

### SFF Optical Transceiver

**NEW**

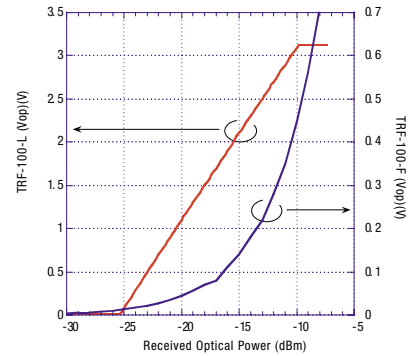
HD/SD-SDI optic transceiver is in SFF MSA (Small Form Factor Multi Source Agreement). TRF-100 Series raise the bar for HD Camera. Canare's exclusive "Temperature Compensation Technology" enables a stable and superior performance in wide range temperature of  $-25^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

Model	Description
TRF-100-FN13	SFF HD/SD-SDI Transceiver
TRF-100-LN13	Built-in LOG AMP (most common)

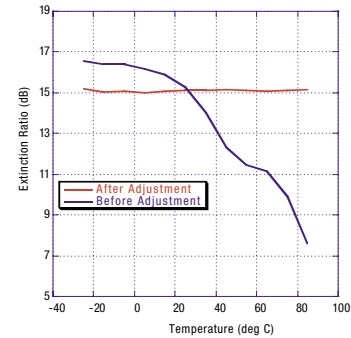
Production by order

#### Key Features and Benefits

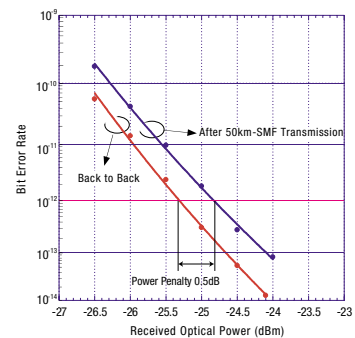
- Canare's exclusive "TC Tech" (Temperature-Compensation Technology)
- Excellent and clear eye pattern
- Capable of Pathological signal
- Low-power consumption design
- LOG AMP type (TRF-100-LN13) helps detecting optic signal easily
- Compatible with SFF-MSA layout
- SMPTE 292M, 259M, 297M, DVB-ASI, and ARIB S-004



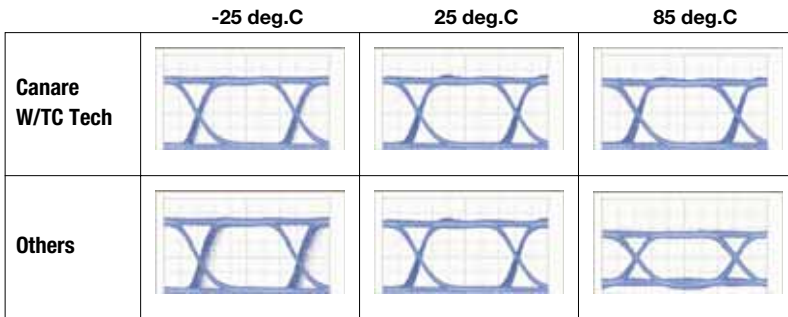
Light Receiving Voltage



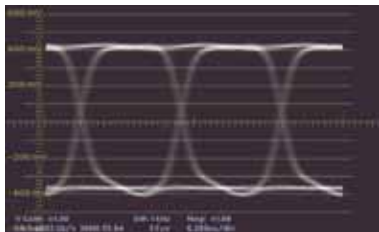
Temperature Graph



Bit Error Rate



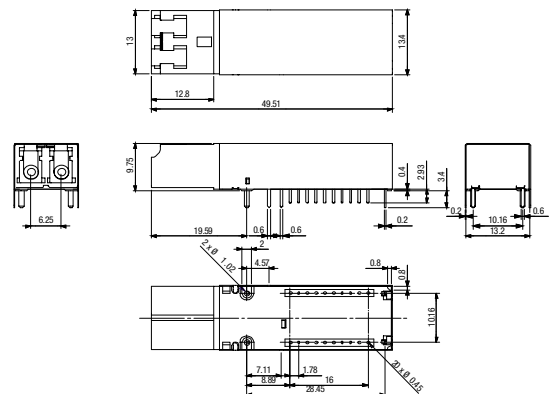
Eye Pattern Comparison



HD-SDI Eye Pattern (OE converted)

#### Specifications

Model	TRF-100-xN13
Wavelength	FP-LD 1310nm $\pm$ 20nm
Output Power	-5dBm
Sensitivity (HD-SDI)	-24dBm
Power Budget	19dB
Extinction Ratio	15dB
Transmission Rate	3Mbps~1485Mbps
MTBF (Hours)	<b>TX</b> 729000H@60°C, 138000H@85°C
	<b>RX</b> 1680000H@60°C, 427000H@85°C
Supply Voltage	DC+3.3V
Current consumption	$\leq$ 220mA ( $-25^{\circ}\text{C}$ ~ $+85^{\circ}\text{C}$ )
Operating Temperature	$-25^{\circ}\text{C}$ ~ $+85^{\circ}\text{C}$
Dimensions	49.5x13.4x9.8mm (SFF-MSA Compatible)
Weight	8.5g
Compliant with	SMPTE 292M, 259M, 297M, DVB-ASI, ARIB S-004 FDA 21 CFR Part1040.10,11 Class 1, IEC 60825-1 +A2:2001, UL/cUL, CE, CB Scheme, RoHS



Dimensions

### EO/OE Converters

Canare's answer for HD-SDI distribution. Canare EO/OE modules feature low jitter, low power consumption, and significantly reduced size and weight. Support multi format such as HD-SDI, SD-SDI and DVB-ASI.

Model	Description
EO-100	Electric to Optic Converter
EO-100A-**	Electric to Optic Converter for CWDM
OE-101	Optic to Electric Converter

#### Key Features and Benefits

- Multi format - Supports HD-SDI, SD-SDI and DVB-ASI
- Handles pathological test pattern
- EO-100A-\*\* enables 8/16ch in one fiber
- Embedded audio capable
- Easy to use - Just plug in BNC and Fiber connector
- Compact design - Maximum 16 modules within 1RU
- Cost effective



EO-100

EO-100A

OE-101

#### Specifications

Model	EO-100	EO-100A-**	OE-101
Convertibility	Electric to Optic		Optic to Electric
Transmission Rate	HD-SDI: 1.485Gbps, 1.485/1.001Gbps		
	SD-SDI: 143Mbps, 177Mbps, 270Mbps, 360Mbps, 540Mbps		
	DVB-ASI: 270Mbps (Disables for SD-SDI 177Mbps)		
LD/PD	FP-LD	DFB-LD	PIN-PD
Wavelength	1310nm	1271 to 1611nm	1261 to 1620nm
Emission/Sensitivity	-7.8±1.0dBm	-2.5±1.0dBm	-20dBm
Interface Connector	Electric: 1x 75 Ω BNC, Optic: 1x SC (Single Mode)		
Compliances	SMPTE 259M and 292M, DVB-ASI EN 50083-9, ARIB BTA S-004B UL/c-UL, CE, RoHS FCC Part15Class A, FDA 21 CFR Part1040.10,11 Class I IEC 60825-1 CLASS 1 LASER EN55022:1998+A1:2000+A2:2003, EN55024:1998+A1:2001+A2:2003		
Power Req., Consump.	DC5V, 1.8W	DC5V, 2.0W	DC5V, 1.8W
Operating Temperature	0 to 40°C		
Dimensions	17x 43.4x 79.2mm		
Weight	58g		55g

#### Ordering Information

EO - 100A - 47

Convertibility Type	
EO	Electric to Optic
OE	Optic to Electric

LD/PD Type	
100	FP-LD
100A	DFB-LD
101	PIN-PD

Wavelength (EO-100A Only)			
47	1471nm	27	1271nm
49	1491nm	29	1291nm
51	1511nm	31	1311nm
53	1531nm	33	1331nm
55	1551nm	35	1351nm
57	1571nm	37	1371nm
59	1591nm	43	1431nm
61	1611nm	45	1451nm

### CWDM Mux/Demux

Canare CW series is bi-directional Mux/DeMux of up to 16 wavelengths. You can send/receive 16ch of HD-SDI signals in one fiber. Incredibly compact module FCWDM-8 enables 8 EO/OE modules and CWDM within 1RU frame.

Model	Description
FCWDM-8	Module Type for 161UPS*, 1x 8CWDM
FCWDM8/1 (081U-CW)	1RU Rack Mount Type, 1x 8CWDM
FCWDM8/2 (081U-CW2)	1RU Rack Mount Type, 2x 8CWDM
FCWDM-16 (161U-CW)	1RU Rack Mount Type, 1x 16CWDM

★ Production by order

#### Key Features and Benefits

- Bi-directional 8 or 16 wavelengths
- 8EO/OE and 8CWDM within 1RU
- Easy to use
- Cost Effective

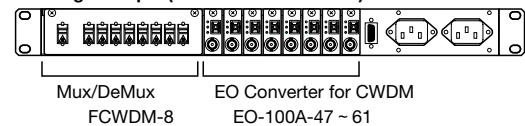
#### Specifications

Model	FCWDM-8	FCWDM8/1 (8/2)	FCWDM-16
Wavelength	1471 to 1611nm		1271nm to 1611nm
Channel Spacing	20nm		20nm except for 1372 to 1431nm
Passband width	>15nm		>13nm
Insertion Loss	<2.5dB		<3.3dB
Isolation	>30dB		
Reflection Attenuation	≥45dB		
Operating Temperature	0 to 70°C		
Dimensions	146x 43.4x 100.2mm	482.6x 44x 362.3mm	
Weight	255g	2520g (2696g)	2550g



FCWDM-8

#### <Loading example (rear view of 161UPS)>



Mux/DeMux  
FCWDM-8

EO Converter for CWDM  
EO-100A-47 ~ 61



(Front View)



(Rear View)

FCWDM 8/1 (081U-CW)

## AES 3id Optical Converters

AES-3id optical converters multiplex and optically convert AES signals from up to 8 ports (16 audio channels) to allow them to be transmitted over long distances. Further, eight different types of TX (distinguished by emitted-light wavelengths from 1471nm to 1611nm) use coarse wavelength division multiplexing (CWDM) to allow AES signals from up to 64 ports (128 audio channels) to be transmitted via a single fiber-optic cable.

Model	Description
EO-500-**	AES-3id EO Converter
OE-501	AES-3id OE Converter

### Key Features and Benefits

Production by order

- AES-3id-1995 and SMPTE276M
- Available 8 different wavelength module for CWDM
- Fully asynchronous multiplex transmission
- Allows word clock (30kHz to 50kHz)
- Dolby-E compatible

### Specifications

Model	EO-500-**	OE-501
Convertibility	Electric to Optic	Optic to Electric
LD/PD	DFB-LD	PIN-PD
Wavelength	1471 to 1611nm	-
Emission/Sensitivity	-3.0±1.0dBm	-26dBm
AES in/out	75 Ω BNC x8 / Input	75 Ω BNC x8 / Output
Slot Occupancy	5	
Power Supply (Max. Unit)	161UPSA (3), 6PS (1)	
Optic Connector	1x SC (Single Mode)	
Sampling Rate	30KHz to 50KHz	
Compliances	AES-3id-1995, SMPTE 276M, IEC 60825-1 CLASS 1 LASER	
Power Req., Consump.	DC5V, 2.5W	
Operating Temperature	0 to 40°C	
Storage Temperature	-10 to 60°C	
Operating Humidity	30 to 85% (no condensation)	
Dimensions	76.2(D)x43.4(H)x91.0(W)mm (connectors not included)	
Weight	Approx. 170g	



EO-500-55



OE-501

### Ordering Information

EO - 500 - 47

Convertibility Type	
EO	Electric to Optic
OE	Optic to Electric

LD/PD Type	
500	DFB-LD
501	PIN-PD

Wavelength (EO-500 Only)	
47	1471nm
49	1491nm
51	1511nm
53	1531nm
55	1551nm
57	1571nm
59	1591nm
61	1611nm

## HD-SDI Signal Repeater

Canare EE-100 increases your reach by up to 120 meters for HD-SDI and up to 320 meters for SD-SDI. Equipped with a cable equalizer, re-clocker and cable driver.

Model	Description
EE-100	HD-SDI Signal Repeater

### Key Features and Benefits

- Additionally expandable: 120m for HD-SDI and 320m for SD-SDI thru L-5CFB
- SMPTE 259M and 292M
- Multi format - supports HD-SDI, SD-SDI and DVB-ASI
- Embedded audio capable
- Work with 161UPSA and 6PS

### Specifications

Model	EE-100
Convertibility	Electric to Electric
Transmission Rate	HD-SDI: 1.485Gbps, 1.485/1.001Gbps SD-SDI: 143Mbps, 177Mbps, 270Mbps, 360Mbps, 540Mbps DVB-ASI: 270Mbps (Disables for SD-SDI 177Mbps)
Interface Connector	2 x 75 Ω BNC
Compliances	SMPTE 259M and 292M, DVB-ASI EN 50083-9, ARIB BTA S-004B CE, RoHS (Effective from July 2006), FCC Part15Class A
Power Req., Consump.	DC5V, 1.8W
Operating Temperature	0 to 40°C
Dimensions	17x 43.4x 79.2mm
Weight	60g



EE-100

### Power Supply Units

Canare PS series is power supply unit/frame for Canare EO, OE, EE and FCWDM modules. 1RU rack mountable and portable units are available.

Model	Description
161UPSA	1RU Rack Mount Type, 16 Modules
6PS	Portable Type, 6 Modules
2PS	Palm Size, 2 Modules

#### Key Features and Benefits

- Compact design - Maximum 16 modules with in 1RU
- Rack mount and stand alone
- Hot swappable
- Redundant power supply for 161UPSA with secondary PSM

#### Specifications

Model	161UPSA	6PS	2PS
No. of Max. Modules	16 (2: FCWDM)	6	2
Module Type	EO, OE, EE, FCWDM	EO, OE, EE	EO*, OE*, EE
Power Requirement	AC100 to 240V	AC100 to 200V, DC 12V	DC 5V
Power Consumption	Max. 150VA (AC100V) Max. 180VA (AC200V)	Max. 60VA (AC100V) Max. 80VA (AC200V) Max. 18W (DC12V)	Max. 4W
Power Connector	AC3P Jack	XLR2 Male (AC) XLR4 Male (DC)	XLR4 Male (DC)
Power Supply to Modules	DC5V, Max. 10A	DC5V, Max. 3A	DC5V, Max. 0.8A
Compliance	FCC Part15 Subpart B Class A	FCC Part15 Subpart B Class A	
Operating Temperature	0 to 40°C		
Dimensions	434x 44x 340mm	210x 44x 165mm	90x 44x 110mm
Weight	4000g	780g	200g

\* Excluding EO-500 / OE-501



161UPSA



6PS



2PS

### HFO Transmission Device with EO/OE Modules

Canare FCB series feature Hybrid Fiber Optic (HFO) camera connector interface with EO/OE modules inside. You can optimize HD/SDI equipment, which doesn't have optic connector interface. Canare FCB series is ideal for outside broadcasting.

Model	Description
FCB-FF3W1	EO/OE Box with SMPTE HFO Connector (Female)
FCB-FM3W2	EO/OE Box with SMPTE HFO Connector (Male)
FCB-OF3W1	EO/OE Box with Japanese HFO Connector (Female)
FCB-OM3W2	EO/OE Box with Japanese HFO Connector (Male)

★ Production by order

#### Key Features and Benefits

- All-in-one solution EO/OE modules and power unit
- Ideal for outside broadcasting
- Maximizing existing HFO camera assemblies
- Flexible configuration for EO/OE modules
- AC and DC input redundancy

#### Specifications

Model	FCB-FF3W1	FCB-FM3W2	FCB-OF3W1	FCB-OM3W2
EO/OE Config. SDI1 Slot	EO-100	OE-101	EO-100	OE-101
SDI2 Slot	OE-101	EO-100	OE-101	EO-100
HFO Connector	Canare FCFR (SMPTE, Female)	Canare FCMR (SMPTE, Male)	Canare OCFR (Japanese, Female)	Canare OCMR (Japanese, Male)
SDI I/O Connector	2x 75 ohm BNC			
EXT Connector	2x XLR3 Female	2x XLR3 Male	2x XLR3 Female	2x XLR3 Male
Power Requirement	AC100 to 240V, DC 12V			
Power Consumption	Max. 10W			
Power Connector	AC3P Jack XLR4 Male (DC)			
Operating Temperature	0 to 40°C			
Dimensions	210x 44x 240mm			
Weight	1300g			

FCB-FM3W2



FCB-FF3W1



Rear view

## Hybrid Camera Cable Checker

Canare Cable Checker allows fast, easy confirmation of HFO cables in the field. No heavy equipment to drag around. The compact design features a backlight digital display to measure optic loss/power and electrical continuity. Small and light, Canare cable checker helps make mobile installations smooth, secure and constant.

Kit Model	Individual Model	
	Measuring Unit	Loop-back Unit
FCT-FCKIT	FCT-FC	FCT-FCLB
FCT-OCKIT	FCT-OC	FCT-OCLB

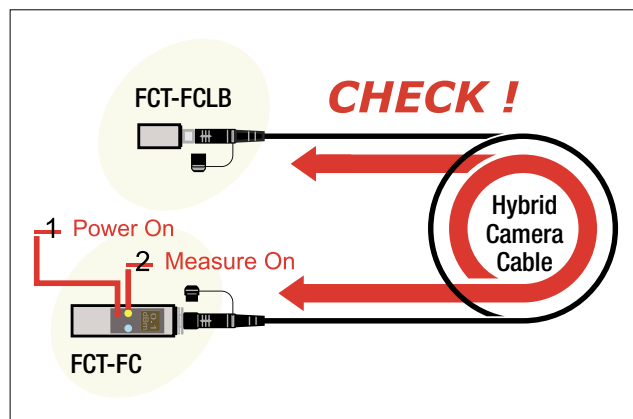
### Key Features and Benefits

- Compact, hand-held design
- Measured optical loss and power in addition to electrical signals
- 2x AA, 20 hours battery life
- The kit includes TB-3 storage case, soft cases, AA Batteries, and cleaning sticks

### Specifications

Kit Model	FCT-FCKIT	FCT-OCKIT
Connector	SMPTE/ARIB (Canare FC Series)	JAPANESE (Canare OC Series)
LD	FP-LD	
Wavelength	1310nm	
Output Power	-2.5dBm	
Sensitivity	-24 to -2dBm	
Maximum Length	3.5km (Canare LF-2SM9R)	
Optic Lines	Two Lines: Power and Loss	
Copper Lines	Power, Control, and Shield: Connectivity	
Battery/Life	2pcs of AA/ Approx. 20hours	
Operating Temperature	-10 to 60°C	
Dimensions	FCT-FC/OC: 46x 46x 150mm	
	FCT-FCLB/OCLB: 46x 46x 65mm	
Weight	FCT-FC/OC: 380g	
	FCT-FCLB/OCLB: 170g	
Accessories Included	TB-3 storage case, soft cases, AA Batteries, and cleaning sticks	

CE, FCC, FDA registered  
 United States Patent No.7,113,678  
 Patent pending in Japan



### Loop-back Quick Reference (Typical Attenuation Value)

Cable Length	Number of Cables														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Under 200m	1.2	2.2	3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	11.2	12.2	13.2	14.2	15.2
500m	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5
1000m	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2000m	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3000m	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Loop-back Loss: Number of camera cable assemblies + cable length

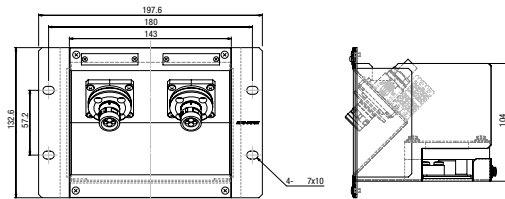
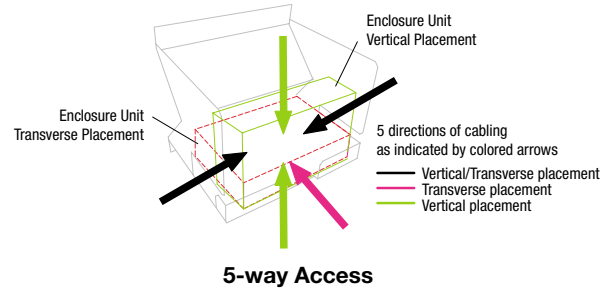
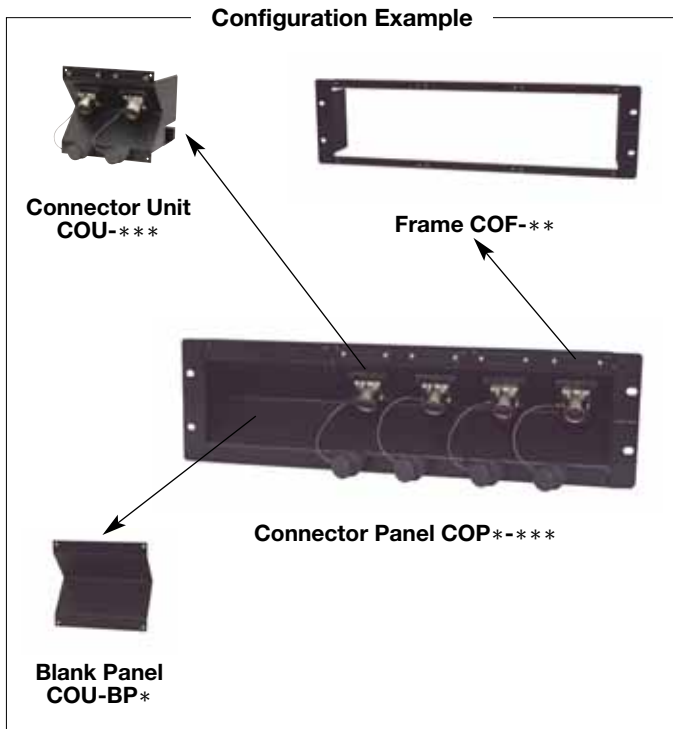
### Hybrid Fiber-optic Camera Connector Panels

**NEW**

HFO camera connectors with integrated splice enclosures, installable in terminal boards or racks, are ideal for configuring HD camera-to-broadcast van transmissions. Distinct connector units and mounting frames offer the flexibility needed to meet the layout needs of a variety of system configurations.

#### Key Features and Benefits

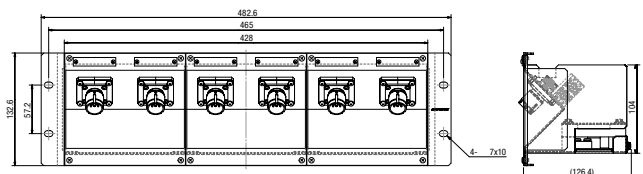
- Canare exclusive “5-way access”
- Convenient to build I/O interface between HD facilities and HD OB vans
- Variety of choice of 2RU/3RU and wall/rack mount
- Cost effective



### HFO Camera Connector Panels (SMPTE/ARIB)

Model	Panel Size	Loaded Connector (Loaded Unit)
COP-FF3	Wall Mount Type	x2 FCFR (x1 COU-FF3)
COP-FM3	3RU Height, W:197.6mm	x2 FCMR (x1 COU-FM3)
COP-FF2	Wall Mount Type	x2 FCFR (x1 COU-FF2)
COP-FM2	2RU Height, W:197.6mm	x2 FCMR (x1 COU-FM2)
COP3-FF3	Rack Mount Type	x6 FCFR (x3 COU-FF3)
COP3-FM3	3RU	x6 FCMR (x3 COU-FM3)
COP3-FF2	Rack Mount Type	x6 FCFR (x3 COU-FF2)
COP3-FM2	2RU	x6 FCMR (x3 COU-FM2)

Production by order



### HFO Camera Connector Panels (Japanese style)

Model	Panel Size	Loaded Connector (Loaded Unit)
COP-OF3	Wall Mount Type	x2 OCFR (x1 COU-OF3)
COP-OM3	3RU Height, W:197.6mm	x2 OCMR (x1 COU-OM3)
COP-OF2	Wall Mount Type	x2 OCFR (x1 COU-OF2)
COP-OM2	2RU Height, W:197.6mm	x2 OCMR (x1 COU-OM2)
COP3-OF3	Rack Mount Type	x6 OCFR (x3 COU-OF3)
COP3-OM3	3RU	x6 OCMR (x3 COU-OM3)
COP3-OF2	Rack Mount Type	x6 OCFR (x3 COU-OF2)
COP3-OM2	2RU	x6 OCMR (x3 COU-OM2)

Production by order

#### Accessories

Fiber-optic cable w/SC connector (2m), grounding cable, nylon connector, Pin connector, socket contact, tie-band, fusion reinforcement sleeve, fusion rubber holder, color-coded tube, mounting screw, laser warning label.  
 [NOTE] A separately available dedicated tool is required to assemble nylon connectors.

## HFO Connector Unit and Others

Model	Panel Height	Description
COU-FF3	3RU	Connector unit, x2 FCFR
COU-FM3	3RU	Connector unit, x2 FCMR
COU-FF2	2RU	Connector unit, x2 FCFR
COU-FM2	2RU	Connector unit, x2 FCMR
COU-OF3	3RU	Connector unit, x2 OCFR
COU-OM3	3RU	Connector unit, x2 OCMR
COU-OF2	2RU	Connector unit, x2 OCFR
COU-OM2	2RU	Connector unit, x2 OCMR
COU-BP3	3RU	Blank panel
COU-BP2	2RU	Blank panel
COF-13	3RU	Frame for 1 unit
COF-12	2RU	Frame for 1 unit
COF-33	3RU	Frame for 3 unit
COF-32	2RU	Frame for 3 unit

Production by order



COU-FF3



COU-BP3



COF-33

## Hybrid Fiber-optic Splice Enclosures

The fiber-optic splice enclosure was designed specifically for use with hybrid fiber-optic camera cables. The enclosure is used to protect fusion splice connection parts after installation.

Model	No. of cables	Fusion splice tray No.	Adapter	
			SC	Nylon connector
FCE-2	2	1	4	2
FCE-4	4	2	8	4
FCE-6	6	3	12	6

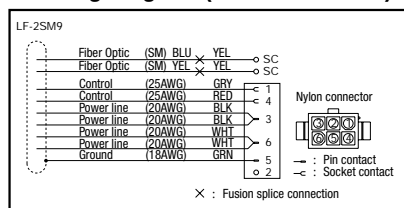
Produced after orders are received.

- The enclosure is designed specifically for the hybrid fiber-optic camera cable (LF-2SM9), making installation and operation very easy.
- The enclosure can be installed on walls or placed flat. Mounting bracket (connector protection cover) can be detached from the box when installing in limited space.
- The enclosure is designed with two configurations, the top-bottom split design (FCE-2, FCE-4) and the removable panel design (FCE-6). Both designs enable easy installation of cables.
- The connection with hybrid fiber-optic receptacle cable is done by use of connectors, thus enabling easy interchanging of lines after installation.
- The tension member is insulated from the chassis.

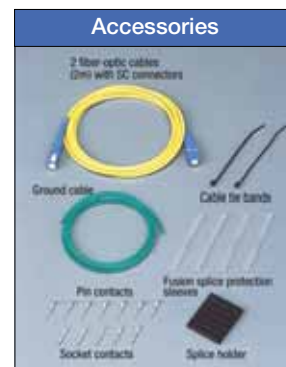
### Note :

The following special tools are required for installing the nylon connectors.  
Models: AMP90758-1 (26 to 22 AWG) and AMP90760-1 (18 to 20 AWG)

### Wiring Diagram (Canare standard)



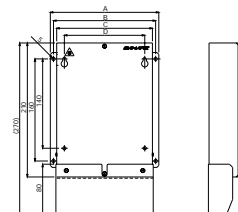
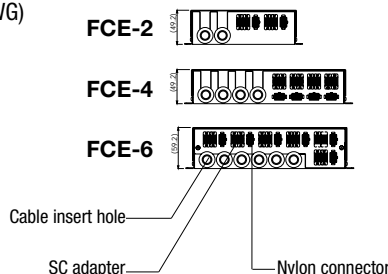
FCE-2



\* Component numbers shown above are for the FCE-2.

Type	FCE-2	FCE-4	FCE-6
A	170	240	
B	160	230	
C	150	220	
D	126	196	

(mm)




### SMPTE311M Hybrid Fiber-optic Camera Cables

Canare expands the range of hybrid fiber-optic camera cable to provide the best solutions for HDTV broadcasting. In addition to the industrial standard OD 9mm cable, we launched OD 7mm of slim profile cable.

#### Key Features and Benefits

- SMPTE 311M
- Rugged and flexible construction
- Meets HDTV Camera systems
- Slim and Light (LF-2SM7R)

Type	Model	Sales units (m)	Nom. O.D (mm)	Weight kg/100m	Outer Jacket	Overall Shield	Tension Tolerance (N)	Bend Radius	Temp. Range	Channel Unit			
										Fiber	Signal (Control)	Aux. (Power)	Strength Member
 <b>LF-2SM9R</b> Jacket color : black	LF-2SM7R	Please contact Canare sales.	7.1	6.8	Abrasion-resistance Elastomer	8/24/0.10TA 91%	300	x6 over of Nom. O.D.	-40°C to +75°C	2x SM9.2/125µm Kevlar+PVC Jacket (1x BLU, 1x YEL) Unit OD: 1.7mm	2x 25AWG, 7/0.18TA (1x CLR, 1x RED) Unit OD: 1.2mm	2x 23AWG, 25/0.12TA (2x BLK, 2x WHT) Unit OD: 1.35mm	1x 18AWG, 19/0.24 (1x CLR) Unit OD: 1.4mm
	LF-2SM9R		9.2	11.0	PVC	9/24/0.10TA 91%				2x SM9.5/125µm Kevlar+PVC Jacket (1x BLU, 1x YEL) Unit OD: 1.7mm	2x 25AWG, 7/0.18TA (1x GRY, 1x RED) Unit OD: 1.2mm	4x 20AWG, 21/0.18TA (2x BLK, 2x WHT) Unit OD: 1.7mm	1x 15AWG, 19/0.24 (1x CLR) Unit OD: 2.6mm
	LF-2SM9		10.5	PVC (Double)						2x SM9.5/125µm Kevlar+PVC Jacket (1x BLU, 1x YEL) Unit OD: 0.9mm			
	LF-2SM16		16.0		27.0								

★Non-stock item. Contact Canare sales for details.

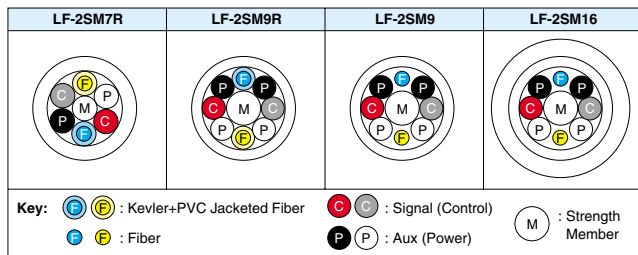
- LF-2SM7R:** OD 7mm of slim profile and 38% lighter than LF-2SM9R, best fit for mobile applications.
- LF-2SM9R:** Durable OD 9mm hybrid cable features abrasion-resistance elastomer jacket and Kevlar+PVC jacketed fiber units. Best fit for all studio and outside broadcast applications. -most common-

- LF-2SM9:** Ideal for fixed HDTV system installments
- LF-2SM16:** Rugged construction, double jacket

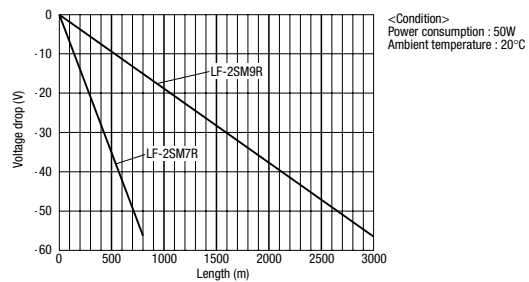
#### Note :

The power supply distance depends on HFO camera cable voltage drop and the system used. Calculate the distance using the graph below provided as a guideline.

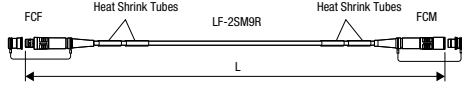
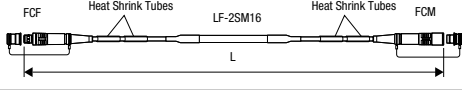
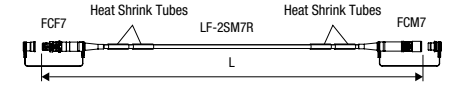
#### Cross Section



#### Voltage Drop



### Hybrid Fiber-optic Camera Cable Assemblies

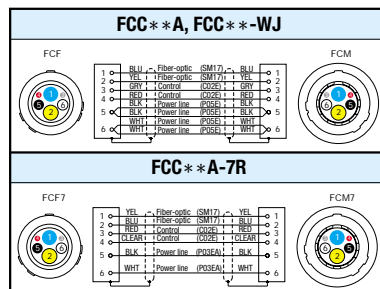
Type	Model	Length (m)
Jacket color: black 	★ FCC10A	10
	★ FCC20A	20
	FCC50A	50
	FCC100A	100
Jacket color: black 	★ FCC50-WJ	50
	★ FCC100-WJ	100
Jacket color: black 	★ FCC10A-7R	10
	★ FCC20A-7R	20
	★ FCC30A-7R	30
	★ FCC50A-7R	50
	★ FCC100A-7R	100

★ Production by order. Custom lengths order available

- SMPTE 304M, 311M, and ARIB BTA S-1005B compliant.
- Return loss: 45dB or greater ( $\lambda=1.3\mu\text{m}$ ).
- Insertion loss: 0.5dB or less ( $\lambda=1.3\mu\text{m}$ ).
- Connector body material is stainless steel.
- 2 each of 7 color rings included.
- FCC\*\* -WJ series prevent the cable from catching on skirt of camera pedestal.
- FCC\*\* -7R series are slim and lightweight for mobile applications.

#### Note :

Power supply distance for FCC\*\* -7R shortens to approximately 1/4 of that of the FCC\*\*A and FCC-WJ series.



Wiring Diagram



FCF, FCF7

FCM, FCM7



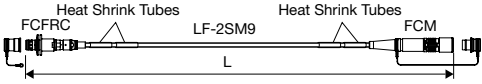
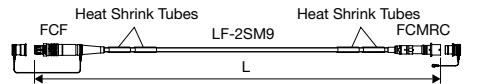
Color Rings



FCC\*\* -7R



## Hybrid Fiber-optic Camera Cable Assemblies (Flanged Type)

Type	Model	Length (m)
 <p>Jacket color: black IU-FCF-SET included</p>	<b>FCC05A-FRCM</b>	5
	<b>FCC10A-FRCM</b>	10
 <p>Jacket color: black IU-FCM-SET included</p>	<b>FCC05A-FMRC</b>	5
	<b>FCC10A-FMRC</b>	10

Production by order.

- HFO camera cable with the flange for panel mounting.
- SMPTE 304M, 311M, and ARIB BTA S-1005B compliant.
- Return loss: 45dB or greater ( $\lambda=1.3\mu\text{m}$ ).
- Insertion loss: 0.5dB or less ( $\lambda=1.3\mu\text{m}$ ).
- Connector body material is stainless steel.
- 2 each of 7 color rings and insulation plates included.



Color Rings



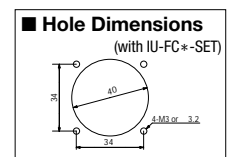
IU-FC\*-SET



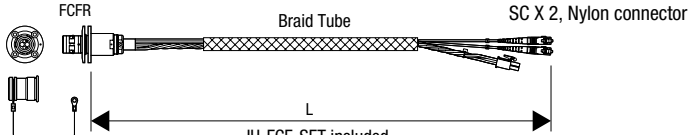
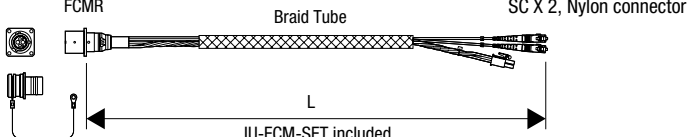
FCFC



FCMRC



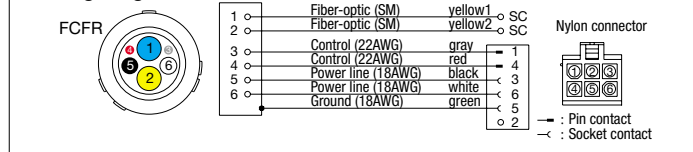
## Hybrid Fiber-optic Receptacle Cables (SMPTE/ARIB)

Type	Model	Length (m)
 <p>Jacket color: black IU-FCF-SET included</p>	<b>FCS015A-FR</b>	1.5
 <p>Jacket color: black IU-FCM-SET included</p>	<b>FCS015A-MR</b>	1.5

Production by order.

- Ideal for connecting wall terminal panels to splice enclosures, etc.
- Return loss: 45dB or greater ( $\lambda=1.3\mu\text{m}$ ).
- Insertion loss: 0.5dB or less ( $\lambda=1.3\mu\text{m}$ ).
- Connector body material is stainless steel.
- Insulation plates included.

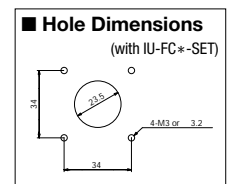
### ■ Wiring Diagram



FCFR



FCMR



## Insulation Plate

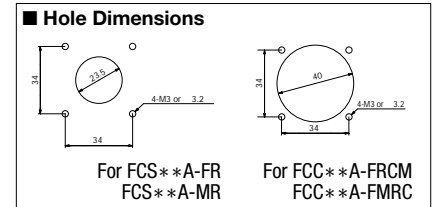
Ideal for perfect insulation between individual connector and panel.

Model	Applicable connector
<b>IU-FCM-SET</b>	FCMR, FCMRC, OCFR, OCFRC, OCMR, OCMRC
<b>IU-FCF-SET</b>	FCFR, FCFC

- Material: Bakelite (phenolic resin)
- Mounting screws included.



IU-FC\*-SET



## Extraction Tool

Extraction tool helps easy to clean Canare HFO connectors.

Model	Applicable connector
<b>ASPT-1</b>	FCF, FCF7, FCFR, FCFC

- Tool to be used to release the alignment sleeve unit when cleaning HFO connectors.

\* Use the CLETOP 2.5/2.0 (100) cleaning stick to clean fiber-optic camera connectors.

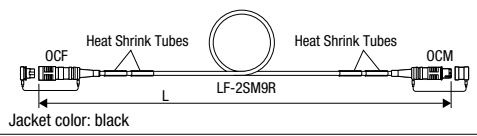
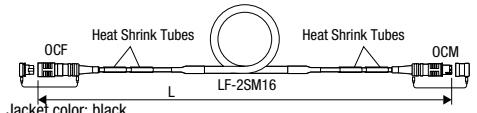


ASPT-1



Quick-release

### Hybrid Fiber-optic Camera Cable Assemblies (Japanese Style)

Type	Model	Length (m)
 <p>Jacket color: black</p>	OCC10	10
	OCC20	20
	OCC50	50
	OCC100	100
 <p>Jacket color: black</p>	OCC50-WJ	50
	OCC100-WJ	100

Production by order

- Return loss: 45dB or greater ( $\lambda=1.3\mu\text{m}$ ) .
- Insertion loss: 0.5dB or less ( $\lambda=1.3\mu\text{m}$ ) .
- Connector body material is stainless steel.
- 2 each of 7 color rings included.
- OCC\*-WJ series prevent the cable from catching on skirt of camera pedestal.

**Note !**

The above connectors (Canare OC series) are non-compatible with SMPTE connectors (Canare FC series).

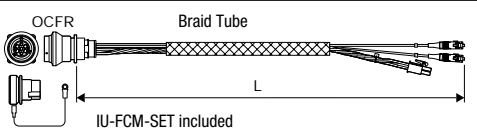
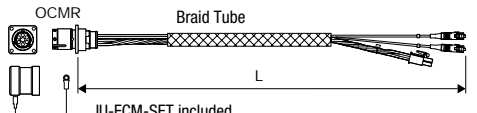


OCC



OCM

### Hybrid Fiber-optic Receptacle Cables (Japanese Style)

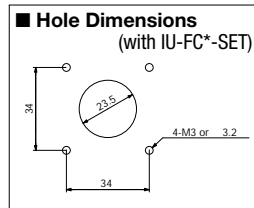
Type	Model	Length (m)
	OCS015-FR	1.5
	OCS015-MR	1.5

Production by order

- Ideal for connection wall terminal panels to splice enclosures, etc.
- Return loss: 45dB or greater ( $\lambda=1.3\mu\text{m}$ ) .
- Insertion loss: 0.5dB or less ( $\lambda=1.3\mu\text{m}$ ) .
- Connector body material is stainless steel.
- Insulation plates included.

**Note !**

The above connectors (Canare OC series) are non-compatible with SMPTE connectors (Canare FC series).



OCFR



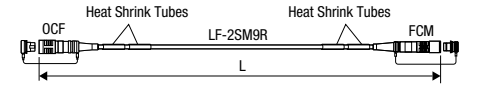
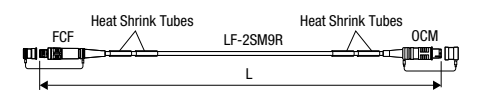
OCMR



OCS015-FR

### Hybrid Fiber-optic Camera Conversion Cables

SMPTE to Japanese style conversion assemblies. FCF and FCM are SMPTE compliant.

Type	Model	Length (m)
 <p>Jacket color: black</p>	FCM02-OCF	2
 <p>Jacket color: black</p>	FCF02-OCM	2

Production by order

- 2 each of 7 color rings included.



FCF02-OCM-ARIB

Fiber-optic Assemblies (Multi Channel Fantails)

Type	Channel	Model	Length (m)	Fiber Optic Cable Brief Spec.		
				Part Number	Unit O.D. (mm)	Nom. O.D. (mm)
	2	2FS10-S	10	LF-SM2-2C	2	7.4
		2FS20-S	20			
		2FS50-S	50			
	4	4FS10-S	10	LF-SM2-4C		
		4FS20-S	20			
		4FS50-S	50			
	6	6FS10-S	10	LF-SM2-6C		
		6FS20-S	20			
		6FS50-S	50			
	8	8FS10-S	10	LF-SM2-8C		
		8FS20-S	20			
		8FS50-S	50			
	12	12FS10-S	10	LF-SM2-12C		
		12FS20-S	20			
		12FS50-S	50			
	16	16FS10-S	10	LF-SM2-16C		
		16FS20-S	20			
		16FS50-S	50			
	24	24FS10-S	10	LF-SM2-24C		
		24FS20-S	20			
		24FS50-S	50			

- Super flexible cable with reliable bellcore boots
- Adjustable fantail length with peel-off string
- UPC polishing; Return loss 50dB for single mode
- Transmission loss 0.5dB at  $\approx 1.31 \mu\text{m}$  and 0.4dB at  $\approx 1.55 \mu\text{m}$

Production by order

Fiber-optic Assemblies (Single/Dual Channel)

Single mode

Type	Model	Length (m)
	FS3C002-S	0.2
	FS3C003-S	0.3
	FS3C005-S	0.5
	FS3C01-S	1.0
	FS3C015-S	1.5
	FS3C02-S	2.0
	FS3C03-S	3.0
	FS3C05-S	5.0
	FS3C10-S	10.0
	FS3C15-S	15.0
	FS3C20-S	20.0
	2FSZ3S02-S	2.0
	2FSZ3S03-S	3.0
	2FSZ3S05-S	5.0

Production by order

- Super flexible cable with reliable bellcore boots
- UPC polishing; Return loss 50dB for single mode and 25dB for multi mode
- Transmission loss 0.5dB at  $\approx 1.31 \mu\text{m}$  and 0.4dB at  $\approx 1.55 \mu\text{m}$  for single mode
- Transmission loss 3.0dB at  $\approx 0.85 \mu\text{m}$  and 1.0dB at  $\approx 1.30 \mu\text{m}$  for multi mode

Multi mode

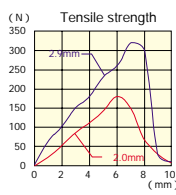
Type	Model	Length (m)
	FG53C02-S	2.0
	FG53C03-S	3.0
	FG53C05-S	5.0
	2FG5Z3S02-S	2.0
	2FG5Z3S03-S	3.0
	2FG5Z3S05-S	5.0
	FG63C02-S	2.0
	FG63C03-S	3.0
	FG63C05-S	5.0
	2FG6Z3S02-S	2.0
	2FG6Z3S03-S	3.0
	2FG6Z3S05-S	5.0

Production by order

Technical Note

Most popular types of fiber-optic cables feature an outside diameter of 2mm and 2.9mm. Since the 2.9mm type contains more Kevlar fiber, which features extremely high tensile strength and is thus highly resistant to stretching and breakage, it is 1.8-times stronger than the 2mm cable.

Canare has made high-strength 2.9mm cable its standard to protect against damage from accidental tripping or pulling on connected patch cables.



Handling Precautions

Depending on usage, fiber-optic patch cables may not be capable of offering their full designed maximum performance. To prevent any deterioration of signal quality, be sure to observe the following precautions:

- ⚠ Do not bend the base of the connector less than 30mm (minimum permissible bend range).
- ⚠ Avoid applying tension of 80N (8.2kgf) or more to the fiber-optic cable. Even momentary applications may damage the cable.
- ⚠ Do not twist the fiber-optic patch cable while connected to equipment.
- ⚠ When connecting cables to equipment or adapters, be sure to insert the connector straight into its corresponding jack and not at an angle. Also, fully insert the connector until its white line disappears.
- ⚠ During installation, take care not to allow kinks to develop in the cable.

