



Alternative Energy Solutions

Fiber Optic Cabling Solutions for Wind and Solar Farms



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Centralized Wind and Solar Farm Automation

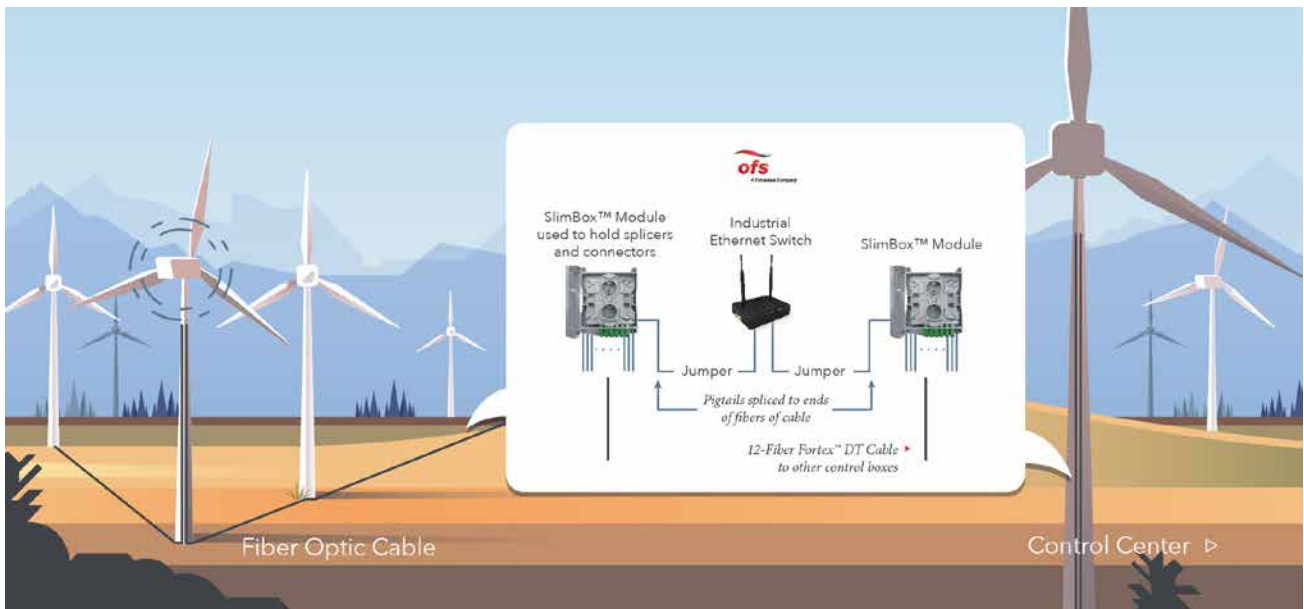
The power network is changing. It needs the bandwidth and reliability of fiber. OFS brings unique solutions for fiber in the power network.

OFS' Alternative Energy applications features several end-to-end solutions optimized to distribute fiber in traditional Transmission and Distribution networks and connecting the wind and solar farm with the grid.

SOLUTIONS:

- **Fortex™ DT (Dry Tube) Loose Tube Cable**
- **SlimBox™ 12-Fiber Wall Mount Module**
- **Jumpers and Pigtails**

These solutions are field proven in widespread utility and alternative energy deployments around the world.



TYPICAL ARRANGEMENT OF CONTROL BOX



1RU COMBINATION PANEL



12-FIBER SLIMBOX MODULE



SC-SC JUMPER



SC PIGTAIL



S922 PROTECTIVE SLEEVES

Typical Material List for a 12-Fiber Network

Part Number	Description	Quantity	Notes
AT-3BE12YT-012	12-Fiber Fortex DT Cable with AllWave ZWP Fiber	Distance between turbines + 15 feet per turbine	12 fibers/turbine is common
SLIMBOX-V, INDOOR MDU-12F-SM-SCU-PT	12-Fiber SlimBox Module pre-loaded with pigtails and SCU connectors	2 per turbine	Use either SlimBox Module or 1RU Combination Panel
1U S-LIU SC12 Blue PT (300523784QT)	1 RU Combination Panel, SCU Connectors, pre-loaded with pigtails	1 per turbine	Alternative to the SlimBox Module, SC Connectors
1U S-LIU LC12 BLUE PT (300524097)	1 RU Combination panel, LCU Connectors, pre-loaded with pigtails		Alternative to the SlimBox Module, LC Connectors
S922 Protective Sleeves	40 mm splice sleeves	Up to 24 per turbine - one per splice	Used to protect splices
JR3WB001SCUSCU003F	3 foot pigtail - SCU connector	Up to 24 per turbine - one per splice	Spliced to main cable
JR3WY001LCUUNC006F	3 foot pigtail - LCU connector		Alternative with LC connectors
JR3WB001SCUUNC006F	6 foot jumpers - SCU-SCU	Up to 24 per turbine - one per fiber	Used to connect to electronics
JR3WY001LCULCU006F	6 foot jumpers - LCU-LCU		Alternative with LC connectors

PLC Controls Automation

The GiHCS® industrial cabling solution for your controls applications:

- Substation Automation - Smart Grid
- Substation Security Cameras
- Wind Power
- Solar Farms
- Hydroelectric

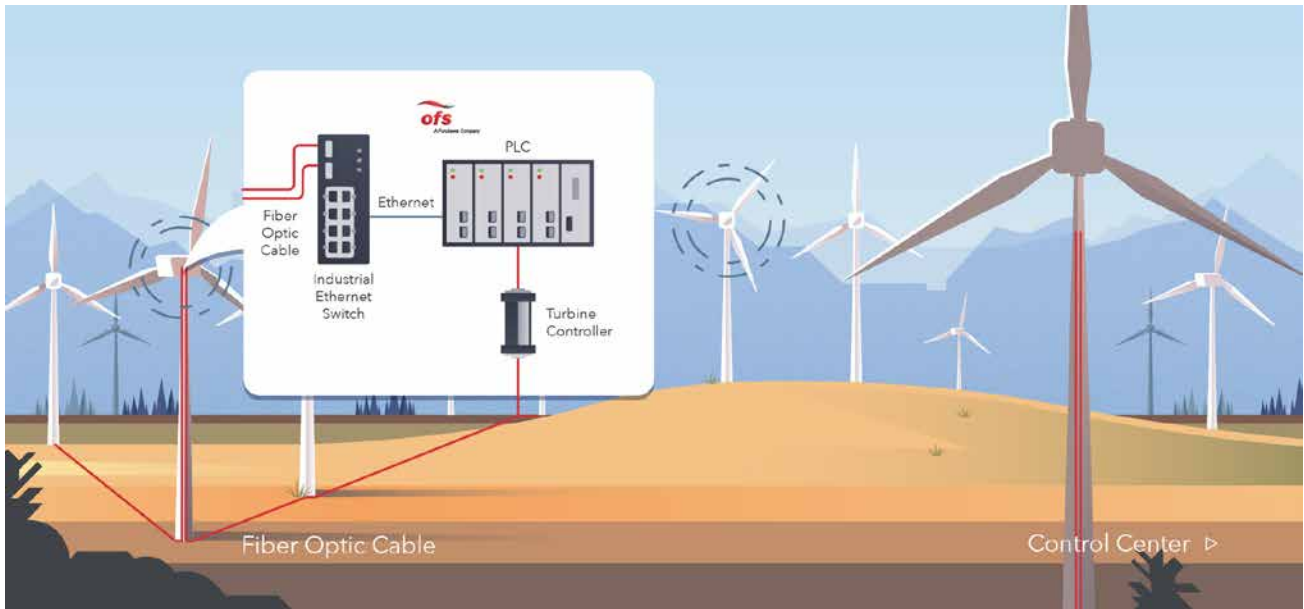
OFS supports Industrial Networking Solutions for Electric Utilities with highly reliable, rugged fiber optic cables containing industrial-grade GiHCS* high-bandwidth multimode optical fiber, plus easy-to-use crimp & cleave LC, SC and ST connectivity. (V-Pin available for 200 µm HCS® step-index only)

OFS optical fiber cabling solution for electrical utilities offers a wide range of advantages, including:

- Immunity to EMI/RFI
- Dielectric properties of fiber optic cables to minimize ground potential
- High bandwidth to support higher data rates over longer distances - Industrial Ethernet
- Field connectorization capabilities designed for electrical technicians with minimal training, quick to terminate and less downtime
- More secure data communications
- Wide operating temperature range

SOLUTIONS:

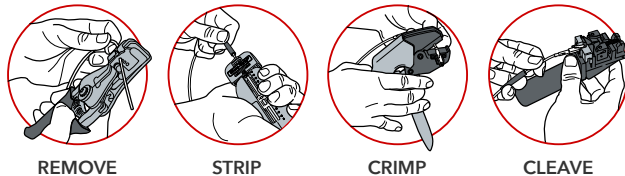
- **GiHCS® Fiber Optic Cables**
- **LC, SC, ST and V-Pin Connectors**
- **Crimp & Cleave Termination**



TYPICAL LAYOUT OF CONTROL AND MONITORING SYSTEM

Industrial Networking Solution with Crimp & Cleave Technology

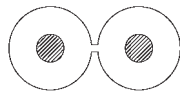
LC TERMINATION IN LESS THAN ONE MINUTE!



GiHCS Fiber Optic Cables													
	Cable Construction	Part Number	Use	Outer Cable Diameter	Outer Jacket Color	Outer Jacket Material	Cable Weight	Min. Bend Radius Under Load	Min. Bend Radius Unloaded	Max. Installation Tensile Load	Max. Operating Tensile Load	Attenuation	Operating Temperature
GiHCS 50/200/230/500 μm	Zipcord	C26136	Indoor	2.2 ± 0.1 x 4.6 mm	Orange	LSZH	<12.0 kg/km	33 mm	22 mm	25 lbs (111 N)	5 lbs (22 N)		-20 to +80 °C
	2-Fiber Waterblocked	C26138	Indoor/Outdoor	8.0 ± 0.4 mm	Black	LSZH	<70 kg/km	120 mm	80 mm	530 lbs (2358 N)	265 lbs (1179 N)	≤5 dB/km @850 nm	-20 to +80 °C
	4-Fiber Waterblocked	C26140	Indoor/Outdoor	8.0 ± 0.4 mm	Black	LSZH	<70 kg/km	120 mm	80 mm	530 lbs (2358 N)	265 lbs (1179 N)	≤3 dB/km @1300 nm	-20 to +80 °C
GiHCS 62.5/200/230/500 μm	Zipcord	C26135	Indoor	2.2 ± 0.1 x 4.6 mm	Orange	LSZH	<12.0 kg/km	33 mm	22 mm	25 lbs (111 N)	5 lbs (22 N)		-20 to +80 °C
	2-Fiber Waterblocked	C26137	Indoor/Outdoor	8.0 ± 0.4	Black	LSZH	<70 kg/km	120 mm	80 mm	530 lbs (2358 N)	265 lbs (1179 N)	≤5 dB/km @850 nm	-20 to +80 °C
	4-Fiber Waterblocked	C26139	Indoor/Outdoor	8.0 ± 0.4	Black	LSZH	<70 kg/km	120 mm	80 mm	530 lbs (2358 N)	265 lbs (1179 N)	≤3 dB/km @1300 nm	-20 to +80 °C

Fire Safety

Qualified to the following US, Canadian and International Standards. OFNR/FT-4 Riser, US and Canadian UL 1666, Flammability IEC 60332-3 (for zipcord, 2-Fiber & 4-Fiber cables), Smoke Density IEC 61034, Halogen Gas Emissions IEC 60745-1, Acid Gas Emissions IEC 60745-2



Zipcord



2-Fiber Waterblocked



4-Fiber Waterblocked

Crimp and Cleave LC Connectors for GiHCS Optical Fibers

Connector Type	Part Number	Cable Type	Termination Kit Part #	Insertion Loss Kit Part #
Simplex	P26763-01 (Beige Boot)	Aramid Free, 2.2 mm Zipcord and Breakout Cables	DT03732-LC1	P10188-15
	P26763-02 (Black Boot)			
Duplex	P26764-01 (2 Beige Boots)			
	P26764-02 (2 Black Boots)			
	P26764-03 (One Beige, One Black Boot)			

LC Connector Insertion Loss (dB)

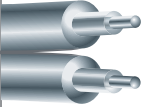
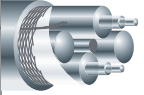
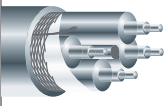
	850 nm		1300 nm	
	Typical	Max	Typical	Max
50/200/230 GiHCS	1.0	1.5	1.2	1.7
62.5/200/230 GiHCS	1.0	1.5	1.2	1.7

GiHCS Optical Fibers

Fiber	Dimensions	Numerical Aperture	Bandwidth		Attenuation	
GiHCS 50 μm	50/200/230/500 μm	0.20 ± 0.02	>400 MHz-km @850 nm	>400 MHz-km @1300 nm	≤2.8 dB/km @850 nm	≤1.0 dB/km @1300 nm
GiHCS 62.5 μm	62.5/200/230/500 μm	0.275 ± 0.020	>200 MHz-km @850 nm	>500 MHz-km @1300 nm	≤3.5 dB/km @850 nm	≤1.2 dB/km @1300 nm

		LC	SC
Termination Kit	(50/200/230 μm)	DT03732-LC1	DT03732-SC1
	(62.5/200/230 μm)		
	(200/230 μm)		
Insertion Loss Test Kit	(50/200/230 μm)	P10188-15	P10188-14
	(62.5/200/230 μm)		
	(200/230 μm)		
Mating Adapter			P25561-34
Mating Adapter (Duplex)			P25561-36
Mating Adapter (SC-RJ)			P25561-35
Duplex Latch Housing			

Simplex Connector	P26763-01		P25561-BGS	
	P26763-02		P25561-BKS	
Duplex Connector	P26764-01		P25561-BGD	
	P26764-02		P25561-BKD	
	P26764-03			
SC-RJ Connector			P25561-BGRJ	
			P25561-BKRJ	

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Fiber Optic Cable</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Optical fiber and cable configurations available. Please call Technical Support: 860 678 6636 to discuss your options</p>		Zipcord	62.5 μm	GiHCS	C26135	C26643
			50 μm	GiHCS	C26136	C26642
		2-Fiber Indoor/Outdoor	62.5 μm	GiHCS	C26137	C26645
			50 μm	GiHCS	C26138	C26644
		4-Fiber Indoor/Outdoor	62.5 μm	GiHCS	C26139	C26647
			50 μm	GiHCS	C26140	C26646

	ST	V-Pin
Termination Kit	DT03732-41	
	DT03732-32	DT03732-16
Insertion Loss Test Kit	P10188-11	
	P10188-03	P10188-01
Mating Adapter	AP01960	AP04707
Mating Adapter (Duplex)		
Mating Adapter (SC-RJ)		
Duplex Latch Housing		BP04703

Simplex Connector	 BP05065-13	 BP04260-01 (200 μm)
		 BP04260-02 (200 μm)

Duplex Connector	 BP04703 Duplex Latch (Connectors sold separately)
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Fiber Optic Cable Optical fiber and cable configurations available. Please call Technical Support: 860.678.6636 to discuss your options	 Zipcord	200 μm	HCS	C21051	200 μm HCS	C21059
		62.5 μm	GiHCS	CS6643		
		50 μm	GiHCS	C26642		BC04307
	 2-Fiber Indoor/ Outdoor	200 μm	HCS	C21052	200 μm HCS	C21060
		62.5 μm	GiHCS	C26645		
		50 μm	GiHCS	C26644		BC06145-02 (Outdoor Only)
	 4-Fiber Indoor/ Outdoor	200 μm	HCS	C21053	200 μm HCS	C21061
		62.5 μm	GiHCS	C26647		
		50 μm	GiHCS	C26646		BC06145-04 (Outdoor Only)



For complete information on products shown in this guide,
please refer to the official data sheets for those products
on the OFS website at www.ofsoptics.com.

For additional information please contact your sales representative.

Call 1-888-FIBER-HELP (1-888-342-3743) from inside the USA

or +1-770-798-5555 from outside the USA.

EMEA Specific: +49 (0) 228 7489 201

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