



Purchase Specification
Group: Solar Photovoltaic Module (SPV – Engg.)

PS 901 07 0001

Rev No : 00

ITEM: USB Plus + RFID Reader System for SPV Modules

Sl. No.	Description specification	VENDOR'S CONFIRMATION
1	SCOPE	
	This scope shall include design, supply and commissioning of the SPV Module UHF Passive RFID System comprising of RFID Fixed Reader/Writer Station and respective suitable software/middleware to interact with the system. The system shall be used to store PV Module data in UHF Passive RFID tags as per Jawaharlal Nehru National Solar Mission (JNNSM) guidelines for traceability & read the same at site. (i) Name of the manufacturer of PV Module (ii) Name of the Manufacturer of Solar cells (iii) Month and year of manufacture (separately for solar cells and module) (iv) Country of origin (separately for solar cells and module) (v) I-V curve for the module (vi) Peak Wattage, Imp, Vmp, Isc, Voc and FF for the module (vii) Unique Serial No and Model No of the module (viii) Date and year of obtaining IEC PV module qualification certificate (ix) Name of the test lab issuing IEC certificate (x) Other Information: BHEL Logo as part of IV Curve	
2	Technical Specification - RFID Fixed Reader / Writer Station	
(i)	- Ordering Information : USB – 5EC - Development Kit : USB-5EC-DEVKIT	
(ii)	RFID Protocol Support – EPC global Gen-2 (IS18000-6C) with Anti-Collision and DRM	
(iii)	RF Interface - Antenna – Internal linear polarized antenna with peak gain 1dBi from 860-960MHz - RF Power Output – Separate read & write levels (into the antenna) are command-adjustable from 10dBm to 23 dBm (200mW), ± 1.0 dBm accuracy - Frequency – Pre configured for the following regions: TRAI 865-867 MHz (India)	
(iv)	Data/Control Interface - Physical – USB mini-B connector, with 10 feet (3 Mtr.) cable terminated in A-type plug – Qty. : Two sets - Signaling – Asynchronous serial interface with 3.3 / 5V logic level; baud rates from 9600 to 921,600 bps - Two I/O command controlled LEDs and two I/O command queried switches - Protocol – Command-response protocol protected by length field and 16-bit CRC	

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Prepared By	Reviewed By	Approved By	Date of Issue
SPV – Engg.	NAR	CNP	13.02.2016

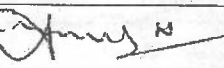
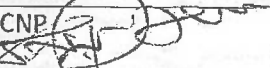


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(v)	Regulatory, Safety, Power, Environment, Architecture & Performance : • Dimensions : 97 x 61 x 25 (L x W x H) in mm • Regulatory & Safety : FCC 47CFR Ch.1 Part 15 • Safety : IEC 60950-1 (ed.2) / US-17650 • DC Power: 5V DC (Powered by USB interface) / 2.7W (540 mA) max. • Operating temp. : - 20°C to + 60°C • Storage temp. : - 40°C to + 85°C • User –accessible Flash Memory : 16kB • Tag Buffer : 200 tags • Tag Read Rate : Up to 200 tags/second • Max. read Distance : Up to 3ft (0.91 Mtr.) depending on tag sensitivity & Orientation	
3	Technical Specification: RFID Fixed Reader / Writer Station	
	This software includes interfacing with module tester (Sun Simulator) for accessing module test data like Unique Serial No, Model No, Peak Wattage, Imp, Vmp, Isc, Voc, FF & IV curve points & writing the same as per JNNSM guidelines into the RFID tag. The rest of the following data shall be selected from a drop down menu through the software • Name of the manufacturer of Solar Cells • Name of the manufacturer of PV Modules • Integration of database with Sun simulator and printing labels	
4	General Specification:	
	1. Vendor shall include commissioning, start-up and training (at BHEL works at the time of commissioning) as part of the supply. The training shall include operation and maintenance of the RFID System. 2. One set of soft copy of operation and maintenance manual in English along with one soft copy shall be supplied along with the RFID System. The manual shall include trouble shooting chart indicating symptoms, checks and preventive maintenance schedule to be carried out, suggested remedy for all items. 3. The supplier shall submit test and guarantee certificates. The RFID System shall be guaranteed for trouble-free operation and against manufacturing defects for a minimum period of 1- year from date of commissioning. 4. The RFID System shall be designed taking into account all safety and OHSAS requirements. 5. Service Engineers deputed by the supplier for commissioning of the RFID System at BHEL works shall comply with safety regulations and precautions, and have had adequate training in Environmental / Health / Safety hazards associated with the operation of the RFID System	Page 02 of 02

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