

# RAD-Moon T1S

## 10BASE-T1S Media Converter and Network Interface

The Intrepid RAD-Moon family of Media Converters has a new member supporting the latest Automotive Ethernet technology. 10BASE-T1S is a low-cost, low-speed, multidrop version of Automotive Ethernet widely considered for the replacement of CAN and CAN FD. Its material costs are approaching that of CAN, but it also eliminates the need for gateways by natively supporting Ethernet protocols such as TCP/IP, UDP, and gPTP.



### Primary Use Cases

- Media Converter between 10BASE-T1S and 10/100/1000BASE-T
- 10BASE-T1S Network Interface
- Network Monitoring and Diagnostics
- ECU Simulating

### Product Features

- Network Interfaces
  - 1x 10BASE-T1S (AD330X)
  - 1x 10/100/1000BASE-T
- gPTP Time Synchronization on 10BASE-T1S
- OPEN Alliance TC14/TC10 Sleep and Wakeup
- T1S Status LEDs
  - RX/TX Activity
  - SQI indication
  - PLCA Status
  - gPTP Status
- PC Connectivity
  - Data connection via USB 3
  - Compatibility with Vehicle Spy and Wireshark
  - Open-Source Intrepid API
    - Direct network access in Windows or Linux applications
    - 10BASE-T1S MACPHY Register Access
    - TC14/TC10 Sleep and Wakeup

### RAD-Moon-T1S Specification

- Automotive Voltage Range Operation (5.5V-40V)
- Temperature Range: -40°C to +85°C
- Low Power Consumption
- LED indicators for PLCA status, SQI, Network Activity, and gPTP
- Standalone mode including scripting, receive messages, transmit messages, expressions, and Gateways
- 10 ns message time stamping precision
- Field-upgradeable flash firmware
- Compact design: 5.35" x 3.46" x 1.46" (13.6 x 8.8 x 3.7cm)
- Rugged aluminum enclosure with rubber bumpers for durability
- Light weight: less than 1 lb. (.45 kg)
- 1 Year Limited Warranty



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## 10BASE-T1S Media Converter

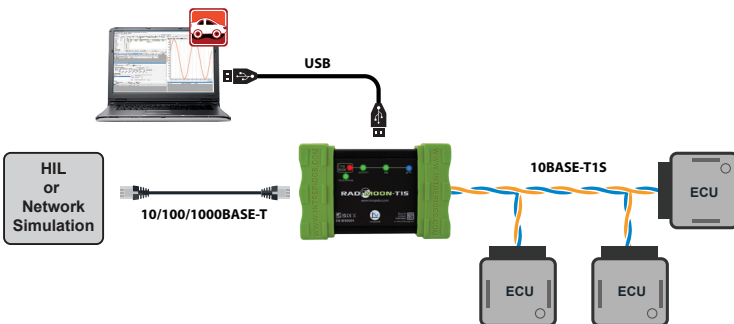
The RAD-Moon T1S is a media converter for developing and testing 10BASE-T1S communication in automotive systems. It bridges a single twisted pair of a 10BASE-T1S multidrop network to the standard 10/100/1000BASE-T Ethernet port of a laptop for observing network activity using Wireshark or Vehicle Spy. It can also be used to bridge 10BASE-T1S networks to testing and simulation devices that do not have native 10BASE-T1S ports.



*RAD-Moon T1S as a 10BASE-T1S Media Converter*

## 10BASE-T1S Network Interface

The RAD Moon-T1S can also be used as a 10BASE-T1S network interface when connected to a host computer using Vehicle Spy software or Intrepid's APIs. In this mode, the host computer can receive timestamped Ethernet traffic from both ports, as well as transmit Ethernet frames via either port.



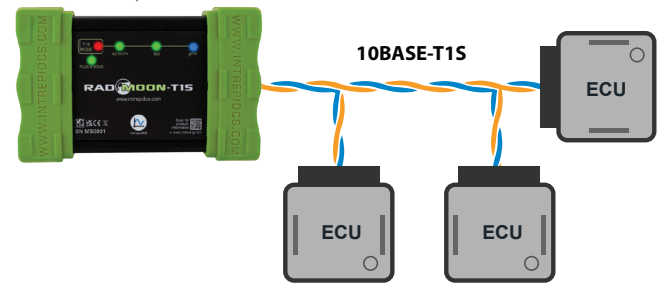
*RAD-Moon T1S as a 10BASE-T1S Network Interface*

## Standalone Embedded Script Execution

In addition to working as a PC interface, the RAD-Moon T1S can operate in a standalone mode running real-time scripts for ECU simulation..

Step	Description	Value
1	Set Value	(Counter sap0-index()) = 0
2	Wait Limit	(Recv1 (Present) in0-0)
4	If	(Test3 (value) in3-sap0) > 0
6	Transmit	Pulse Found (out)
8	Set Value	(Counter sap0-index()) = (Counter sap0-index()) + 1
10	If	(Counter sap0-index()) = 10
12	Pause	Counter is now 10. Press OK to Stop.
14	Function Block Action	Stop Playback
16	Stop	

Standalone Embedded Scripting



## Ordering Information

Part Number	Description
RAD Moon-T1S	10BASE-T1S Media Converter and Network Interface

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