

Allegiant Keyboards

LTC 8555 Series



BOSCH

en Instruction Manual

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1 Safety

1.1 Important Safety Instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning** - Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources** - Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. **Ventilation** - Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Water** - Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
5. **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. Do not place objects filled with liquids, such as vases or cups, on the unit.
6. **Lightning** - For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.
7. **Controls adjustment** - Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
8. **Overloading** - Do not overload outlets and extension cords. This can cause fire or electrical shock.
9. **Power cord and plug protection** - Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
10. **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 device for switching off the voltage for all units.

11. **Power sources** - Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
 - For battery powered units, refer to the operating instructions.
 - For external power supplied units, use only the recommended or approved power supplies.
 - For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.
 - For 24 VAC units, voltage applied to the unit's power input should not exceed $\pm 10\%$, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
 - If unsure of the type of power supply to use, contact your dealer or local power company.
12. **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.
13. **Damage requiring service** - Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
 - the power supply cord or plug is damaged;
 - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
 - liquid has been spilled in or on the equipment;
 - an object has fallen into the unit;
 - unit has been dropped or the unit cabinet is damaged;
 - unit exhibits a distinct change in performance;
 - unit does not operate normally when the user correctly follows the operating instructions.
14. **Replacement parts** - Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
15. **Safety check** - Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
16. **Installation** - Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
17. **Attachments, changes or modifications** - Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.2 Safety Precautions

**DANGER!** High risk:

This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product. If not avoided, this will result in an electrical shock, serious bodily injury, or death.

**WARNING!** Medium risk:

Indicates a potentially hazardous situation. If not avoided, this could result in serious bodily injury or death.

CAUTION! Medium risk:

Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury. Alerts the user to important instructions accompanying the unit.

**CAUTION!** Low risk: (without safety alert symbol)

Indicates a potentially hazardous situation. If not avoided, this may result in property damage or risk of damage to the unit.

**NOTICE!**

This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.3 Important Notices



Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.

If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Camera grounding - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector (see section: Connecting external power supply).

Camera lens - An assembled camera lens in the outdoor housing must comply and be tested in accordance with *UL/IEC60950*. Any output or signal lines from the camera must be SELV or Limited Power Source. For safety reasons the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C (14 °F) to 50 °C (122 °F).

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

Coax grounding:

- Ground the cable system if connecting an outside cable system to the unit.
- Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.

- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
- Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

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.



NOTICE!

This device is intended for use in public areas only.

U.S. federal law strictly prohibits surreptitious recording of oral communications.



Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

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

NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Grounding and polarization - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other blade). 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, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately, this unit may be equipped with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224 and CEC Section 60)*.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.

Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

PoE - Never supply power via the Ethernet connection (PoE) when power is already supplied via the power connector.

Power disconnect - Units have power supplied whenever the power cord is inserted into the power source. The power cord is the main power disconnect for all units.

Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

SELV

All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.



NOTICE!

This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only, CLASS B)

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.

INFORMATIONS FCC ET ICES (Residential applications)

(modèles utilisés aux États-Unis et au Canada uniquement, CLASSE B)

Cet appareil est conforme aux exigences imposées par la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Son utilisation est soumise aux deux conditions suivantes :

- Cet appareil ne doit pas provoquer d'interférences nuisibles, et
- doit supporter toutes les interférences reçues, dont les interférences susceptibles d'entraîner un fonctionnement imprévu.

REMARQUE : suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de classe B, en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC), et en vertu de la norme ICES-003 d'Industrie Canada. Ces exigences visent à fournir une protection raisonnable contre les interférences nuisibles lorsque l'appareil est utilisé dans le cadre d'une installation résidentielle. Cet appareil génère, utilise et émet de l'énergie de radiofréquences et peut, en cas d'installation ou d'utilisation non conforme aux instructions, engendrer des interférences nuisibles au niveau des radiocommunications. Toutefois, rien ne garantit l'absence d'interférences dans une installation particulière. Il est possible de déterminer la production d'interférences en mettant l'appareil successivement hors et sous tension, tout en contrôlant la réception radio ou télévision. L'utilisateur peut parvenir à éliminer les interférences éventuelles en prenant une ou plusieurs des mesures suivantes:

Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : « How to Identify and Resolve Radio-TV Interference Problems » (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

AVERTISSEMENT: Ce produit est un appareil de Classe A. Son utilisation dans une zone résidentielle risque de provoquer des interférences. Le cas échéant, l'utilisateur devra prendre les mesures nécessaires pour y remédier.

- Modifier l'orientation ou l'emplacement de l'antenne réceptrice;
- Éloigner l'appareil du récepteur;
- Brancher l'appareil sur une prise située sur un circuit différent de celui du récepteur;
- Consulter le revendeur ou un technicien qualifié en radio/télévision pour obtenir de l'aide.

Toute modification apportée au produit, non expressément approuvée par la partie responsable de l'appareil, est strictement interdite. Une telle modification est susceptible d'entraîner la révocation du droit d'utilisation de l'appareil.

La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : « How to Identify and Resolve Radio-TV Interference Problems ». Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Closed Circuit Television Equipment, UL 2044*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

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**NOTICE!**

This user guide has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

1.4 Customer Support and Service

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

Service Centers

USA

Repair Center

Telephone: 800-566-2283

Fax: 800-366-1329

E-mail: repair@us.bosch.com

Customer Service

Telephone: 888-289-0096

Fax: 585-223-9180

E-mail: security.sales@us.bosch.com

Technical Support

Telephone: 800-326-1450

Fax: 585-223-3508 or 717-735-6560

E-mail: technical.support@us.bosch.com

Canada

Telephone: 514-738-2434

Fax: 514-738-8480

Europe, Middle East, Africa Region

Repair Center

Telephone: 31 (0) 76-5721500

Fax: 31 (0) 76-5721413

E-mail: RMADesk.STService@nl.bosch.com

Asia Region

Repair Center

Telephone: 65 63522776

Fax: 65 63521776

E-mail: rmahelpdesk@sg.bosch.com

Customer Service

Telephone: 86 (0) 756 7633117 or

86 (0) 756 7633121

Fax: 86 (0) 756 7631710

E-mail: customer.service@cn.bosch.com

Warranty and more information

For additional information and warranty queries, please contact your Bosch Security Systems representative or visit our website at www.boschsecurity.com.

2 Unpacking

This electronic equipment should be unpacked and handled carefully. Check for the following items:

- LTC 8555 Series Keyboard
- 3 m (10 ft) data/power cable with 6-pin connectors, p/n 303 0239 001
- Allegiant Quick Reference Card, p/n 3935 890 11212
- Allegiant Quick Reference Card (LTC 8555/01 and LTC 8555/03 models only), p/n 3935 890 10512
- Installation manual (this manual) p/n 3935 890 1151# (where # designates the revision number)

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.

3 Keyboard Models

The LTC 8555 Series keyboards are available in four models. The table below summarizes the differences between models:

Model No.	Top Bezel Graphics	Protocol
LTC 8555/00	English text	RS-485
LTC 8555/01	Icons	RS-485
LTC 8555/02	English text	RS-232
LTC 8555/03	Icons	RS-232

The LTC 8555/00 and LTC 8555/01 models use the Allegiant RS-485 communication protocol, and are the most common versions. These models are ready to operate as soon as they're connected to the Allegiant system.

The LTC 8555/02 and LTC 8555/03 are similar, but use an RS-232 communication protocol. These models can be used with communication links that support full duplex RS-232 transmission. Since the RS-232 models connect to the Allegiant's RS-232 ports rather than the standard RS-485 keyboard ports, some initial configuration programming of the Allegiant switcher is necessary. With a few minor exceptions, general operation is identical for all models.

Although the LTC 8555/00 and LTC 8555/01 are compatible with Allegiant systems of any age, the LTC 8555/02 and LTC 8555/03 models require Allegiant CPU firmware version 7.6 or higher. Although this version was released in late 1998, it is possible to update older systems using a firmware download in some cases or by replacement of the CPU module with a current version. If necessary, contact your local sales office for additional details.

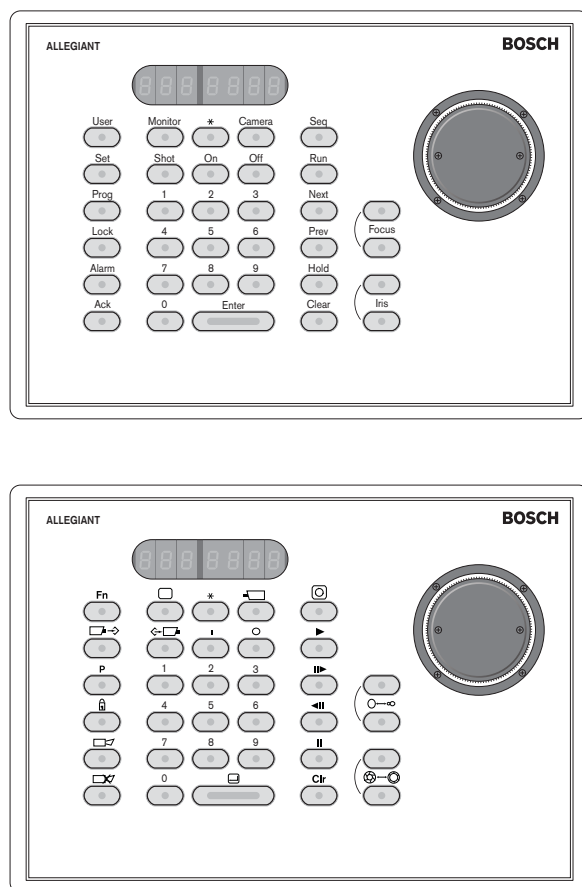


Figure 3.1 Typical Allegiant Keyboards

4

Description

The LTC 8555 Series Keyboard is the primary operator interface to the Allegiant Series of Video Matrix Switcher/Controllers. These keyboards provide access to system switching operations, programming, alarm response, and camera control. Both fixed speed and variable speed pan/tilt-equipped cameras are easily operated via the intuitive joystick control. In addition, simple rotation of the joystick knob allows operators to control cameras equipped with motorized zoom lenses.

Easy to read LED displays show real time camera, monitor, and communication status, as well as error messages. Keyboards also provide audible and visual indications of system alarm conditions. A built-in diagnostic mode makes troubleshooting of suspected fault conditions easy.

5 Installation

5.1 General

The maximum number of keyboards that can be connected to an Allegiant system depends on the Allegiant model. The following table lists Allegiant Switcher models and the number of keyboards supported by each:

Allegiant Model	Maximum Keyboards	
	Total Keyboards	RS-232 Model Keyboards
LTC 8100 Series	2	2
LTC 8200 Series	4	4
LTC 8300 Series	4	4
LTC 8500 Series	8	8
LTC 8600 Series	16	8
LTC 8800 Series	32	8
LTC 8900 Series	120	4/8

In LTC 8600, and LTC 8900 systems, standard keyboards above eight are connected to the systems using either an LTC 8714 Series Keyboard Port Expander, or a combination of LTC 8714 and LTC 8715 Series Keyboard Port Expander accessory units. Keyboard Port Expander units are Allegiant accessory devices that are purchased separately. In LTC 8800 systems, keyboards above eight can be connected to the LTC 8802 Monitor Expansion bay (up to 8 more) and/or Keyboard Port Expanders. RS-232 model keyboards are connected to the Allegiant's console or printer port or to ports provided by a LTC 8712 Series Console Expander unit.

When connected directly to an Allegiant CPU bay using either the supplied cable or the optional LTC 8558 Extension Cable, the keyboard is powered by the Allegiant power supply. In all other configurations power to the keyboard is typically provided via a power adapter included in the optional LTC 8557 Series Remote Hookup kit.

The Allegiant Switcher supports several options affecting keyboard operation:

- login security mode setting
- enabled / disabled keyboard ports
- fixed or variable speed communication protocol setting
- 4-digit or 6-digit Camera ID mode

These options are selected via Allegiant CPU dipswitch settings, Allegiant Keyboard User Functions, or via options in the PC based Master Control Software package. Refer to the Allegiant Installation manual for complete details regarding these options.

Several options are available to connect the LTC 8555 Series Keyboards to the Allegiant main CPU bay. Although other configurations are possible, the tables below summarize typical connections. Additionally, refer to the system configuration diagrams later in this manual.

LTC 8555/00, LTC 8555/01 RS-485 type Keyboards	Maximum Distance
Supplied 3 m (10 ft) cable	3 m (10 ft)
LTC 8558/00 30 m (100 ft) Allegiant accessory cable ¹	30 m (100 ft)
User-supplied 0.5 mm (24 AWG) shielded twisted pair cable note ² (Belden 9841 or equivalent)	1.5 km (5000 ft)
Fiber Optic link, compatible with Allegiant RS-485 protocol note ³	5–10 km (3–6 miles), typical

LTC 8555/02, LTC 8555/03	
RS-232 type Keyboards	Maximum Distance
User-supplied RS-232 grade cable ²	1–30 m (1–100 ft), typical
Dial-up modem, Hayes compatible	Unlimited
Fiber optic link, compatible with standard RS-232 protocol ⁴	5–10 km (3–6 miles), typical
Other RS-232 compatible data link ⁴	Dependent on limits of link

Notes:

1. Allegiant accessory, purchased separately.
2. LTC 8557 Series Remote Hookup kit required (purchased separately).
3. Requires RS-485 fiber optic link designed to support Allegiant keyboard protocol operating at 9600 baud.
4. Requires full duplex RS-232 compatible fiber optic link operating at 9600 baud.

5.2**LTC 8555/00 and LTC 8555/01 (standard keyboard) Installation**

There are several options available for connecting these keyboard models to an Allegiant system. The keyboard is supplied with a 3 m (10 ft) cable for local hookups, as shown in FIGURE 1. Using the optional LTC 8558/00 cable, a keyboard can be remotied up to 30 m (100 ft) per Figure 2. In both of these cases, the keyboard cable can be connected directly to the RJ-11 keyboard port located on the rear panel of the Allegiant system where it will be provided with both data and power.

For connections beyond 30 m (100 ft), the LTC 8557 Series Remote Hookup Kit can be used, as shown in Figure 3. The LTC 8557 is also required when the keyboard is remotied over a long distance communication link, such as a fiber optic system shown in Figure 4.

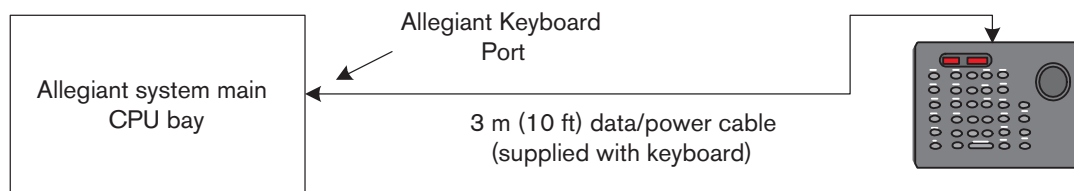


Figure 5.1 Typical Configuration using supplied data/power cable

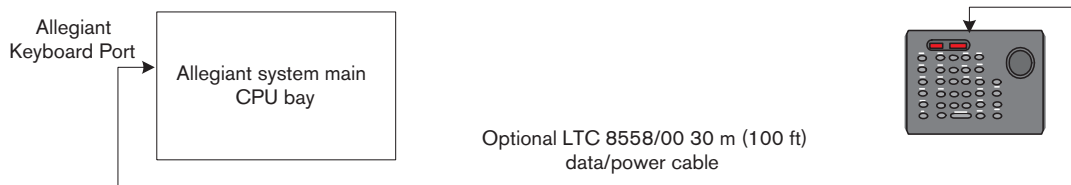


Figure 5.2 Typical Configuration using optional LTC 8558/00 cable

The larger Allegiant models support Keyboard Expander accessory units. These accessory units are used with LTC 8557 Series Remote Hookup Kit, to provide additional keyboard connections to the system, as shown in Figure 5.

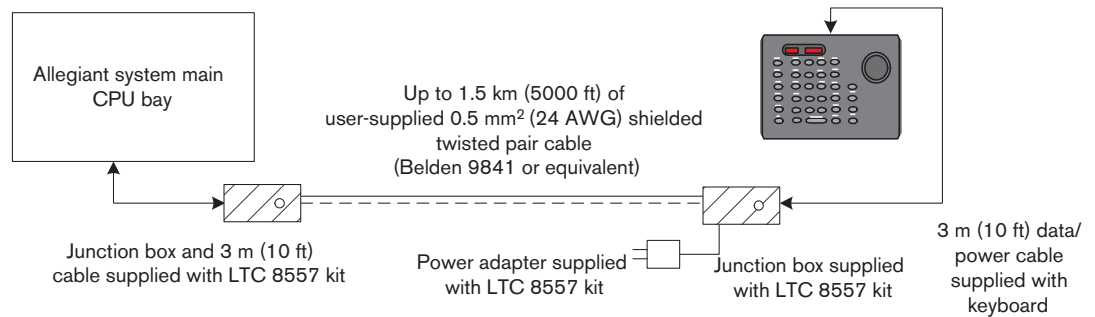


Figure 5.3 Typical Configuration using optional LTC 8557 Series Hookup Kit

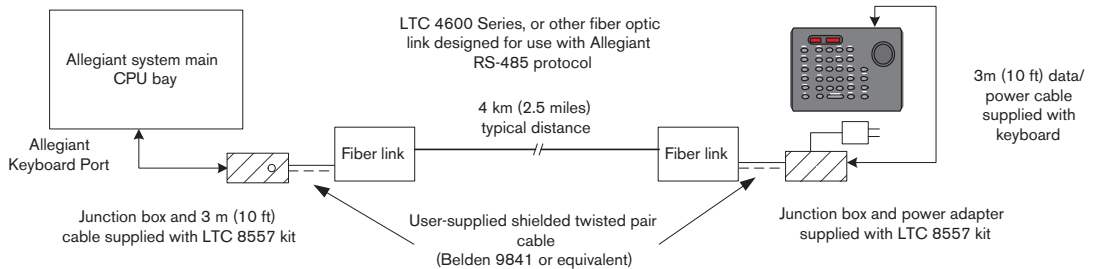


Figure 5.4 Typical Configuration using fiber optic link

5.3 LTC 8555/02 and LTC 8555/03 (RS-232 Protocol Model) Installation

5.3.1 General

The RS-232 protocol versions of the LTC 8555 Series keyboards can be connected to either an Allegiant LTC 8712 Series Console Port Expander accessory unit, or the 9-pin Console or Printer (if equipped) RS-232 port on the back of the Allegiant system. The keyboard may be connected via hardwired cable or using another type of communication system conforming to standard RS-232 transmission.

For each keyboard being installed, an LTC 8557 Series Remote Hookup Kit (sold separately), user-supplied 9-pin mating connector, and user-supplied cable suitable for use with RS-232 signals is required. Refer to the most applicable configuration diagram.

5.3.2 Keyboard Number Assignments when Using RS-232 Model Keyboards

Use of RS-232 protocol keyboards does not increase the total number of keyboards that can be connected to an Allegiant switcher. When an RS-232 keyboard is connected in the system, a standard keyboard port will automatically become disabled. The disabled keyboard port number will be based on the interface connection type of the RS-232 keyboard. Keeping track of these keyboard numbers is necessary when priority-based restrictions, or other keyboard related lockouts, are assigned and used in the system.

The table below indicates which keyboard number will be assigned, based on the connection being used.

Keyboard Connection Type	Keyboard Number
Direct to Console port	1
Direct to Printer port	5
Port 1 of Expander, when Expander is connected to Console port	1
Port 2 of Expander, when Expander is connected to Console port	2
Port 3 of Expander, when Expander is connected to Console port	3
Port 4 of Expander, when Expander is connected to Console port	4
Port 1 of Expander, when Expander is connected to Printer port	5
Port 2 of Expander, when Expander is connected to Printer port	6
Port 3 of Expander, when Expander is connected to Printer port	7
Port 4 of Expander, when Expander is connected to Printer port	8

5.3.3

Allegiant System Command Scripts for RS-232 Model Keyboards

When a keyboard is being connected to an Allegiant's Console port, or an Allegiant Printer port configured to operate in the Console mode, the Allegiant must be preprogrammed so the port will operate in the RS-232 keyboard mode.

The mode of the Allegiant's Console port can be changed either by a manually entered ASCII text command, or preprogramming the Allegiant CPU with an Allegiant Command Script. The Command Script method is preferred since the appropriate settings are automatically restored after a system power loss or reset. Manually entered commands remain valid only until the system is reset or powered off/on, so typically they should be used only for temporary or test purposes.

To manually configure an Allegiant's Console port to operate in the keyboard mode, it is necessary to connect to the system via Windows® HyperTerminal or another dumb terminal emulator.

Note: Allegiant Console and Printer RS-232 ports do not use a standard RS-232 pinout. Use of an Allegiant Console cable is recommended (If necessary refer to the Allegiant Console cable pinout reference at the end of this manual).

The Allegiant RS-232 settings are user-programmable, but the default settings are:

Baud: 19,200
 Stop bits: 1
 Data bits: 8
 Parity: None
 Handshake: None

Once online with the system, an Allegiant prompt appears each time Enter is pressed. The prompt will look as follows:

TC8x00 >

where x is a digit from one to nine (varies based on the Allegiant model being interfaced)

At the system prompt, manually enter the appropriate command, based on the Allegiant port in use, and type of keyboard interface. Refer to the table below to determine the correct command. Enter the command exactly as shown below, then press ENTER.

Keyboard Interface Connection Type	
Direct to Console port (except LTC 8900)	Command: SET-PORT-RS232 0 4 8 0 1 0;_SET_KBD_MODE 0 1
Direct to Printer port (except LTC 8900)	Command: SET-PORT-RS232 4 4 8 0 1 0;_SET_KBD_MODE 4 1
Modem connected to Console port (except LTC 8900)	Command: SET-PORT-RS232 0 4 8 0 1 1;_SET_KBD_MODE 0 1
Modem connected to Printer port (except LTC 8900)	Command: SET-PORT-RS232 4 4 8 0 1 1;_SET_KBD_MODE 4 1
Direct to Controller port (LTC 8900 only)	Command: SET-PORT-RS232 0 4 8 0 1 0;_SET_KBD_MODE 0 1
Direct to Console port (LTC 8900 only)	Command: SET-PORT-RS232 4 4 8 0 1 0;_SET_KBD_MODE 4 1
Modem connected to Controller port (LTC 8900 only)	Command: SET-PORT-RS232 0 4 8 0 1 1;_SET_KBD_MODE 0 1
Modem connected to Console port (LTC 8900 only)	Command: SET-PORT-RS232 4 4 8 0 1 1;_SET_KBD_MODE 4 1

After entering the command, the port will immediately begin to operate in the keyboard mode. The port will generate a series of constantly repeating codes. The setting remains in effect until the system is reset, powered off/on, or manually cancelled by entering Ctrl-C several times, using Windows HyperTerminal program operating at 9600 baud.

If using the LTC 8059 Master Control Software, while online, select the Command Script tab and enter the script for your connection type exactly as it appears in the table below:

Keyboard interface connection type	Command Script
Direct to Console port (except LTC 8900)	Begin @boot SET-PORT-RS232 0 4 8 0 1 0 _SET_KBD_MODE 0 1 break
Direct to Printer port (except LTC 8900)	Begin @boot SET-PORT-RS232 4 4 8 0 1 0 _SET_KBD_MODE 4 1 break
Modem connected to Console port (except LTC 8900)	Begin @boot SET-PORT-RS232 0 4 8 0 1 1 _SET_KBD_MODE 0 1 break
Modem connected to Printer port (except LTC 8900)	Begin @boot SET-PORT-RS232 4 4 8 0 1 1 _SET_KBD_MODE 4 1 break
Direct to Controller port (LTC 8900 only)	Begin @boot SET-PORT-RS232 0 4 8 0 1 0 _SET_KBD_MODE 0 1 break
Direct to Console port (LTC 8900 only)	Begin @boot SET-PORT-RS232 4 4 8 0 1 0 _SET_KBD_MODE 4 1 break

Keyboard interface connection type	Command Script
Modem connected to Controller port (LTC 8900 only)	<pre> Begin @boot SET-PORT-RS232 0 4 8 0 1 1 _SET_KBD_MODE 0 1 break </pre>
Modem connected to Console port (LTC 8900 only)	<pre> Begin @boot SET-PORT-RS232 4 4 8 0 1 1 _SET_KBD_MODE 4 1 break </pre>

After the script has been entered, download the script into the Allegiant CPU. Reset the system by powering the CPU off/on, or by entering Keyboard User Function 15 on an operating keyboard. The specified port will begin to operate in the keyboard mode. The port will remain in the keyboard mode unless manually cancelled by entering Ctrl-C several times using Windows HyperTerminal program, operating at 9600 baud.

The keyboard can now be physically connected to the Allegiant according to details shown in *Figure 5.5*. For modem connections, refer to the next section and *Figure 5.6*.

Once the keyboard is in communication with the Allegiant, camera and monitor numbers will appear in the LED displays.

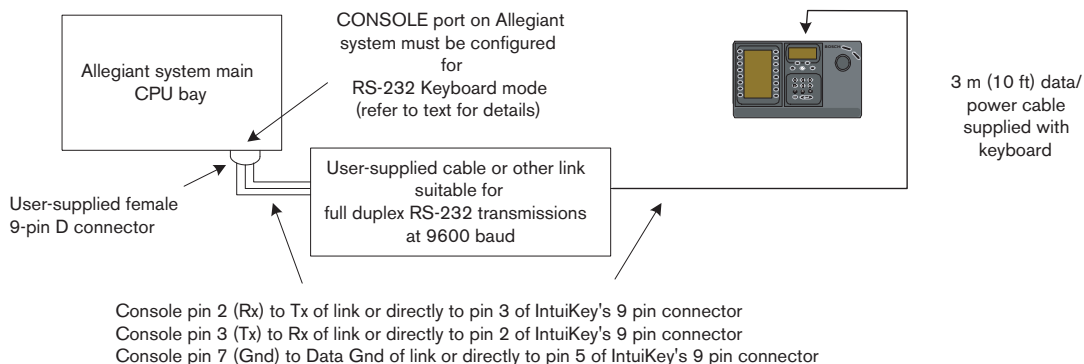


Figure 5.5 Direct Connection to Allegiant Console/Printer Port

5.3.4

Modem Interface Information when Using RS-232 Model Keyboards

RS-232 model keyboards can be connected to an Allegiant via dial-up modem link. The keyboard supports a rudimentary ability to dial a phone number of an attached modem. Further details for the dial-up feature will follow, in the operating instructions.

Figure 7 shows a typical system configuration using a modem connection.

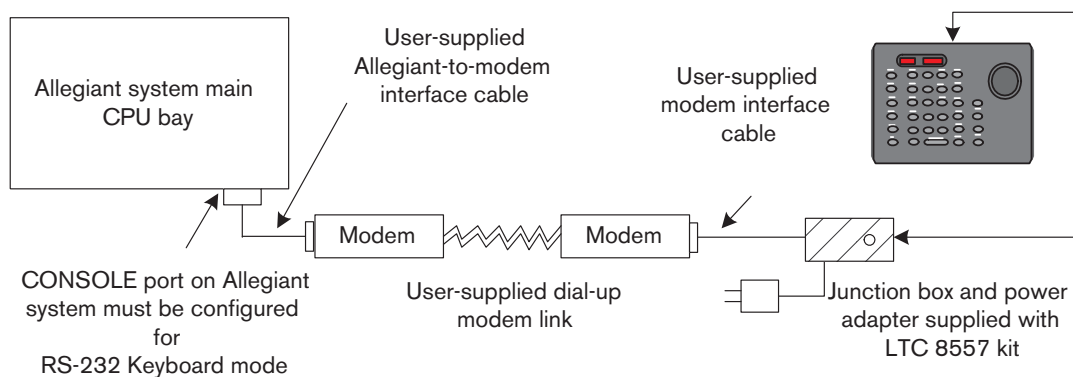


Figure 5.6 Connection Using Dial-up Modem Link

A modem interface requires the cable connections below. A user-supplied cable suitable for RS-232 communications is required.

Allegiant System		RS-232 Keyboard	
9-pin Console Port	25-pin Modem	25-pin Modem	LTC 8557 Hookup kit Terminal
1 (Chassis Gnd)	1 (Chassis Gnd)	2	3
2 (Rx)	3 (Tx)	3	2
3 (Tx)	2 (Rx)	7	1
4 (CTS)	8 (DCD)	Tie pin 4 (RTS) and Pin8 (DCD) together	
5 (RTS)	4 (RTS)		
7 (Data Gnd)	7 (Data Gnd)		
	Tie pin 6 (DSR) and pin 20 (DTR) together		

The modem on the Allegiant side must be set to an auto answer mode, and the modem on the keyboard side must be set to an originate mode. In some cases, modem settings are configured via dipswitches found on the back of the modem. In other cases, the modem must be connected to a PC for configuration. The below settings represent the dipswitch configuration required for US Robotics Sportster modems.

Allegiant-side Modem			Keyboard-side Modem	
Dip Switch	Setting	Modem Function	Dip Switch	Setting
1	DOWN	DTR Override	1	DOWN
2	UP	Verbal Result Codes	2	UP
3	DOWN	Display Result Codes	3	DOWN
4	UP	Echo Offline Commands	4	UP
5	DOWN	Suppress Auto Answer	5	UP
6	DOWN	Carrier Detect Override	6	UP
7	DOWN	Load Factory Defaults	7	DOWN
8	DOWN	Smart Mode	8	DOWN

5.3.5

Console Expander Configuration when Using RS-232 Model Keyboards

RS-232 model keyboards may be connected to an Allegiant system using the LTC 8712 Series Console Port Expander, as shown in *Figure 5.7*. An LTC 8712 Series Console Port Expander can be configured to support up to four RS-232 Keyboard connections. Other devices, such as a PC running the Allegiant Master Control software, can be connected to the unused ports of the Port Expander. Because the Port Expander supports only a single baud rate for the external connections, and the RS-232 keyboards require 9600 baud, all external devices connecting to the Port Expander must be configured to for operation at this setting.

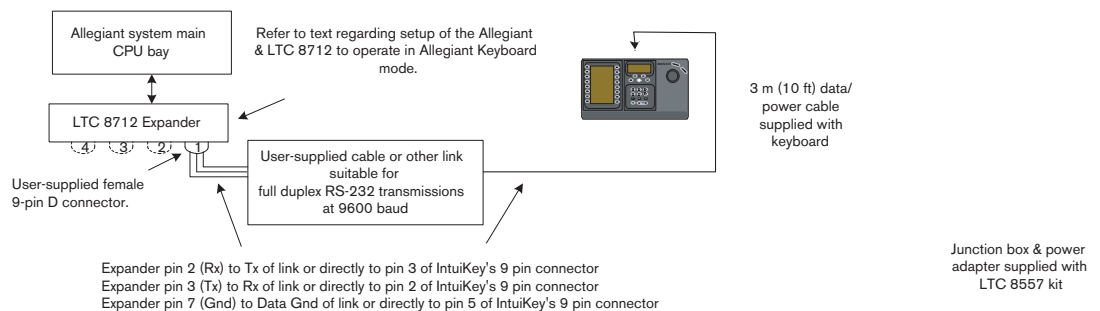


Figure 5.7 Configuration using LTC 8712 Series Console Port Expander

On Allegiant systems with a Printer port, up to two Console Port Expanders can be connected, supporting a total of eight RS-232 model keyboards.

To configure an Allegiant system to operate with an LTC 8712 Console Port Expander, you must have access to the Allegiant CPU's dipswitches, the PC-based LTC 8059 Master Control Software, and possibly an Allegiant keyboard.

To convert an Allegiant Console port using a CPU dipswitch method, set dipswitches 3 and 4 to the ON position on CPU dipswitch S100, S1001, or S0201 (the switch number depends on the Allegiant model being used). After a system reset (power off/on, for example), the Allegiant's Console port is forced into the Port Expander mode, and the RS-232 data rate is automatically set to 57,600 baud. To convert an Allegiant Console port via the Master Control Software, connect to the Allegiant and go online. Select the Parameter tab, and then the Options tab. Check the box labeled Set Console Port to Port-Expander mode. Download the table into the Allegiant.

To convert an Allegiant Printer port to operate in the Port Expander mode, first configure the Printer port to operate as a Console port. This is done by setting dipswitch 4 to the ON position on CPU dipswitch S101, S1002, or S0202 (the switch number depends on the Allegiant model being used). After a system reset (power off/on, for example), the Printer port will begin to operate as a Console port. Next, use either the Allegiant Keyboard User Function 38 or the Master Control Software to change the port to the Port Expander mode. If using the Master Control Software, connect to the Allegiant and go online. Select the Parameter tab, and then the Options tab. Check the box labeled Set Printer Port to Port-Expander mode. Download the table into the Allegiant.

Set the internal dipswitches of the LTC 8712 Console Port Expander as follows:

Dip Switch	Position	Comment
401.1	ON (Down)	57,600 baud for System communication
401.2	ON	Handshaking enabled for System communication
401.3	OFF	Reserved
401.4	OFF	Reserved
401.5	ON	To enable Port 1 for RS-232 Keyboard mode
401.6	ON	To enable Port 2 for RS-232 Keyboard mode
401.7	ON	To enable Port 3 for RS-232 Keyboard mode
401.8	ON	To enable Port 4 for RS-232 Keyboard mode
402.1	OFF	9600 Baud for external communications
402.2	ON	9600 Baud for external communications
402.3	OFF ¹	Handshake disabled for external communications
402.4	OFF	1 Stop Bit for external communications
402.5	OFF	No parity for external communications
402.6	OFF	No parity for external communications
402.7	OFF	8 data Bits for external communications
402.8	OFF	Reserved
1. Set this dipswitch to ON to enable handshaking if a modem is connected to the Port Expander and used for communicating to an RS-232 keyboard. Because the Port Expander uses this setting for all external connections, all external devices connecting to the Port Expander must be configured to operate using a hardware handshake interface.		

Remember to power the Console Port Expander off/on whenever any changes are made to its internal dipswitches.

Connect the data cable supplied with the LTC 8712 Console Port Expander between the unit and the appropriately configured port on the Allegiant. For further details refer to the instructions supplied with the LTC 8712 Port Expander unit.

Using an optional LTC 8557 Hookup Kit, the RS-232 keyboard can now be connected to the appropriate port of the Port Expander, as shown in Figure 8.

If a modem is being used, follow the same connections and configuration settings described in the previous section when interfacing directly to an Allegiant Console port.

5.3.6 Login Feature when Using RS-232 Model Keyboards

The Allegiant's keyboard login feature is not affected by use of RS-232 keyboards. If desired, this feature can be enabled to provide additional security to the system. Note that it is not possible to use the Allegiant's Console port login feature. The RS-232 keyboards must have unrestricted access to the Allegiant's RS-232 ports.

6 Keyboard Controls

6.1 Joystick

Camera positioning is controlled via an eight-way joystick on the right-hand side of the keyboard. This joystick is used to move a pan/tilt-equipped camera up, down, left, right or diagonally. Rotating the ZOOM control knob causes the lens to either zoom in or out. The direction of its response depends upon several factors, including the camera/lens model, and certain system configuration settings determined at installation. Up to four pan/tilt/zoom commands may be sent to a remote camera site at one time (example: Zoom In, Focus Far, Pan Left, and Tilt Down).

6.2 Focus and Iris Lens Controls

The lens control buttons are at the right side of the keyboard. Use these buttons to control cameras equipped with motorized zoom lenses to focus near or far, and open or close the iris (if the lens supports manual iris operations). Up to three zoom lens functions can be sent simultaneously (example: Zoom Out using the joystick knob, Focus Near, and Iris Open).

6.3 Numeric Keypad

Use the numeric keypad when it's necessary to enter a numeric value, for instance, Camera numbers, Monitor numbers, user number, or password information. Leading zeros are not necessary when entering a number.

6.4 “*” (Star) Button

The “*” key is used to activate an advanced programming feature in the Allegiant CPU. It has no default function, and will cause ERROR 96 to occur unless an associated Command Script has been programmed into the Allegiant.

6.5 Other Keyboard Buttons

See the Operating section of this manual.

6.6 Keyboard Displays

The keyboard has two groups of seven-segment LED displays. The monitor LED display is a three-digit display that shows the number of the monitor currently being controlled by the keyboard. During certain operating modes, it may also display prompts and diagnostic information.

The camera LED display is a four-digit seven-segment display that shows the number of the camera being viewed on the monitor that the keyboard is controlling. There are three modes for this display; camera mode is the default, but when the operator pushes one of the numeric data keys, the display shows the numeric keystrokes as entered from the keyboard, and also causes the decimal point, in the lower right-hand side of the camera display, to light. If the

keyboard remains inactive for about five seconds, the camera display returns to default mode and again displays the camera number. The third mode is for error display (refer to Error Messages). When the operator enters an erroneous key sequence, the keyboard beeps and an error number is temporarily displayed (for approximately 2 seconds).

7 User Information

7.1 General

The Allegiant system is factory-supplied with various user-selectable features set to their default states (the main Allegiant system Installation Manual contains complete descriptions). Since these features are user-selectable and have a significant effect on system behavior, some of the descriptions below may not apply to your system configuration.

7.2 Keyboard Login Procedure

Two modes of keyboard access exist. The factory default settings, allow the keyboard to be used as soon as it is connected to an operating Allegiant system. The second mode requires operators to logon to the keyboard before access to the system is permitted. A valid User number and password are required. If the login feature is being used, the system installer or administrator typically provides this information to all operators requiring system access. Perform the following steps to login to the keyboard:

1. If the keyboard is displaying a camera and monitor number, it is already logged on; no action is required. When the keyboard is in a logged off state, the left side LEDs display 3 flashing dashes.
2. Press ON. A 'U' should appear in the LED display as a prompt for entering a User number.
3. Enter your User number via the numeric keypad, then press ENTER. Up to 32 user numbers are available (128 for Allegiant LTC 8900 models).
4. If the entry is incorrect, press CLEAR and repeat the above step.
5. Press ENTER.
6. Verify that the keyboard monitor display now shows a 'P'.
7. Enter the password (maximum of six digits). The keyboard camera display indicates the number of digits entered, but not the actual password. Press ENTER when finished entering the user password.
8. If the User number or password is invalid, the display returns to the flashing dashes mode.
9. If the User number and password are valid, you will be logged onto the system. The keyboard's LEDs now indicate a monitor and camera currently under control by the keyboard.

Example: ON 12 ENTER 123456 ENTER

This example shows User #12 with password #123456 logging onto the system.

7.3 Keyboard Log Off Procedure

If the logon feature is not enabled, it will not be possible to log off the keyboard. If the feature has been enabled and you are currently logged on, press USER, then press OFF. The logged off keyboard displays flashing dashes in the keyboard LED display.

7.4 Modem Dialing (applies to LTC 855/02 and LTC 8555/03 models only)

The LTC 8555/02 and LTC 8555/03 keyboard models support the ability to dial the phone number of an attached modem. When the keyboard is offline, pressing ENTER causes it to go into dial mode. Modem initialization takes a few seconds, then the keyboard displays “dial” in the camera number display.

Enter the phone number via the keypad. The “*” (star) button can be used to insert a pause between digits. The digits scroll to the left in the monitor display as the phone number is entered. Use CLEAR to backspace over the digits in the reverse order that they were entered. Although the modem remembers all digits entered, the keyboard only remembers the last four, so if CLEAR is pressed repeatedly, the display begins to show periods after it has cleared 4 digits.

Once the entire number has been entered, press ENTER to initiate modem dialing. Press USER at any time to cancel dialing. Dialing is also cancelled if CLEAR or ENTER is pressed when no digits have been entered.

The keyboard will flash the word “dial” in its display until a connection with the system is established, and it begins to receive data from the Allegiant switcher. If no data is received within one minute, the keyboard will time out and return to the flashing dashes mode.

If the modem is online, and the user is logged in, pressing USER 190 ENTER forces the modem to hang up immediately.

7.5 Keyboard Operating Instructions

7.5.1 Camera Selection

In default mode, enter a valid 1 to 4 digit camera number using the numeric keypad and press ENTER.

If the Allegiant is configured to operate in “6-digit Camera ID” mode, up to 6 digits can be entered. If the new camera is at the same “site” as the current camera, simply enter 1 to 4 camera number digits.

If the desired camera is at a different “site”, 5 or 6 digits must be entered. The first and second digits would be the site number and the remaining 4 digits, including any leading zeros would be the camera number at that site.

Note: The keyboard's CAMERA button does not need to be used for simple camera selections. The button is only useful when it's necessary to cancel a previous incomplete action, such as canceling a monitor selection, and return to the camera number entry mode.

7.5.2 Monitor Selection

To select which monitor will respond to the operator 's keyboard commands, press MONITOR. Enter a valid monitor number via the numeric keypad and press ENTER. The number of the selected monitor will appear on the keyboard's monitor display.

7.5.3 Lock or Unlock Control of a Camera

Press LOCK, then ON to lock a camera, or OFF to unlock a camera. If the camera to be locked is not the one currently being viewed, enter the camera number via the numeric keyboard, but do not press ENTER, before you press LOCK.

If the Status option is enabled, the section of the on-screen overlay between the camera number and the time now shows “RL”, indicating the camera is locked. Activating a camera lock immediately prevents other operators (unless they have a higher priority) from controlling the locked pan/tilt/zoom camera. Remember to unlock the camera when finished so that all operators can access it.

7.5.4 Lock or Unlock Control of a Monitor

Press MONITOR, then LOCK and ON to lock a monitor, or OFF to unlock the monitor. If the monitor to be unlocked is not the one currently being controlled by the keyboard, enter the monitor number (but do not press ENTER) after you press the MONITOR key. Then press the LOCK and ON key. If the Status option is enabled, the section of the on-screen overlay between the camera number and the time now shows “ML”, indicating the monitor is locked. This prevents other operators (unless they have a higher priority) from changing the video on the monitor being used. Remember to unlock the monitor when finished so that all operators can access it.

Note: If an operator with a higher priority accesses a locked monitor and switches to a different camera, the lock will automatically be removed.

7.5.5 Recording a Camera Pre-position Scene

Select a camera with pan/tilt/zoom control (with pre-position options), as described above. Using the joystick and lens controls, adjust the camera to view the scene to be stored. Press SET, then select the scene number using the numeric keypad, and press ENTER. The camera position is now stored, for later recall.

If an AutoDome® camera is being used, certain pre-position commands are also used to activate operational features and functions. Refer to the AutoDome operation manual for complete information. If a conventional Allegiant Receiver/Driver is being controlled, the pan/tilt/zoom lens must have the necessary options for pre-position operation.

Certain AutoDome models and Allegiant Receiver/Driver series have the capability to disable a previously stored pre-position or remove one from a pre-position tour by pressing SET, the digit 9, followed by the 2-digit pre-position number. Information supplied with the device will identify whether this feature is available.

7.5.6 Recalling a Camera Pre-position Scene

Select the camera to be activated and press SHOT, then enter a previously stored camera scene number via the numeric keypad and press ENTER. The camera automatically returns to the previously stored position.

If a second pre-position is called prior to the completion of the first, the camera moves directly to the second shot. If using an AutoDome camera, certain pre-position commands may be used to activate operational features and functions. Refer to the AutoDome operation manual for more information.

7.5.7 Activate/Deactivate Auxiliary Function

To turn on an auxiliary function of a remote camera device, press ON, enter the number of the auxiliary to be activated, and press ENTER. Holding down the ENTER key causes the auxiliary function to be sent repeatedly. This capability is useful when the auxiliary is activating a housing window washer function, or a temporary light source.

To turn off an auxiliary function of a remote camera device, press OFF, enter the number of the auxiliary to be deactivated, then press ENTER.

With AutoDome cameras, auxiliary commands are used to activate/deactivate certain operational features and functions. Refer to the manual supplied with the AutoDome camera for complete information on supported features.

In the Allegiant Receiver/Driver series, the first 4 auxiliaries correspond to relay outputs. Option switches in the receiver/driver can configure these to operate as either 'latching' or 'momentary' functions. If configured for the 'latching' type, the auxiliary will stay on once activated, until turned off. If configured as 'momentary', the auxiliary remains on only as long as ENTER is held down. Auxiliary outputs 2 through 4 can also be configured as contact closures, 24 VAC, or as line voltage. Auxiliary number 5 controls the DITHER function (see

below). Auxiliary number 6 corresponds to an internal receiver/driver AUTO-PANNING feature that must have been previously enabled via an option switch internal to the receiver/driver. DITHER is a legacy Allegiant Receiver/Driver feature designed to extend the life of tube-based low-light level cameras. Its function was to prevent bright lights in the scene from burning a spot on the camera imager. When this feature is active and the pan/tilt is not moved for a period of about 2 minutes, the receiver/driver automatically pans right for approximately 0.5 seconds. Two minutes later, a pan left occurs. This cycle continues until disabled. The feature is enabled via an option switch in the receiver/driver, and is activated by turning on auxiliary 5. To deactivate the feature, turn off auxiliary 5. When first enabled, the pan/tilt unit makes one short Left/Right cycle to indicate that the DITHER function has been activated. Note that a camera in the DITHER mode accumulates a viewing error if left unattended for a long period of time, so occasionally a manual adjustment of the pan/tilt may be required.

7.5.8 **Arm/Disarm Individual Alarms**

Alarm commands are used to control the system's automatic video switching, in response to alarm signals. To arm/disarm an individual alarm on the monitor currently controlled by the keyboard, press ALARM. Enter the alarm number to be armed using the numeric keypad, and press ON to arm the alarm, or OFF to disarm it.

Using default settings, the camera activated by an alarm is normally the same as the alarm number, but this relationship can be changed via the optional Allegiant PC based Master Control Software package. In cases where the alarm number does not match the camera number, it is important to specify the alarm number when using this command.

The monitor status display (if enabled) shows "CA" (camera/alarm armed) whenever an armed camera is selected.

7.5.9 **Arm/Disarm All Alarms**

To arm/disarm all alarms on the monitor currently controlled by the keyboard, press USER, ALARM, then ON to arm all alarms, or OFF to disarm all alarms.

7.5.10 **Arm/Disarm Monitor**

To arm/disarm the monitor currently controlled by the keyboard, press USER, MONITOR, then ON to arm the monitor, or OFF to disarm the monitor.

Note: Alarm video will appear on a given monitor only if the monitor is armed and the alarm is armed for that monitor. The monitor status display (if enabled) shows "MA" (monitor armed).

7.5.11 **Acknowledgment of Alarms**

ACK is provided so system operators can respond to alarms from the keyboard. Pressing ACK while the keyboard is beeping due to an alarm condition always silences the beeper.

Depending on alarm configuration programming, subsequent pressing of the ACK key either clears alarm video from the monitors, or has no effect.

7.5.12 **Load/Clear a Sequence**

To load a previously programmed sequence so it can be run on your monitor, press SEQUENCE, enter the desired sequence number (1 to 60 for most Allegiant models, or 1 to 256 for the LTC 8900 system), and then press ENTER. Note that loading a sequence does not automatically initiate the sequence. Refer to the following sections for sequence control information.

Since sequences may be programmed to use more than one monitor, all monitors required for a sequence must be available. If a sequence is already on a monitor, the operator who loaded it originally (or an operator with a higher priority) is permitted to load a new sequence on the monitor or monitors. Others receive an error message.

To clear a sequence from a monitor, press SEQUENCE and ENTER. Only the operator who loaded it originally (or an operator with a higher priority) is permitted to clear a sequence from a monitor. Others receive an error message.

If enabled, the status display area of the monitor indicates the sequence number in the appropriate location. If no sequence is currently loaded, "00" is displayed.

7.5.13

Run a Sequence

To run a sequence currently loaded on a monitor, press RUN. If the sequence was stopped, the RUN command will initiate sequencing. The direction of sequencing is indicated in the monitor status display (if enabled) by a directional arrow and the letter 'R' to the right of the sequence number. If RUN is pressed while a sequence is already running, the switcher goes immediately to the next step in the sequence, and continues to run. Holding down RUN produces a 'quick-scan' effect. If RUN is pressed when no sequence is loaded, an error results. If the monitor is in alarm, RUN controls the switching of alarm video rather than a loaded sequence.

7.5.14

Stop a Running Sequence

Press HOLD to stop a sequence if one is currently running. The monitor status display shows 'S' to the right of the sequence number. If the sequence is already stopped, pressing HOLD has no effect. If no sequence is currently loaded, pressing HOLD results in an error condition. If the monitor is in alarm, HOLD stops the alarm switcher rather than a loaded sequence.

7.5.15

Controlling the Direction of a Sequence

The direction of a sequence can be set to run in either a forward or reverse direction. It is also possible to manually step through a stopped sequence, either forward or reverse. These actions work as follows:

- If NEXT is pressed with the sequence in the stop state, the sequence switches forward and remains stopped. If the sequence is running when NEXT is pressed, it immediately goes to the next step and continues to run. The same is true for PREV, but in the reverse direction. If either NEXT or PREV is held down, a 'quick-scan' effect, switching at a rate of approximately two steps per second, takes place. When sequences are first loaded, the direction defaults to forward
- If PREV is pressed while a camera sequence is running, it reverses the sequence. If PREV is pressed while in a hold mode and the display is showing the forward prompt, the first push changes the direction only, and a second push switches to the previous step. The same is true for NEXT in the opposite direction. The monitor status display shows an arrow pointing either up or down, indicating the direction of the sequence. The arrow is to the right of the sequence number, either above or below the sequence run 'R' or stopped 'S' indicator. If the monitor is in alarm, PREV and NEXT control the alarm switcher rather than the loaded sequence.
- If no sequence is loaded, pressing NEXT or PREV automatically steps the switcher through the camera numbers in numerical order.

7.5.16

Programming a Simple Camera Sequence

The Allegiant system has very powerful sequencing capabilities. Using a system keyboard, it is possible to enter sequences that will run on a single monitor or multiple monitors. As long as valid camera and monitor numbers are used, they can be entered into a sequence in a completely random order. More powerful features are available when sequences are programmed via the PC-based LTC 8059 Master Control Software, including the capability to activate receiver/driver actions as part of a sequence step.

The only limitation associated with sequence programming is the CPU memory required for storing the sequence steps. The current limit for most Allegiant models is 3000 steps, but the LTC 8900 supports up to 6000 steps.

Consider a sequence as being similar to a spreadsheet; a simple sequence would consist of 3 columns of information that would look as follows:

Camera	Monitor	Dwell
1	1	2
2	1	2
3	1	2
4	1	2
5	1	2

Programming of sequences can best be described by going through the above example. Initiate the programming mode by pressing PROGRAM. Enter an available sequence number (1 to 60 for most Allegiant models; 1 to 256 for LTC 8900 systems), then press ENTER. The on-screen monitor display will change to the following format:

1st Line Camera (Ignore) **S0001** **L0001** Time (Ignore)

2nd Line **>C0001<** **M001** **D02** (Date (Ignore))

The top line of the display always indicates the current step being viewed, in the S0001 section. Total length of the sequence is displayed in the L0001 section.

When programming a new sequence, the camera number that was being viewed before entering the programming mode is automatically placed within the > < prompts (as in the above example showing camera number C0001 on the 2nd line). Enter the first camera of the sequence into this position. If the camera number is correct, no action is necessary. If not, enter the desired camera number via the keypad, and press ENTER.

Using the joystick control, move to the RIGHT one step. The prompts will shift over to the monitor number shown above as M001. The monitor that was being controlled by the keyboard before entering the programming mode defaults to this position. If it is correct, no action is necessary. If not, enter the desired monitor number via the keypad, and press ENTER.

Move RIGHT again. The prompts now shift over to the dwell time shown above as D02. The default dwell time for a new sequence is two seconds. If a different dwell period for this step is desired, change the value to any number between 1 and 60. One line is now complete. Press NEXT to add a second line. The camera number automatically increments, but monitor number and dwell remain the same as the first line. Since this line is correct, no change is necessary and NEXT may be pressed three more times, until line five is reached. Note that the joystick can be used to move around within the spreadsheet, but only the NEXT key adds new lines.

Continue entering camera, monitor, and dwell times in the same fashion until finished. To store the sequence for future use and then exit programming mode, press PROG. If you press RUN, the programming mode exits, the sequence is stored into memory, and the sequence begins to run. The switcher steps through the five steps in the order shown, and repeats the sequence when it reaches the last step.

To program a sequence that runs once through its steps and then stops, enter the value 62 for the dwell time in the last step, and press ENTER. The dwell display will change to the STP indicator, meaning stop. To program a sequence that runs once through its steps, and then unloads itself, enter the value 63 for the dwell time in the last step and press ENTER. The dwell display changes to ULD, meaning unload.

To edit an existing sequence, press PROG, enter the existing sequence number, and then press ENTER. You can insert a line into a sequence by navigating to the appropriate line and

pressing ON. An identical line will be added to the next step. To delete a step, navigate to the line and press OFF. To delete all steps below the line you're viewing, press LOCK. (Be careful with this feature!)

To completely erase a sequence, press LOCK while on the first line of the sequence, and then press OFF. The sequence is then erased, and programming mode automatically exits.

7.5.17

Programming a SalvoSwitching Camera Sequence

A SalvoSwitching® sequence allows specification of a group of monitors that will switch together as a synchronized group. To program a salvo sequence, enter the programming mode as described above for a simple camera sequence. Since a salvo sequence involves multiple monitors switching as a group, the sequence must involve more than 1 monitor. An example of a simple salvo sequence that switches cameras on three monitors simultaneously is shown below in spreadsheet format:

Camera	Monitor	Dwell
1	1	SLV
2	2	SLV
3	3	2
7	1	SLV
8	2	SLV
9	3	2
21	1	SLV
22	3	SLV
23	3	2

In general, follow the instructions used for the simple camera sequence described above, but instead of entering a number of seconds for steps that must switch instantly, enter 61 and press ENTER. When 61 is entered, the switcher automatically changes to the salvo abbreviation SLV. Dwell time (in seconds) is entered only upon reaching the step containing the last monitor to be switched within the synchronized group.

7.6 Keyboard User Functions

Keyboard User Functions are used to configure system settings that do not require changing on a frequent basis. Only operators with a level 1 priority have access to all functions, and several require entry of a password. A summary list is shown below; for complete configuration details, refer to the appropriate section of the Allegiant Installation manual.

No.	Function Description	Access Level
1.	LOCAL KEYBOARD TEST	Any
2.	SHOW KEYBOARD NUMBER	Any
3.	BEEPER ON/OFF	Any
4.	POSITION MONITOR DISPLAY	1-7 ¹
5.	DISPLAY BRIGHTNESS	1-7 ¹
6.	DISPLAY ON/OFF	1-7 ¹
7.	SET TIME	1-7 ¹
8.	SET DATE	1-7 ¹
9.	SET CAMERA TITLE	1
10.	CHANGE PASSWORD	Any ²
11.	SET TIME/DATE FORMAT	1
12.	DEFAULT MONITOR DISPLAYS	1
13.	CONFIGURATION TABLE PRINTOUT	1
14.	NOT USED	1
15.	SYSTEM RESET	1 ²
16.	ENABLE TIMED EVENTS	1
17.	SET MONITOR TITLE	1
18.	SEQUENCE PRINTOUT	1
19.	ALARM RESPONSE SELECTION	1 ²
20.	SELECT PRINTING MODE	1
21.	DESIGNATE MONITOR TYPE	1 ²
22.	SELECT AutoDome SPEED TYPE	1 ²
23.	DISPLAY CPU VERSION NUMBER	Any
24.	ALL MONITOR DISPLAY POSITION	1-7 ¹
25.	ALL MONITOR DISPLAY BRIGHTNESS	1-7 ¹
26.	ALL MONITOR DISPLAY ON/OFF	1-7 ¹
27.	SELECT KEYBOARD LOG-IN	1 ²
28.	SELECT CONSOLE LOG-IN	1 ²
29.	RESET RS-232 PARAMETERS	1 ²
30.	SELECT CONSOLE RS-232 PARAMETERS (except LTC 8900)	1 ²
30.	SELECT CONTROLLER RS-232 (LTC 8900 ONLY)	1 ²
31.	SELECT PRINTER RS-232 PARAMETERS (except LTC 8900)	1 ²
31.	SELECT CONSOLE RS-232 (LTC 8900 ONLY)	1 ²
32.	SELECT ALARM RS-232 PARAMETERS	1 ²
33.	DISPLAY USER NUMBER AND PRIORITY	Any
34.	SELECT CAMERA CONTROL INDICATOR	1
35.	SET CONTROLLABLE CAMERA	1
36.	SELECT CROSSPOINT DATA	1
37.	USE PHYSICAL R/D ADDRESSES	1 ²
38.	SET EXPANDED PRINTER PORT	1 ²
39.	SELECT DIU INTERFACE PORT	1 ²
40.	SET SWITCHER PHASE DELAY (LTC 8100, 8200, & 8300 only)	1 ²
41.	CACHE REMOTE CAMERAS	1 ²

No.	Function Description	Access Level
42.	KEYBOARD LOG-IN AUTO-OFF MODE	1 ²
43.	CPU BATTERY STATUS	Any
44.	CAMERA VERTICAL PHASE SET (LTC 8600, 8800, 8900 only)	1 ²
45.	CPU TEMPERATURE STATUS (LTC 8600, 8800, 8900 only)	Any
46.	TWO/THREE LINE TITLES (LTC 8600, 8800, 8900 only)	1 ²
47.	4-DIGIT/6-DIGIT CAMERA ID (LTC 8600, 8800, 8900 only)	1 ²
99.	LIST AVAILABLE USER FUNCTIONS	Any

Notes:

1. When using LTC 8900 systems, the access levels required for this setting are 1 to 63.
2. Password is required to change this setting.

7.7

Error Messages

The keyboard is designed to emit a short beep and display an error number whenever Allegiant system error messages are generated. Error messages are generated for various reasons, including entry of an erroneous key sequence or restricted function invocation. Some errors contain more than one message. For example, if an attempt is made to access a monitor or controllable camera which has been locked by a higher priority operator, the camera number is temporarily replaced with an appropriate error number, then the number of the operator who placed the lock is briefly displayed.

Refer to the Installation manual supplied with the Allegiant system for a complete listing of error messages applicable to your model system.

8 Data Interface and Cable Pinouts

Keyboard 6-Pin Interface Connector	
Pin	Connection
1	Supply voltage ¹
2	Gnd
3	Data --
4	Data +
5	Gnd
6	Supply voltage ¹

Supplied 6-Pin Data/Power Cable (Replacement part number 303 0239 001)		
Side	Connection	Side
1	Supply voltage ¹	6
2	Gnd	5
3	Data +	4
4	Data –	3
5	Gnd	2
6	Supply voltage ¹	1

Note 1: Supply voltage varies based on Allegiant system model. Typical values are 14VAC or 12VDC.

Allegiant Console Cable Pinouts (part number LTC 8506/00)			
Allegiant Side (Console Port)		PC Side (Serial Port)	
Pin	Connection	Pin	Connection
1	No connection	---	---
2	Rx	3	Tx
3	Tx	2	Rx
4	CTS	1, 7	CD, RTS
5	RTS	8	DTR
6	No connection	---	---
7	Data Gnd	5	Data Gnd
8	No connection	---	---
9	No connection	---	---
		(Jumper pins 4 & 6)	

9 Troubleshooting

9.1 General

Problem	Possible Causes
No Power Indication	– If powered from a non-modular type Allegiant, try another keyboard port on the Allegiant. The port may have failed. – If powered from a modular type Allegiant, check the fuse on main Allegiant power supply. Try another keyboard port. – If powered from a separate power source, check power source or main AC supply of power source. – If power source is confirmed to be OK, the keyboard may have an internal failure. Swap suspect keyboard with a known good keyboard.
LED Displaying Flashing dashes	– If the login feature is enabled, the keyboard may be logged off. (User LED lit and OFF LED lit) – If the login feature is not enabled, or the keyboard port is logged in, there is likely a data communication error. Test the keyboard cable in another keyboard port. Swap the suspect keyboard with a known good keyboard. Try another keyboard data cable. Check keyboard data cable connections. – If using RS-232 protocol models with a dial-up modem link, the keyboard may be waiting for the operator to dial a phone number and establish communication with the Allegiant.
Non-operating Key or LED Digit	– If a key does not seem to be working, verify that the attempted function is applicable to the device being controlled, or the switcher's current situation. – Key or LED may be defective. Run the User Function 1 test described in section below.

Problem	Possible Causes
Camera and Monitor numbers being displayed, but Allegiant systems will not respond to changes or PTZ controls	– Verify that the attempted function is applicable to the device being controlled, or the switcher's current situation. – If using a directly connected cable, the keyboard port or keyboard could be defective. Swap the suspect keyboard with a known good keyboard. – If using a communication link other than a directly connected cable, there could be a problem with the communication link. Data is being received from the Allegiant if camera and monitor numbers are displayed, but these symptoms indicate that the keyboard's data is not getting back to the Allegiant. Test with a directly connected Allegiant keyboard cable. Verify that the communication link is compatible with Allegiant keyboard data communications.
Intermittent beeping and/or display of error message 90, 92, 94 or 95	– Error 90, Error 92, and Error 94 indicate the Allegiant system has received invalid data. The most likely cause is excessive EMI interference on the keyboard data cable, within the keyboard itself, or possibly in the Allegiant system. If the keyboard is remoted a long distance, try using the 3 m (10 ft) data cable supplied with the keyboard. – Error 95 indicates that there is intermittent keyboard communication. Verify the physical data cable connections and the integrity of the cable connectors.

9.2

Local Keyboard Test -- Keyboard User Function 1

Keyboard User Function 1 is an Allegiant system keyboard feature used to verify that all the keyboard's LEDs and switches are in working order. This function also automatically calibrates the center position of the analog joystick. Upon starting this test, the keyboard emits a short beep and all LEDs light for about two seconds. During this time, note any LED failures.

Each key may be pressed to display a unique code number associated with that key. Follow the table below to ensure that the keyboard is properly processing all keys. The amount of deflection of the Joystick during pan/tilt actions is indicated by a speed indicator value in the first digit position of the LED display. Rotation of the Zoom control indicates a value of x41 when rotated clockwise, and x40 when rotated counterclockwise. Push USER last, as this exits the keyboard test mode.

If the login system features have been selected by the system installer, the same local test can be initiated while the keyboard is not online, by pressing "*" (the star key).

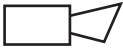
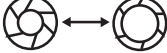
Key	Value
Set	001
Prog	002
Lock	003
Alarm	004
Ack	005
Monitor	008
Shot	009
Digit 1	010
Digit 4	011
Digit 7	012
Digit 0	013
* (Star)	016
On	017
Digit 2	018
Digit 5	019
Digit 8	020
Camera	024
Off	025
KEY	VALUE
Digit 3	026
Digit 6	027
Digit 9	028
Enter	029
Seq	032
Run	033
Next	034
Prev	035
Hold	036
Clear	037
Focus (high)	042
Focus (low)	043
Iris (high)	045
Iris (low)	046
(Down)	x50
(Right)	x51
(Up)	x52
(Left)	x53
User	(enter/exit)

10

Icon Translator Chart

(Applies to LTC 8555/01 and LTC 8555/03 keyboard models)

The following chart is used to cross-reference the text descriptions contained in the manual with the icons found on keyboard models LTC 8555/01 and LTC 8555/03.

	Ack
	Alarm
	Camera
	Clear
	Enter
	Focus
	Hold
	Iris
	Lock
	Monitor
	Next
	Off
	On
	Prev
	Prog
	Run
	Seq
	Set
	Shot
	User
	*

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