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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description/Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC 4641, LTC 4642 Series</td>
<td>Single-channel Video Transmissions</td>
</tr>
<tr>
<td>LTC 4744, LTC 4745 Series</td>
<td>4-Channel Video Transmissions</td>
</tr>
<tr>
<td>LTC 4628, LTC 4629 Series</td>
<td>Video/Bi-Phase Data Transmissions</td>
</tr>
</tbody>
</table>

- 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

Functions

<table>
<thead>
<tr>
<th>Bosch Product</th>
<th>Bosch Fiber Optics Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoDome with VG4-SFIBER-MM</td>
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</tr>
<tr>
<td>Unity Pack Series KBE-xxxx-xxF</td>
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<tr>
<td>IntuiKey Series Keyboards</td>
<td>LTC 4671 Series</td>
</tr>
<tr>
<td>LTC 5136 Controller</td>
<td>LTC 4651 Series</td>
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</table>
Certifications and approvals

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

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.

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**LTC 4641 and LTC 4642 Series**

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

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### Models, Description, Power Source, Requires

<table>
<thead>
<tr>
<th>Models No.</th>
<th>Description</th>
<th>Power Source</th>
<th>Requires</th>
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</thead>
<tbody>
<tr>
<td>LTC 4641/60</td>
<td>Mini Video Transmitter</td>
<td>120–230 VAC, 50/60 Hz</td>
<td>LTC 4642 Series Receiver</td>
</tr>
<tr>
<td>LTC 4642/60</td>
<td>Video Receiver</td>
<td>120–230 VAC, 50/60 Hz</td>
<td>LTC 4641 Series Transmitter</td>
</tr>
<tr>
<td>LTC 4642/00</td>
<td>Video Receiver, Rack Module</td>
<td>LTC 4637 Rack</td>
<td>LTC 4641 Series Transmitter</td>
</tr>
</tbody>
</table>

**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 μW (–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
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

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

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**

<table>
<thead>
<tr>
<th>Models No.</th>
<th>Description</th>
<th>Power Source²</th>
<th>Requires</th>
</tr>
</thead>
<tbody>
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<td>Video/Data Transceiver</td>
<td>120-230 VAC, 50/60 Hz</td>
<td>LTC 4629 Series Transceiver</td>
</tr>
<tr>
<td>LTC 46 28/00</td>
<td>Video/Data Transceiver Rack Module</td>
<td>LTC 4637 Rack</td>
<td>LTC 4629 Series Transceiver</td>
</tr>
<tr>
<td>LTC 46 29/60</td>
<td>Data/Video Transceiver</td>
<td>120-230 VAC, 50/60 Hz</td>
<td>LTC 4628 Series Transceiver</td>
</tr>
<tr>
<td>LTC 46 29/00</td>
<td>Data/Video Transceiver Rack Module</td>
<td>LTC 4637 Rack</td>
<td>LTC 4628 Series Transceiver</td>
</tr>
</tbody>
</table>

² 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 |

**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.

**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 – 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

<table>
<thead>
<tr>
<th>Models No.</th>
<th>Description</th>
<th>Power Source</th>
<th>Requires</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC 4671/60</td>
<td>RS-485 Transceiver</td>
<td>120-230 VAC, 50/60 Hz</td>
<td>LTC 4671 Series Transceiver</td>
</tr>
<tr>
<td>LTC 4671/00</td>
<td>RS-485 Transceiver</td>
<td>LTC 4637 Rack</td>
<td>LTC 4671 Series Transceiver</td>
</tr>
</tbody>
</table>

2 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

### 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
**Controller**

**LTC 4651 Series**

<table>
<thead>
<tr>
<th>Models No.</th>
<th>Description</th>
<th>Power Source</th>
<th>Requires</th>
</tr>
</thead>
<tbody>
<tr>
<td>4651/60</td>
<td>Bi-Phase/RS-232 Transceiver</td>
<td>120-230 VAC, 50/60 Hz</td>
<td>LTC 4651 Series Transceiver</td>
</tr>
<tr>
<td>4651/00</td>
<td>Bi-Phase/RS-232 Transceiver, Rack Module</td>
<td>LTC 4637 Rack</td>
<td>LTC 4651 Series Transceiver</td>
</tr>
</tbody>
</table>

2 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  | 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.

**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  | 48.3 x 17.8 x 13.3 cm (19.0 x 7.0 x 5.25 in.) |
## Technical specifications

### Common Specifications

**Optical Connector Type**  
ST (most modules)

**Optical Fiber Compatibility**  
50/125 µm or 62.5/125 µm, 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 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