

# LTC 4600 and 4700 Series Fiber Optics

www.boschsecurity.com



**BOSCH**  
Invented for life



- ▶ Video and data models available
- ▶ No adjustments required
- ▶ Long distance—high security
- ▶ Surface-mount or rack-mount units
- ▶ Video models support NTSC, PAL, and SECAM standards

The Bosch Fiber Optic Series are transmission products that provide efficient, high quality video and data transmission via fiber optic cable. Fiber optic signals are immune to ground loops, radio frequency interference (RFI), electromagnetic interference (EMI), and cross talk because the video carrier is infrared light and is transmitted through a nonconductive fiber optic cable. Interference-free operation ensures reliable service. Unlike microwave, wire, and coaxial cable transmission systems, fiber optic transmission is difficult, if not impossible to tap. And, since fiber optic cable is nonconductive and does not radiate a signal, it is difficult to detect and locate. These compact devices are available in a surface mount enclosure or in a modular style package that can be rack-mounted using an optional EIA 48 cm (19 in.) compatible rack unit.

### Model Summary

Model No.	Description/Use
LTC 4641, LTC 4642 Series	Single-channel Video Transmissions
LTC 4744, LTC 4745 Series	4-Channel Video Transmissions
LTC 4628, LTC 4629 Series	Video/Bi-Phase Data Transmissions

LTC 4671 Series	RS-485 Allegiant/ Divar/System4 Keyboard Data Transmissions
LTC 4651 Series	RS-232/ Bi-Phase Data Transmissions
LTC 4637 Series	Card Cage Enclosure for Rack-mount Models

### Functions

Compatibility	
Bosch Product	Bosch Fiber Optics Series
AutoDome with VG4-SFIBER-MM	LTC 4629 Series
Unity Pack Series KBE-xxxx-xxF	LTC 4642 Series
IntuiKey Series Keyboards	LTC 4671 Series
LTC 5136 Controller	LTC 4651 Series

**Certifications and approvals**

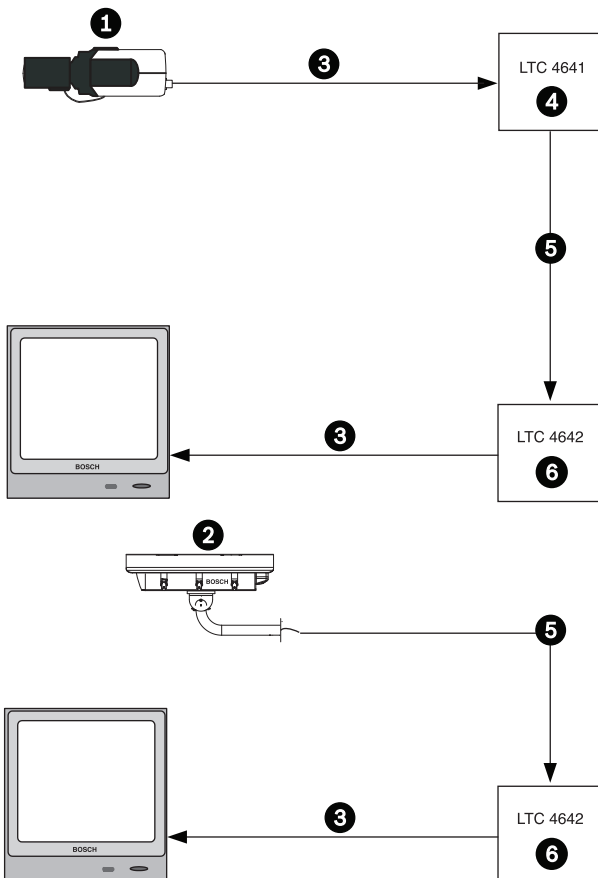
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards
Laser Diode Models	Comply with FDA performance Standard for Laser Products, Title 21; Code of Federal Regulations Subchapter J

Region	Certification
Europe	CE

**Installation/configuration notes**

**LTC 4641 and LTC 4642 Series**

The LTC 4641 Series Transmitters and LTC 4642 Series Receivers are designed for transmission of CCTV analog video signals. Efficient installation is assured because there are no user adjustments required. The wide bandwidth transmission capability of these units enables clear, sharp black and white or color pictures to be transmitted over long distances. The compact transmitters are small enough to be connected directly to a camera's BNC connector, thereby simplifying installation.



LTC 4641 and LTC 4642 Series video transmission

- 1 Camera
- 2 Bosch KBE-xxxx-xxF pre-packaged camera
- 3 Coax Cable
- 4 Fiber Optic Video Transmitter
- 5 Fiber Optic Cable: Up to 4 km (2.5 miles) using 62.5/125 micron
- 6 Fiber Optic Video Receiver

**LTC 4641 and LTC 4642 Series**

Models No.	Description	Power Source <sup>2</sup>	Requires
LTC 46 41/60	Mini Video Transmitter	120-230 VAC, 50/60 Hz	LTC 4642 Series Receiver
LTC 46 42/60	Video Receiver	120-230 VAC, 50/60 Hz	LTC 4641 Series Transmitter
LTC 46 42/00	Video Receiver, Rack Module	LTC 4637 Rack	LTC 4641 Series Transmitter

<sup>2</sup> Appropriate external power pack supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

**Specifications**

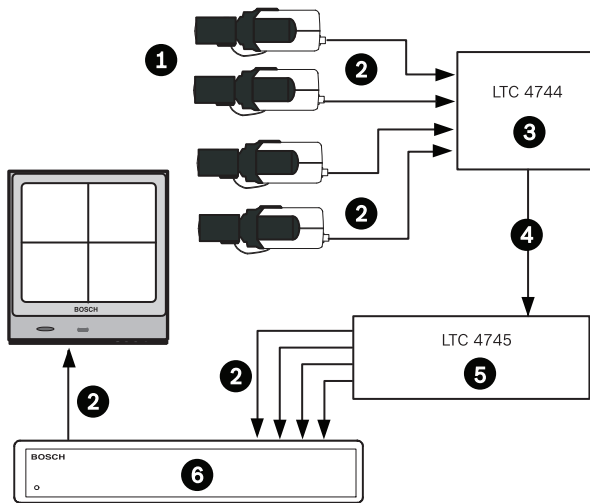
Power Requirements Transmitter (surface-mount versions only)	9–12 VDC @ 150 mA; 10–14 VAC @ 200 mA
Power Requirements Receiver (surface-mount versions only)	12 VDC @ 150 mA
Number of Fibers	One (1)
Optical Budget	14 dB
Maximum Distance	4 km (2.5 miles)
Wavelength	850 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Technology Type	AM modulation, with AGC
Rack Slots Required when used with LTC 4637 Rack	One (1), (rack-mount version only)
Video Bandwidth	5 Hz to 10 MHz
Differential Gain	< 5%
Differential Phase	< 5°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	> 55 dB @ 10 dB attenuation > 60 dB @ 7 dB attenuation
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

**Dimensions**

Transmitter (L x W x H) (surface-mount version)	6.4 x 4.1 x 2.5 cm (2.5 x 1.6 x 1.0 in.)
Receiver (L x W x H) (surface-mount version)	10.7 x 8.9 x 2.5 cm (4.2 x 3.5 x 1.0 in.)

**LTC 4744 and LTC 4745 Series**

The LTC 4744 Transmitter and LTC 4745 Receiver are designed for the transmission of up to 4 CCTV analog video signals using one multimode fiber cable. This link operates in the 1310 nm range and incorporates 8-bit video encoding exceeding the requirements of EIA RS-250C for Medium Haul video transmissions. Integral LED status indicators provide an indication of operating parameters.



LTC 4744 and LTC 4745 Series – 4 channel video transmission

- 1 Camera
- 2 Coax Cable
- 3 Fiber Optic Video Transmitter
- 4 Fiber Optic Cable: Up to 3 km (1.9 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 5 Fiber Optic Video Receiver
- 6 Video Quad Unit

**LTC 4744 and LTC 4745 Series**

Models No.	Description	Power Source <sup>2</sup>	Requires
LTC 47 44/60	4-ch. Video Transmitter	120-230 VAC, 50/60 Hz	LTC 4745 Series Receiver
LTC 47 44/00	4-ch. Video Transmitter Rack Module	LTC 4637 Rack	LTC 4745 Series Receiver
LTC 47 45/60	4-ch. Video Receiver	120-230 VAC, 50/60 Hz	LTC 4744 Series

	4-ch. Video Receiver Rack Module	LTC 4637 Rack	Transmitter
LTC 47 45/00			LTC 4744 Series Transmitter

<sup>2</sup> Appropriate external power packs supplied with surface-mount models or power provided by LTC4637 rack unit for rack-mount models.

**Specifications**

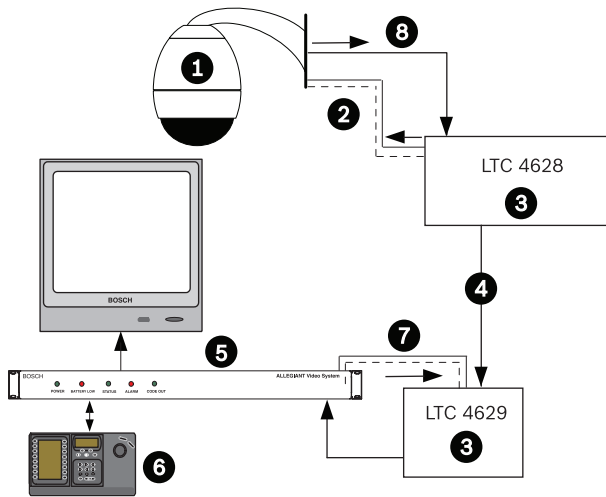
Power Requirements Transmitter and Receiver (surface-mount versions only)	+12 VDC @ 500 mA
Number of Fibers	One (1)
Optical Budget	17 dB
Maximum Distance	3 km (1.9 miles)
Wavelength	1310 nm
Optical Emitter	Laser diode
Technology Type	8-Bit digital video encoding
Rack Slots Required when used with LTC 4637 Rack	Two (2), rack-mount version only
Video Bandwidth	10 Hz to 6.5 MHz
Differential Gain	< 2%
Differential Phase	< 0.7°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	60 dB @ maximum optical loss budget
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

**Dimensions**

Transmitter (L x W x H) (surface-mount versions)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
Receiver (L x W x H) (surface-mount versions)	17.8 x 12.5 x 5.0 cm (7.0 x 4.9 x 2.0 in.)

**LTC 4628 and LTC 4629 Series**

The LTC 4628 and LTC 4629 are a bidirectional transmission system designed to implement a complete CCTV system using a single optical fiber cable. This system independently transmits an analog video signal from the camera location to the controller location, while simultaneously transmitting Bosch Bi-Phase control code from the controller location to the camera location. The video channel is compatible with monochrome or color cameras. The data channel is compatible with control systems that utilize Bosch Bi-Phase, simplex RS-232, or RS-422 signals. Both units incorporate LED indicators to provide quick visual indication of the module performance.



LTC 4628 and LTC 4629 Series – video/data transmission

- 1 AutoDome Series Pan/Tilt/Zoom Camera
- 2 Bi-Phase Control Data Cable
- 3 Fiber Optic Transceiver
- 4 Fiber Optic Cable: Up to 4 km (2.5 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 5 Allegiant Series Switcher/Controller, Divar Digital Video Recorder, or System4 Series Multiplexer
- 6 IntuiKey Series Keyboard
- 7 Bi-Phase Control Data Cable
- 8 Video

**LTC 4628 and LTC 4629 Series**

Models No.	Description	Power Source <sup>2</sup>	Requires
LTC 46 28/60	Video/Data Transceiver	120-230 VAC, 50/60 Hz	LTC 4629 Series Transceiver
LTC 46 28/00	Video/Data Transceiver Rack Module	LTC 4637 Rack	LTC 4629 Series Transceiver
LTC 46 29/60	Data/Video Transceiver	120-230 VAC, 50/60 Hz	LTC 4628 Series Transceiver
LTC 46 29/00	Data/Video Transceiver Rack Module	LTC 4637 Rack	LTC 4628 Series Transceiver

<sup>2</sup> Appropriate external power pack supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

**Specifications**

Power Requirements LTC 4628 (surface-mount versions only)	24 VAC C.T. , 11–14 VDC @ 200 mA
Power Requirements LTC 4629 (surface-mount versions only)	12 VDC @ 200 mA

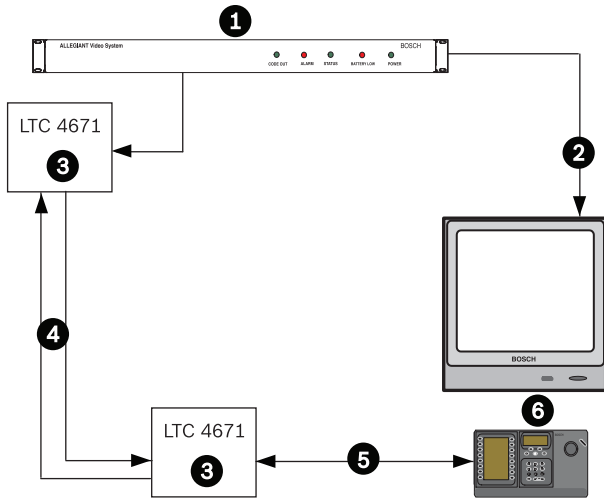
Number of Fibers	One (1)
Optical Budget	14 dB
Maximum Distance	4.0 km (2.5 miles)
Technology Type	AM Video modulation
Wavelength	850 nm / 1310 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Rack Slots Required (when used with LTC 4637 Rack)	One (1), rack-mount version only
Video Bandwidth	5 Hz to 10 MHz
Differential Gain	< 5%
Differential Phase	< 5°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	> 55 dB @ 10 dB attenuation > 60 dB @ 7 dB attenuation
Data Rate	DC to 100 kbps (NRZ)
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

**Dimensions**

L x W x H (surface-mount versions)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
------------------------------------	--

**LTC 4671 Series**

The LTC 4671 Series are Transceivers designed especially for the transmission of RS-485 signals used by system keyboards in the Allegiant Series of switcher/controller systems, the Divar Series of digital video recorders, and the System4 Series of multiplexers. The unit contains both a transmitter and a receiver operating in the 850 nm range to allow bidirectional communication using two fibers between the main control site and its remote keyboard.



LTC 4671 Series – keyboard data transmission

- 1 Allegiant Series Switcher/Controller, Divar Digital Video Recorder, or System4 Series Multiplexer
- 2 Separate Video Signal Transmission Link
- 3 Fiber Optic Data Transceiver
- 4 Up to 4 km (2.5 miles) using 62.5/125 micron Multimode Fiber Optic Cables
- 5 Keyboard Data
- 6 IntuiKey Series Keyboard

**LTC 4671 Series**

Models No.	Description	Power Source <sup>2</sup>	Requires
LTC 4671/60	RS-485 Transceiver	120-230 VAC, 50/60 Hz	LTC 4671 Series Transceiver
LTC 4671/00	RS-485 Transceiver Rack Module	LTC 4637 Rack	LTC 4671 Series Transceiver

<sup>2</sup> Appropriate external power pack supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

**Specifications**

Power Requirements (surface-mount versions only)	12 VDC @ 200 mA
Number of Fibers	Two (2)
Optical Budget	14 dB
Maximum Distance	4.0 km (2.5 miles)
Wavelength	850 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Rack Slots Required (when used with LTC 4637 Rack)	One (1), rack-mount version only

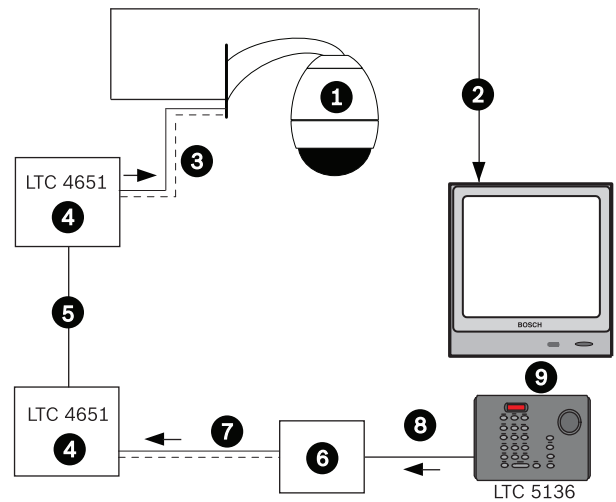
Data Rate	DC to 150 kbps
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

**Dimensions**

L x W x H (surface-mount versions)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
------------------------------------	---

**LTC 4651 Series**

The LTC 4651 Transceivers are designed especially for the transmission of Bosch Bi-Phase control code signals used in the Allegiant Series of switcher/controllers, various DVRs, multiplexers, and other camera control systems. They are also compatible with Manchester code and standard RS-232 signals. These units operate in the 850 nm range and contain a removable screw terminal type connector that allows easy connection to the shielded twisted pair cable carrying the control signal. These units can also be used as an RS-232C transceiver that is compatible with EIA Standard RS-232C levels. The system is suitable for simplex asynchronous data transmissions using one fiber, or full duplex asynchronous data transmissions using two fibers up to 64 kbaud.



LTC 4651 Series – RS232 data transmission

- 1 AutoDome Series Pan/Tilt/Zoom Camera
- 2 Separate Video Signal Transmission Link
- 3 Bi-Phase Control Data Cable
- 4 Fiber Optic Data transceiver
- 5 Up to 3.5 km (2 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 6 Controller Junction Box
- 7 Bi-Phase Control Data Cable
- 8 Data

## 9 Controller

**LTC 4651 Series**

Models No.	Description	Power Source <sup>2</sup>	Requires
LTC 46 51/60	Bi-Phase/RS-232 Transceiver	120-230 VAC, 50/60 Hz	LTC 4651 Series Transceiver
LTC 46 51/00	Bi-Phase/RS-232 Transceiver, Rack Module	LTC 4637 Rack	LTC 4651 Series Transceiver

<sup>2</sup> Appropriate external power pack supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

**Specifications**

Power Requirements (surface-mount versions only)	12 VDC @ 150 mA
Number of Fibers	One (1) for Bi-Phase and simplex RS-232 transmissions; Two (2) for duplex RS-232 transmissions
Optical Budget	14 dB
Maximum Distance	3.5 km (2 miles)
Wavelength	850 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Rack Slots Required (when used with LTC 4637 Rack)	One (1), rack-mount version only
Data Rate	DC to 1.5 Mbps (NRZ)
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

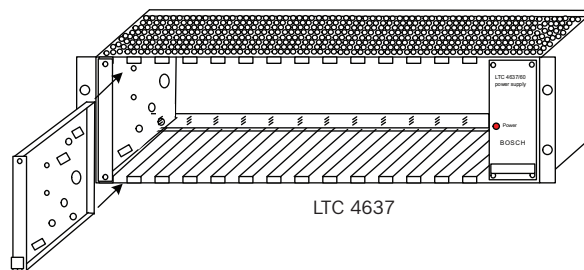
**Dimensions**

L x W x H (surface-mount versions)	10.7 x 8.9 x 2.5 cm (4.2 x 3.5 x 1.0 in.)
------------------------------------	--

**LTC 4637 Series Rack**

The LTC 4637 Series Rack Units provide the option to rack-mount LTC 4600 Series Fiber Optic Modules in a standard EIA 48 cm (19 in.) rack. The unit incorporates an integral power supply that supplies power to all modules installed in the rack-mount unit. The supply also utilizes a standard IEC AC power connector for easy power cord replacement or exchange with various worldwide AC power plug configurations. Modules installed in the rack-mount unit can be hot-swapped, so it is not necessary to power down the rack when removing or replacing modules. The integral power supply incorporates an automatic electronic current limiting feature for each individual rack-mount

slot. This design eliminates the possibility of a single-point failure causing a complete shut down of the entire rack. The current limiting function is also self-resetting, should the fault or overload be of a temporary or intermittent nature.

**LTC 4637 Series Rack**

Models No.	Input Voltage	Voltage Range	Output Voltage	Max Power <sup>3</sup>
LTC 4637/60	120 VAC, 50/60 Hz	108 to 132	20 VAC	80 W
LTC 4637/50	230 VAC, 50/60 Hz	198 to 264	20 VAC	80 W

<sup>3</sup> Maximum power dissipation (fully loaded).

**Specifications**

Construction	Modular style aluminum enclosure, with detachable IEC type AC power connector
Number of Slots	14
Indicators	Power supply pilot lamp
Power Supplied to Modules	20 VAC, Center tapped @ 4.0 A
Fusing	One (1) slow-blow for rack power supply; modules individually electronically fused
Connectors	AC line cord; 3-terminal adaptor sockets, per slot
Shipping Weight	< 2.15 kg (< 5 lb)

**Dimensions**

L x W x H	48.3 x 17.8 x 13.3 cm (19.0 x 7.0 x 5.25 in.)
-----------	--

## Technical specifications

### Common Specifications

NOTE: Specifications noted below apply to all models unless otherwise specified in applicable model section.

Optical Connector Type	ST (most modules)
Optical Fiber Compatibility	50/125 $\mu\text{m}$ or 62.5/125 $\mu\text{m}$ , graded index multimode glass fiber rated for a minimum bandwidth of 600 MHz-Km. For 50/125 fiber, subtract 4 dB from the specified optical budget value.
Optical Distance Specifications	Specified transmission distances are limited to the optical loss of the fiber and any additional loss introduced by connectors, splices, and patch panels. The modules are designed to operate over the entire optical loss budget range, so they do not require a minimum loss in order to operate.
Data and Power Connections	Removable screw terminal blocks
Construction	Surface-mountable metal enclosure designed to maximize EMI/RFI shielding

### Environmental

Operating Temperature	-40°C to 74°C (-40°F to 165°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	0% to 95% relative, non-condensing

### Accessories

LTC 4600/00 blank panel (1 rack slot). Used to cover unused slots in LTC 4637 Series racks.

### Replacement Power Supply Part Numbers

UPA-1509-60	For 120 VAC, 50/60 Hz models
UPA-1509-50	For 230 VAC, 50/60 Hz models

## Ordering information

### LTC 4600/00 Blank Panel

to cover one slot of the LTC 4637 48-cm (19-in.) rack  
Order number **LTC 4600/00**

### LTC 4628/60 Video/Data Transceiver

850 nm FOM, 120-230 VAC, 60 Hz  
Order number **LTC 4628/60**

### LTC 4628/00 Video/Data Transceiver, Rack Module

850 nm FOM, receives data, use with LTC 4637 series rack  
Order number **LTC 4628/00**

### LTC 4629/60 Data/Video Transceiver

850 nm FOM, 120-230 VAC, 60 Hz  
Order number **LTC 4629/60**

### LTC 4629/00 Data/Video Transceiver, Rack Module

850 nm FOM, use with LTC 4637 series rack  
Order number **LTC 4629/00**

### LTC 4630/50 Video Transmitter/Data Transceiver

850/1310 nm FOM, side A, 230 VAC, 50/60 Hz  
Order number **LTC 4630/50**

### LTC 4630/60 Video Transmitter/Data Transceiver

850/1310 nm FOM, side A, 120 VAC, 50/60 Hz  
Order number **LTC 4630/60**

### LTC 4631/50 Video + Bilinx Fiber Receiver

850/1310 nm FOM, side B, 230 VAC, 50/60 Hz  
Order number **LTC 4631/50**

### LTC 4631/60 Video + Bilinx Fiber Receiver

850/1310 nm FOM, side A, 120 VAC, 50/60 Hz  
Order number **LTC 4631/60**

### LTC 4631/00 Video + Bilinx Fiber Receiver, Rack Module

850/1310 nm FOM, side B, use with LTC 4637 series rack  
Order number **LTC 4631/00**

### LTC 4637/50 Rack and Power Supply

for FOM, 48 cm (19 in.), 230 VAC, 50 Hz  
Order number **LTC 4637/50**

### LTC 4637/60 Rack and Power Supply

for FOM, 48 cm (19 in.), 110 VAC, 60 Hz  
Order number **LTC 4637/60**

### LTC 4641/60 Mini Video Transmitter

850 nm FOM, video signals, 120-230 VAC, 60 Hz  
Order number **LTC 4641/60**

### LTC 4642/60 Video Receiver

850 nm, 120-230 VAC, 60 Hz  
Order number **LTC 4642/60**

### LTC 4642/00 Video Receiver, Rack Module

850 nm FOM, video signals, use with LTC 4637 series rack  
Order number **LTC 4642/00**

### LTC 4651/60 Bi-Phase/RS-232 Transceiver

850 nm, FOM, 120-230 VAC, 60 Hz  
Order number **LTC 4651/60**

### LTC 4651/00 Bi-Phase/RS-232 Transceiver, Rack Module

850 nm FOM, use with LTC 4637 series rack  
Order number **LTC 4651/00**

### LTC 4671/60 RS-485 Transceiver

850 nm, 120-230 VAC, 60 Hz  
Order number **LTC 4671/60**

### LTC 4671/00 RS-485 Transceiver, Rack Module

850 nm FOM, use with LTC 4637 series rack  
Order number **LTC 4671/00**

**LTC 4681/50 Ethernet Transmitter**

1310/1550 nm FOM, side A, 10/100 Base-T Ethernet,  
230 VAC, 50/60 Hz  
Order number **LTC 4681/50**

---

**LTC 4681/60 Ethernet Transmitter**

1310/1550 nm FOM, side A, 10/100 Base-T Ethernet,  
120 VAC, 50/60 Hz  
Order number **LTC 4681/60**

---

**LTC 4681/00 Ethernet Transmitter, Rack Module**

10/100 Base-T Ethernet, use with LTC 4637 series rack  
Order number **LTC 4681/00**

---

**LTC 4682/50 Ethernet Receiver**

1310/1550 nm FOM, side B, 10/100 Base-T Ethernet,  
230 VAC, 50/60 Hz  
Order number **LTC 4682/50**

---

**LTC 4682/60 Ethernet Receiver**

1310/1550 nm FOM, side B, 10/100 Base-T Ethernet,  
120 VAC, 50/60 Hz  
Order number **LTC 4682/60**

---

**LTC 4682/00 Ethernet Receiver, Rack Module**

1310/1550 nm FOM, side B, 10/100 Base-T Ethernet,  
use with LTC 4637 series rack  
Order number **LTC 4682/00**

---

**LTC 4744/60 Transmitter**

1310 nm FOM, 4 channel, video signals, 120-230 VAC,  
50/60 Hz  
Order number **LTC 4744/60**

---

**LTC 4744/00 Transmitter, Module Rack**

1310 nm FOM, 4 channel, video signals, use with  
LTC 4637 series rack  
Order number **LTC 4744/00**

---

**LTC 4745/60 Receiver**

1310 nm FOM, 4 channel, video signals, 120-230 VAC,  
50/60 Hz  
Order number **LTC 4745/60**

---

**LTC 4745/00 Receiver, Rack Module**

1310 nm FOM, 4 channel, video signal, use with  
LTC 4637 series rack  
Order number **LTC 4745/00**

---

**Represented by:**

**Americas:**

Bosch Security Systems, Inc.  
130 Perinton Parkway  
Fairport, New York, 14450, USA  
Phone: +1 800 289 0096  
Fax: +1 585 223 9180  
security.sales@us.bosch.com  
www.boschsecurity.us

**Europe, Middle East, Africa:**

Bosch Security Systems B.V.  
P.O. Box 80002  
5617 BA Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

**Asia-Pacific:**

Robert Bosch (SEA) Pte Ltd, Security  
Systems  
11 Bishan Street 21  
Singapore 573943  
Phone: +65 6571 2808  
Fax: +65 6571 2699  
apr.securitysystems@bosch.com  
www.boschsecurity.asia

**China:**

Bosch (Shanghai) Security Systems Ltd.  
201 Building, No. 333 Fuquan Road  
North IBP  
Changning District, Shanghai  
200335 China  
Phone +86 21 22181111  
Fax: +86 21 22182398  
www.boschsecurity.com.cn

**America Latina:**

Robert Bosch Ltda Security Systems Division  
Via Anhanguera, Km 98  
CEP 13065-900  
Campinas, Sao Paulo, Brazil  
Phone: +55 19 2103 2860  
Fax: +55 19 2103 2862  
latam.boschsecurity@bosch.com  
www.boschsecurity.com