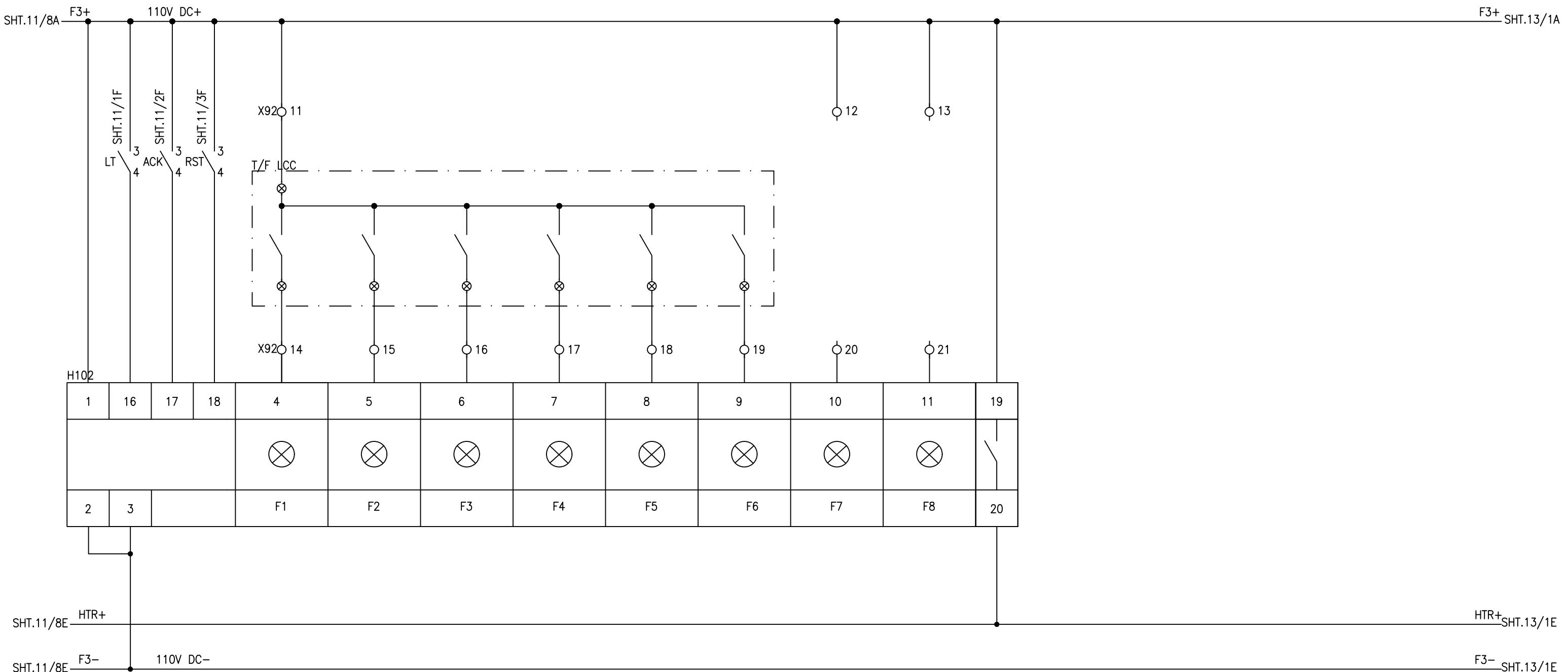
DES.	DESCRIPTION	TYPE	MAKE
HTR	HOOTER	AH-101	EELABS

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: ANNUNCIATOR UNIT-1 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 11 OF 18
NAH	ABA	MSC			DATE: 27.01.2018	FOR APPROVAL



MECHANICAL ALARM SIGNALS

LAMP TEST	ACK	RESET	T/F ALARM	BUCH. ALARM	OLTC ALARM	WIND. TEMP.	OIL TEMP.	PRD ALARM	LOW OIL LEVEL ALARM	SPARE	SPARE	HOOTER INITIATION
-----------	-----	-------	-----------	-------------	------------	-------------	-----------	-----------	---------------------	-------	-------	-------------------

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
H102	DC ANNUNCIATOR	AM-101	ELAB
LT,ACK RST	PUSH BUTTONS	YSAP1	YONGSUNG

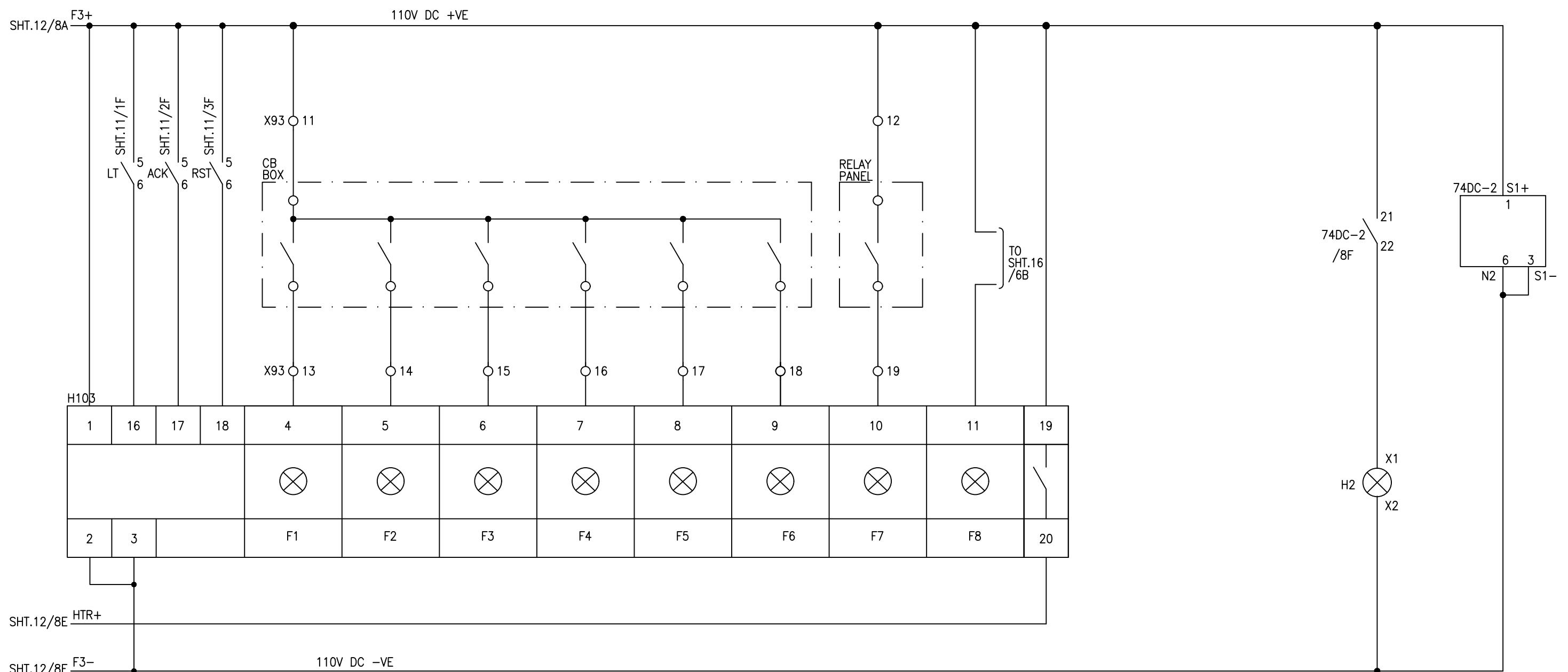
APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: ANNUNCIATOR UNIT-2 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 12 OF 18
NAH	ABA	MSC			DATE:27.01.2018	FOR APPROVAL



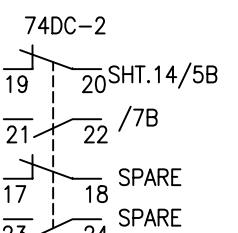
E P E S O L Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/P1401
DATE:27.01.2018
REV: 0

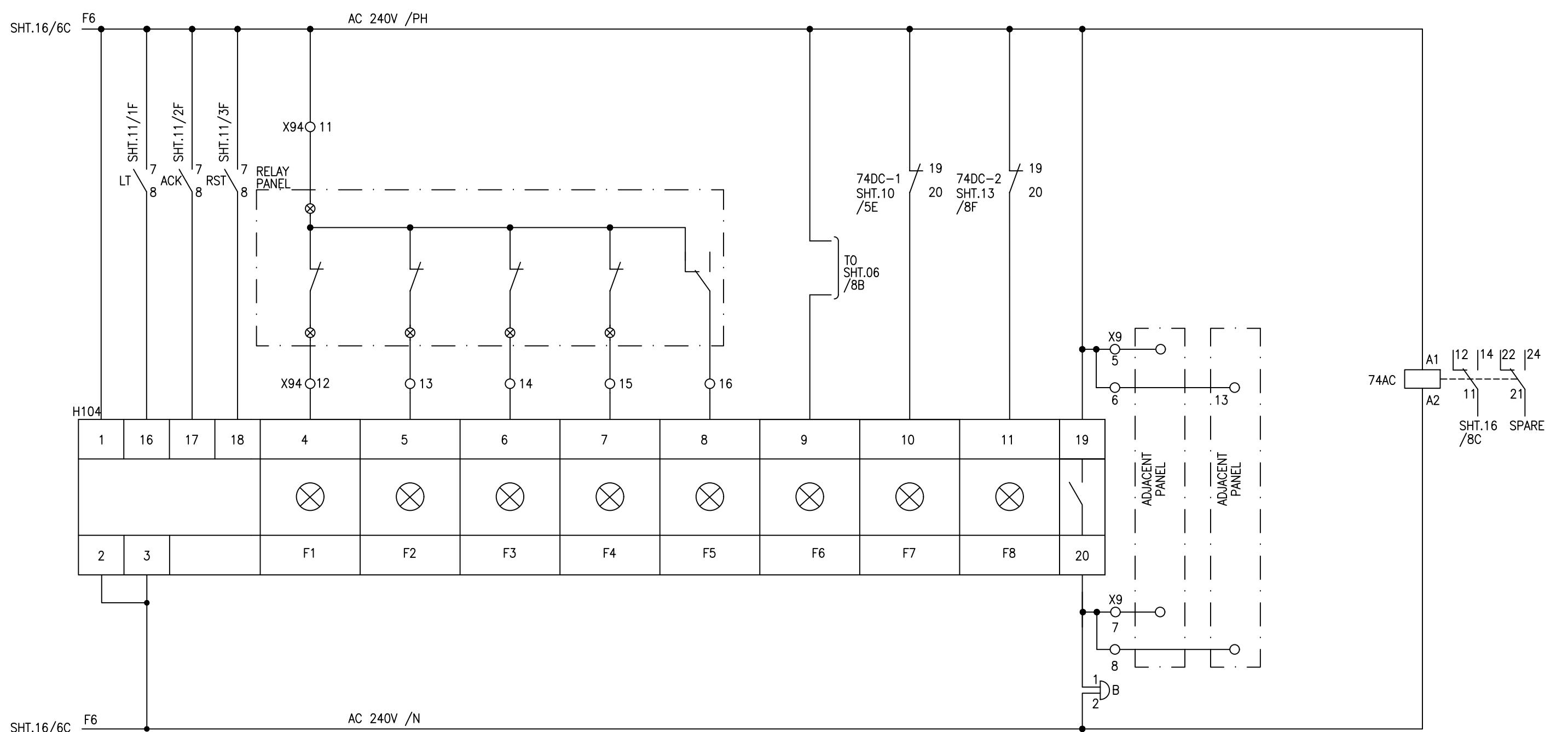
			CIRCUIT BREAKER				RELAY PANEL		CONTROL PANEL		ANN		ANN	
LAMP ACK RESET			OIL/AIR/SF6	MECHANICAL	SPRING	MOTOR	TRIP	OIL/AIR/SF6	AC SUPPLY	AC SUPPLY	HOOTER	SUPPLY	SUPPLY	
TEST			PRES. LOW STG-1	FAILURE	UNCHARGED	SUPPLY FAIL	LOCK OUT	PRES. LOW STG-2	FAIL	FAIL	INITIATION	HEALTHY	SUPVN	

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
74DC-2	DC SUPPLY SUPERVISION RELAY	TS101	ELABS
H103	DC ANNUNCIATOR	AM101	ELABS
H2	INDICATION LAMP	YSPL	YONGSUNG
LT,ACK RST	PUSH BUTTONS	YSAP1	YONGSUNG



APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: ANNUNCIATOR UNIT-3 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	E P E S O L P v t . L t d. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1401	SHT: 13 OF 18
NAH	ABA	MSC				DATE:27.01.2018	FOR APPROVAL



LEGEND

DES.	DESCRIPTION	TYPE	MAKE
LT,ACK RST	PUSH BUTTONS	YSAP1	YONGSUNG
B	BELL	YSMB	YONGSUNG

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
H104	AC ANNUNCIATOR	AM-101	ELABS
74AC	AC SUPPLY SUPERVISION RELAY	MCR	GE

LEGEND

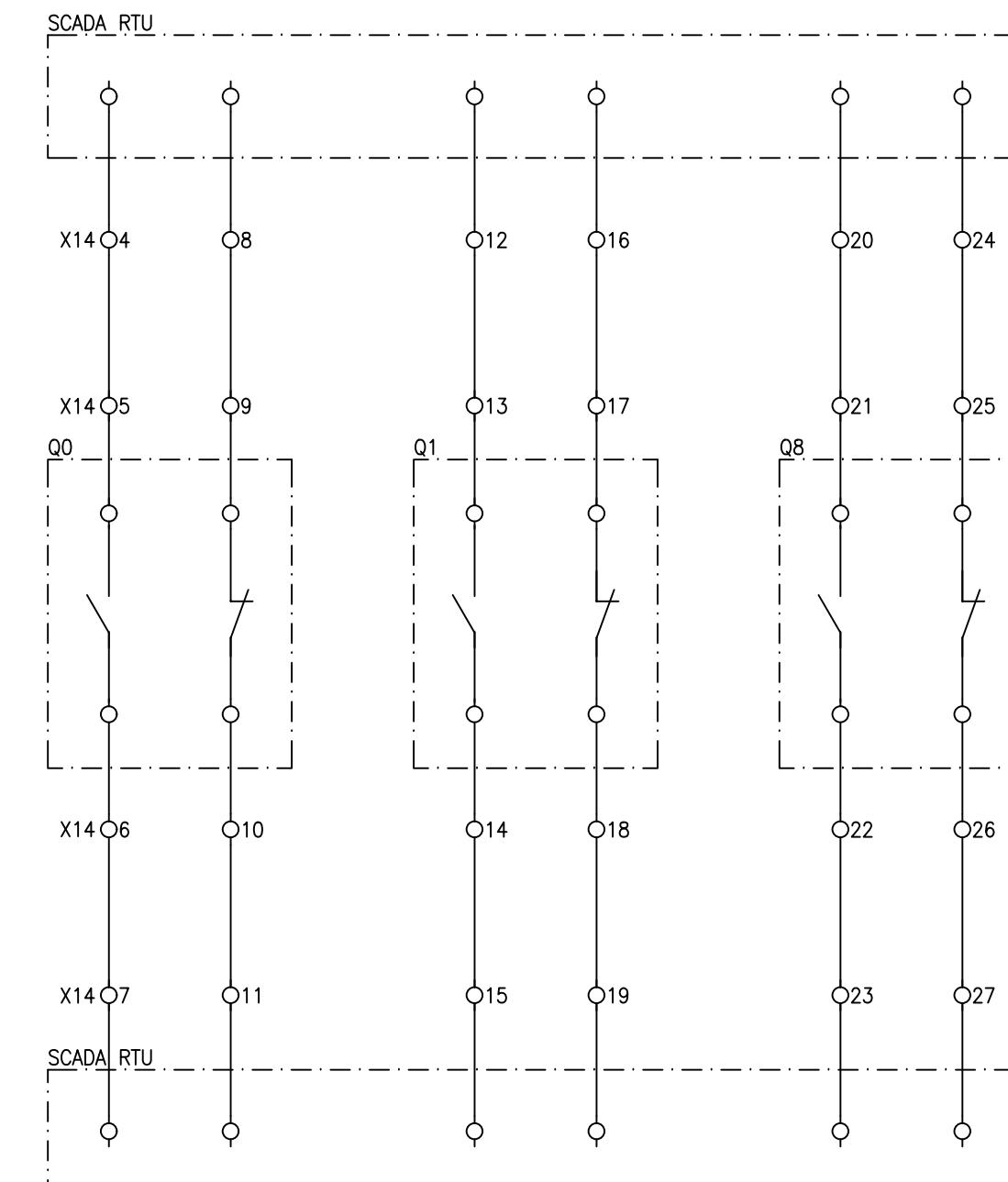
DES.	DESCRIPTION	TYPE	MAKE
74DC-1	DC SUPPLY SUPERVISION	TS101	ELABS
74DC-2	RELAY		

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132kV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: ANNUNCIATOR UNIT-4 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	 EPE SOL PVT LTD 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1401	SHT: 14 OF 18
NAH	ABA	MSC				DATE: 27.01.2018	FOR APPROVAL

CIRCUIT BREAKER Q0

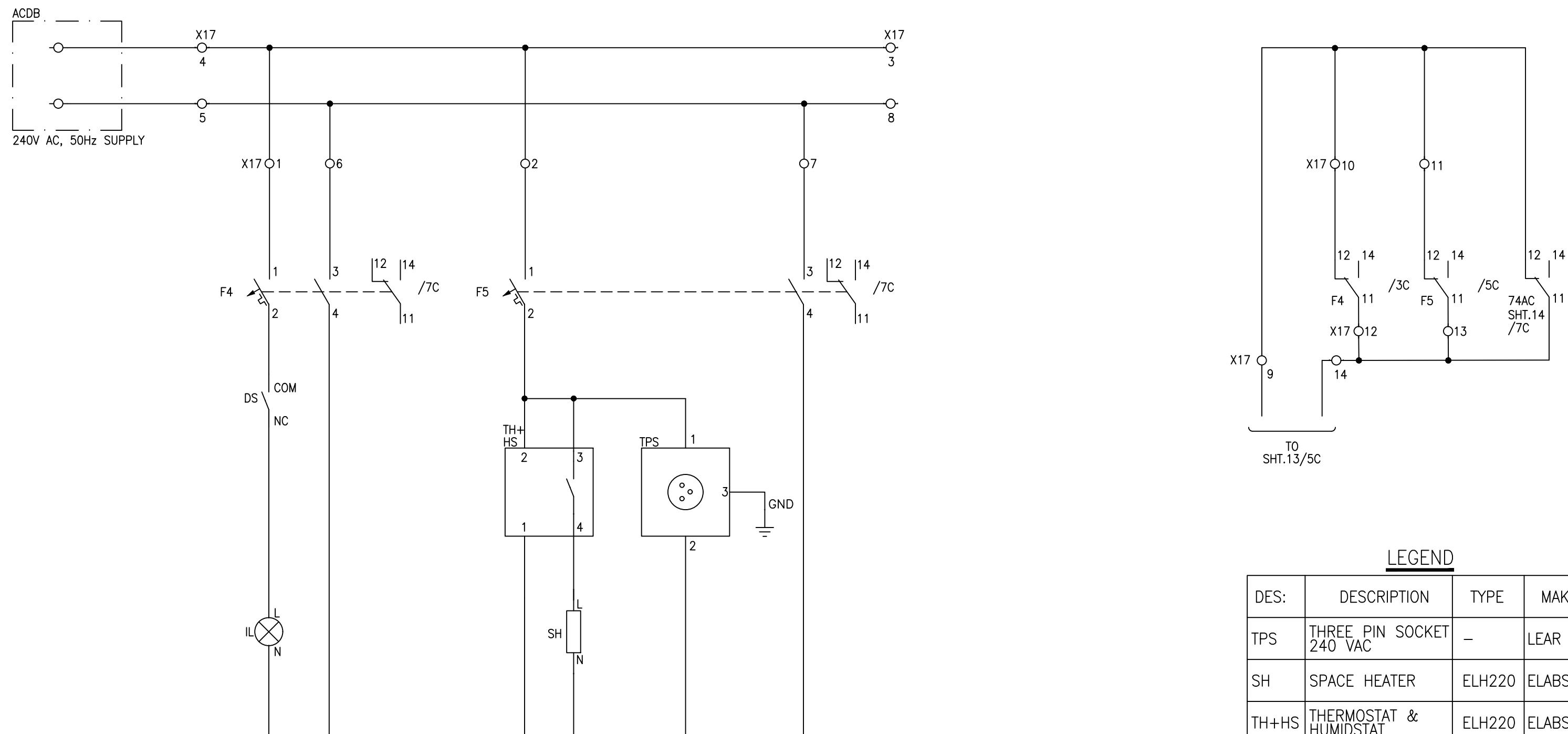
BUS ISOLATOR Q1

VT ISOLATOR Q9



APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: TERMINAL BLOCKS FOR SCADA/TELECOM 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1401	SHT: 15 OF 18
NAH	ABA	MSC				DATE:27.01.2018	FOR APPROVAL

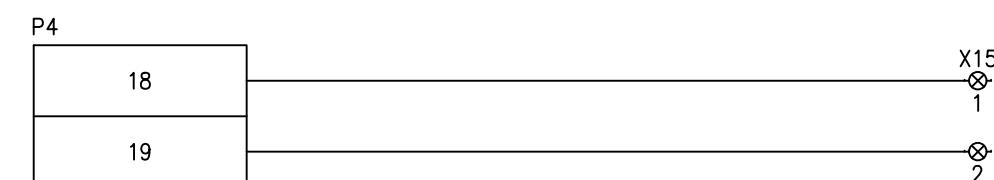
AC SUPPLY DISTRIBUTION

DOOR SWITCH &
CUBICLE LIGHTSPACE HEATER
THERMOSTATTHREE
PIN SOCKETAC ANNUNCIATOR
SUPPLYAC SUPPLY FAIL
ANNUNCIATIONLEGEND

DES:	DESCRIPTION	TYPE	MAKE
TPS	THREE PIN SOCKET 240 VAC	-	LEAR
SH	SPACE HEATER	ELH220	ELABS
TH+HS	THERMOSTAT & HUMIDSTAT	ELH220	ELABS
DS	DOOR SWITCH	YSP+YSMS	YONGSUNG
F4,F5	AC MCB, 2P, 10A	G60	GE
IL	ILLUMINATION LIGHT	YST8	YONGSUNG

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: AC SUPPLY DISTRIBUTION 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 16 OF 18
NAH	ABA	MSC		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 27.01.2018	FOR APPROVAL

P4 RS485

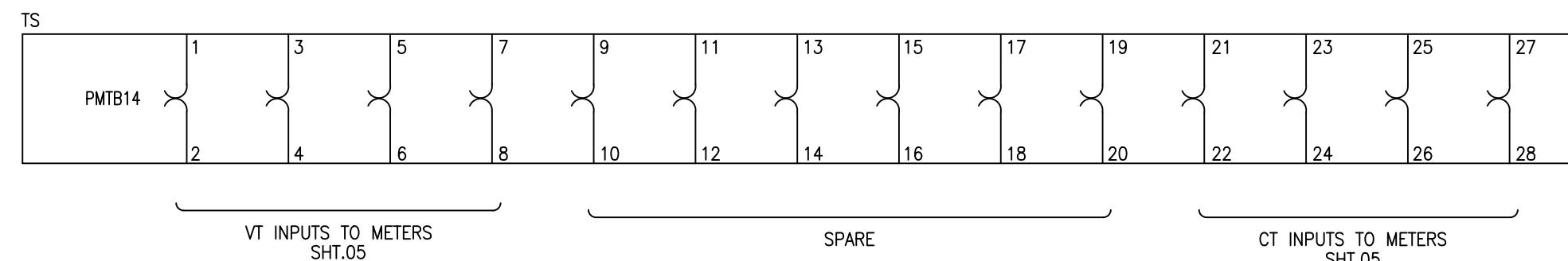
LEGEND

DES:	DESCRIPTION	TYPE	MAKE
P4	DIGITAL POWER METER	ENERIUM 150	ENERDIS

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: RS485 COMMUNICATION 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401	SHT: 17 OF 18
NAH	ABA	MSC		 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 27.01.2018	FOR APPROVAL REV: 0

TS

TS
TEST BLOCK TYPE TSB14-222211111AAAB-V

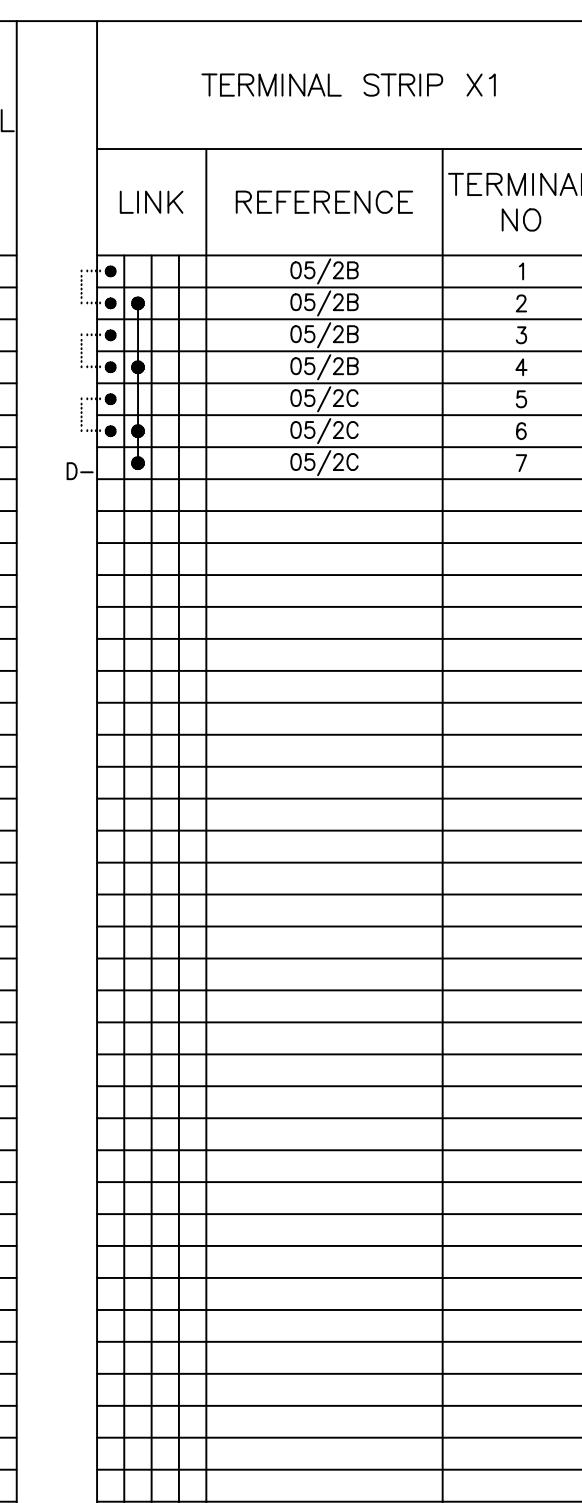


LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS-X	TEST BLOCK	TSB14	ARTECHE

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: TEST BLOCK TYPE TSB14 DETAILS 132/11KV TRANSFORMER CONTROL PANEL TYPE CP50	DWG# EPE/ENU-18/P1401 71-B Garden Block, New Garden Town, Lahore, Pakistan	SHT: 18 OF 18
NAH	ABA	MSC		 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 27.01.2018 FOR APPROVAL	REV: 0

	1	2	3	4	5
Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION		
A	1				
	2				
	3				
	4				
	5				
	6				
	7				
B	8				
	9				
	10				
	11				
	12				
	1	2	3	4	5
					6
					7
					8
					9
					10
					11
					12
C					
D					
E					
F					



APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO, 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132W RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP5 BY ELECTRIC SUPPLY COMPANY LTD.
NAH	ABA	MSC	 The logo of Electric Supply Company Ltd. features a circular emblem with a stylized building or tower in the center, surrounded by the company's name in a circular border.

TITLE:		TERMINAL DETAIL					
132/11kV TRANSFORMER CONTROL PANEL TYPE CP50							



E P E S O L Pvt. Ltd
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/P1402	SHT: 01OF 18
DATE:27.01.2018	FOR APPROVAL REV: 0



E P E S O L Pvt. Ltd.

DWO # EPE /ENH-12 /P1400 CUT 2025-12

DATE: 27.01.2018 FOR REV: 0

45

APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
MANUFACTURED ELECTRICAL EQUIPMENT, PARTS AND SPARES FOR THE PROJECT

TITLE: / DF TERMINAL DETAIL 100-10000000000000000000000000000000



E P E S O L Pvt. Ltd.

BINGO #1 - FEB 16 / 2016

DATE:27.01.2018 FOR REV: 0

APPROVED	CHECKED	DRAWN	P
NAH	ABA	MSC	

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
 FEDERAL ELECTRIC SUPPLY COMPANY LTD. (FESCO) MUMBAI, INDIA



E P E S O L Pvt. Ltd.

DWS # EPE /ENH-12 /P1420 CUT-2425-12

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
ELECTRICITY TO THE STATE GRID CORPORATION OF INDIA LTD.

TITLE: / DF TERMINAL DETAIL 100-10000000000000000000000000000000



E P E S O L Pvt. Ltd.

DWS # EDE /ENH-12 /D1420 GUT-2525-12

DATE: 27.01.2018 FOR REV: 0

APPROVED	CHECKED	DRAWN	P
NAH	ABA	MSC	RECORDED



E P E S O L Pvt. Ltd.

DWG# EPE/ENU-18/P1402	SHT: 06 OF 18
DATE: 27.01.2018	FOR: REV: 0

APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO, 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP5
NAH	ABA	MSC	

TITLE: TERMINAL DETAIL
132/11KV TRANSFORMER CONTROL PANEL TYPE CP50



E P E S O L Pvt. Ltd.

DWS # EDE /ENH-12 /D1420 GUT-27.05.18

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
MANUFACTURED ELECTRICAL EQUIPMENT

TITLE: / DF TERMINAL DETAIL



E P E S O L Pvt. Ltd.

DWO # EPE /ENH-12 /P1400

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
MANUFACTURED ELECTRICAL EQUIPMENT

TITLE: / DF TERMINAL DETAIL

LEGEND:



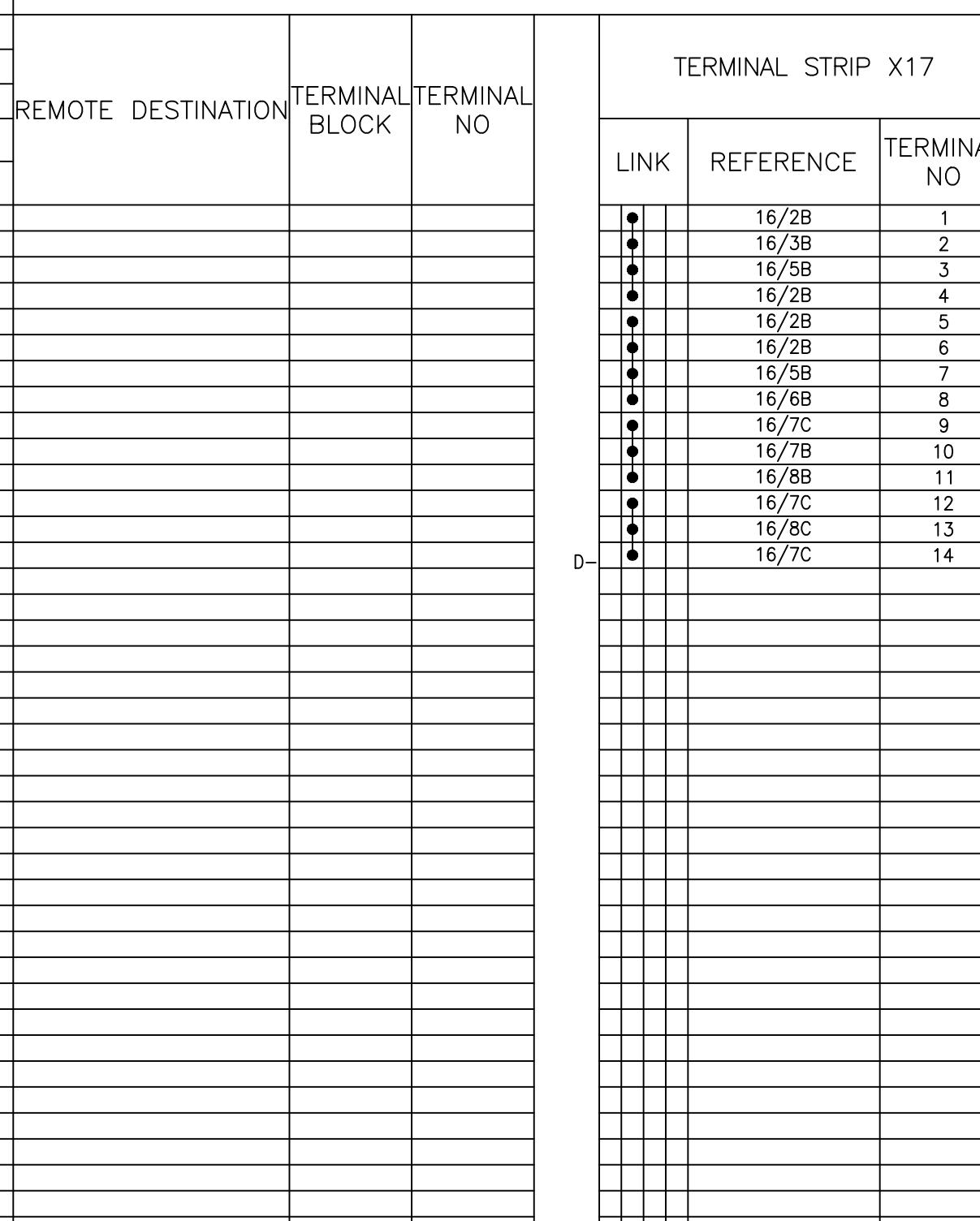
TEMPORARY SHORTENING LINK



PERMANENT LINK

D-

END COVER



APPROVED	CHECKED	DRAWN	PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO/ 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF 132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, RP3 & RP4	TITLE: TERMINAL DETAIL 132/11kV TRANSFORMER CONTROL PANEL TYPE CP50	 EPESOL PVT LTD. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1402	SHT: 09 OF 18
NAH	ABA	MSC				DATE:27.01.2018	FOR APPROVAL



E P E S O L Pvt. Ltd.

DWS # EDE /ENH-12 /D1420 CUT-12.05-12

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
ELECTRICITY TO THE STATE GRID CORPORATION OF INDIA LTD.

TITLE: / DF TERMINAL DETAIL 100-10000000000000000000000000000000



E P E S O L Pvt. Ltd.

DWO # EPE /ENH-12 /P1400 CUT-11.05-12

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
MANUFACTURED ELECTRICAL EQUIPMENT

TITLE: / DF TERMINAL DETAIL 100-10000000000000000000000000000000



E P E S O L Pvt. Ltd.

BMO # EDE /ENH 10 /D4100 GUT - 10.05.10

DATE:27.01.2018 FOR REV: 0

4

APPROVED: S. M. SCHAFFER DRAWMN:

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
ELECTRIC SUPPORT EQUIPMENT



E P E S O L P v t . L t d.

DWC# EBE /ENU 18 /D1402

SLT: 130E 19

DATE:27.01.2018 FOR

REV: 0

APPROVED	CHECKED	DRAWN	F DRAFTED BY
NAH	ABA	MSC	REDACTED

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
ELECTRIC SUPPORT CABLES

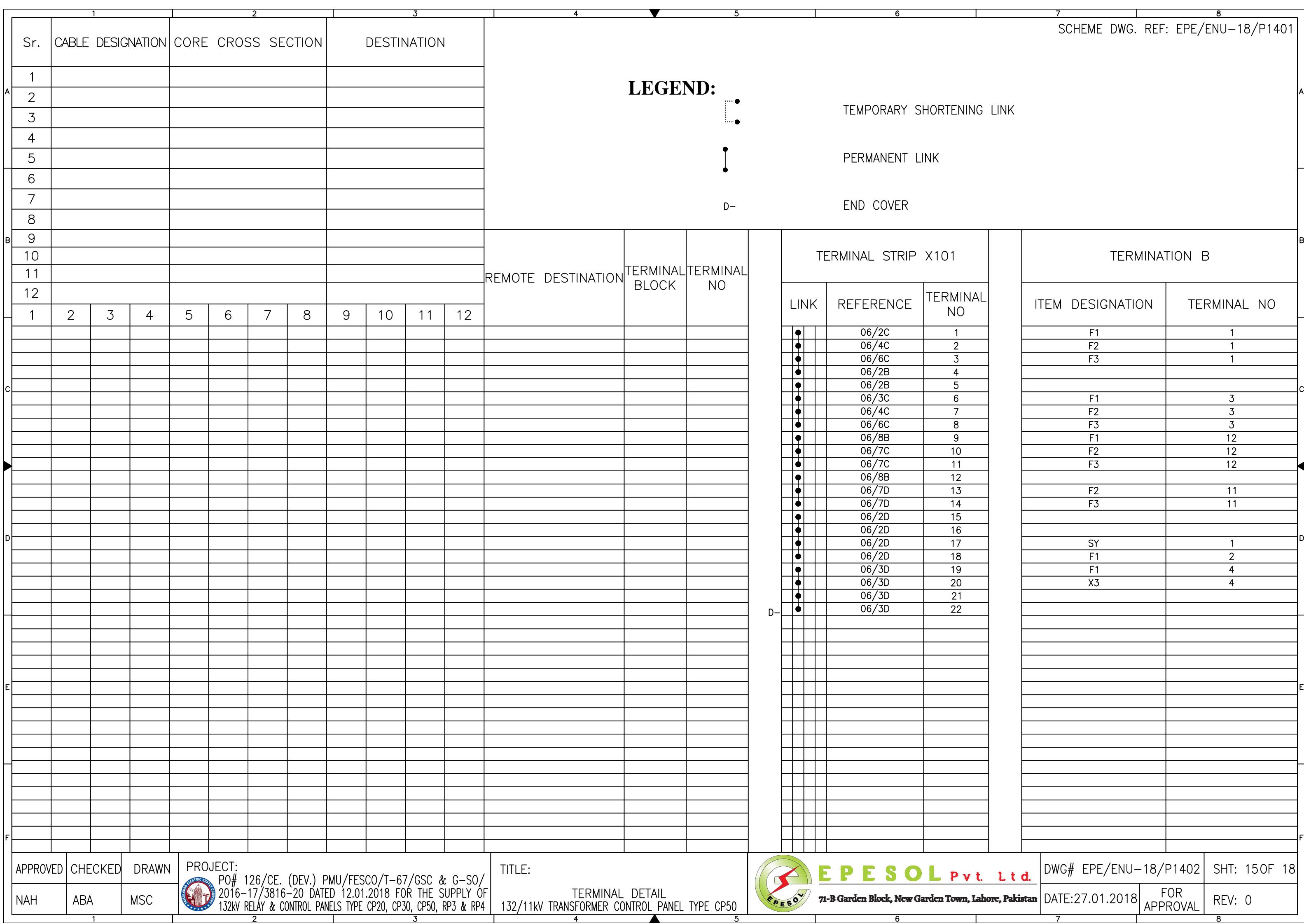


E P E S O L Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWC II_EDE/ENH_12/P1402 QUT_1405_12

DATE:27.01.2018 FOR REV: 0

APPROVED	CHECKED	DRAWN	P
NAH	ABA	MSC	RECORDED





PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, PR3 & PR5


TITLE: TERMINAL DETAIL
132/11kV TRANSFORMER CONTROL PANEL TYPE CP50



E P E S O L Pvt. Ltd.

DWG# EPE/ENU-18/P1402	SHT: 16OF 18
DATE:27.01.2018	FOR
REV: 0	



PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
132KV RELAY & CONTROL PANELS TYPE CP20, CP30, CP50, PR3 & PR5


TITLE: TERMINAL DETAIL
132/11kV TRANSFORMER CONTROL PANEL TYPE CP50



E P E S O L P v t . L t d .

DWG# EPE/ENU-18/P1402	SHT: 17OF 18
DATE:27.01.2018	FOR REV: 0



E P E S O L Pvt. Ltd.

DWS # EDE /ENH-12 /D1420 GUT-1225-12

DATE: 27.01.2018 FOR REV: 0

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APPROVED CHECKED DRAWN

PROJECT: PO# 126/CE. (DEV.) PMU/FESCO/T-67/GSC & G-SO,
 2016-17/3816-20 DATED 12.01.2018 FOR THE SUPPLY OF
 5MW TURBINE GENERATOR SETS FOR 11KV 1500 KVA

TITLE: / DF TERMINAL DETAIL 100-10000000000000000000000000000000