

User's Guide

Orion Manifold Receptacle (MR) Printed Circuit Board Assembly (PCBA)

Stryker PN: 700000492866

Document Rev: 1.1

REVISION HISTORY			
REVISION	COMMENTS	DATE	AUTHOR
1.0	INITIAL CREATION FOR ORION	9/27/2021	G. ROCQUE
1.1	UPDATES FROM FCC REVIEW OF DOCUMENTATION	12/09/2021	G. ROCQUE

Description:

The Orion Manifold Receptacle (MR) Printed Circuit Board Assembly (PCBA) is a custom designed circuit board intended to operate within the Orion Rover and next generation of Neptune product line. The Orion MR PCBA is made up of a mother board, Stryker PN 700000492877, and a RFID Reader daughter card, Stryker PN 0703-001-821. Together, both the mother board and RFID Reader daughter card constitute the Stryker MR PCBA, Stryker PN 700000492866. The mother board is manufactured by Stryker while the RFID Reader daughter card is manufactured by Feig Electronics, PN 4320.000.00.

Features:

The MR PCBA is made up of an RFID interface circuit to communicate with the RFID Reader daughter card; an illumination circuit for the manifold receptacle; a manifold and door detection circuits; several DC to DC power supplies; a sprinkler controller circuit; canister, worksurface, and specimen illumination driver circuits; and a UART interface bus to communicate with the Rover Main Controller (RMC) PCBA. All of the MR PCBA features are custom to the Orion Rover system. The MR PCBA cannot operate on its own and is a slave sub-system within the Orion Rover system. A set of proprietary commands exist between the RMC PCBA and the MR PCBA to configure, perform execution of tasks, and transfer data upon command. The proprietary commands always originate from the master RMC PCBA and are responded to by the slave MR PCBA. Finally, the MR PCBA contains an integrated RFID antenna designed

to read passive HF RFID tags. The integrated RFID antenna is located on the mother board, Stryker PN 700000492877.

Intended Use:

The MR PCBA with RFID circuit is limited to Stryker products only and has been designed as a proprietary asset within Stryker's product line. Additionally, the MR PCBA with RFID circuit is not intended for redistribution, sales, or re-use within any third party entities.

Technical Data:

Mechanical Data:

Housing: None provide, bare PCBA only; installed within the Orion Rover

Dimensions: (W x H x D): 3.45inch x 0.64inch x 4.95inch (87.63mm x 16.26mm x 125.73mm)

Pwr/Comm Connector: 6 Pin-Connector, Samtec, IPL1-103-01-L-D-RA-K, custom wire configuration

Weight: 2.8 oz. (80g)

Electrical Data:

Supply Voltage: 17 V_{DC} to 41.2 V_{DC}

Current Draw: 0.3A Max at 36 V_{DC} Roving Mode or 0.4A Max at 19 V_{DC} Docking Mode

Power Consumption: 10.8W Roving Mode or 7.6W Docker Mode

Interfaces: RS485 – Level, 115.2 kbps, Proprietary Communication Protocol

Processor: Microchip dsPIC 33EP256MU810 and Fujitsu MB90F562B

Main RFID Functional Properties:

Reader: Ability to detect, read, and write to passive HF RFID tags

Operating Frequency: 13.56 MHz

Distance: Short communication range, 1.5" or less

Ambient Conditions:

Temperature Range: 0°C - 70°C

Humidity: 5 – 95% non-condensing