



# GORE™ Space Cables and Assemblies

*SpaceWire Cables*

## Reduce Costs for High-Quality Flight and Ground Data Transfer

Data transmission is essential to the success of every space mission. Meeting the stringent electrical and mechanical requirements of ECSS-E-ST-50-12C, GORE™ SpaceWire Cables provide bidirectional, high-speed data transmission up to typically 400 Mbit/s with minimal crosstalk, signal attenuation, and low skew. Using a serial, point-to-point dataline with Low Voltage Differential Signaling (LVDS), GORE™ SpaceWire Cables reduce costs because they can be integrated into many different satellite programs without requiring any custom design. These cables are available in either bulk or custom-assembled forms, terminated on micro-miniature D-type connectors.

### THE SCIENCE BEHIND THE CABLES

The key to the outstanding performance of GORE™ SpaceWire Cables is the proprietary material used in the cable insulation — expanded polytetrafluoroethylene (ePTFE). Using ePTFE, Gore supports LVDS, which allows data to pass through the cable without significant signal loss. By combining this LVDS technology with standard hardware protocols, GORE™ SpaceWire Cable provides a simple alternative to the need for customized program designs.

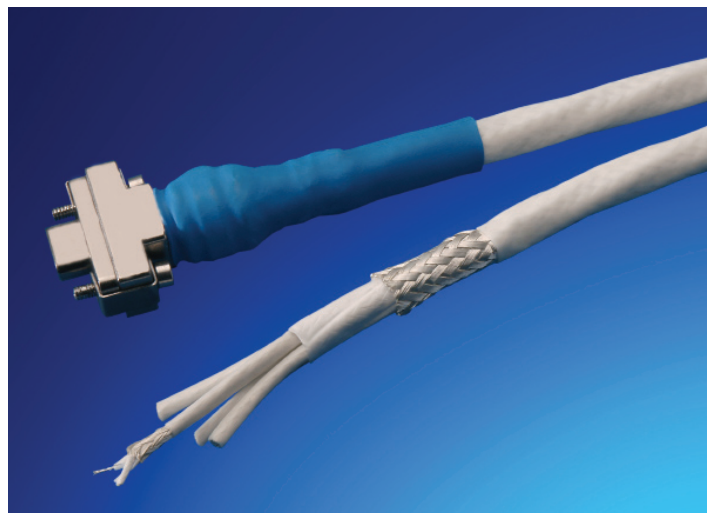
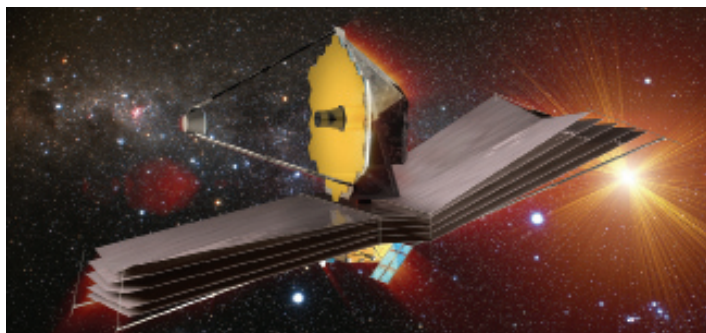
### TYPICAL USES

- EGSE equipment
- Radar sensor equipment
- High-resolution cameras
- Sensor, mass-memory unit, and telemetry subsystem interconnections

### SAMPLE APPLICATIONS

- James Webb Space Telescope (JWST)
- SDO
- KAI

*JWST Image: ESA*



## Realize the Benefits of GORE™ SpaceWire Cables

### KEY FEATURES

- Designed specifically for use in space and ground applications
- 100  $\Omega$  impedance shielded signal pairs — individually or overall shielded
- Very low skew, signal attenuation, and crosstalk
- Good EMC performance

### KEY BENEFITS

- Easier installation and reduced costs from common compatibility based on ECSS standard
- Better signal transmission, impedance, skew, attenuation, crosstalk, and EMC performance
- Improved reliability from rugged materials used in construction
- Valued reliability delivered from an ESA-qualified and a DIN EN ISO 9001:2000-certified manufacturing facility
- Superior sales and technical support from Gore's worldwide engineering team



# GORE™ Space Cables and Assemblies

## TECHNICAL SPECIFICATIONS

All GORE™ SpaceWire Cables meet the following technical specifications. See the ordering information for the technical data specific to each cable.

Property	Value
Dielectric material	Expanded PTFE
Outer jacket	PFA
Conductor construction	Concentric silver-plated copper
Operating voltage	200 V RMS
Impedance	100 Ω ± 6 Ω
Maximum diameter	7.5 mm
Bending radius	10 x outer diameter (repeated) or 6 x outer diameter (once)
Maximum time delay (pair)	4.30 nsec/m
Maximum conductor time delay difference (pair)	0.08 nsec/m
Maximum conductor time delay difference (pair–pair)	0.13 nsec/m

## ORDERING INFORMATION

Properties	Part Number GSC-05-82963	Part Number GSC-05-81757	Part Number GSC-05-82730
Construction	Ground hardware	Standard flight hardware	Advanced flight hardware
Gauge size (AWG)	28	28	26
Operating temperature range	-30°C to +90°C	-200°C to +180°C	-200°C to +180°C
Maximum temperature for short periods	105°C	200°C	200°C
Maximum weight	85 g/m	85 g/m	100 g/m
Transmission rate	400 Mbit/s	400 Mbit/s	Up to 3 Gbit/s
Maximum capacitance: conductor to conductor	50 pF/m	50 pF/m	45 pF/m
Maximum capacitance: conductor to shield	90 pF/m	90 pF/m	79 pF/m

## GORE EXPERIENCE AND EXPERTISE

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