

SITE COMPLETION CHECKLIST PLANT INTERFACING WORK (PIW) (PRE-CABLING & INSTALLATION)			 TENAGA NASIONAL		
Doc No.	SCC PIW(PC)	Rev. No.	1	Date	5 JUNE 2020

CONTRACT TITLE :

**PEMBEKALAN, PEMASANGAN, PENGUJIAN DAN MULATUGAS FASILITI SCADA (RTU) UNTUK PROJEK SBU ASSET
DEVELOPMENT DISTRIBUTION NETWORK DIVISION. TNB**

CONTRACT NO. :	TNB131/2024	
CONTRACTOR :	ARAS KEJURUTERAAN	
DATE :	04-11-2025	
SUBSTATION NAME :	SSU ELMINA ILHAM NO. 1	
FUNCTIONAL LOCATION :	BSAM/PCE/J02351	
SUBZONE :	BSAM	
STATE :	SELANGOR	
WORK TYPE : (Tick "✓" whichever applicable)		Plant Interfacing Work (PIW) VCB
		Plant Interfacing Work (PIW) M-RMU
	✓	INTEGRATED AD VCB
		INTEGRATED AD M-RMU

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A1. SCC PIW (DURING PRE-CABLING & INSTALLATION)					
CONTRACT NO. :		TNB131/2024			
FUNCTIONAL LOCATION :		BSAM/PCE/J02351			
SUBSTATION NAME :		SSU ELMINA ILHAM NO. 1			
Check boxes as follows: (✓) OK NI : Need Improvement (Pls. give comments at 'Remark' column)					
No.	Description	OK	NI	REMARKS	
1. Visual Checks on RCB					
i.	RCB cabinet is properly mounted & aligned at the wall / designated area.	✓			
ii.	QR code / label is available inside RCB Cabinet. The information on QR label* is scanned & checked (according to SOW) [* If available for this contract]	✓			
iii.	All wirings to the terminal blocks are terminated tightly and terminal blocks are in good condition.	✓			
iv.	All cables shall be properly glanded at the cable entry points using proper glanding and sealing (to ensure no space/gap between the cable entry points/glands and the panel)	✓			
v.	For RCB Multi-pin with Interconnector cables, inspect condition of pins (not bended/broken/'sub-merged' in the holder).	✓			
vi.	For RCB Multi-pin with Interconnector cables, check pin no. assignment with signal arrangement.	✓			
vii.	For RCB Multi-pin with Interconnector cables, check DC Earth fault to Ground.	✓			
viii.	For RCB Multi-pin with Interconnector cables, check cable support to avoid stress on the connector side.	✓			
ix.	For RCB Multi-pin with Interconnector cables, ensure cables on both ends are connected to the correct feeder number.	✓			
2. Visual and Physical Checks on Cablings and Terminations					
i.	All non-armoured cables shall be installed in rigid high impact PVC conduits, neatly secured in position and adequately supported where necessary in an approved manner.	✓			
ii.	The size of the PVC conduit shall be 25 mm in diameter and the colour of the conduit and fittings shall be orange. The conduits shall be fixed by means of saddles secured rigidly at intervals not exceeding 750 mm.	✓			
iii.	Cable supports/brackets/elbows shall be installed at intervals not greater than 1500 mm for vertical runs and not greater than 1000 mm for horizontal runs. The brackets shall be derusted, finished in a primer and coated with standard orange enamel. The brackets/elbows shall not be painted.	✓			
iv.	For armoured cables, cable supports, elbows, cleats, trays shall be used. All materials must be of galvanised type (of at least 1.2 mm in thickness).	✓			
v.	For each termination from VCB / MRMU / EFI / Battery Charger / AC point to RCB: (i) Core number shall be marked using ferrules (ferrules shall be of one character slip-on interlocking type only). (ii) Diameter of interlocking ferrules shall be 2.5 mm & preferred brand is Partex. (iii) "TRIP" ferrules (red colour) for trip circuits. No two or more plant panels shall share a common/same cable. All cables shall be properly labelled at both ends as per signal arrangement drawings using heat shrinkable labels or cable tags.	✓			
vi.	No two or more plant panels shall share a common/same cable.	✓			
Observations:					
Checks conducted by: Contractor's Signature & Stamp:			Verified by: TNB's Representative Signature & Stamp:		
					
Name: MOHD TARMIZI ALIAS			Name:		
Date: 04-11-2025			Date: 06-01-2026 15:14:28		

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SUBSTATION NAME :		SSU ELMINA ILHAM NO. 1			
Check boxes as follows: (✓) OK NI : Need Improvement (Pls. give comments at 'Remark' column)					
No.	Description	OK	NI	REMARKS	
3.	Visual Checks on Installations				
a.	Battery Charger (including Batteries)				
i.	Mounted in stable condition & aligned at the designated area.	✓			
ii.	Use of proper Torque Wrench (11 Nm) for installation of batteries	✓			
iii.	QR Label Information is available inside Battery Charger Panel. Scanned and checked information on QR label* (according to SOW). [* If available for this contract]	✓			
b.	Earth Fault Indicators (EFIs)				
i.	Installed on a mounting board, at designated area with cable markings for each EFI.	✓			
ii.	Not more than 2 nos. of EFIs on the mounting board.	✓			
4.	Site Drawings & Tests				
i.	Hardcopy of Approved Drawings - Documents are available & placed inside RCB / RTU panel. [Note: Any changes to the drawings shall be updated in softcopy and passed to TNB as As-built drawings].	✓			
ii.	Hardcopy of Mastersheet & Wiring List (Working Copies) - Any changes shall be updated/written in the Mastersheet & Wiring List & verified, signed and stamped by supervisor / representative - Documents are available & placed inside RCB / RTU panel.	✓			
Observations:					
Checks conducted by: Contractor's Signature & Stamp:			Verified by: TNB's Representative Signature & Stamp:		
					
Name: MOHD TARMIZI ALIAS			Name:		
Date: 04-11-2025			Date: 06-01-2026 15:14:28		

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Doc No.	SCC PIW(PC)	Rev. No.	1	Date	5 JUNE 2020
Technical Specification Remote Control Box (RCB) With Multi-Pin Connection For Substations			 TENAGA NASIONAL		
Specification No.		KEJ07409:2017		Revision No. 1	
Approved by		TNB, Distribution Division Technical Committee Dated 5th December 2017			
4.6.5 Pin Assignments					
Check boxes as follows: (✓) OK NI : Need Improvement (Pls. give comments at 'Remark' column)					
Pin No	Signal Arrangement	Group	REMARKS		
1	Earth point		Common point to earth the connector, RCB & switchgear		
2	Gas low alarm indication point (if applicable)	Alarm	Voltage free contact. Closes when Gas Low Alarm operated w.r.t Common at Pin 15		
3	Spare		Spare		
4	LBS/CB Open Indication point	Status	+ve wetted for Aux Relay coil w.r.t Common at Pin 8		
5	LBS/CB Close Indication point		+ve wetted for Aux Relay coil w.r.t Common at Pin 8		
6	ES Open Indication point		+ve wetted for Aux Relay coil w.r.t Common at Pin 8		
7	ES Close Indication point		+ve wetted for Aux Relay coil w.r.t Common at Pin 8		
8	Common from plant (Return for Pin 4, 5, 6 & 7)		-ve wetted from plant		
9	Local/Remote Indication point		Voltage free contact. Close when in Remote Position w.r.t Common at Pin 15		
10	Trip circuit supervision alarm indication point	Alarm	Voltage free contact. Close when TCS operated w.r.t Common at Pin 15		
11	Overcurrent trip indication point		Voltage free contact. Close when OC operated w.r.t Common at Pin 15		
12	Earthfault trip indication point		Voltage free contact. Close when EF operated w.r.t Common at Pin 15		
13	Protection relay common alarm indication point		Voltage free contact. Close when Protection relay common alarm (IRF + Comm Fail for CD) operated w.r.t Common at Pin 15		
14	Current Differential trip indication		Voltage free contact. Close when Current Diff operated w.r.t Common at Pin 15		
15	Common from plant (Return for Pin 9-14)		Voltage free contact common		
16	Close Command common	Control	Close Command common		
17	Close Command from Remote/Supervisory		HDIR contact w.r.t Common at Pin 16 for Close command		
18	Open Command common		Open Command common		
19	Close Command from Remote/Supervisory		HDIR contact w.r.t Common at Pin 18 for Close command		
Observations:					
Checks conducted by: Contractor's Signature & Stamp:			Verified by: TNB's Representative Signature & Stamp:		
					
Name: MOHD TARMIZI ALIAS			Name:		
Date: 04-11-2025			Date: 06-01-2026 15:14:28		

SITE COMPLETION CHECKLIST (SCC) REMOTE TERMINAL UNIT SITE ACCEPTANCE TEST (SAT)			 TENAGA NASIONAL		
Doc No.	SCC - RTU (SAT)	Rev. No.	1	Date	5 June 2020

Note: Please sketch the building layout and the location of:

- a. RCB panel
- b. Battery Charger
- c. EFIs location
- d. Switchgear Panel
- e. RTU Panel

SITE DRAWING:

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A2. PICTURES (BEFORE & AFTER DURING PRE-CABLING & INSTALLATION)					
CONTRACT NO. :		TNB131/2024			
FUNCTIONAL LOCATION :		BSAM/PCE/J02351			
SUBSTATION NAME :		SSU ELMINA ILHAM NO. 1			
BEFORE INSTALLATION					
OVERALL PICTURE OF SUBSTATION OUTER WALL (WITH SUBSTATION NAME)		OVERVIEW OF SWITCHGEAR (WITHOUT PRE-CABLING)		DESIGNATED SPACE/WALL FOR REMOTE CONTROL BOX INSTALLATION	
DESIGNATED SPACE/WALL FOR BATTERY CHARGER INSTALLATION		EXISTING EFI(s) OR DESIGNATED SPACE/WALL FOR EFI INSTALLATION		EXISTING EFI(s) OR DESIGNATED SPACE/WALL FOR EFI INSTALLATION SECOND PIC (IF ANY)	

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CONTRACT NO. :		TNB131/2024			
FUNCTIONAL LOCATION :		BSAM/PCE/J02351			
SUBSTATION NAME :		SSU ELMINA ILHAM NO. 1			
AFTER INSTALLATION					
OVERALL PICTURE OF SUBSTATION OUTER WALL (WITH SUBSTATION NAME)		OVERVIEW OF SWITCHGEAR (WITH COMPLETED PRE-CABLING)		REMOTE CONTROL BOX (AFTER INSTALLATION)	
BATTERY CHARGER (AFTER INSTALLATION)		EFI(s) (AFTER INSTALLATION)		EFI(s) (AFTER INSTALLATION) SECOND PICTURE (IF ANY)	

VERIFIED BY TNB

TNB Personnel:

Verified at: 06-01-2026 15:14:28