

300 3Ph MCCB
400
in MSB-1. Terminal numbers to be updated. Undervoltage release to be added.

to PV-DB
(Level 12)

MSB-1
Basement

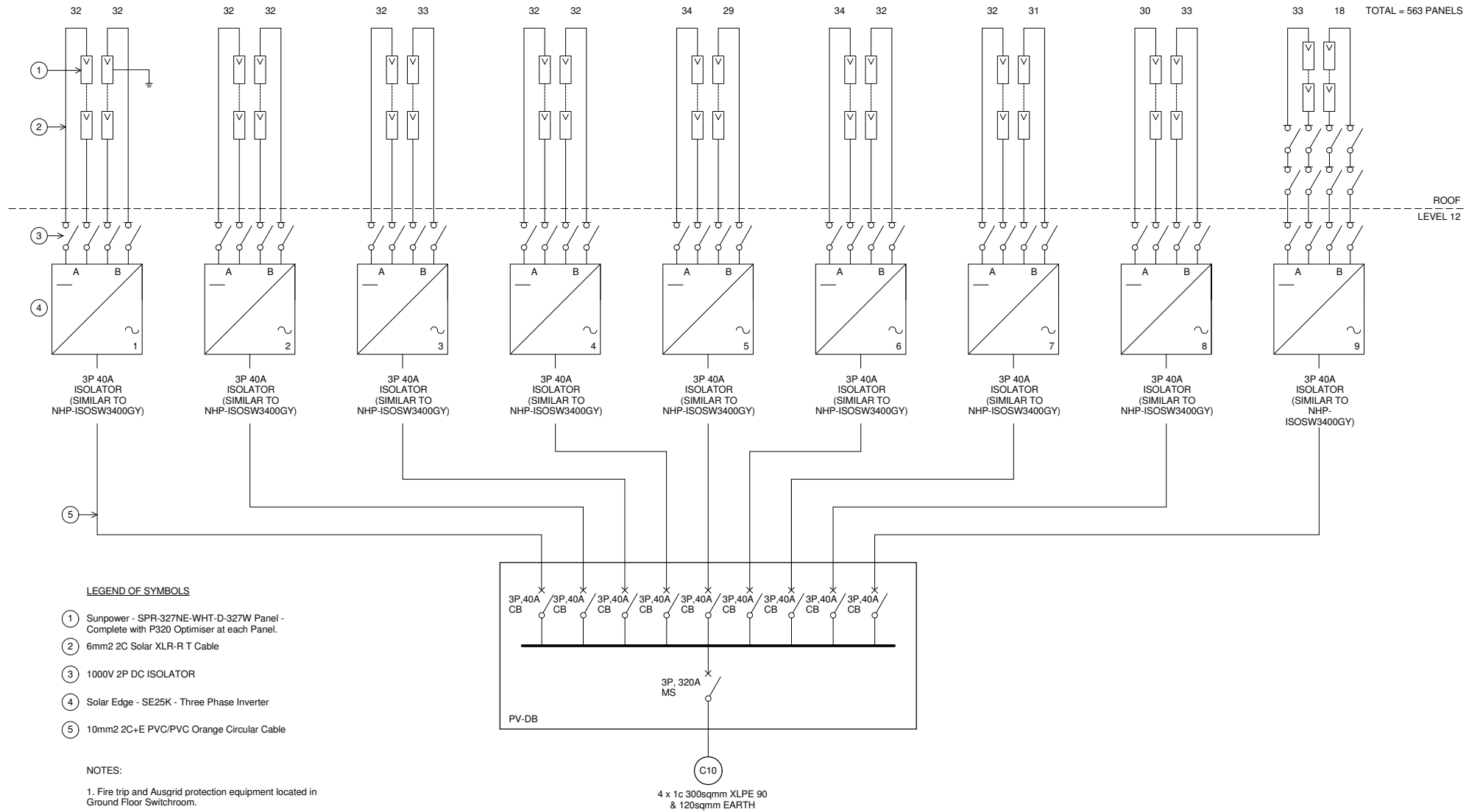
SOLAR PROTECTION
PANEL
Basement- adjacent to
MSB-1

PERMISSION TO CLOSE
PUSH BUTTON

fire system
alarm.
Contact to
close when
no alarm

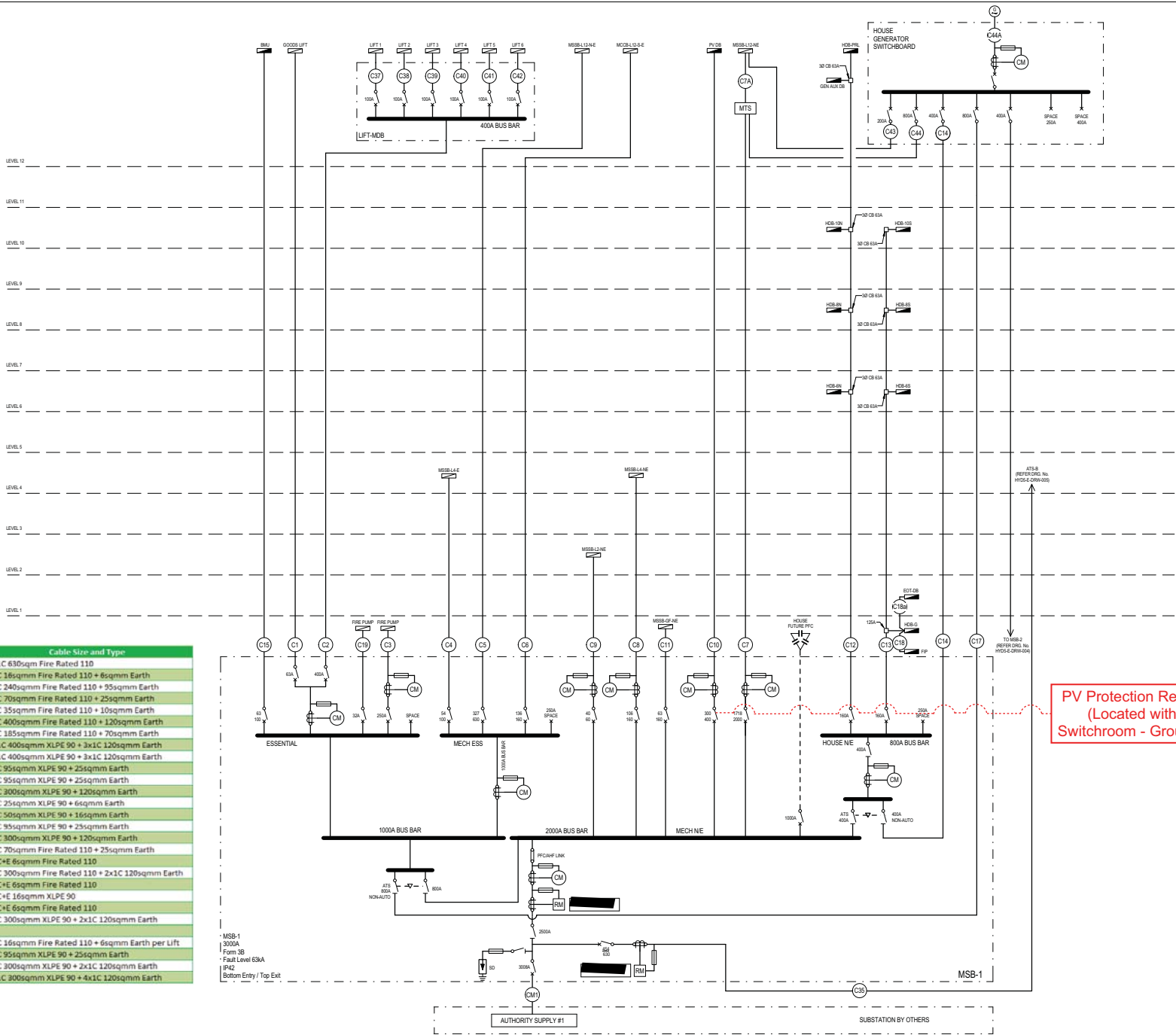
notes:
1. Contractor to add terminal blocks at required location
2. MCCB to be fitted with undervoltage release
3. Equipment terminal numbers to be confirmed by contractor
4. Contractor is responsible for equipment rating, wiring sizing to relevant AS/NZS standards

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	
DRAWN BY		29JUN16	
REF. DWGS.			
SIZE		SYSTEM PART NO.	DRAWING NO.
A3		S-AU-1100	9771-1105
SCALE		N.T.S.	SHEET 4 OF 4



Rev	Description	Date
1	Issue for Approval	13/11/24
2	Issue for Approval	13/11/24
3	Issue for Approval	13/11/24
4	Issue for Approval	13/11/24
5	Issue for Approval	13/11/24
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98	Issue for Approval	13/11/24
99	Issue for Approval	13/11/24
100	Issue for Approval	13/11/24

PHOTOVOLTAIC SYSTEM SCHEMATIC	
Scale: 1:50	Drawn by: [Redacted]
Checked by: [Redacted]	Approved by: [Redacted]
Project Number: NEC00062	Drawing Number: HYD5-E-DRW-0020
Revision: 4	Issue Date: [Redacted]



Cable ID	To	From	Cable Size and Type
CM1	MSB-1	Substation	16x1C 630sqm Fire Rated 110
C1	Goods Lift	MSB-1	4x1C 16sqm Fire Rated 110 + 6sqm Earth
C2	LIFT MDB	MSB-1	4x1C 240sqm Fire Rated 110 + 95sqm Earth
C3	Fire Sprinkler Pump	MSB-1	4x1C 70sqm Fire Rated 110 + 25sqm Earth
C4	MSSB-L4-E	MSB-1	4x1C 35sqm Fire Rated 110 + 10sqm Earth
C5	MSSB-L12-N-E	MSB-1	4x1C 400sqm Fire Rated 110 + 120sqm Earth
C6	MSSB-L12-S-E	MSB-1	4x1C 185sqm Fire Rated 110 + 70sqm Earth
C7	MSSB-L12-NE	MSB-1	12x1C 400sqm XLPE 90 + 3x1C 120sqm Earth
C8	MSSB-L12-NE	MSSB-L12-NE MTS	12x1C 400sqm XLPE 90 + 3x1C 120sqm Earth
C9	MSSB-L4-NE	MSB-1	4x1C 95sqm XLPE 90 + 25sqm Earth
C10	MSSB-L2-NE	MSB-1	4x1C 95sqm XLPE 90 + 25sqm Earth
C11	PV DB	MSB-1	4x1C 300sqm XLPE 90 + 120sqm Earth
C12	MSSB-GF-NE	MSB-1	4x1C 25sqm XLPE 90 + 6sqm Earth
C13	HDB North Riser	MSB-1	4x1C 50sqm XLPE 90 + 16sqm Earth
C14	HDB South Riser	MSB-1	4x1C 95sqm XLPE 90 + 25sqm Earth
C15	MSB-1 (House N/E) ATS	House Generator Switchboard	4x1C 300sqm XLPE 90 + 120sqm Earth
C16	BMU DB	MSB-1	4x1C 70sqm Fire Rated 110 + 25sqm Earth
C17	MECP	HDB-G	1x4C+E 6sqm Fire Rated 110
C18	MSB1 ATS	House Generator Switchboard	8x1C 300sqm Fire Rated 110 + 2x1C 120sqm Earth
C19	FIP	HDB-G	1x4C+E 6sqm Fire Rated 110
C18a	EOT-DB	HDB-G	1x4C+E 16sqm XLPE 90
C19	Diesel Fire Pump	MSB-1	1x4C+E 6sqm Fire Rated 110
C35	ATS-B	MSB-1	8x1C 300sqm XLPE 90 + 2x1C 120sqm Earth
C36			
C37-C42	Lifts 1-6	LIFT MDB	4x1C 16sqm Fire Rated 110 + 6sqm Earth per Lift
C43	MSSB-L12-NE(BU) - ATS	House Generator Switchboard	4x1C 95sqm XLPE 90 + 25sqm Earth
C44	MTS (MSSB-L12-NE)	House Generator Switchboard	8x1C 300sqm XLPE 90 + 2x1C 120sqm Earth
C44a	House Generator Switchboard	House Generator 1000kVA	12x1C 300sqm XLPE 90 + 4x1C 120sqm Earth

MSB-1 CABLE SCHEDULE

PV Protection Relay Panel
(Located with Main
Switchroom - Ground Floor)

Rev	Description	Date
1	Issue for Construction	2023/12/15
2	Revised Cable Schedule	2024/01/10
3	Final Approval	2024/01/25

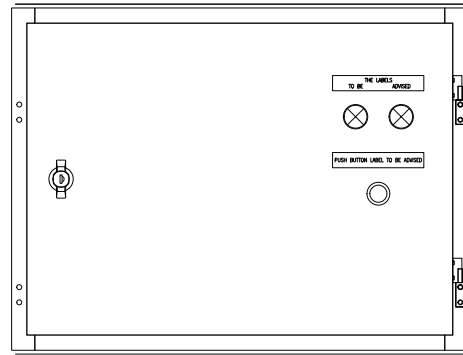
MSB-1 SINGLE LINE DIAGRAM & CABLE SCHEDULE

Project: [REDACTED] | Drawing No: NEC00062 | Title: HYDS-E-DRW-0003

Author: [REDACTED] | Date: [REDACTED]

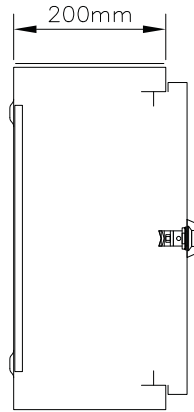
Checked: [REDACTED] | Date: [REDACTED]

Approved: [REDACTED] | Date: [REDACTED]



GLAND PLATE

FRONT ELEVATION



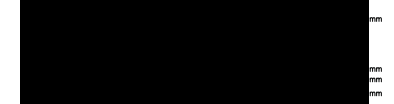
SECTION DETAIL
(WITH DOOR FITTED)

CONSTRUCTION NOTES:

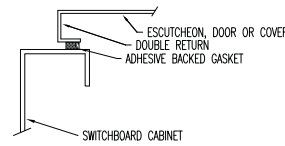
- CABINET:
DOORS & COVERS: 1.6mm ZINC SEALED MILD STEEL, FOLDED & WELDED CONSTRUCTION
ESCUTCHEONS: 1.6mm ZINC SEALED MILD STEEL
GLAND PLATES: 1.6mm ZINC SEALED MILD STEEL
FORM OF SEGREGATION: FORM 1
DEGREE OF PROTECTION: IP-42 - REFER TO DUSTPROOFING DETAIL
- FINISH:
POWDER COATED - MINIMUM THICKNESS 0.07mm
- PREPARATION:
DE-SCALE & DE-GREASE
- EXTERNAL COLOUR: X15 ORANGE
INTERNAL COLOUR: X15 ORANGE
REMOVABLE GEAR PANS AND ESCUTCHEON: GLOSS WHITE
- LABELS:
ENGRAVED PLASTIC LAMINATE
FIXING: DOUBLE SIDED ADHESIVE + SCREW FIXED
COLOUR: MAIN ISOLATOR - WHITE LETTERS ON BLACK
WARNING, FIRE & LIFTS - WHITE LETTERS ON RED
OTHERS - BLACK LETTERS ON WHITE
- CONTROL WIRING:
MINIMUM 1.5mm Cu V90
- WIRE MARKERS:
SMB HARVAL STANDARD FERRULES
BARE CABLE ENDS WHERE TERMINALS REQUIRE LUGS, BOOTLACE FERRULES OR PRE-INSULATED RING LUGS.
- TERMINATIONS:
240V AC - PHASE COLOURED
NEUTRAL - BLACK
EARTH - GREEN/YELLOW
AC CONTROL CIRCUIT ACTIVE- RED

SOLAR INVERTER INTERFACE CONTROL BOARD

Colour : White-Black
Size : 230x40mm
1 OFF EACH

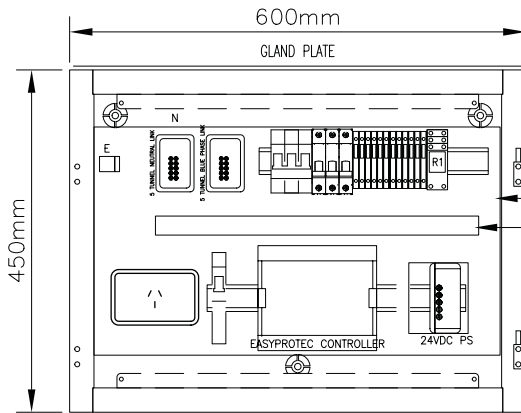


Colour : Blue-White-Blue
Size : 180x50mm
1 OFF



DUST PROOFING DETAIL

TOTAL 1 OFF



GLAND PLATE

FRONT ELEVATION

(WITH DOOR REMOVED)

534X300mm GEAR PAN
20X60mm CABLE DUCT

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	PART NUMBER	TOTAL
CONTROLLER	WOODWARD EASYPROTEC 1410-7		1
24VDC RELAY	SCHNEIDER RXM 2C/O 12A 24VDC	SN-RXM2AB1BD	1
RELAY BASE	SCHNEIDER RXZ	SN-RXZEZS108M	1
COVERED LINK	NETEC 5 TUNNEL RED COVERED LINK		1
	NETEC 5 TUNNEL BLACK COVERED LINK		1
24VDC POWER SUPPLY	15W 24VDC POWER SUPPLY		1
CT DISCONNECT TERMINALS	CT DISCONNECT TERMINALS	ACC-TESTLINK-06	12
3P 6A MCB	ABB 3P 6A MCB 6KA C-CURVE	AB-S203C06	1
1P 6A RCBO	ABB 1P 6A RCBO 30mA 6KA C-CURVE TYPE AC	AB-DSE201C06AC30	1
1P 2A MCB	ABB 1P 2A MCB 6KA C-CURVE	AB-S201C02	1
1P 6A MCB	ABB 1P 6A MCB 6KA C-CURVE	AB-S201C06	2
10A SINGLE SOCKET POWER POINT	10A SINGLE POWER OUTLET		1
	MOUNTING BOX		1
PUSH BUTTON	IPD 1NO CONTACT BLACK PUSH BUTTON	IP-YW1B-M1E10B	1
PILOT LIGHT	IPD 24V LED LAMP-RED	IP-YW1P-2EQ4R	1
	IPD 24V LED LAMP-BLUE	IP-YW1P-2EQ4S	1

REVISIONS				
ISSUE	DESCRIPTION	DATE	BY	CHECKED
A	FOR APPROVAL	25.11.16		

REFERENCE DRAWINGS	

IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO VERIFY OVERALL DIMENSIONS, CABLE ENTRIES AND SITE ACCESS FOR POSITIONING OF SWITCHBOARDS.

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CONTROLLED	CLIENT
DRAWN	DRAWING TITLE
CHECKED	SOLAR INVERTER INTERFACE CONTROL BOARD GENERAL ARRANGEMENT
DATE	25.11.16
SCALE	PROJECT
NONE	

DRAWING NUMBER	
PJ2160051-34-01	
SHEET SIZE	ISSUE
A3	A
DRAWING STATUS	
FOR APPROVAL	
FOREIGN NUMBER	*

GPD Settings (Woodward EasyProtect) - Darling Harbour Live

ID	Parameter	Setting	Notes
Configuration			
1750	System rated frequency	50Hz	Standard
1766	Rated voltage	400V	230/400V Rated and base value for settings
1851	Voltage measuring	3Ph 4W	As per marked up schematic 9771-1105
3954	Phase rotation	CW	Clockwise, ABC
1858	1Ph2W voltage measuring	Phase-Phase	Default - Not applicable
1859	1Ph2W voltage rotation	CW	Default - Not applicable
1770	Voltage monitoring	Phase-neutral	Ph-N voltages monitored
1788	Disable under-frequency w low volts	Yes	UF monitoring is disabled on low volts
1801	PT primary rated voltage	400V	Primary voltage - no VTs are used
1800	PT secondary rated voltage	400V	Secondary voltage - no VTs are used
6920	Relay 1 function	N.O	Normally Open - Not required
6921	Relay 2 function	N.C	As per marked up schematic 9771-1105
8855	Monitoring fall-back delay	60s	60s reset time for all trips (as per NS194)
2415	Startup delay	0s	0s delay before output relays operate on startup
Overvoltage Monitoring 1			
2000	Monitoring	On	Required
2004	Limit	115.60%	267V Pickup (Complies with NS194)
2005	Delay	2s	2s delay (Complies with NS194)
2014	AND characteristics	Off	At least 1ph over threshold
2001	Relay	Relay 2	As per marked up schematic 9771-1105
Overvoltage Monitoring 2			
2006	Monitoring	Off	Not required
2010	Limit		
2011	Delay		
2015	AND characteristics		
2007	Relay		
Undervoltage Monitoring 1			
2050	Monitoring	On	Required
2054	Limit	87.90%	203V Pickup (Complies with NS194)
2055	Delay	2s	2s delay (Complies with NS194)
2064	AND characteristics	Off	At least 1ph under threshold
2051	Relay	Relay 2	As per marked up schematic 9771-1105
Undervoltage Monitoring 2			
2056	Monitoring	Off	Not required
2060	Limit		
2061	Delay		
2065	AND characteristics		
2057	Relay		
Overfrequency Monitoring 1			
1900	Monitoring	On	Required
1904	Limit	104%	52Hz pickup (Complies with NS194)
1905	Delay	2s	2s delay (Complies with NS194)
1901	Relay	Relay 2	As per marked up schematic 9771-1105
Overfrequency Monitoring 2			
1906	Monitoring	Off	Not required
1910	Limit		
1911	Delay		
1907	Relay		
Underfrequency Monitoring 1			
1950	Monitoring	On	Required
1954	Limit	96%	48Hz pickup (Complies with NS194)
1955	Delay	2s	2s delay (Complies with NS194)
1951	Relay	Relay 2	As per marked up schematic 9771-1105
Underfrequency Monitoring 2			
1956	Monitoring	Off	Not required
1960	Limit		
1961	Delay		
1957	Relay		
Voltage Asymmetry 1			
3900	Monitoring	Off	Not required
3903	Limit		
3904	Delay		

3901	Relay		
Voltage Asymmetry 2			
3931	Monitoring	Off	Not required
3934	Limit		
3935	Delay		
3932	Relay		
Phase Shift			
3050	Monitoring	On	Required
3053	Monitoring type	1 and 3 phase	Single and 3 phase trips
3054	Limit 1 phase	8°	8 degrees (Complies with NS194)
3055	Limit 3 phase	8°	8 degrees (Complies with NS194)
3051	Relay	Relay 2	As per marked up schematic 9771-1105
df/dt (ROCOF)			
3100	Monitoring	On	Required
3104	Limit	0.8Hz/s	Complies with NS194
3105	Delay	0.9s	Complies with NS194
3101	Relay	Relay 2	As per marked up schematic 9771-1105
Voltage Increase			
8806	Monitoring	Off	Not required
8807	Limit		
8849	AND characteristics		
8831	Relay		
Time Dependent Voltage 1			
4950	Monitoring	Off	Not required
4952	AND characteristics		
4953	Monitoring at		
4970	Init threshold		
4968	Fallback time		
4978	Fallback threshold		
4961	Time point 1		
4962	Time point 2		
4963	Time point 3		
4964	Time point 4		
4965	Time point 5		
4966	Time point 6		
4967	Time point 7		
4971	Voltage point 1		
4972	Voltage point 2		
4973	Voltage point 3		
4974	Voltage point 4		
4975	Voltage point 5		
4976	Voltage point 6		
4977	Voltage point 7		
4951	Relay		
Time Dependent Voltage 2			
4954	Monitoring	Off	Not required
4956	AND characteristics		
4957	Monitoring at		
4990	Init threshold		
4988	Fallback time		
4998	Fallback threshold		
4981	Time point 1		
4982	Time point 2		
4983	Time point 3		
4984	Time point 4		
4985	Time point 5		
4986	Time point 6		
4987	Time point 7		
4991	Voltage point 1		
4992	Voltage point 2		
4993	Voltage point 3		
4994	Voltage point 4		
4995	Voltage point 5		
4996	Voltage point 6		
4997	Voltage point 7		

4955	Relay		
Time Dependent Voltage 3			
9130	Monitoring	Off	Not required
9132	AND characteristics		
9133	Monitoring at		
9148	Init threshold		
9147	Fallback time		
9156	Fallback threshold		
9140	Time point 1		
9141	Time point 2		
9142	Time point 3		
9143	Time point 4		
9144	Time point 5		
9145	Time point 6		
9146	Time point 7		
9149	Voltage point 1		
9150	Voltage point 2		
9151	Voltage point 3		
9152	Voltage point 4		
9153	Voltage point 5		
9154	Voltage point 6		
9155	Voltage point 7		
9131	Relay		
Time Dependent Voltage 4			
9134	Monitoring	Off	Not required
9136	AND characteristics		
9137	Monitoring at		
9165	Init threshold		
9164	Fallback time		
9173	Fallback threshold		
9157	Time point 1		
9158	Time point 2		
9159	Time point 3		
9160	Time point 4		
9161	Time point 5		
9162	Time point 6		
9163	Time point 7		
9166	Voltage point 1		
9167	Voltage point 2		
9168	Voltage point 3		
9169	Voltage point 4		
9170	Voltage point 5		
9171	Voltage point 6		
9172	Voltage point 7		
9135	Relay		
Factory Settings			
1704	Factory Default Settings	CTD	Set/Reset as required
1701	Reset factory default values	CTD	Set/Reset as required
Password Entry			
10418	Password system	CTD	By others
10406	Actual code level	CTD	By others
10401	Password	CTD	By others
Passwords			
10415	Basic node level	CTD	By others
10414	Temp commissioning code level	CTD	By others
10413	Commissioning code level	CTD	By others
10412	Temp super commissioning level code	CTD	By others
10411	Super commissioning level code	CTD	By others