

SYSTEM ELECTRICAL SPECIFICATIONS			
SYSTEM RATING (STC)	356.4 kW		
PV MODULE MAKE AND MODEL:	CANADIAN SOLAR CS6P-270P		
STC RATING	270W	SERIES FUSE RATING	15A
OPEN CIRCUIT VOLTAGE	37.9V	MAX. POWER POINT VOLTAGE	30.8V
SHORT CIRCUIT CURRENT	9.32A	MAX POWER POINT CURRENT	8.75A
MAXIMUM ARRAY VOLTAGE	887V		
MAXIMUM ARRAY CURRENT	49.9A		
INVERTER MAKE AND MODEL	FRONIUS ECO 27.0-3-S		
NOMINAL VOLTAGE	3PH 400V	MAXIMUM OUTPUT CURRENT	39A

Rev	Date	Comments	Dwn	Chkd

NOTES:
 ALL WIRING, COMPONENTS AND EARTHING MUST BE INSTALLED IN ACCORDANCE WITH AS/NZS 3000 & 5033:2014 AND ALL THE CURRENT CEC REQUIREMENTS.
 EARTHING CABLE RUNS ARE INDICATIVE ONLY. ONLY EARTH CABLES USED FOR PV MODULE BONDING ARE INDICATED FOR CLARITY.

AC VOLTAGE RISE TO MEET THE ASSOCIATED DNSP REGULATION. DC LOSSES BETWEEN ARRAYS (INCLUDING LOSSES IN STRING CABLES) AND INVERTERS TO BE <3%P.

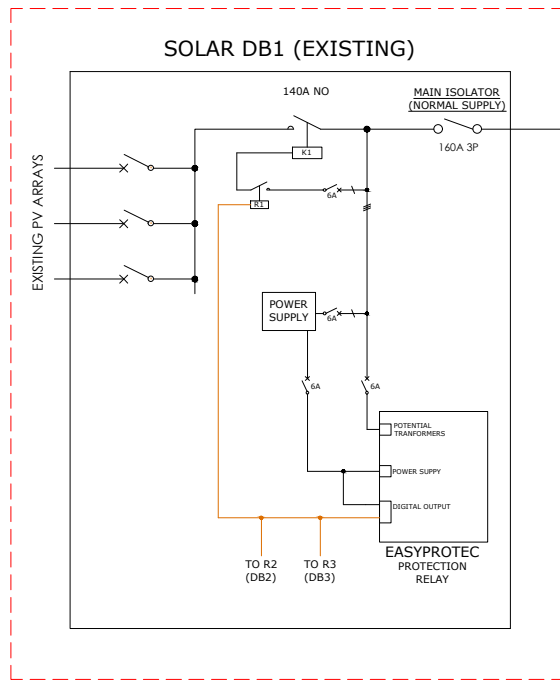
NOTE - VOLTAGES OVER 600VDC
 SYSTEM MUST COMPLY WITH RESTRICTED ACCESS REQUIREMENTS. INSTALL PADLOCK ON ENCLOSURES IF REQUIRED AND ENSURE ALL WIRING AND SYSTEM COMPONENTS FOLLOW THE AS3000 DEFINITION OF RESTRICTED ACCESS. DOMESTIC DWELLING MUST NOT HAVE SYSTEMS OVER 600V.

CONDUITS, CABLE TRAYS AND ALL CABLE MANAGEMENT SYSTEMS MUST ALLOW FOR HEAT EXPANSION AS WELL TO AVOID DAMAGE TO CABLES AND SHALL BE INSTALLED SUCH THAT THEY WILL LAST FOR THE LIFE OF THE SYSTEM.

SYSTEM CONFORMITY:
 ALL INVERTERS ARE AS4777 ACCREDITED
 ALL FRAMING AND INSTALLATION TO AS1170.2
 ALL PANELS AND INVERTERS ARE APPROVED BY CEC AND DNSP
 INSTALLATION AND LABELLING TO BE IN ACCORDANCE WITH AS3000 / AS5033:2014. ALL OTHER APPLICABLE STANDARDS, CURRENT CEC REQUIREMENTS AND SERVICE AND INSTALLATION RULES
 AC VOLTAGE DROP BETWEEN EACH INVERTER AND MSB SHALL MEET EACH DNSP REGULATIONS
 DC VOLTAGE DROP BETWEEN ARRAYS AND INVERTERS <3% IN ACCORDANCE WITH AS5033:2014



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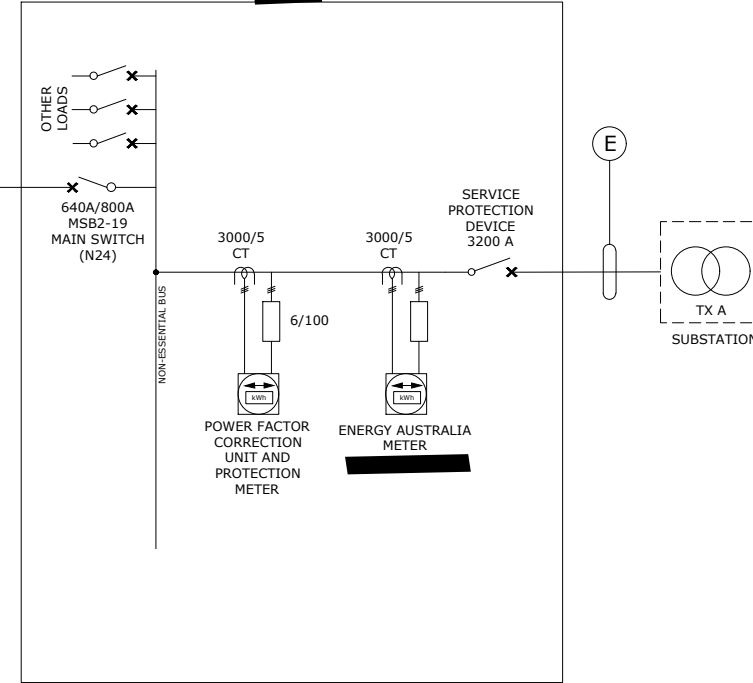
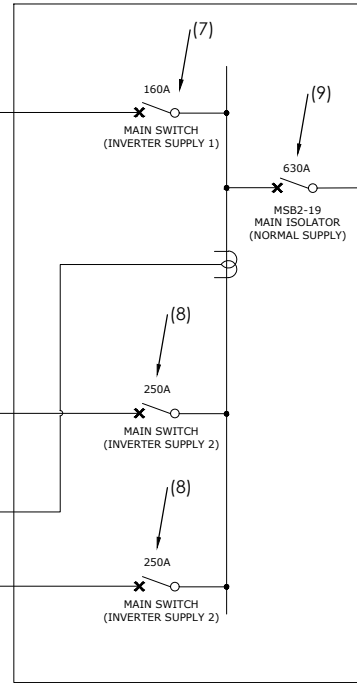
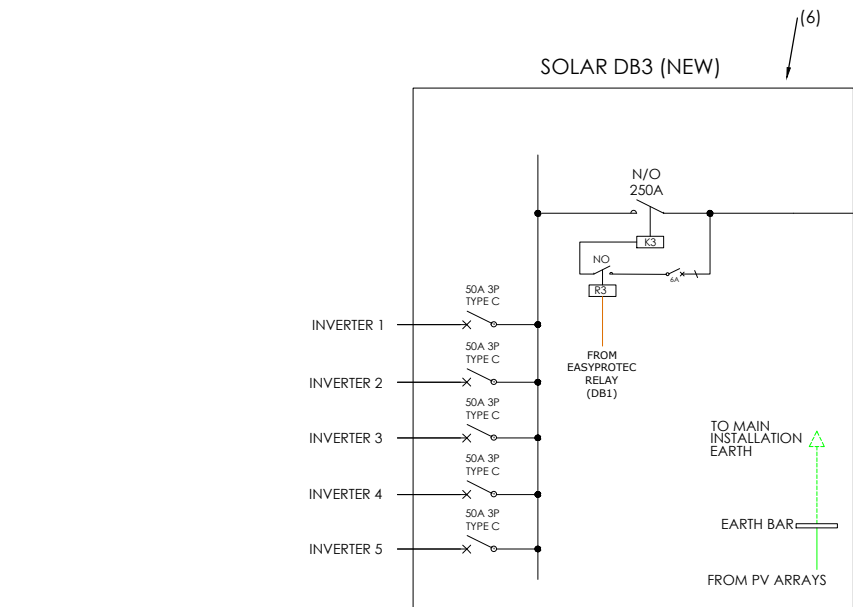
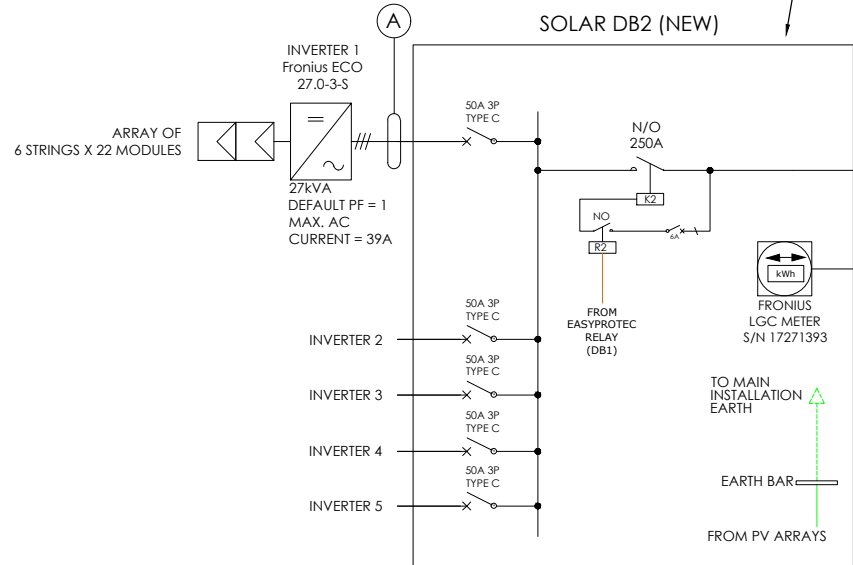
CABLE REPLACED WITH 50mm² 4C+E

LEVEL 2A ABOVE ELECTRICAL WORKSHOP

SOLAR AC DB

SUPPLIED FROM MSB2A DISTRIBUTOR No.2

EXISTING PV ARRAYS WITH PROTECTION BOARD.
 EXISTING PROTECTION RELAY USED BY SOLAR DBs 2 & 3



EQUIPMENT SCHEDULE			
TAG	QTY	DESCRIPTION	
(6)	2	SOLAR AC DB: 5x 50A 3P MCCB, 250A CONTACTOR, IP65 PANEL	
(7)	1	MAIN SWITCH (INVERTER SUPPLY 1) 160A MCCB	
(8)	2	MAIN SWITCH (INVERTER SUPPLY 2 AND 3) 250A MCCB	
(9)	1	MAIN ISOLATOR (NORMAL SUPPLY) 430A 3P MCCB	

WIRING SCHEDULE				
TAG	DESCRIPTION	CABLE SIZE	LONGEST RUN	VDRGP
A	INVERTERS TO SOLAR DB2	10x 16mm ² 4C+E	15m	0.36%
B	SOLAR DB2 TO SOLAR DB3	8x 1C 95mm ² +E	5m	0.07%
C	SOLAR DB3 TO MSB2-19	4x 1C 300mm ²	2m	0.05%
D	MSB2-19 TO MSB2A	8x 1C 240mm ² +E	15m	0.15%
E	MSB2A TO SUBSTATION	8x 1C 300mm ² +E	5m	0.03%

GRID PROTECTION STRATEGY		
DNSP:	Ausgrid	
PRIMARY GRID PROTECTION: INVERTER COMPLIANCE: AS 4777.2/3		
DESCRIPTION	TRIP SETTING	TIME
UNDER VOLTAGE	204.0 V L-N	1.7 Sec
OVER VOLTAGE	260.0 V L-N	1.7 Sec
UNDER FREQUENCY	48.4 Hz	1.7 Sec
OVER FREQUENCY	51.6 Hz	0
RECONNECTION	>60 Sec	
BACKUP GRID PROTECTION: RELAY CONTROLLING A NORMALLY OPEN CONTACTOR AT SOLAR OUTPUT COMPLIANCE: IEC 60255		
DESCRIPTION	TRIP SETTING	TIME
UNDER VOLTAGE - INSTANT (Z7P)	NR	--
UNDER VOLTAGE (Z7)	203.0V L-N	1.8 Sec
OVER VOLTAGE - INSTANT (S9)	NR	--
OVER VOLTAGE (S9)	265.0V L-N	1.8 Sec
UNDER FREQUENCY (B1U)	48.3 Hz	1.8 Sec
OVER FREQUENCY (B1O)	51.7 Hz	1.8 Sec
REVERSE POWER EXPORT LIMIT	NR	--
VECTOR SHIFT (78)	8°	0.5 Sec
ROCOF (B1R)	1 Hz/s	0.8 Sec
NEUTRAL VOLTAGE DISPLACEMENT (S9N)	NR	--
TIME BEFORE RESET	60 SEC	

PROJECT NAME:
LCPV2798

CLIENT'S NAME:
 [REDACTED]

Project Address
 [REDACTED]

Sheet Title
ELECTRICAL SCHEMATIC (AC)

Drawn	Date	Checked	Date
[Signature]	12/10/17	[Signature]	13/10/17

Status
AS BUILT

Drawing No.	Revision
LCPV2798-300	

PROJECT No: P1100-14-AU-PV
 SYSTEM NO: S-AU-1100
 DRAWING NO: 9771-1105
 CUSTOMER: [REDACTED]

REV	DESCRIPTION	DATE	APPROVED
NEW	PRELIMINARY	24 APR 2017	[REDACTED]

SUBJECT: SOLAR INVERTER INTERFACE CONTROL
 CONTROL WIRING
 SOLARTUNE CONTROL WITH EASYPROTEC RELAY (PROTECTION ONLY)

SHEET	CONTENTS
1	COVER AND CONTENTS
2	LEGENDS
3	SYSTEM OVERVIEW
4	DETAILED LAYOUT DB1 (EXISTING PROTECTION BOARD)
5	DETAILED LAYOUT DB2
6	SYSTEM COMMS
7	
8	
9	
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11	
12	
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14	
15	
16	

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UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN MILLIMETERS.
 DRAWING DEFINITIONS AND TOLERANCES
 SHALL BE FOUND IN SS-112.



PM Control Systems
 [REDACTED]

IMPORTANT - PLEASE NOTE :
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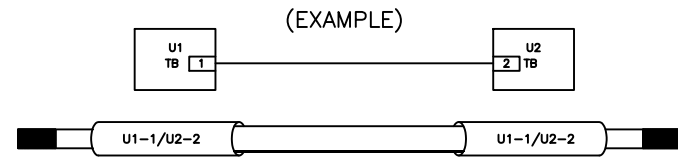
APPROVALS	DATE
ENGINEER [REDACTED]	24APR17
DRAWN BY [REDACTED]	24APR17

TITLE			
SOLAR INVERTER INTERFACE CONTROL COVER AND CONTENTS			
SIZE	SYSTEM PART NO.	DRAWING NO.	REV
A3	S-AU-1100	9771-1105	NEW
SCALE : N.T.S.			SHEET 1 OF 6

REF. DWGS.

STANDARD WIRING NOTES

CABLE LABELLING IS USED TO BE (MATERIAL) TRAFFOLYTE.
ALL FIELD WIRING ARE PROVIDED BY CUSTOMER.



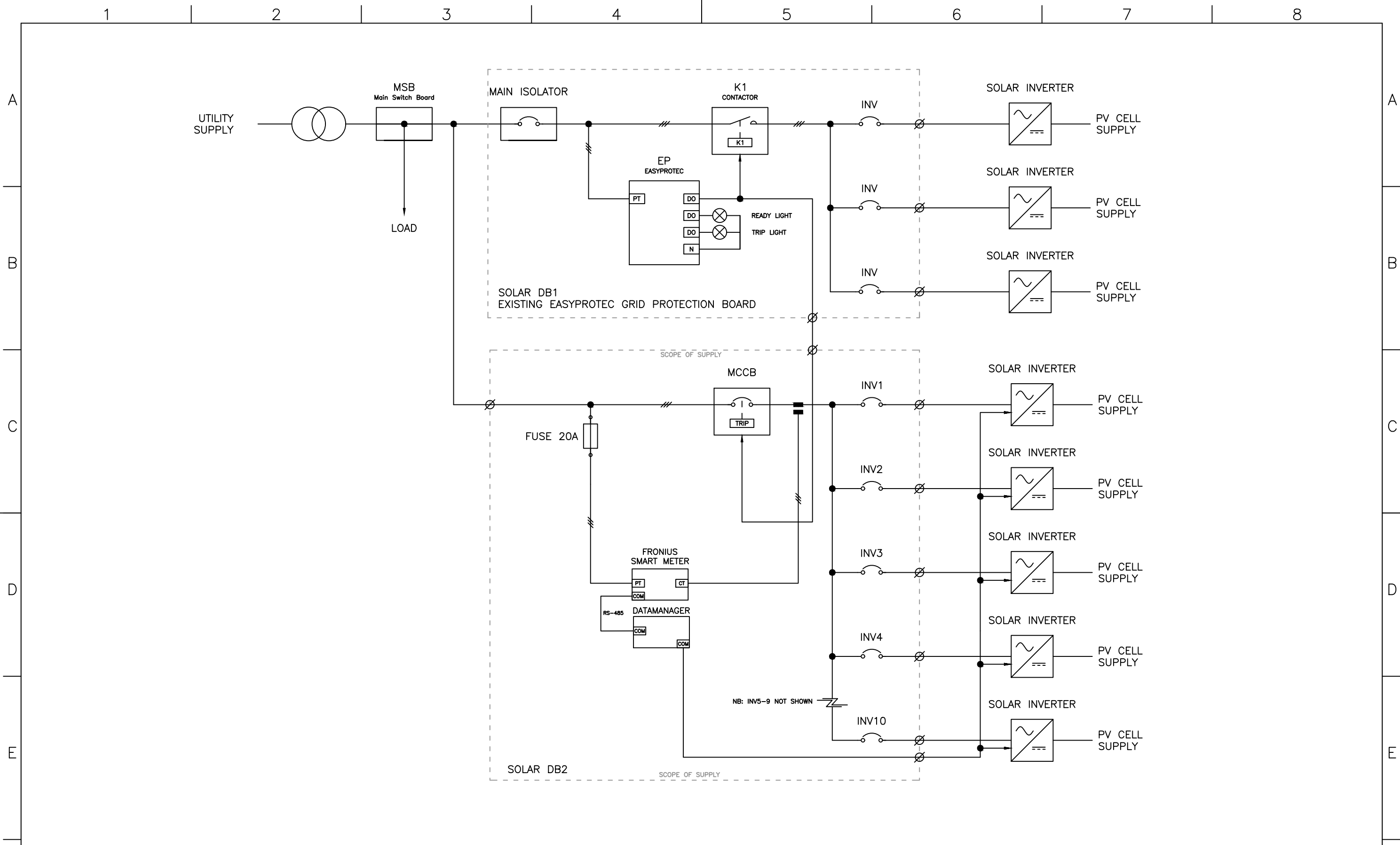
MISCELLANEOUS ABBREVIATIONS

- FTM - FIELD TERMINAL MODULE
- SHLD - SHIELD
- I.S - INTRINSICALLY SAFE

ELECTRICAL SYMBOLS USED

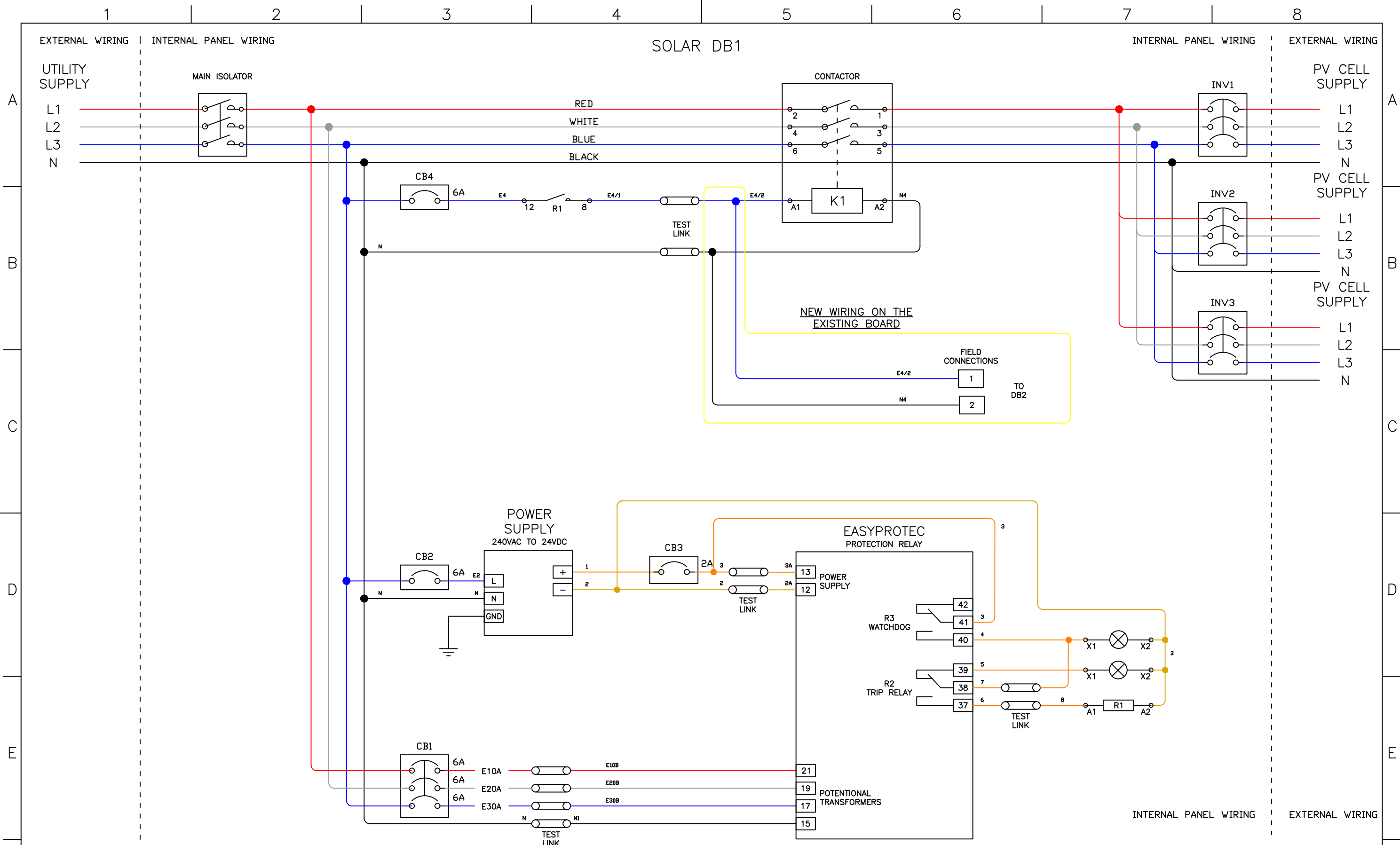
	SINGLE POLE MCB		COMMUNICATION CABLE (RS485)
	TRIPLE POLE MCB		COMMUNICATION CABLE (ETHERNET STRAIGHT)
	CONTACTOR, 3 PHASE		TERMINAL BLOCK
	FUSE		TERMINAL BLOCKS TIED
	RELAY COIL		TEST LINK SUITABLE FOR 4MM BANANA PLUG
	CONTACT, NORMALLY OPEN		TO SAFETY GROUND
	DIODE (NOT USED)		CHASSIS GROUND (NOT USED)
	415VAC WIRE PHASE L1 (RED)		INSTRUMENT GROUND (NOT USED)
	415VAC WIRE PHASE L2 (WHITE)		I.S EARTH BAR (NOT USED)
	415VAC WIRE PHASE L3 (BLUE)		WIRES NOT JOINED
	415VAC WIRE NEUTRAL (BLACK)		WIRES JOINED
	+24VDC (ORANGE)		SIGNAL CABLE SHIELD (NOT USED)
	24VDC COMMON (BROWN)		ENCLOSURE FAN

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN MILLIMETERS. DRAWING DEFINITIONS AND TOLERANCES SHALL BE FOUND IN SS-112.		THIRD ANGLE PROJECTION		PM Control Systems			
		APPROVALS		DATE		TITLE	
MATERIAL:		ENGINEER		24APR17	SOLAR INVERTER INTERFACE CONTROL		
REF. DWGS.		DRAWN BY		24APR17	LEGENDS		
		SIZE	A3	SYSTEM PART NO.	S-AU-1100	DRAWING NO.	9771-1105
		SCALE	N.T.S.		REV	NEW	
		SHEET				2 OF 6	



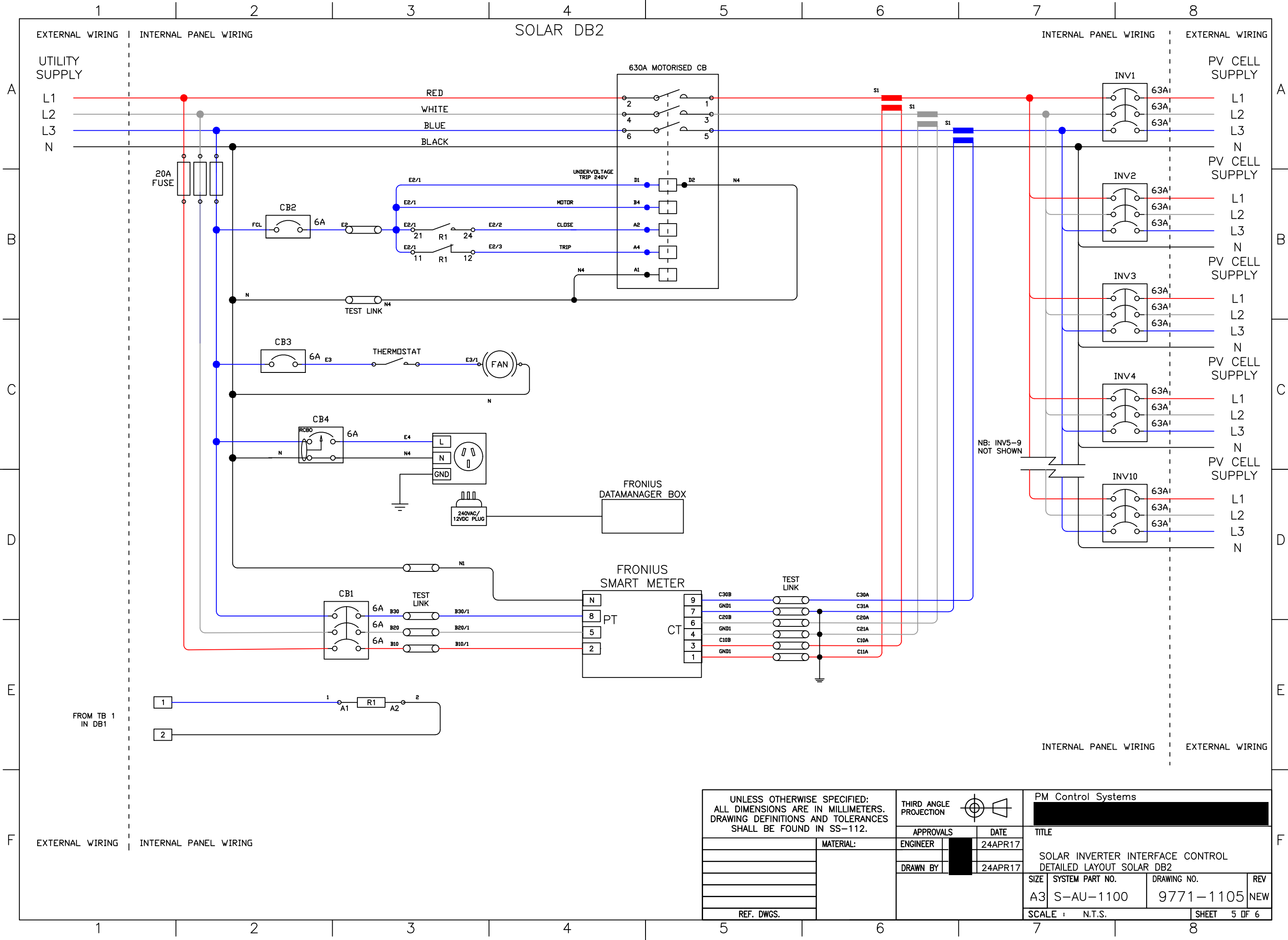
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		APPROVALS ENGINEER: DATE: 24APR17 DRAWN BY: DATE: 24APR17		TITLE SOLAR INVERTER INTERFACE CONTROL SYSTEM OVERVIEW - ASTRAZENECA	
REF. DWGS.		MATERIAL:		SIZE: A3	SYSTEM PART NO.: S-AU-1100
				DRAWING NO.: 9771-1105	REV: NEW
				SCALE: N.T.S.	SHEET 3 OF 6

SOLAR DB1



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		APPROVALS ENGINEER: [Redacted] DATE: 24APR17		TITLE SOLAR INVERTER INTERFACE CONTROL DETAILED LAYOUT SOLAR DB1	
MATERIAL:		DRAWN BY: [Redacted] DATE: 24APR17		SIZE: A3	SYSTEM PART NO.: S-AU-1100
REF. DWGS.		SCALE: N.T.S.		DRAWING NO.: 9771-1105	REV: NEW
				SHEET 4 OF 6	

SOLAR DB2



UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN MILLIMETERS. DRAWING DEFINITIONS AND TOLERANCES SHALL BE FOUND IN SS-112.		THIRD ANGLE PROJECTION		PM Control Systems [REDACTED]	
		APPROVALS ENGINEER: [REDACTED] DATE: 24APR17 DRAWN BY: [REDACTED] DATE: 24APR17		TITLE SOLAR INVERTER INTERFACE CONTROL DETAILED LAYOUT SOLAR DB2	
MATERIAL:		SIZE: A3		SYSTEM PART NO.: S-AU-1100	
REF. DWGS.		DRAWING NO.: 9771-1105		REV: NEW	
SCALE: N.T.S.				SHEET: 5 OF 6	

1 2 3 4 5 6 7 8

EXTERNAL WIRING | INTERNAL PANEL WIRING

INTERNAL PANEL WIRING | EXTERNAL WIRING

A

A

B

B

C

C

D

D

E

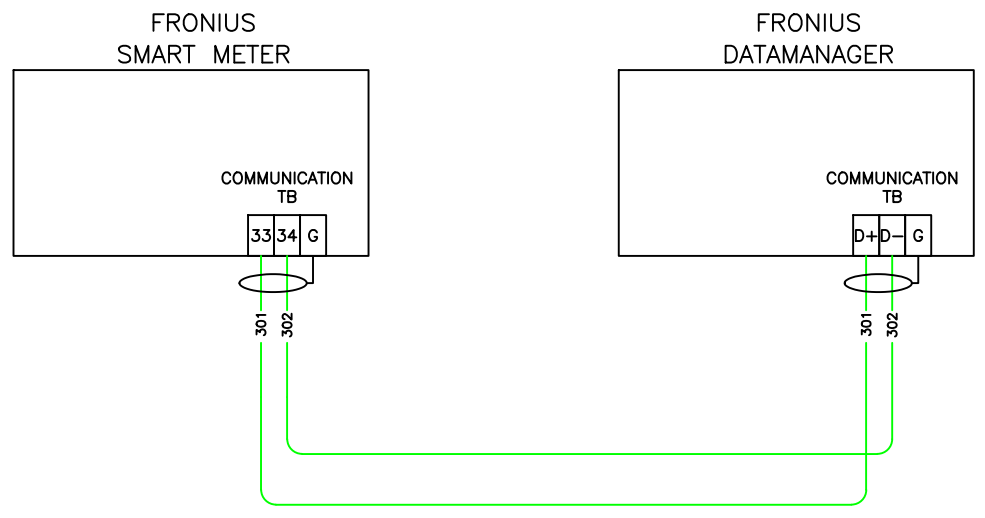
E

F

F

EXTERNAL WIRING | INTERNAL PANEL WIRING

INTERNAL PANEL WIRING | EXTERNAL WIRING



UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN MILLIMETERS. DRAWING DEFINITIONS AND TOLERANCES SHALL BE FOUND IN SS-112.		THIRD ANGLE PROJECTION				PM Control Systems		
		APPROVALS		DATE		TITLE		
MATERIAL:		ENGINEER		24APR17	SOLARTUNE			
		DRAWN BY		24APR17	SOLAR INVERTER INTERFACE CONTROL			
					SIZE	SYSTEM PART NO.	DRAWING NO.	REV
REF. DWGS.					A3	S-AU-1100	9771-1105	NEW
					SCALE : N.T.S.		SHEET 6 OF 6	

1 2 3 4 5 6 7 8