

LTC 2604



Security Systems

EN | Instruction Manual
Multiplexer Keyboard
Port Expander

BOSCH

Important Safeguards

1. **Read, Follow, and Retain Instructions** - All safety and operating instructions should be read and followed before operating the unit. Retain instructions for future reference.
2. **Heed Warnings** - Adhere to all warnings on the unit and in the operating instructions.
3. **Attachments** - Attachments not recommended by the product manufacturer should not be used, as they may cause hazards.
4. **Installation Cautions** - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to a person and serious damage to the unit. Use only manufacturer-recommended accessories, or those sold with the product. Mount the unit per the manufacturer's instructions. Appliance and cart combination should be moved with care. Quick stops, excessive force, or uneven surfaces may cause the appliance and cart combination to overturn.
5. **Cleaning** - Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a damp cloth for cleaning is sufficient. Do not use liquid cleaners or aerosol cleaners.
6. **Servicing** - Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
7. **Damage Requiring Service** - Unplug the unit from the main AC power source and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged.
 - If liquid has been spilled or an object has fallen into the unit.
 - If the unit has been exposed to water and/or inclement weather (rain, snow, etc.).
 - If the unit does not operate normally, when following the operating instructions. Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may result in damage, and require extensive work by a qualified technician to restore the unit to normal operation.
 - If the unit has been dropped or the cabinet damaged.
 - If the unit exhibits a distinct change in performance, this indicates that service is needed.
8. **Replacement Parts** - When replacement parts are required, the service technician should use replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electrical shock or other hazards.
9. **Safety Check** - Upon completion of servicing or repairs to the unit, ask the service technician to perform safety checks to ensure proper operating condition.
10. **Power Sources** - Operate the unit only from the type of power source indicated on the label. If unsure of the type of power supply to use, contact your dealer or local power company.
 - For units intended to operate from battery power, refer to the operating instructions.
 - For units intended to operate **with External Power Supplies**, use only the recommended approved power supplies.
 - For units intended to operate with a limited power source, this power source must comply with EN60950. Substitutions may damage the unit or cause fire or shock.
 - For units intended to operate at 24VAC, normal input voltage is **24VAC**. Voltage applied to the unit's power input should not exceed 30VAC. User-supplied wiring, from the 24VAC supply to unit, must be in compliance with electrical codes (Class 2 power levels). Do not ground the 24VAC supply at the terminals or at the unit's power supply terminals.
11. **Coax Grounding** - If an outside cable system is connected to the unit, ensure that the cable system is grounded. U.S.A. models only - Section 810 of the National Electrical Code, ANSI/NFPA No.70, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
12. **Grounding or Polarization** - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact an electrician to arrange replacement of the obsolete outlet. Do not defeat the safety purpose of the polarized plug. Alternately, this unit may be equipped with a 3-wire grounding plug (a plug with a third pin, for grounding). This safety feature allows the plug to fit into a grounding power outlet only. If unable to insert the plug into the outlet, contact an electrician to arrange replacement of the obsolete outlet. Do not defeat the safety purpose of the grounding plug.
13. **Lightning** - For added protection during a lightning storm, or when this unit is left unattended and unused for long periods of time, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power line surges.

For Indoor Product

1. **Water and Moisture** - Do not use this unit near water - for example, in a wet basement, in an unprotected outdoor installation or in any area classified as a wet location.
2. **Object and Liquid Entry** - Never push objects of any kind into this unit through openings, as they may touch dangerous voltage points or short out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit.
3. **Power Cord and Power Cord Protection** - For units intended to operate with 230VAC, 50Hz, the input and output power cord must comply with the latest versions of IEC Publication 227 or IEC Publication 245.
Power supply cords should be routed so they are not likely to be walked on or pinched. Pay particular attention to location of cords and plugs, convenience receptacles, and the point of exit from the appliance.
4. **Overloading** - Do not overload outlets and extension cords; this can result in a risk of fire or electrical shock.

For Outdoor Product

Power Lines - An outdoor system should not be located in the vicinity of overhead power lines, electric lights or power circuits, or where it may contact such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching power lines or circuits, as this contact might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.

For Rack-mount Product

1. **Ventilation** - This unit should not be placed in a built-in installation or rack, unless proper ventilation is provided, or the manufacturer's instructions have been adhered to. The equipment must not exceed its maximum operating temperature requirements.
2. **Mechanical Loading** - Mounting of the equipment in a rack shall be such that a hazardous condition is not achieved due to uneven mechanical loading.



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC SENSITIVE
DEVICES

WARNING:

Electrostatic-sensitive device. Use proper CMOS/MOSFET handling precautions to avoid electrostatic discharge.

NOTE: Grounded wrist straps must be worn and proper ESD safety precautions observed when handling the electrostatic-sensitive printed circuit boards.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer, or an experienced radio/TV technician for help.

Intentional or unintentional changes or modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such changes or modifications could void the user's authority to operate the equipment. The user may find the following booklet, prepared by the Federal Communications Commission, helpful: [How to Identify and Resolve Radio-TV Interference Problems](#). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Safety Precautions



CAUTION

RISK OF ELECTRIC SHOCK. DO NOT OPEN!



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol indicates the presence of uninsulated “dangerous voltage” within the product’s enclosure. This may constitute a risk of electric shock.



The user should consult the operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Attention: Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.



Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.

Sécurité



ATTENTION

RISQUE D'ÉLECTROCUTION. NE PAS OUVRIR !



ATTENTION : POUR ÉVITER TOUT RISQUE D'ÉLECTROCUTION, N'ESSAYEZ PAS DE RETIRER LE CAPOT (OU LE PANNEAU ARRIÈRE). CET APPAREIL NE CONTIENT AUCUN COMPOSANT SUSCEPTIBLE D'ÊTRE RÉPARÉ PAR L'UTILISATEUR. CONFIEZ LA RÉPARATION DE L'APPAREIL À DU PERSONNEL QUALIFIÉ.



Ce symbole signale que le produit renferme une « tension potentiellement dangereuse » non isolée susceptible de provoquer une électrocution.



Ce symbole invite l'utilisateur à consulter les instructions d'utilisation et d'entretien (dépannage) reprises dans la documentation qui accompagne l'appareil.



Attention : l'installation doit exclusivement être réalisée par du personnel qualifié, conformément au code national d'électricité américain (NEC) ou au code d'électricité local en vigueur.



Coupure de l'alimentation. Qu'ils soient pourvus ou non d'un commutateur ON/OFF, tous les appareils reçoivent de l'énergie une fois le cordon branché sur la source d'alimentation. Toutefois, l'appareil ne fonctionne réellement que lorsque le commutateur est réglé sur ON. Le débranchement du cordon d'alimentation permet de couper l'alimentation des appareils.

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1 UNPACKING

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, return it properly back into its carton and notify the shipper.

Verify that all parts shown in the Parts List have been included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.

The original packing carton is the safest container in which to transport the unit. Save it for possible future use.

1.1 Parts List

Qty	Item
1	White cable assembly with RJ11 connectors
2	LTC 8557 Series Keyboard Extension Kits
1	Port Expander

2 SERVICE

If the unit ever needs repair service, contact the nearest Bosch Security Systems Inc. Service Center for authorization to return and shipping instructions.

Service Centers

USA

Phone: 800-366-2283 or 717-735-6638

Fax: 800-366-1329 or 717-735-6639

CCTV Spare Parts

Phone: 800-894-5215 or 408-956-3853 or 3854

Fax: 408-957-3198

E-mail: BoschCCTVparts@ca.slr.com

Canada

Phone: 514-738-2434

Europe, Middle East & Asia Pacific Region

Phone: 32-1-440-0711

For additional information, see

www.boschsecuritysystems.com.

3 DESCRIPTION

This publication provides instructions for installing the LTC 2604 Multiplexer Keyboard Port Expander in a LTC 2600 System 4 Multiplexer System.

A single LTC 2604 unit can be used to interface up to four keyboards in a Multiplexer system.

The LTC 2604 unit is compatible with any combination of the following models of keyboards:

LTC 2601/00, LTC 2602/00, KBD-DIGITAL, KBD-MUX, or KBD-UNIVERSAL, Divar® Series Recorders.

For more than two LTC 2601/2 keyboards used in an *expanded configuration*, one LTC 8557 Series Keyboard Extension Kit (not included) will be required for each additional keyboard.

Each Multiplexer Keyboard Port Expander is supplied with a single white cable. This cable is used to connect the Port Expander to the keyboard port of a System4 Multiplexer. The LTC 8557 Series Kit is then used to connect the expanded keyboards to the LTC 2604 Port Expander. See Typical Application Diagrams found at the end of this manual.

4 INSTALLATION

NOTE: LTC 2604 Series must be used with System4 models LTC 2670 Series, LTC 2680 Series Video Controllers with firmware version 2.07 or higher, or the Divar Series of Recorders. To verify the firmware version, check the firmware version in the main menu (see LTC 2600 Series Installation Instructions or Quick Reference Card) or on the product label of the LTC 2670 Series or LTC 2680 Series Video Controllers.

4.1 Power

Model No.	Rated Voltage	Voltage Range	Power at Rated Voltage
LTC 2604/60	120 VAC, 50/60 Hz	105 to 130	10 W
LTC 2604/50	220-240 VAC, 50/60 Hz	198 to 264	10 W

4.2 Mounting

These units are supplied as desk top units. For rack mounting, the LTC 9101/00 Rack-mount Kit is available. These units are half-rack units.

4.3 Connections

4.3.1 Expanding Up To Four Keyboards Using The LTC 2604 Multiplexer Keyboard Port Expander

1. Make sure power is turned OFF on the Multiplexer and the LTC 2604 Multiplexer Keyboard Port Expander. Make sure that the external power supplies used to power the Multiplexer series keyboards are not connected to a wall outlet.
2. The LTC 8557 Series kit consists of two junction boxes, a power supply, a barrel plug cord and a keyboard cable.
3. Connect the cable supplied with the keyboard between the keyboard and the remote junction box.
4. Up to 1.5 km (5000 ft) of customer supplied 0.5 mm² (24 AWG) shielded twisted pair (Belden 9841 or equivalent) may be run between the two junction boxes. Connection to the junction boxes are made to three of the four screw terminals as follows. Note reversal to data connections.

Terminal Number	Remote Keyboard Junction Box	Local Junction Box
1	Spare	Spare
2	+	-
3	-	+
4	Shield	Shield

5. Connect the cable supplied with the LTC 8557 Series kit between the junction box and the *Kbd X Input* connector on the LTC 2604 Keyboard Port Expander. Connect the power supply to the junction box at the remote keyboard site. Verify that the junction box power LED indicator lights. Also verify that the keyboard LEDs are flashing.
6. Similarly, repeat step 5 for each Multiplexer Series Keyboard.
7. Using the white cable supplied with the LTC 2604 Series Keyboard Port Expander, connect one end of the cable to the connector marked *Multiplexer Output* on the LTC 2604 unit. If connecting to a model LTC 26xx/50 or LTC 26xx/60 Series Multiplexer, connect the other end of the white cable to the Y adaptor that is plugged into the receptacle marked KEYBD on the multiplexer unit. If connecting to a model LTC 26xx/90 Series Multiplexer, connect the other end of the white cable directly to the receptacle marked as IN on the multiplexer unit. See Typical LTC 2604 Multiplexer Keyboard Port Expander Application.

5 OPERATION

1. Turn on the System 4 Multiplexer or Divar Recorder and the LTC 2604 Multiplexer Keyboard Port Expander. The power LED on the LTC 2604 unit should be on.
2. The *Kbd Active* LEDs on the LTC 2604 Multiplexer Keyboard Port Expander will indicate active data communication to a connected keyboard. The *Multiplexer Active* LED on the front panel of an LTC 2604 Multiplexer Keyboard Port Expander will indicate communication between the System 4 Multiplexer and the LTC 2604.

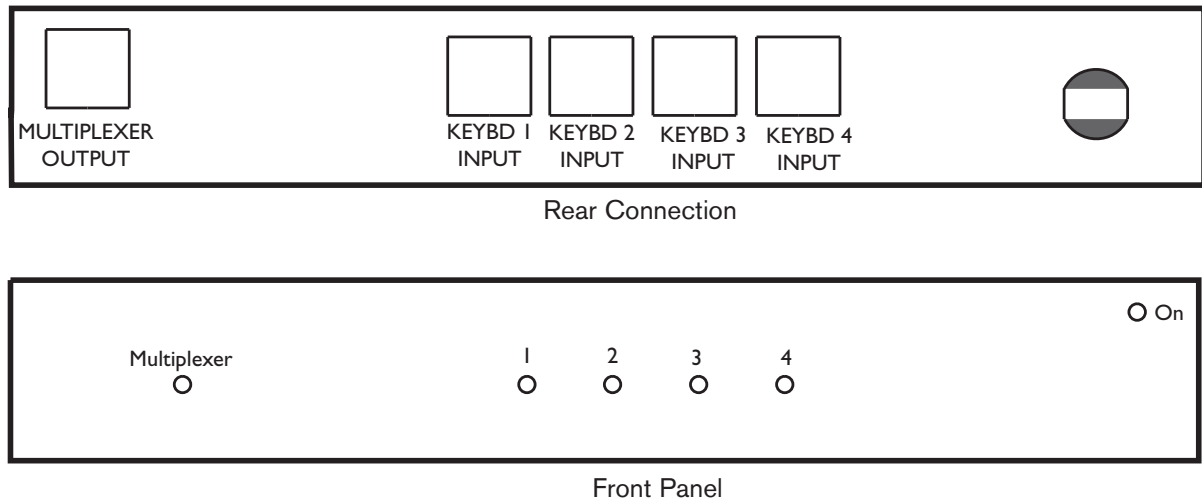


Figure 1: LTC 2604 Multiplexer Keyboard Port Expander

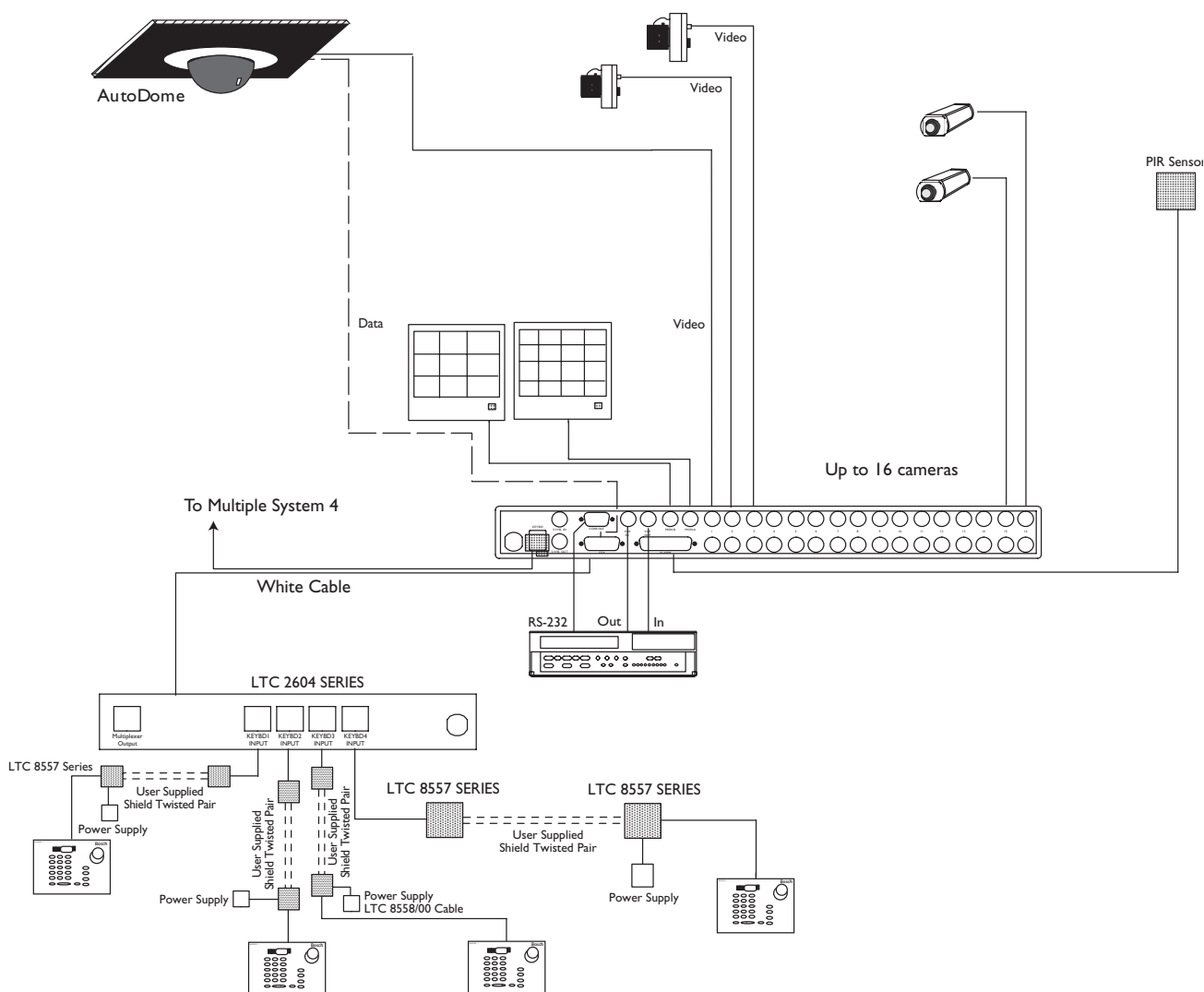


Figure 2: Typical System Configuration

Bosch Security Systems, Inc.
850 Greenfield Road
Lancaster, PA 17601 USA
Tel: 800-326-3270
Fax: 1-717-735-6560
www.boschsecuritysystems.com

Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven
The Netherlands
Tele +31 40 27 87113

Bosch Security Systems Pte Ltd.
38C Jalan Pemimpin
Singapore 577180
Republic of Singapore
Tel: 65 (6) 319 3486