

FOL1553

Fibre Optic Link Module for
MIL-STD-1553 A/B Extension

Data
Sheet



FOL1553

Fibre Optic Link Module for MIL-STD-1553 A/B Extension

What is FOL1553?

► **FOL1553** is an abbreviation for Fibre Optic Link being a 2 part system used as an optical extension of a ► **MIL-STD-1553** stub using a Frontend device, FOL-F and a Laboratory device, FOL-L. The system has been designed, manufactured and field proven in a wide variety of applications at EMC test facilities where the distance between a Unit Under Test (UUT) has to be extended like test cases for aircraft, missile or other platforms using a MIL-STD-1553 databus in an EMC test chamber. 2 types of FOL1553 systems are available:

FOL1553-F/L Simulator Systems

Simulator systems provide a bi-directional optical extension for dual redundant MIL-STD-1553 bus stubs and can be configured with up to 4 FOL1553-F modules.

These systems can be configured to extend up to 4 independent MIL-STD-1553 bus stubs for up to 100 meters, limited by the MIL-STD-1553 status word response time extension caused by the propagation delay of light.

FOL1553-F/L Monitor Only Systems

Monitor only systems provide an uni-directional optical extension for dual redundant MIL-STD-1553 bus stubs, configured with up

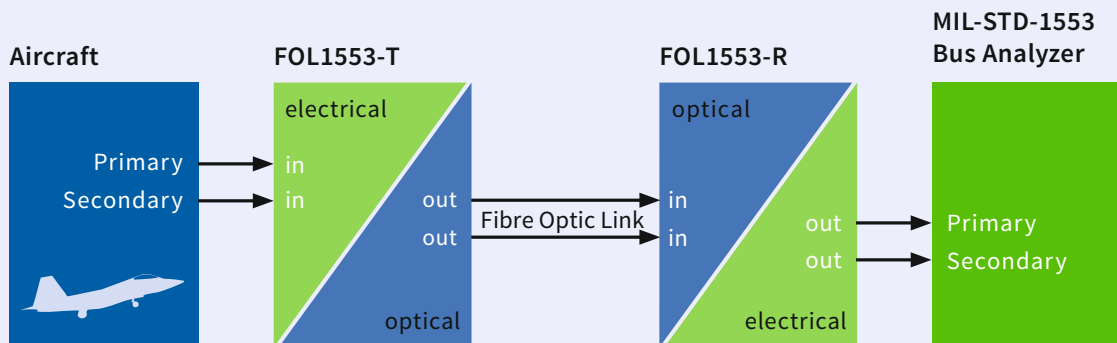
to 6 FOL1553-F Frontend modules. These systems can extend each independent MIL-STD-1553 bus stub approximately 1000 meters, limited by the optical attenuation in the fiber.

In both cases FOL1553 systems deploy a highly modular design to provide a flexible, simple and easy to operate system making it an ideal solution for both fixed and portable applications.

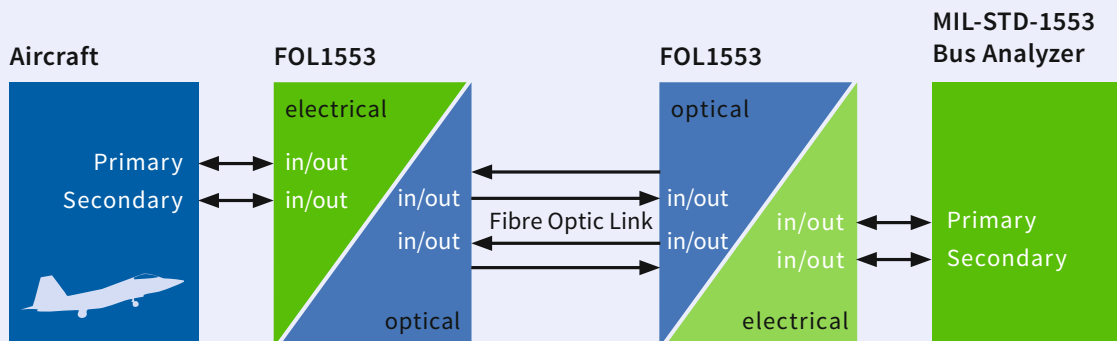
- EMC/EMI Testing for Aircraft, Helicopters, Missiles and UAV's
- Lighting Strike Testing
- Remote Monitoring/Simulation
- MIL-STD-1553 Stub Extensions

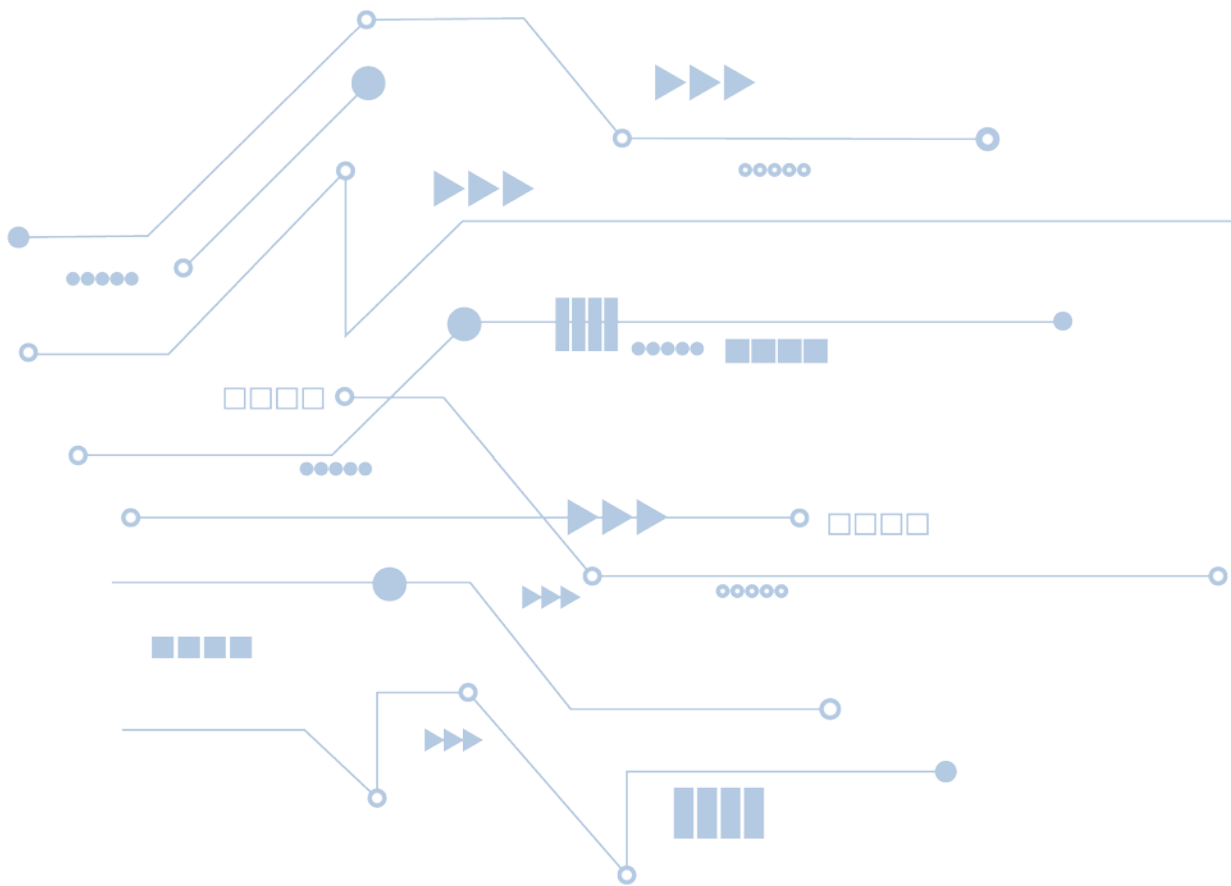
FOL1553 Block Diagram

Monitor



Simulator





Common Features

The modular ► **FOL1553** design from AIM comprises a 2 part system and requires no software to operate.

The FOL1553-F Frontend module converts the ► **MIL-STD-1553** signals into fibre optical signal and has a built-in EMC protected housing which allows operation in magnetic fields of up to 200V/m. An optional battery pack offers complete stand-alone operation.

The FOL1553-L Laboratory chassis, typically 19" rack mounted, allows the hosting of up to 6 modules to convert back the fiber optical signal to an electrical MIL-STD-1553 signal available on twinax connectors.

- Modular Design – Easy to use Plug and Play Design
- Optical Links: COTS 62.5/125µm Multi-mode Gradient Index Fibre Optic cables with ST connectors (wavelength 1300nm)
- 19" Rack Laboratory Units: FOL1553-L
- EMC Protected Frontend Devices: FOL1553-F
 - Extended Temperature Range Version available
 - Battery Module for Standalone Operation

FOL1553-F

The FOL1553-F (frontend) is the first part of the FOL1553 system being the EMC protected part of the system. The modular FOL-F unit consists of one Power Conditioning Module (FOL-F-PCM) and up to 6 FOL1553-F modules for the dual redundant MILbus channels (for each channel one module). The FOL-F-PCM module is used to filter, observe and conditioning the input power. The output power of the module is then connected to the FOL-1553-F modules in a daisy chain manner. The FOL-F system is designed to withstand strong electric and/or magnetic radiation. To guarantee an error free operation, the supply voltage is filtered and conditioned by the FOL-F-PCM module.

A standalone operation of the FOL1553-F system can be guaranteed with the optional FOL-F Battery Module (FOL-F-BAT), which provides save and clean input Power Supply to the frontend system (FOL-F).

FOL1553-L

The FOL-L (laboratory) module is the 2nd part of the FOL system. It is implemented in a 19" rack mount chassis and powered by an external power supply. The modular FOL-L unit consists of one Main Power Adapter module and up to 6 FOL1553-L Channel modules for the dual redundant MILbus channels (for each channel one module).

Technical Data

Configurations and Options

FOL1553-F (Frontend Chassis)

Monitor System

Configured with 1-6 dual redundant MIL-STD-1553 streams per Power Conditioning Module (FOL-F-PCM)

Simulator Only Systems

Configured with up to 4 dual redundant MIL-STD-1553 streams per Power Conditioning Module (FOL-F-PCM)

MIL-STD-1553 Coupling Mode

Transformer Coupled

Frontend Chassis

EMC Protected

Connector Types

- TWINAX BJ77 connectors for MIL-STD-1553 buses
- ST-Connectors for Fibre Optics
- 6 pin LEMO for Power Input

Power Supply

9-36VDC taken from Aircraft Power or provided by the optional Battery Pack (FOL-F-BAT)

Temperature

- Standard Version: 0°C to + 50°C
- Extended Version: -40°C to + 70°C (for optional FOL-F-BAT Module limited to -20°C to + 60°C)

Mechanical

Power Module and Channel Modules snap together
(w. 45mm x h. 130mm x d. 260mm)

FOL1553-L (Laboratory Chassis)

Monitor or Simulator Only System

Configured with 1-6 Dual Redundant MIL-STD-1553 streams

MIL-STD-1553 Coupling Mode

Bus Network Coupled

Connector Types

- TWINAX BJ77 connectors for MIL-STD-1553 buses
- ST-Connector for Power Supply Input
- IEC Connector for the Power Supply Input

Power Supply

100-240VAC, 50-60Hz

Temperature

- Standard Version: 0°C to + 50°C

Mechanical

19" Rack Mount Version
(w. 438mm x h. 133mm x d. 400mm)

Please Note: The modular Systems (FOL-F and FOL-L) can also be configured and operated with other channel modules (FOL429).

Ordering Information

FOL-L-Base

Base Unit, Laboratory Version including Power Supply, 19" Rack mountable Chassis (3U), to house up to 6 Interface Modules

FOL1553-L-T

Dual redundant MIL-STD-1553 Interface Module, Laboratory Version, Transmit direction only (i.e. transmit data into Fibre Optic Link)

FOL1553-L-R

Dual redundant MIL-STD-1553 Interface Module, Laboratory Version, Receive direction only (i.e. receive data from Fibre Optic Link)

FOL1553-L

Dual redundant MIL-STD-1553 Interface Module, Laboratory Version, Transmit and Receive direction

FOL-F-BAT

270Wh Lithium Battery Module, EMC hardened stackable Frontend Module to power the Power Conditioning Module

FOL-F-PCM

Power Conditioning Module, EMC hardened stackable Frontend Module Power Supply Protection and RF-Filtering for up to 6 Frontend Modules

FOL1553-F-R

Dual redundant MIL-STD-1553 Interface, EMC hardened stackable Frontend Module, Receive direction only (i.e. receive data from Fibre Optic Link)

FOL1553-F-T

Dual redundant MIL-STD-1553 Interface, EMC hardened stackable Frontend Module, Transmit direction only (i.e. transmit data into Fibre Optic Link)

FOL1553-F

Dual redundant MIL-STD-1553 Interface, EMC hardened stackable Frontend Module, Transmit and Receive direction

► AIM Office Contacts:

AIM GmbH

Sasbacher Str. 2
D-79111 Freiburg / Germany
Phone +49 (0)761 4 52 29-0
Fax +49 (0)761 4 52 29-33
sales@aim-online.com

AIM GmbH – Munich Sales Office

Terofalstr. 23a
D-80689 München / Germany
Phone +49 (0)89 70 92 92-92
Fax +49 (0)89 70 92 92-94
salesgermany@aim-online.com

AIM UK Office

Cressex Enterprise Centre, Lincoln Rd.
High Wycombe, Bucks. HP12 3RB / UK
Phone +44 (0)1494-446844
Fax +44 (0)1494-449324
salesuk@aim-online.com

AIM USA LLC

Seven Neshaminy Interplex
Suite 211 Trevose, PA 19053
Phone 267-982-2600
Fax 215-645-1580
sales@aim-online.us