

# Stratos H2-TR4-Sxxx Hybrid Technology Quad Optical Transceiver

Connectivity for  
Business Critical Continuity

Four Ports, 2.125 Gbps, 3.3V,  
850nm VCSEL, Multimode,  
Up to 700M Link Distance

## Key Features & Benefits

- Four independent TX and RX ports at 2.125 Gbps each
- Small footprint 1.00 inch square
- Low height, less than 0.285 inches max
- Fiber Flex with custom lengths and termini
- BGA socket surface mount, no through holes required
- Removable device (from BGA socket) for IR reflow
- Industrial temp range, vibration tolerant design
- SPI control interface for software control and status
- Control for RX Data Squelch on Loss of Signal
- Control for TX optical Enable/Disable
- Status for RX Signal Detect and Signal Strength
- 3.3V Power, 1.6W max

## Applications

The H2-TR4-Sxxx Quad Port Hybrid Transceiver provides a highly ruggedized, small footprint, cost effective solution for 1 to 2.5Gbps multimode optical data links. The device includes an integrated Fiber Flex cable terminated into an industry standard 1x12 MT connector. The device may be customized to have different Fiber Flex lengths, custom fiber flex routing, or use alternate types of fiber termini such as ST, SC, or MIL-T-29504. A complete list is provided in the Ordering Options section of this data sheet. These transceivers are designed to operate for 1x/2x Fiber Channel Links, but can be used for any other data communications purpose within their operating parameters, up to 2.5 Gbps per port.

## Product Overview

The Emerson Network Power Connectivity Solutions H2-TR4-Sxxx Quad Port Hybrid Transceiver consists of a VCSEL and PIN Diode Array, Laser Driver, Post Amp circuits, a microcontroller, and integrated fiber flex with MT termination. The electrical signals are routed through a BGA surface mount pin/socket connector to allow easy removal of the entire assembly and to support BGA reflow thermal profiles for ease of PCB assembly. The transmitter accepts four sets of differential data and drives a quad 850nm VCSEL array. The VCSEL drive circuit includes a temperature sensor circuit to



## Ordering Information

H2 - TR4 - Sxxx

The -Sxxx suffix represents unique part numbering for fiber route and termini options. See page 22 or consult the factory for details and for custom part numbering for your application.

drive temperature compensation of the optical output level in order to maintain stable output power level over the thermal range. The internal microprocessor provides software control for each individual transmit port for TX Enable/Disable and TX diagnostics. The receiver uses a quad 850nm GaAs PIN array, post amplifier, and outputs four sets of differential data. The internal microprocessor enables software control or read for individual port RX Signal Detect, RX Squelch enable/disable, and Receive Signal Strength Indicators (RSSI). The data interface for the device is a 100Ω differential pair, 50Ω impedance per line, and is CML compliant. Individual LVTTTL hardware status pins are provided for RX Signal Detect, RX Enable, TX Enable, and TX Fault. The hardware control allows an FPGA or other hardware device to control and monitor the main functions of the Hybrid Transceiver. Software control is provided using a Serial Peripheral Interface (SPI) 4-wire bus. The SPI bus operates in a bit-serial fashion at clock rates up to 2MHz. The internal registers are addressed through a 3 byte read or write sequence. The control and status of the device via software is not required for operation, and is provided purely as an enhancement to operation. The Power Up default SPI register values are all configured for normal operation on all channels, thereby allowing the transceiver's control pins to configure the device without any SPI activity.

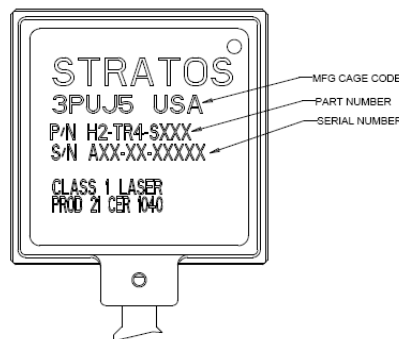
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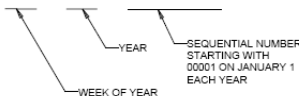
## Ordering Options

Part Number	Name	Description
H2-TR4-SKT-R3	BGA Socket	16x16 BGA surface mount socket, no clip
H2-TR4-CLP-R3	BGA Socket with Clip	16x16 BGA surface mount socket with integrated clip
H2-TR4-S001	Standard Hybrid Transceiver – Option 001	Hybrid Transceiver, 1” fiber length from feedthrough exit, straight fiber route configuration.
H2-TR4-S002	Standard Hybrid Transceiver – Option 002	Hybrid Transceiver, 6” fiber length from feedthrough exit, straight fiber route configuration.
H2-TR4-Sxxx	Hybrid Transceiver	The –Sxxx suffix represents unique part numbering for fiber route and termini options. Consult the factory for details and for custom part numbering for your application.
H2-TR4-PULL	Extraction Tool	Tool to aid in removing the Hybrid Transceiver from the BGA socket.
H2-TR4-PIN	Pin Straightening Tool	Tool to aid in straightening the pins of the Hybrid Transceiver.
H2-TR4-EVAL	HTP EVAL Card	Demonstration and evaluation card, includes support hardware, BGA Socket, and the Hybrid Transceiver.

## H2-TR4-Sxxx Hybrid Transceiver Label



S/N AXX-XX-XXXXX



For a complete datasheet, contact your RSM or Duane Teachout at

[duane.teachout@emerson.com](mailto:duane.teachout@emerson.com)

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