

CENTRAL EQUIPMENT CABINET



Features

- *Compact Surface Mounting*
- *Flexible Configuration*
- *Independent Card Slots*
- *Telephone Interface*
- *Single Power Supply*
- *Plug-In Connection*

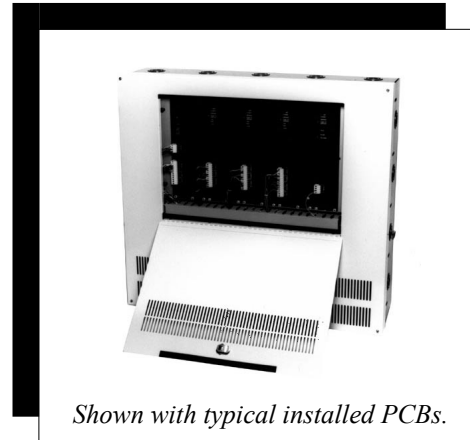
General Description

The central equipment for the ProCare 6000® Advanced Healthcare Communications System consists of one Model 12A3605 cabinet and additional expander cabinets that can be mounted in close proximity, or separated for ease of installation. Each cabinet requires a separate backbox having either a surface cover or a flush cover with a locking hinged door to provide access to the adjustment controls on the printed circuit boards (PCBs). Each cabinet requires a 24Vdc power supply, located in a separate backbox having either a surface cover or a flush cover with a locking hinged door. A second 24Vdc power supply may be required to power the cabinets, dependent on the number of plug-in modules and base master stations.

Each cabinet contains a slot-independent card cage with 14 slots to support a plug-in DC-DC converter module, a file server and/or network expansion PCB, and a combination of up to 12 master station PCBs (MIUs), station zone PCBs (ZIUs), and optional telephone PCBs (Telcos).

A maximum networked system can contain up to 20 nodes (a combination of MIU, ZIU, and Telco PCBs). The system can contain any quantity of MIU PCBs, not to exceed the 20-node limit when combined with the ZIUs and Telcos. A maximum of four MIU PCBs can be associated with a combination base master station and supplemental video display option.

When more than one cabinet is required due to system capacity and/or networking requirements (capture or swing rooms), the first cabinet contains the file server (FS) PCB, and all cabinets require a network expansion PCB. One file server controls the entire system of up to 20 nodes.



**(General
Description)**

Up to six 3-watt or 15-watt autotrol/amplifier modules can be installed in each cabinet dependent on area audio page requirements. Each autotrol can serve more than one ZIU PCB (zone), unless the audio area paging option is required. Then, for optimum use, one 15-watt amplifier is required for each ZIU.

Each ZIU supports up to 32 stations, which can be a combination of single or dual patient stations, with or without emergency stations, staff/duty stations, and couplers for independent emergency stations. However, if the audio group paging option is required, the maximum number of stations per ZIU is limited to 20. Each ZIU also supports up to 16 zone lights.

Each Telco PCB requires one station-level analog telephone line connection from the PABX so that remote wired or wireless telephones can be used to answer incoming patient station calls. To maximize the number of possible simultaneous telephone conversation paths, Dukane recommends providing one Telco PCB per autotrol/amplifier and ZIU combination and minimizing the number of stations per ZIU.

Dukane recommends that stations predetermined to be candidates for transfer between master stations (swing rooms) be placed in a separate zone (ZIU) with its own autotrol/amplifier.

Although the Model 12A3605 Central Equipment and its associated PCBs are specified for use with the ProCare 6000 System, they can also be used to upgrade a ProCare 4000 *plus*[®] System. However, it is important to note that when used with the ProCare 4000 *plus*, the Model 4A3610B Master Station and the Model 4A21xx series room stations will assume only the functions and features relative to the ProCare 4000 *plus* System, with the exception of audio group paging and limited telephone interface capabilities when including the Telco option. Also, the ProCare 4000 zone lights must be replaced with ProCare 6000 zone lights.

**Engineers'
Specifications**

A combination of one Dukane Model 12A3605 Central Equipment Cabinet and additional expansion cabinets shall be mounted in close proximity to each other or separated for ease of installation, as shown on the floor plans, to serve the quantity and type of remote stations of the system.

1. Each cabinet shall include the following required units:
 - a. A Dukane Model 8A245A Backbox, which shall be a flush- or surface-mounted enclosure, 24 inches (61 cm) high, 26-1/2 inches (67 cm) wide, and 6-3/4 inches (17 cm) deep. It shall be constructed of 16-gauge cold-rolled steel with a dark gray enameled finish. It shall include mounting holes and brackets to easily install the card cage and the associated audio amplifiers.
 - b. A Dukane Model 110-3621 Slot-Independent Card Cage, which shall accept up to 14 system-functional, plug-in printed circuit boards. The card cage shall provide for securing the boards in place, and for properly laying out the connecting cables.

- c. A Dukane Model 110-3622 DC-DC Power Converter Unit (PCU), which shall provide the correct power (obtained from its individual 24Vdc central equipment power supply) to the other PCBs in the card cage. The front edge of the PCU shall have LEDs to indicate the continuous monitoring of the +24Vdc, +8Vdc, and +/-12Vdc power outputs. The LEDs shall be visible from the front of the cabinet without removing the cover or door. The PCU shall provide two separate UL 1069-required +/-12Vdc isolated outputs with LED monitor indicators to supply operating power to separate interface devices.
2. A combination of equipment cabinets shall be capable of supporting a system from one master station and up to 600 stations (1,200 beds), to four or more master stations and up to 320 stations (640 beds), depending on other options selected. These options include but are not restricted to supplemental video displays, audio paging, and remote/wireless telephones.
3. The system shall contain a maximum of 20 nodes (a combination of MIU, ZIU, and Telco PCBs).
4. The system cabinets shall contain the following plug-in printed circuit boards (PCBs), based on the quantity of each type, the configuration of the stations, and the required operational features the cabinet must support. Each PCB shall plug into the card cage, occupy any slot, and be secured in place. Screw-type, polarized, plug-in connectors shall be provided to terminate the system wiring.
 - a. One Dukane Model 110-3613D File Server (FS) PCB shall be installed in any one of the equipment cabinets to serve as a host for the total system.

The FS shall have LED indicators that continuously indicate its operational status including:

ERROR	Operational fault-processor in reset
HALT	Processor not operational
SERVICE	Communications status to system
DI-PC	Data traffic from diagnostic terminal
DO-PRT	Data traffic to ESM interface
DO-PPI	Data traffic to call annunciator panels

The FS shall have an RS-232 serial interface port with a front-mount plug-in termination for connection to optional supporting systems such as pocket paging, wireless telephones, and/or ARMS *ip* through an ESM interface. The FS shall also include a separate front-mount connector for plug-in termination of a terminal to be used for system-wide configuration/service.

(Engineers' Specifications)

- b. One Dukane Model 110-3614A Zone Interface Unit (ZIU) PCB shall be required for each group of up to 32 patient, staff/duty, and independent non-audio stations, or for each predetermined zone of coverage by a master station. Each card cage shall accommodate up to six ZIUs. The total number of ZIUs shall not exceed the combination of 20 nodes distributed among all card cages of a networked system with a single file server.

One or more ZIUs can be associated with a single autotrol/amplifier, dependent on the normal station coverage and the number of master stations. When area paging or all audio paging via the remote speaker stations is required, a maximum of 20 stations per ZIU shall be allowed and each ZIU shall require a separate autotrol/amplifier.

The ZIU shall have LED indicators that continuously indicate its operational status including:

ERROR	Operational fault-processor in reset
POWER	Zone power status
SERVICE	Communications status to system
TXD	Data to stations (zone)
RXD	Data from stations (zone)
TALK	Audio communications link to stations

- c. One Dukane Model 110-3616A Master Station Interface Unit (MIU) PCB shall be required for each base master station. Each card cage shall accommodate up to six MIUs. The total number of MIUs shall not exceed the combination of 20 nodes distributed among all card cages of a networked system with a single file server. To maximize the system response time, a maximum of four MIUs shall be connected to base master stations that are associated with supplemental video displays.

The MIU shall have LED indicators that continuously indicate its operational status including:

ERROR	Operational fault-processor in reset
LO BATT	Low battery (memory cell)
SERVICE	Communications status to system
TXD	Data to master station
RXD	Data from master station
TALK	Audio communication link to system

- d. One Dukane Model 110-3628B Telco Station Unit (TSU) PCB shall be provided for each audio amplifier/talkback control unit, to allow remote answering of calls through a standard DTMF telephone system with or without an optional wireless telephone network. Each Telco PCB shall be connected as an analog station to the local telephone switching equipment, which shall have the capability to provide calling party release and station hunt.

(Engineers' Specifications)

The Telco shall have LED indicators that continuously indicate its operational status including:

ERROR	Operational fault-processor in reset
POWER	Telco PCB power status
SERVICE	Communications status to system
TALK	Connection status to PABX
IN-USE	Link in use

A RELEASE pushbutton shall be provided to override the telephone switch's disconnect function and the system's timeout period.

- e. A Dukane Model 110-3609 Network Expander (NE) PCB shall be provided and installed in each cabinet of systems with more than one cabinet. A screw-type, front-mount plug-in connector shall be provided for interconnection with other cabinets.
 - f. Model 438-735 Blank Panels of matching design and color shall be provided to fill any slot not occupied by a functional PCB.
5. One Dukane Model 110-2250A Autotrol/Amplifier Module shall be provided and installed for each base master station, and/or for each combination of one or more ZIUs, as needed to provide the required number of simultaneous conversation paths. Each equipment cabinet shall accommodate up to six amplifier/talkback units. The amplifier shall provide 3 watts of balanced 25V output with a frequency response of +0dB to -3dB from 270 to 6,200Hz. The input sensitivity shall be 0.14Vrms, +/-3dB for full output at 1kHz. Separate controls shall be provided to individually adjust incoming and outgoing levels, and the talk and listen response times.
 6. One Dukane Model 110-3650 Autotrol/Amplifier Module shall be provided and installed in place of the 110-2250A for each master station (MIU), and/or for each station zone (ZIU), when audio paging is required. The amplifier shall provide 15 watts of balanced 25V output with equal frequency response, input sensitivity, and controls to that of the 110-2250A.
 7. Provisions shall be made for attaching a surface- or flush-mounted cover to the central equipment cabinet. The cover shall have a locking, hinged front door that allows access to the PCBs and their respective controls without removing the cover.
 8. The 12A3605 and combinations shall be Listed by UL Standard for Safety, UL 1069, and the appropriate Canadian requirements and cUL standards, by Underwriters Laboratories Inc.

**Associated
Equipment**

Model 4A3610B
Base Master Station

Model 17A355B or 17B355B (110-2170A)
Power Supply

Model 110-2170A
Auxiliary Power Supply

Model 110-3610
Flush Cover/Door

Model 110-3620
Surface Cover/Door