

Engineering Technical Memorandum  
**Alarm Display Unit RS485 Point-to-Point Networking**  
Peer Reviewed Design Revision  
Date: 4/1/2010

**Purpose:**

The purpose of the RS485 Cat 6 point-to-point wiring scheme for GE Carescape™ implementations of Alarm Display Unit Messaging Panels is to:

- simplify troubleshooting
- increase ease of use
- decrease cost of installation and maintenance
- provide for later expansion or upgrade

**Criteria:**

The RS485 point-to-point, home-run or star topology wiring installation has been developed for use with the GE Carescape™ Alarm Display Unit Controller based application software revision 3H. The controller and infrastructure designs can be found within the following document: [ADU Design Document](#) Specific details with regard to the ADU infrastructure can be found in the document on pages 11-14.

This wiring topology is intended for use only with RS485 networks utilizing data rates under 200,000 bits/second. Any individual leg or home-run length of cable should not exceed 100 meters.

**Design:**

The design of the home-run topology has been changed with regard to patch cable and modular adapter pin-outs and terminations. (See Attachments 1 and 2)

The differential RS485 signal is to be conducted, both positive and negative, along a twisted pair of the CAT6 cable. This is implemented through a redesign of the patch RJ11-RJ45 ADU sign connection cables and the modular DB9/RJ45 adapter to the ADU controller.

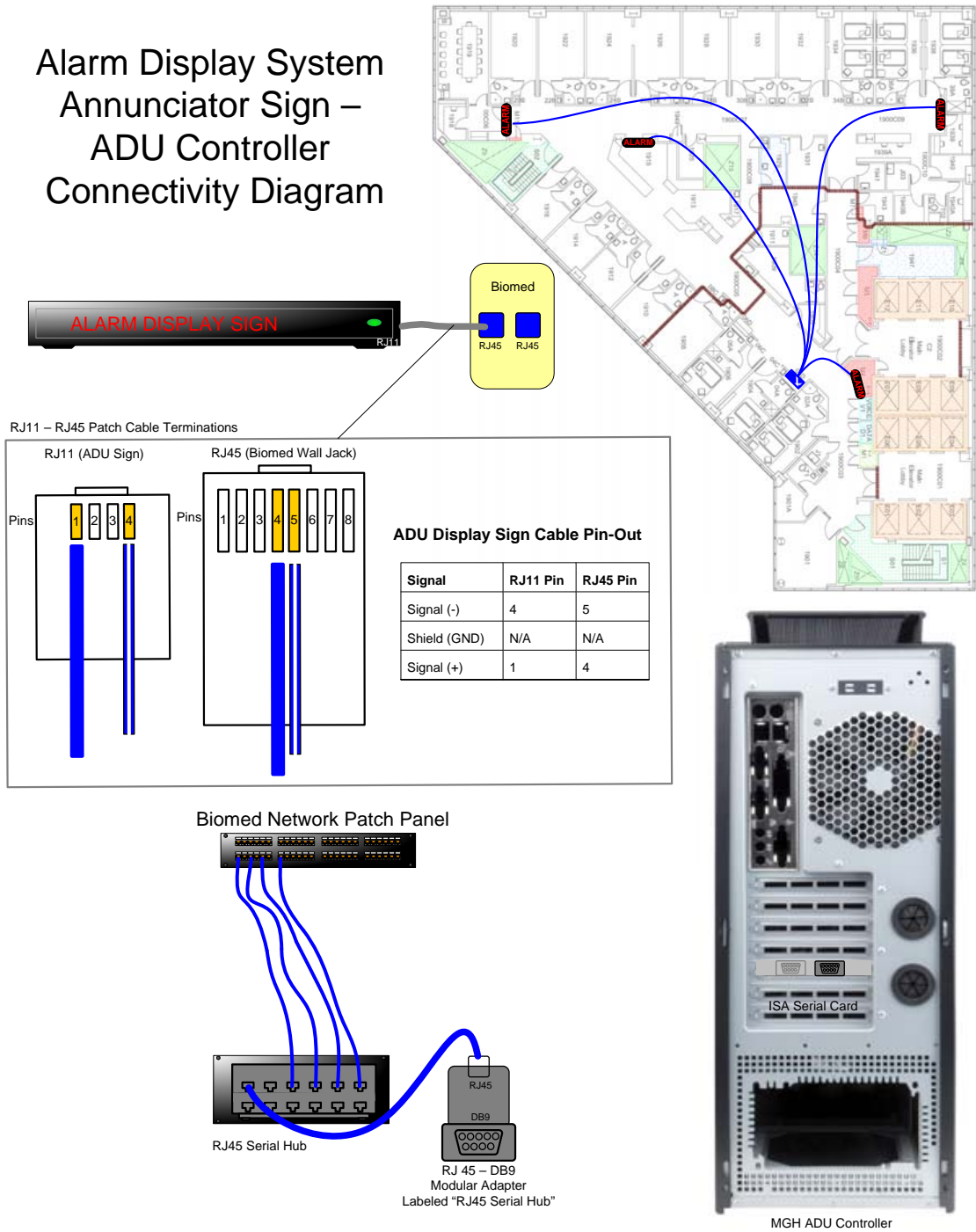
The ground/drain/shield contact has been removed from the patch cable and modular adapter to remove the possibility of ground loop signal injection between an ADU controller and alarm signs connected at distinct circuits.

This design has already been implemented in the Ellison 3 PACU and is being proposed as a replacement to the implementation currently in use on Ellison 19, Thoracic Surgery Unit.

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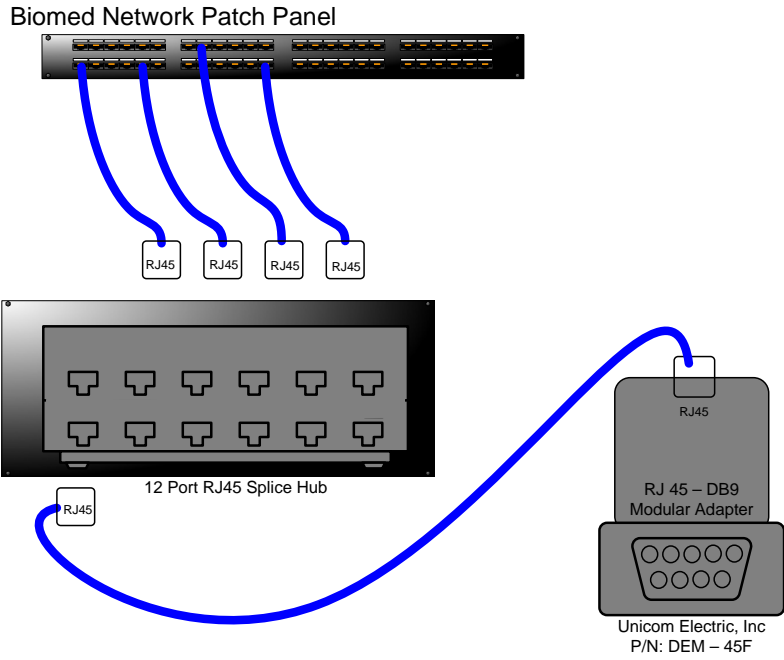
# Attachment 1

## Alarm Display System Annunciator Sign – ADU Controller Connectivity Diagram



# Attachment 2

## ADU Controller – RJ 45 Serial Hub Pin-Outs and Cable Terminations



**Terminal RJ45 - DB9  
Modular Adapter  
Pin – Out Table**

RJ45 Pin	Color	Signal	DB9 Pin	DB9 Pin	DB9 Pin
7	Brown	Shield (GND)	5	5	
5	Green	Signal (-)	3	1	
4	Red	Signal (+)	4	2	

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