

LTC 8714, LTC 8715 Series



Security Systems

EN

Instruction Manual
Keyboard Port
Expanders

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** - 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.
 - Outdoor equipment should only be connected to the unit's inputs after this unit has had its grounding plug connected to a grounded outlet or its ground terminal properly connected to a ground source.
 - The unit's input connectors must be disconnected from outdoor equipment before disconnecting the grounding plug or grounding terminal.
 - Proper safety precautions such as grounding should be followed for any outdoor device connected to this unit.
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 might touch dangerous voltage points or create short circuits, resulting 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** - Do not place this equipment in a built-in installation or rack, unless proper ventilation is provided, or the manufacturer's instructions were followed. The equipment must not exceed its maximum operating temperature requirements.
2. **Mechanical Loading** - When rack-mounting the equipment, ensure that a hazardous condition is not created by uneven mechanical loading.

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 that can cause an electric shock.



This symbol indicates the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



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.

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.

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1 UNPACKING

Unpack carefully. This is electronic equipment and should be handled carefully.

Check for the following items:

- Verify the model number of the unit.
- One (1) cable assembly with 9-pin D-sub connectors.

If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. If any items are missing, notify your Bosch Security Systems, Inc. Sales Representative or Customer Service.

The shipping carton is the safest container in which the unit may be transported. Save it for possible future use.

2 SERVICE

If the unit needs servicing, contact the nearest Bosch Security Systems 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.boschsecurity.com.

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

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



3 DESCRIPTION

This publication provides instructions for installing the LTC 8714 Series and LTC 8715 Series Keyboard Port Expanders in an Allegiant® Series matrix switcher/controller system.

A single LTC 8714 Series unit can be used to interface up to eight Allegiant Series keyboards with an Allegiant system. A single LTC 8715 Series unit is used to interface up to four (4) LTC 8714 Series expanders in a system. Multiple LTC 8715 Series expanders can be used along with multiple LTC 8714 Series expanders to provide up to 64 keyboards in a system. The actual number of units that can be used in a system depends upon the model of the Allegiant system. The table below lists the various Allegiant models and the maximum number of keyboard expander units and Allegiant Series keyboards that can be connected in a system.

Allegiant System Capacities

Allegiant Series Model	Max Number of Keyboards in System	Max Number of LTC 8714 Supported	Max Number of LTC 8715 Supported
LTC 8600	16	1	0
LTC 8800	32	3	1
LTC 8900	64	7	3

NOTE: The above table assumes 8 system keyboards are connected directly into the Allegiant CPU bay keyboard ports.

For each Allegiant Series keyboard used in an "expanded configuration," one LTC 8557 Series Keyboard Extension Kit (not included) is required.

Each keyboard port expander is supplied with a single interface cable. This cable is used to connect the port expander to either the Allegiant CPU bay or to another port expander. The LTC 8557 Series Kit is then used to connect the expanded keyboards to the LTC 8714 Series Port Expander(s). See Typical Application Diagrams found at the end of this manual.

4 INSTALLATION

4.1 Power

Model No. ¹	Rated Voltage	Voltage Range	Nominal Power ²
LTC 8714/60	120 VAC, 50/60 Hz	105 to 130	10 W
LTC 8714/50	220-240 VAC, 50/60 Hz	198 to 264	10 W
LTC 8715/60	120 VAC, 50/60 Hz	105 to 130	10 W
LTC 8715/50	220-240 VAC, 50/60 Hz	198 to 264	10 W

¹The model number and operating voltage are shown on the bottom of the unit. These units are supplied with grounded power cords; grounding must not be defeated.

²At rated voltage.

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 Cover Removal



WARNING: Removal of the cover should only be performed by qualified service personnel—not user serviceable. The unit should always be unplugged, before removing the cover and remain unplugged while the cover is removed.

The cover is fastened to the chassis by two screws on the bottom near the rear of the unit. Disassembly is as shown in FIGURE 1.

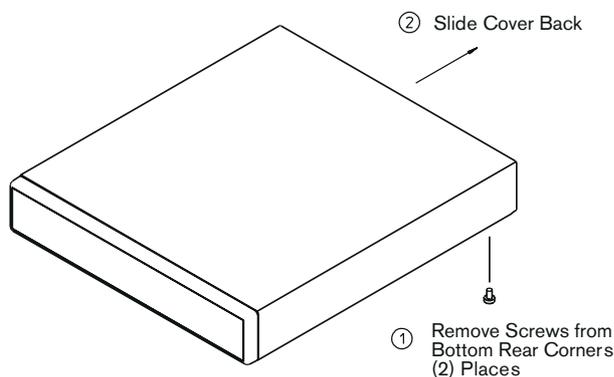


Figure 1 Top Cover Removal

4.4 DIP Switch Settings

The LTC 8714 Series Keyboard Port Expanders and the LTC 8715 Expander communicate with the Allegiant Series main bay and the Allegiant Series keyboards via RS-485 communications. The LTC 8714 Series Keyboard Port Expanders and the LTC 8715 Series Expander contain internal DIP switches which can be used to set the communication parameters. The cover must be removed if the DIP switches need to be changed from their factory default settings. See FIGURE 1. The following table summarizes the DIP switch settings and their associated features. Note that after changing any of the DIP switch settings, the AC power must be turned off and on before the changes can take effect.

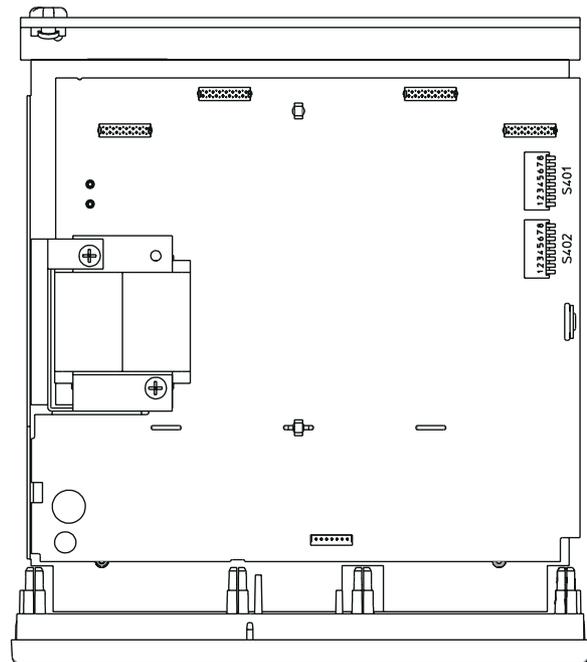


Figure 2 Location of DIP Switches

4.4.1 DIP Switch Settings - LTC 8714 Series

S401 DIP Switch: Verify that switches 1, 2, and 3 are ON and all others are OFF.

S402 DIP Switches 1 to 5: Baud rate and poll type settings must match those on the Allegiant Series keyboards. Group number should be selected to agree with capacity and configuration settings associated with specific Allegiant series system being used.

Switch Number				Function
1				Allegiant Keyboard Baud Rate
OFF				9600 (Factory Default Setting)
ON				19200
2	3	4	5	Group Number
OFF	OFF	OFF	OFF	0 (Kbd 1–8)
OFF	OFF	OFF	ON	1 (Kbd 9–16) (Factory Default Setting)
OFF	OFF	ON	OFF	2 (Kbd 17–24)
OFF	OFF	ON	ON	3 (Kbd 25–32)
OFF	ON	OFF	OFF	4 (Kbd 33–40)
OFF	ON	OFF	ON	5 (Kbd 41–48)
OFF	ON	ON	OFF	6 (Kbd 49–56)
OFF	ON	ON	ON	7 (Kbd 57–64)
ON	OFF	OFF	OFF	8 (Kbd 65–72)
ON	OFF	OFF	ON	9 (Kbd 73–80)
ON	OFF	ON	OFF	10 (Kbd 81–88)
ON	OFF	ON	ON	11 (Kbd 89–96)
ON	ON	OFF	OFF	12 (Kbd 97–104)
ON	ON	OFF	ON	13 (Kbd 105–112)
ON	ON	ON	OFF	14 (Kbd 113–120)
ON	ON	ON	ON	Reserved

S402 DIP Switches 6 to 8: These switches determine the data polling format that will be used to communicate with the keyboards. The 4 Poll selection would typically be used only in LTC 8600 Series systems using fixed speed receiver/driver equipped cameras. The 8 Poll selection would typically be used in LTC 8800 and LTC 8900 systems with fixed speed receiver/drivers. The 6 Poll selection should be used in any system where Allegiant Series keyboards are being used to control variable speed AutoDome® Series cameras.

Switch Number		
6	7	Poll Type
OFF	OFF	4 POLL
OFF	ON	8 POLL
ON	OFF	6 POLL (Factory Default Setting)
ON	ON	Reserved
8		Reserved

4.4.2 DIP Switch Settings - LTC 8715 Series

S401 DIP Switch: Verify that switches 1, 2, and 3 are ON and all others are OFF.

S402 DIP Switch: Verify that switches 1, 2, and 3 are ON and all others are OFF if the LTC 8715 will have LTC 8714 units connected directly to it. Verify that switches 1, 2, 3, and 5 are ON and all others are OFF if the LTC 8715 will have other LTC 8715 units connected directly to it (see FIGURE 11).

4.5 Connections

4.5.1 Expanding up to Eight Keyboards Using the LTC 8714 Series Keyboard Port Expander

1. Make sure power is turned OFF on the Allegiant Series main bay and the LTC 8714 Series Keyboard Port Expander. Make sure that the external power supply used to power the Allegiant Series keyboards is not connected to a wall outlet.
2. For each keyboard used with the LTC 8714 Series, one LTC 8557 kit is required. The LTC 8557 kit consists of two junction boxes, a power supply, a barrel plug cord, and a 3 meter (10 ft) keyboard cable.
3. Connect the 3m (10ft) cable supplied with the keyboard between the keyboard and the remote junction box.
4. Up to 1.5km (5000ft) of customer supplied 0.5mm² (24AWG) 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 3m (10ft) cable supplied with the LTC 8557 kit between the junction box and the PORT connector on the LTC 8714 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 Allegiant Series keyboard.
7. Using the cable supplied with the LTC 8714 Series Keyboard Port Expander, connect one end of the cable to the connector marked SYSTEM on the LTC 8714 Series unit. Connect the other end of the cable to the connector marked COMM2 on the Allegiant Series system (see FIGURE 9).

4.5.2 Expanding Beyond Eight Keyboards Using the LTC 8714 Series Keyboard Port Expanders with the LTC 8715 Series Expander

In order to expand beyond eight keyboards, the use of an LTC 8715 Series unit in conjunction with an LTC 8714 Series unit is required. Using multiple LTC 8715 units, the remote keyboards can be expanded to 120. Note that the maximum number of keyboards may be limited by the Allegiant system. See FIGURE 10.

1. Follow Steps 1 through 7 in the previous section for connecting up to eight keyboards using the LTC 8714 Series unit.
2. Select the appropriate group number on the LTC 8714 Series unit via dip switch S402, switches 2 through 5. The group number must be unique and must not conflict with other LTC 8714 units or the local keyboards (i.e., keyboards connected directly to the ports located on the main CPU bay) in the Allegiant system.
3. Using the cables supplied with the LTC 8714, connect the SYSTEM port on the LTC 8714 to any one of the four PORTS on the LTC 8715 unit. Repeat steps 1 and 2 for all LTC 8714 Series units.
4. Using the cable supplied with the LTC 8715 unit, connect the SYSTEM port on the LTC 8715 Series unit to the COMM2 port on the Allegiant Series main bay. In this configuration, up to 32 remote keyboards can be connected using four LTC 8714 units and one LTC 8715 unit. To expand beyond 32 remote keyboards, another tier of LTC 8715 units may be used (see FIGURE 11).

5 OPERATION

1. Turn on the Allegiant Series main bay, the LTC 8714 Series Keyboard Port Expander, and the LTC 8715 Series Expander. The power LEDs on the LTC 8714 Series unit and the LTC 8715 Series unit should be on.
2. Note that the system Tx LED on the front panel of the LTC 8714 Series Keyboard Port Expander will flash whenever data is being sent to the Allegiant system (or to an LTC 8715 Series Expander) from the LTC 8714 Series Keyboard Port Expander. The system Rx LED will flash whenever data is being received from the Allegiant system (or from an LTC 8715 Series Expander). Data is also occasionally sent from the Allegiant system to reflect applicable system changes and on an occasional basis to maintain current system status.

The port LEDs on the LTC 8714 Series Keyboard Port Expander will indicate active data communication to a connected keyboard.

LEDs on the front panel of an LTC 8715 Series Expander will indicate communication between the Allegiant system and the associated LTC 8714 Series Keyboard Port Expanders that are connected to it.

6 ILLUSTRATIONS

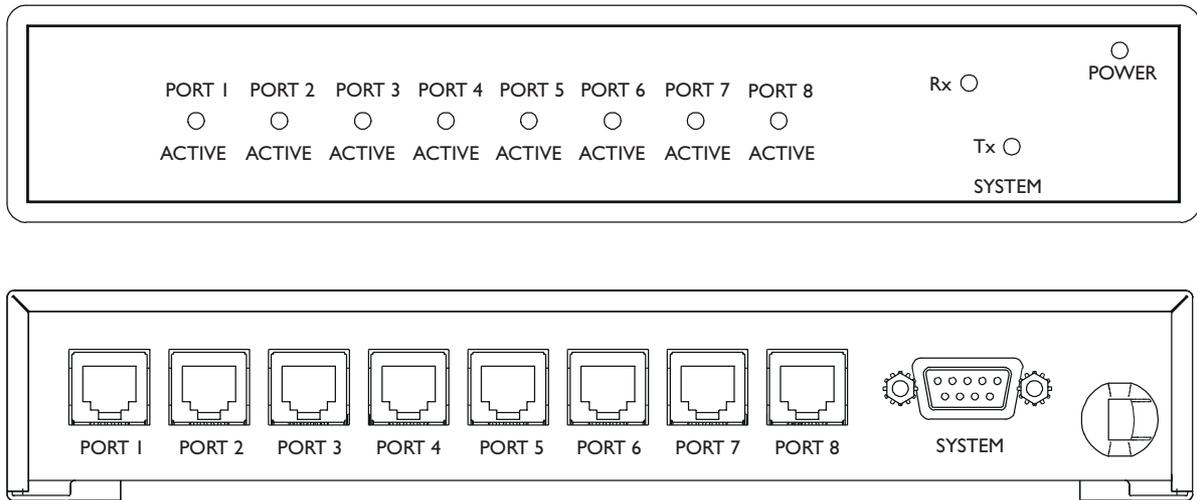


Figure 3 LTC 8714 Series - Front and Back Panels

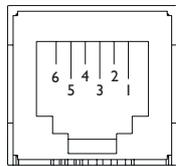


Figure 4 Keyboard Ports 1 through 8

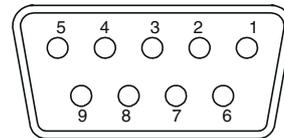


Figure 5 System Port - Female 9-pin D-sub Connector

Pin	Function
1	Ground
2	Ground
3	-Data
4	+Data
5	Ground
6	Ground

Pin	Function
1	Chassis Ground
2	+Tx (Transmit)
3	-Tx (Transmit)
4	+Rx (Receive)
5	-Rx (Receive)
6	Ground
7	Ground
8	Ground
9	Ground

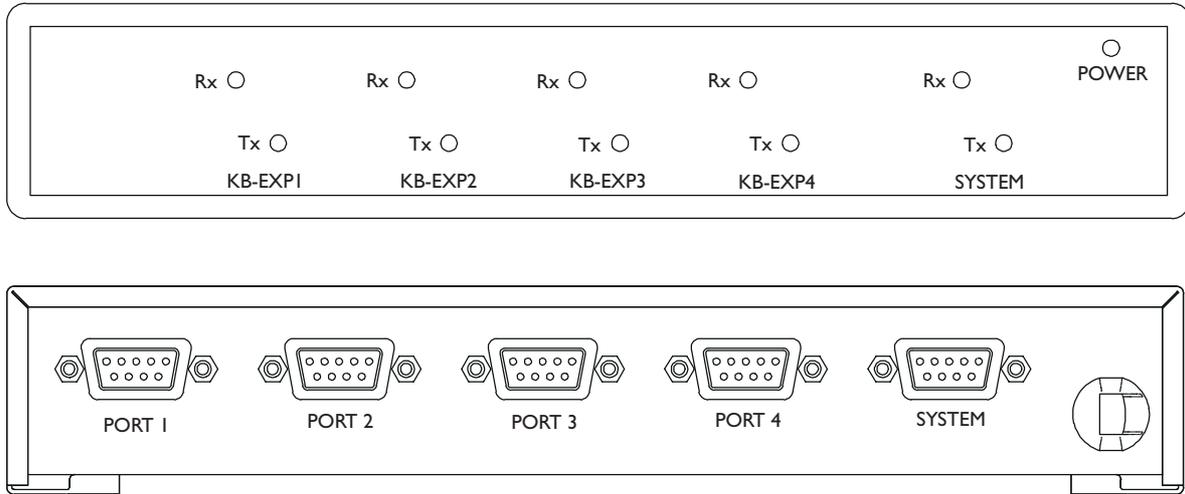


Figure 6 LTC 8715 Series - Front and Back Panels

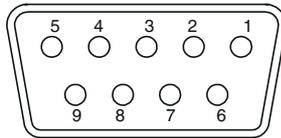


Figure 7 Ports 1 through 4 - Female 9-pin D-sub Connector

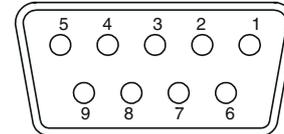


Figure 8 System Port - Female 9-pin D-sub Connector

Pin	Function
1	Chassis Ground
2	+Tx (Transmit)
3	-Tx (Transmit)
4	+Rx (Receive)
5	-Rx (Receive)
6	Ground
7	Ground
8	Ground
9	Ground

Pin	Function
1	Chassis Ground
2	+Tx (Transmit)
3	-Tx (Transmit)
4	+Rx (Receive)
5	-Rx (Receive)
6	Ground
7	Ground
8	Ground
9	Ground

9-pin Male Main CPU Comm 2 Connector	9-pin Male Expander System Connector
1	No Connection
2	4
3	5
4	2
5	3
6	No Connection
7	No Connection
8	No Connection
9	No Connection

Expander-to-main CPU Bay Cable Pinouts

LTC 8600 Series or LTC 8800 Series Allegiant Main Bay (Rear View)

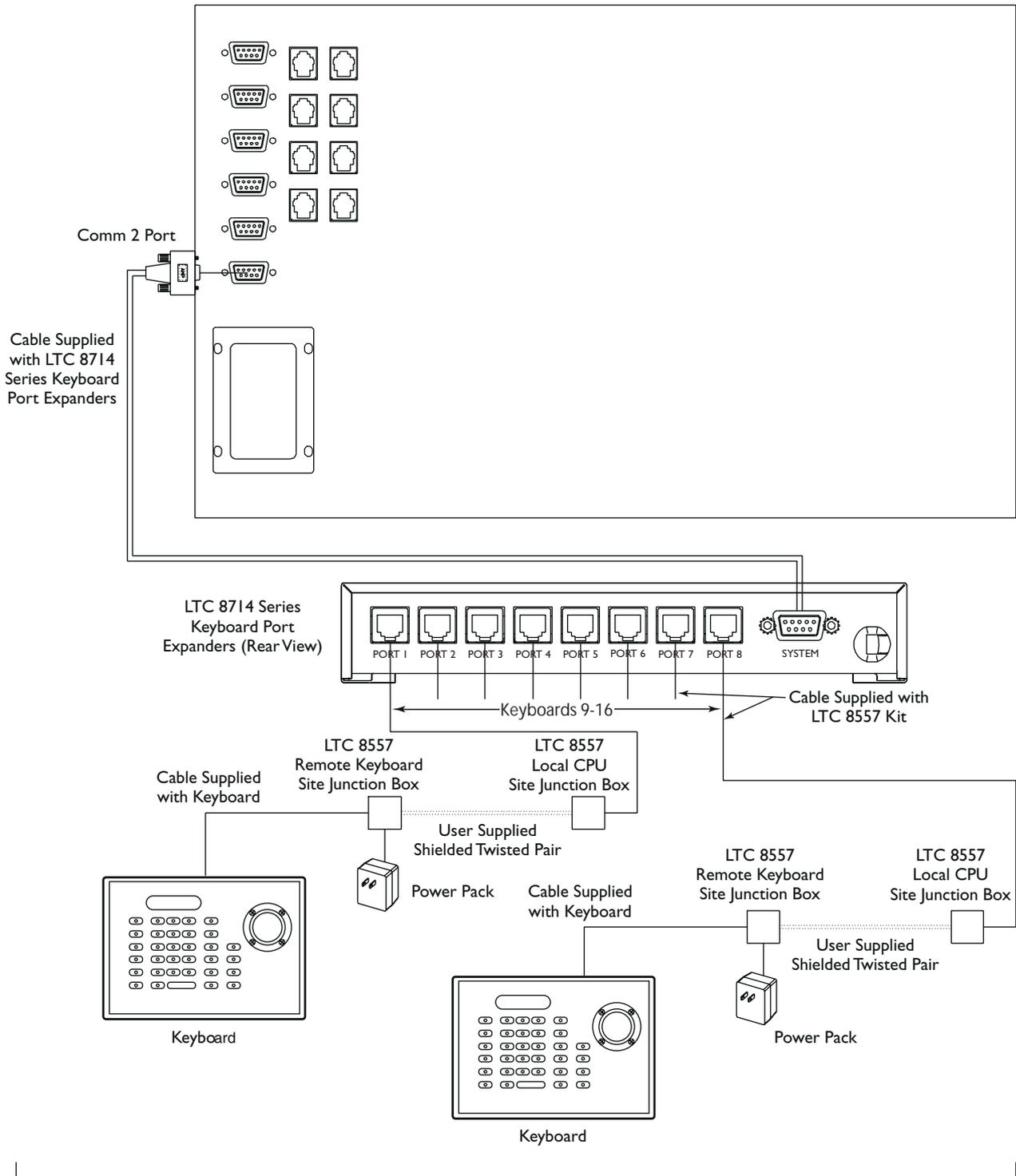


Figure 9 Typical LTC 8714 Series Keyboard Port Expander Application

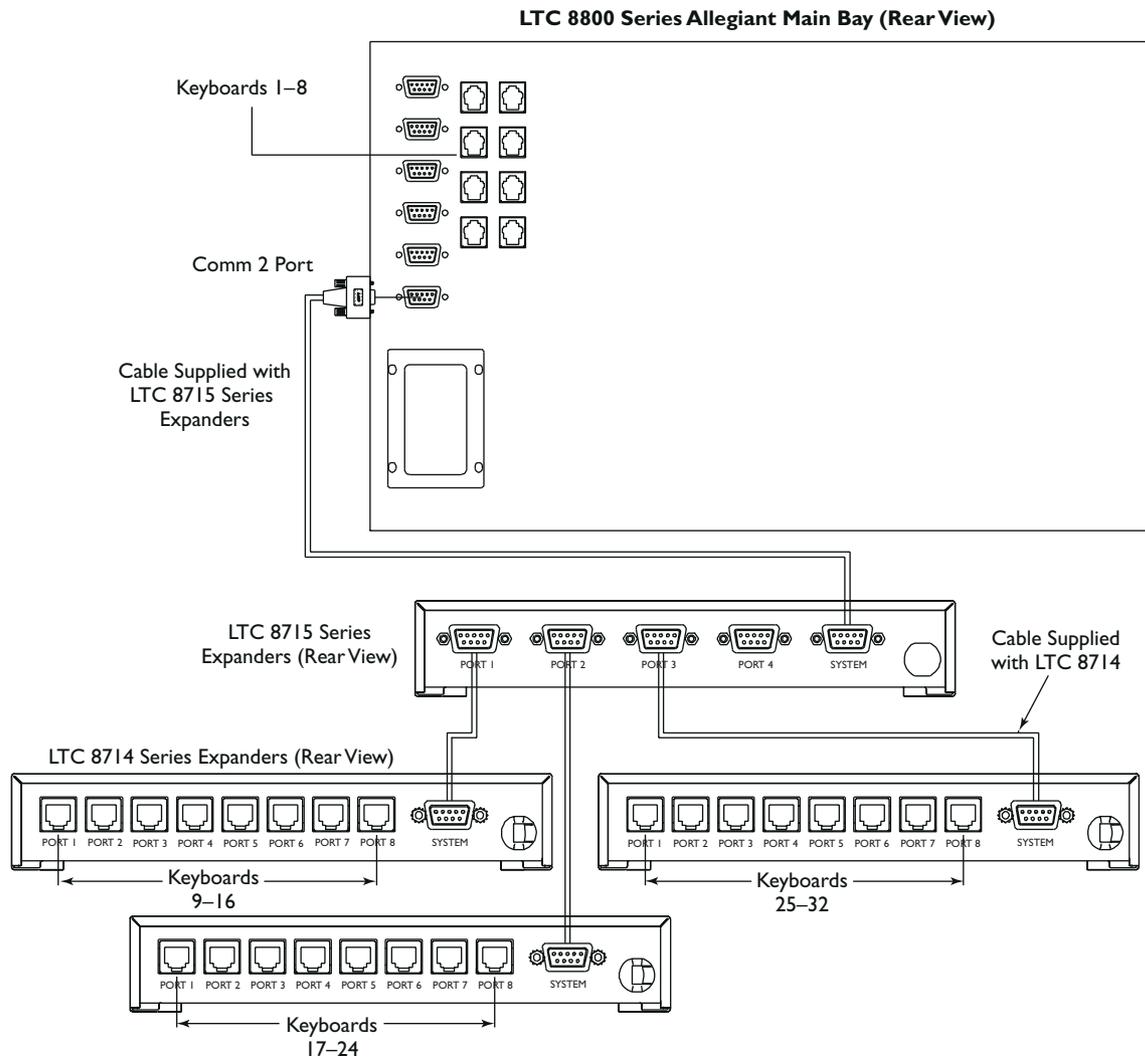


Figure 10 Typical LTC 8714 Series Keyboard Port Expander & LTC 8715 Series Expander Application

LTC 8900 Series Allegiant CPU (Rear View)

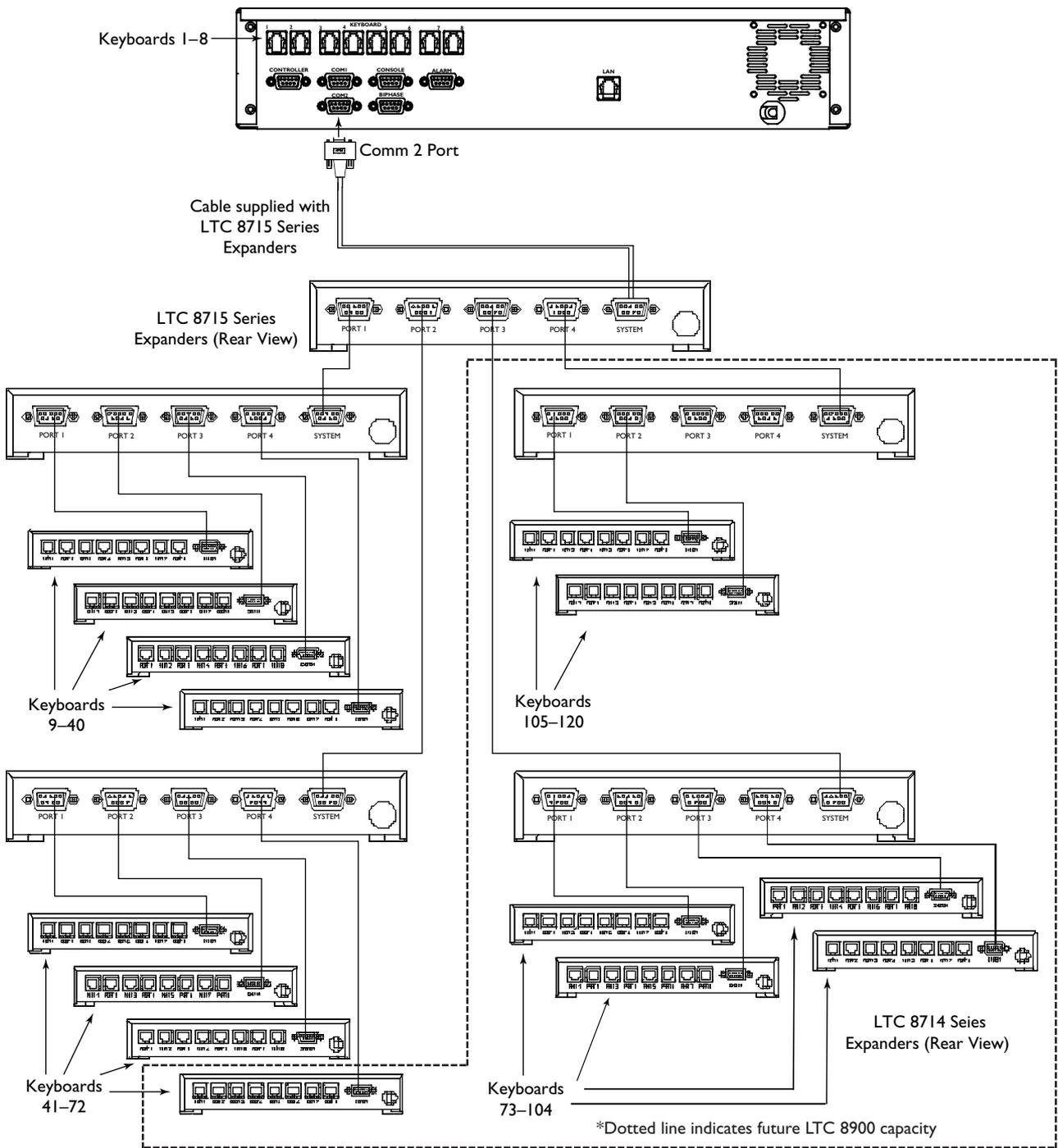


Figure 11 Typical Installation for More than 32 Remote Keyboards

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Fairport, New York, 14450, USA
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