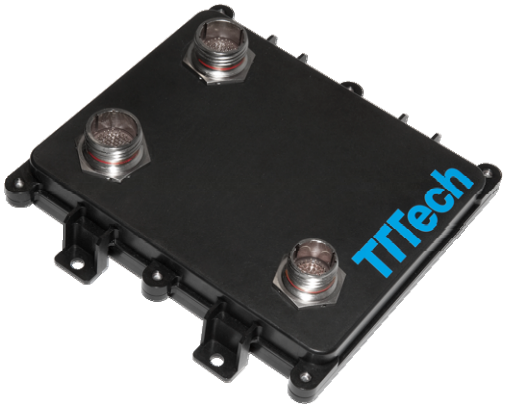
Ensuring Reliable Networks TTTech

TTP Star Coupler

Preliminary Datasheet

TTTech future flight assembly for building a TTP star architecture



The TTP Star Coupler, TTTech's new flight assembly, makes it possible to build a star architecture with optimized fault-tolerant features. Each branch of the star is separately protected, thus allowing better fault isolation. The result is an architecture with higher availability than with a bus topology.
The TTP Star Coupler is suitable for use in harsh environments, such as a hydraulics bay.

KEY FEATURES/BENEFITS

- **For star architectures with high availability requirements**
- **16 ports**
- **1 port available for traffic monitoring**
- **RS485 physical layer**
- **Flight housing and board prepared to be certified for DO-160F**
- **Board prepared to be certified for DO-254**
- **Weight: slightly over 1 kg**

Higher Availability of the System

For many systems, a star topology is an effective way to use less cable and decrease weight. With the TTP Star Coupler, system architects additionally have the possibility to easily build fault-tolerant architectures. Among other features, short circuit protection and branch traffic monitoring provide excellent isolation of faulty branches without affecting other network traffic. This guarantees higher availability of the system.

Easy Configuration

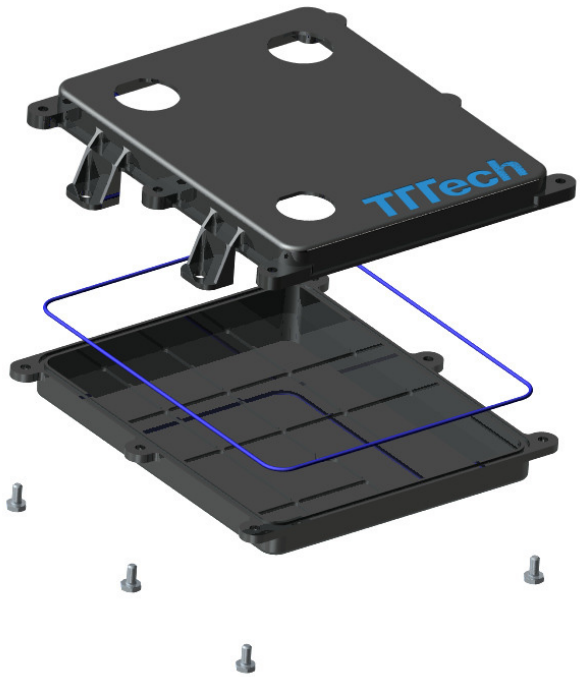
Using TTP Star Coupler, the network topology can be changed from bus to star with one or several nodes on each branch of the star without having to change the application software. Only the communication layer is affected by this topology change. One or several nodes can be connected on each branch of the star, thus giving a lot of freedom to the system architect.

TTP Star Coupler can be configured easily, thus allowing seamless integration into the network.

Ensuring Reliable Networks

TTP Star Coupler Features

- Outside dimensions: 200 x 200 x 36 mm
- Total weight: ~1.1 kg
- Four bolts for attachment to aircraft structure
- Electrical interface: Three MIL-DTL-D38999 connectors
- Can be installed in non-pressurized and non-temperature controlled location
- Material: Aluminium with anodic treatment
- TTP interface: RS485 physical layer
- 16 ports
- 1 traffic monitoring port



Environmental Criteria

	DO-160F section	Category
Temperature	4	D2
Pressure/Altitude	4	D2
Temperature Variation	5	A
Humidity	6	C
Shock	7	A
Vibration	8	R
Explosion Proofness	9	E
Waterproofness	10	S
Fluid Susceptibility	11	F
Sand and Dust	12	D
Fungus Resistance	13	F
Salt Spray	14	S
Magnetic Effects	15	B
Icing	24	A

TTP RS485 Physical Layer Features

- Up to 50 m cable length per branch
- Up to 7 nodes per branch
- Less than 30 ns end-to-end skew
- Common Mode Voltage Range +/- 4 kV
- Lightning test level 5
- 3.2 kV WF3 @ 1 MHz Pin injection test
- Cable Bundle tests WF4 and WF5A

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