Aristel Networks

AV16/24

INSTALLATION GUIDE

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System Installation Manual
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Introduction

- **Installation of this equipment must be carried out in full compliance with applicable ACA installation and cabling standards.**
- This manual details the specific installation procedures for the Omni AV-16 and the AV-24 Key Electronic Telephone System. Reading of this entire manual is recommended prior to installation.

Site Requirement

- The Key System Unit (KSU) should be installed in a clean, dry and secure location accessible only by authorised personnel. The location must have adequate ventilation and a temperature range within 0 ~ 45°C with a 10 ~ 95% non-condensing relative humidity.
- The installation site should have sAVficient room to mount the KSU on a wall, along with the necessary connecting blocks and ancillary equipment. The installation site should not be in areas subject to static electricity (eg dry copiers), or vibration (eg heavy machinery).
- It is the customer's responsibility to provide a dedicated outlet with (240VAC/50Hz) and a 10 Amp circuit. A separate earth is required in addition to the third earth wire on the AC circuit. If a music source or optional external paging equipment is installed it must be connected to an AC circuit separate to the system's dedicated AC line. **ONLY THE KSU SHOULD BE CONNECTED TO THE DEDICATED AC OUTLET**.

Equipment Requirements

- Prior to installation carefully inspect all packages for evidence of damage and compare the equipment received against equipment ordered to ensure ALL components have been received.
- The following materials are required for installation:
  - 25-pairs Amphenol cable with male connector at one end for termination on to Krone frame/blocks.
  - Two-pairs or three-pairs (for OHCA station) twisted station cable.
  - Earthing wire (14 AWG).
  - Appropriate mounting hardware.

Power Supply and KSU Installation

- Check the KSU installation layout (Fig. 1.1) before positioning the KSU
- Attach the KSU in the designated position using appropriate fasteners.
- A surge protector should be installed at the dedicated AC point.
- Connect 25-pairs male Amphenol cable to KSU and terminate the other end of the cable to Krone frame using standard colour codes.
- Connect CO lines, as required, using RJ12 jacks into CN1 ~ CN4, as per diagram.
- If required, connect fax machine to CN5, Power Fail Phone to CN6 and SLT phones to CN7.

Key Site Unit Installation Layout

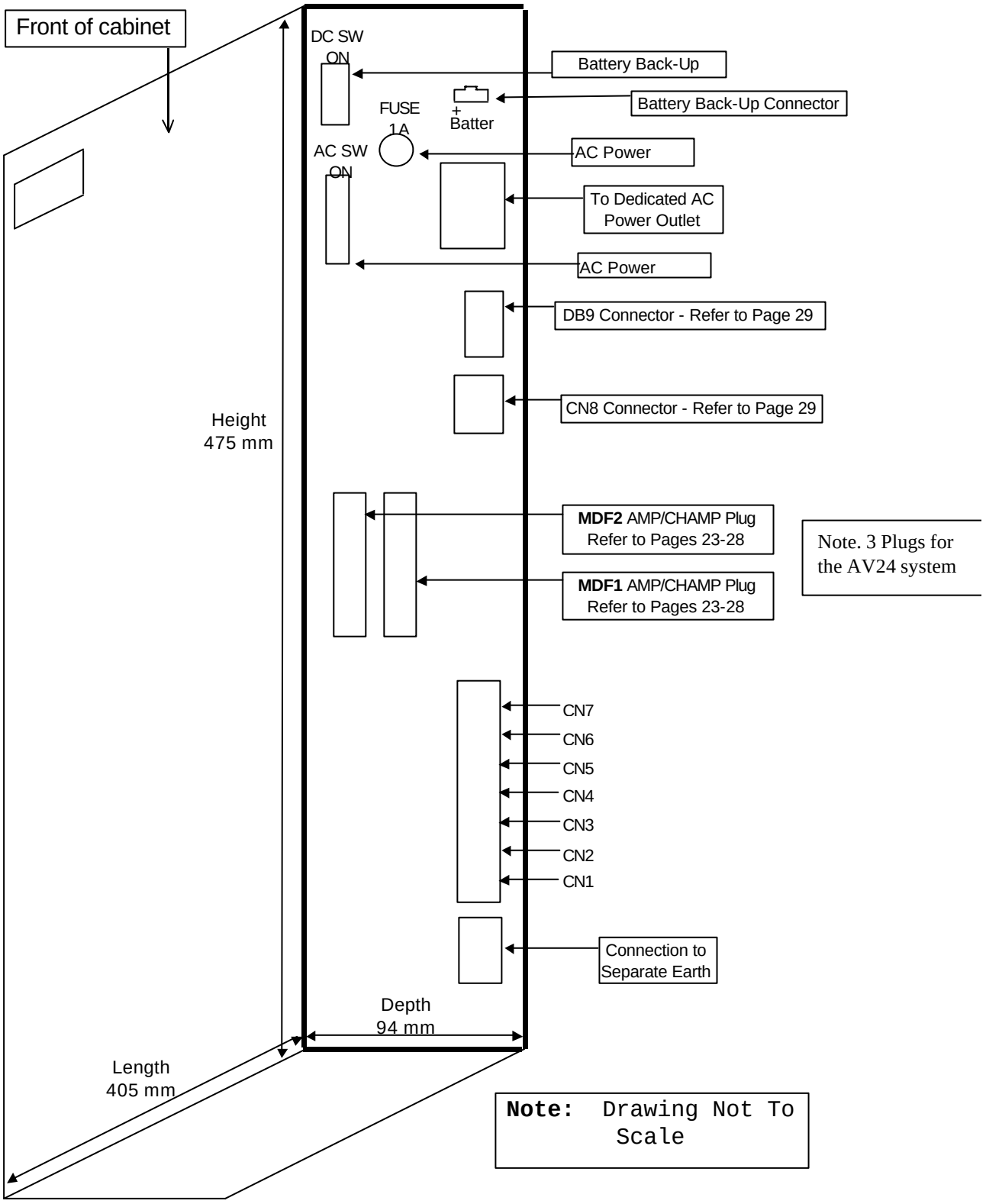


Fig. 1-1. KSU Installation Layout

System AC Power: 240 VAC, 50Hz 10A

System Inter-Circuit Layout

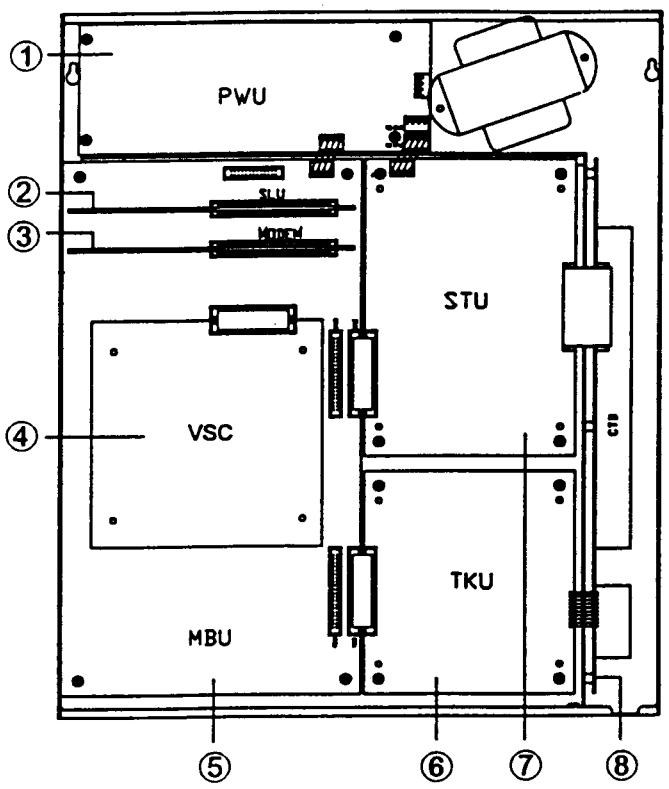


Fig. 1-3. System Inter-Circuit Layout

1. A1PWUB (Power Unit)
2. A1SLCA (Ring Generator or Card)
3. A1RPCA (Remote Programming Card) or A1RSCA (RS232 Card)
4. A1VSCA (Voice Service Card)
5.A1/A5MBUB (Mother Board)
6.A1TKUA (Trunk Unit)
7.A1STUB (Station Unit)
8.A1CTBA (Clip Terminal Block)

PCB Module Layout

- **A1 PWUB (Power Unit)**

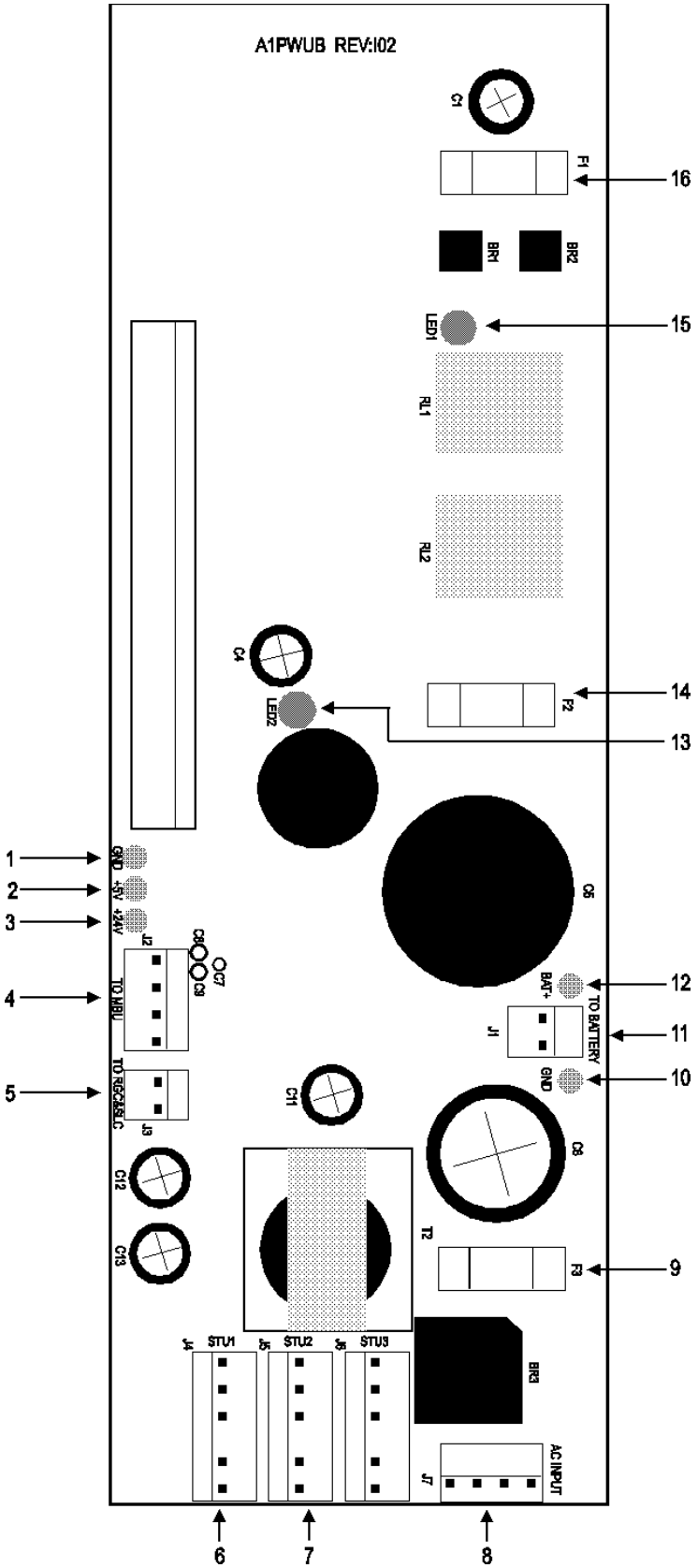


Fig. 1-4. A1PWUB Module

Explanation of A1PWUB Symbols

1. **GND** : Testing point for digital ground.

2. **+5V** : Testing point for +5Vdc output.

3. **+24V** : Measuring point for +24 Vdc output.

4. **J2** : Connect to A1/A5MBUB.

5. **J3** : Connect to RGC (Ring Generator Card) or SLC (Single Line Telephone Card).

6. **J4** : Connect to the first Station Card.

7. **J5** : Connect to the second Station Card.

8. **J7** : Connect to AC transformer (240 Vac input).

9. **F3** : Fuse 3, for +5Vdc/+24Vdc protection; 3.15 Amp/250V, fast type.

10. **GND** : Testing point for digital ground.

11. **J1** : Connect to System Back-up Battery.

12. **Bat** : Testing point for battery charge voltage (+24Vdc).

13. **LED2** : Indicates +5Vdc is in use when LED2 is ON.

14. **F2** : Fuse 2 is for Polarity Reserve protection when system back-up battery is installed in reverse; 5 Amp/250V, Delay type.

15. **LED1** : Indicates System Back-up Battery is in use when LED1 is ON.

16. **F1** : Fuse 1 is for System Back-up Battery Loop Protection; 0.5 Amp/250V Fast type.

- A1/A5MBUB (Mother Board)

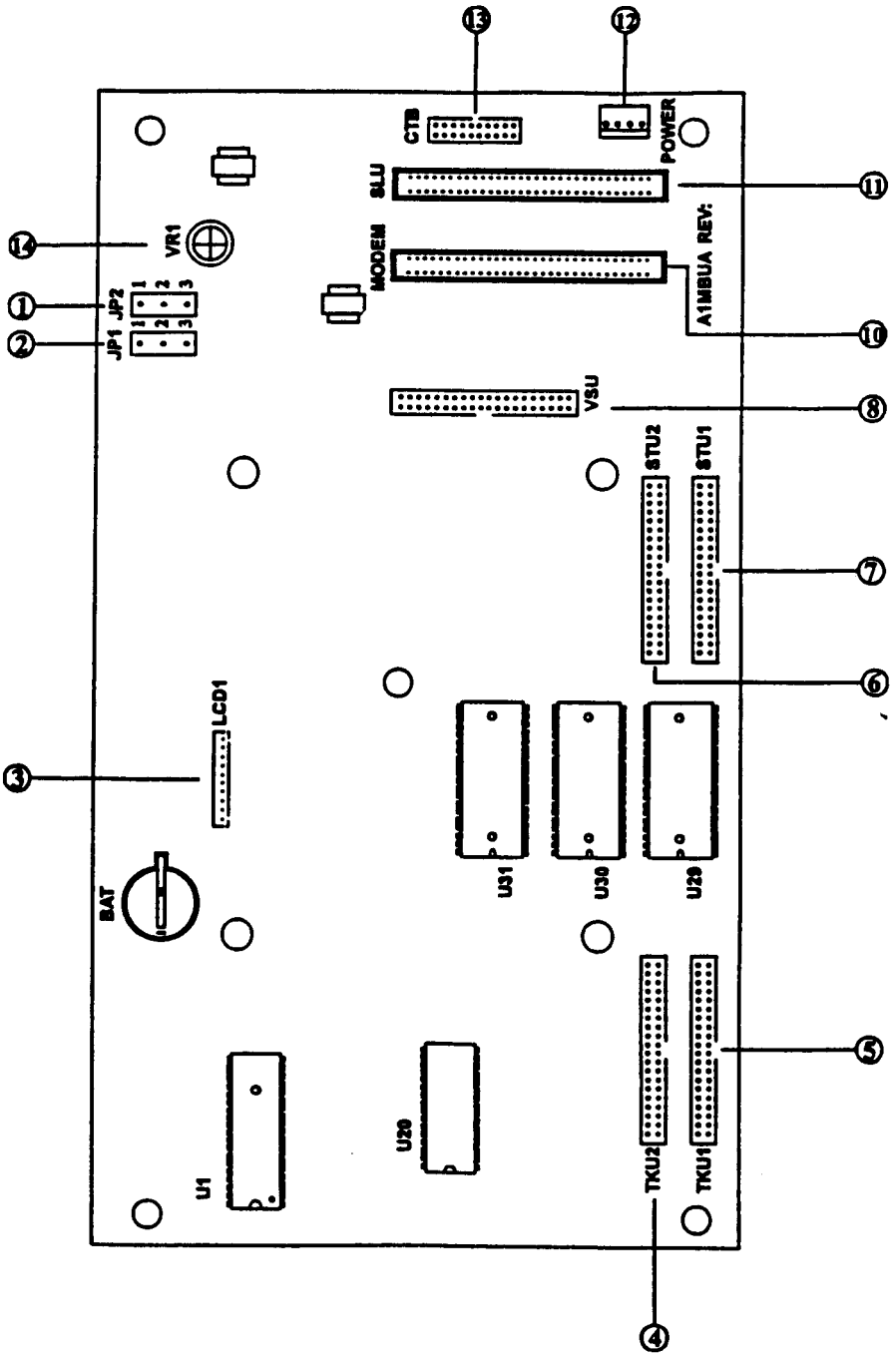
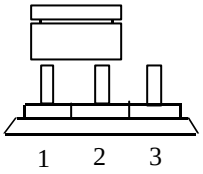


Fig. 1-5. A1/A5MBUB Module Layout

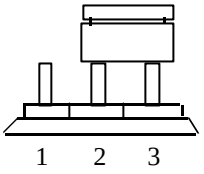
Note: Remove tag from battery to activate system memory backup.

Explanation of A1/A5MBUB Symbols

1. **JP2** : Back Ground Music (BGM)

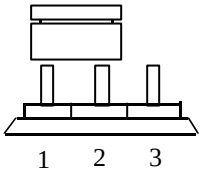


Music from internal

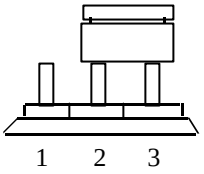


Music from external

2. **JP1** : Music On Hold (MOH)



Music from internal



Music from external

3. **LCD1** : LCD connector; used by engineer to connect LCD display for software data monitoring.

4. **TKU2** : For the second A1TKUA (CO 5 to CO 8) installation.

5. **TKU1** : For the first A1TKUA (CO1 to CO4) installation.

6. **STU2** : For the second A1STUB (ST19 to ST26) installation, or A1SLUB or A1HYUB.

7. **STU1** : For the first A1STUB (ST11 to ST18) installation. or A1SLUB or A1HYUB.

8. **VSU** : For A1VSCA (Voice Service card) installation.

10. **MODEM** : For A1RPCA (Remote Programming Card) installation.
    Or
    RS232 : For A1RSCA Installation

11. **SLU** : For A1SLCA (Single Line Card) installation, or A1RGCB if A1SLUB OR A1HYUB is installed.

12. **POWER** : For A1PWUB (Power Unit) installation.

13. **CTB** : For A1CTBA (Clip Terminal Block) installation.

14. **VR1** : Volume Level adjustment for the internal music source.

- **A1STUB (Station Unit)**

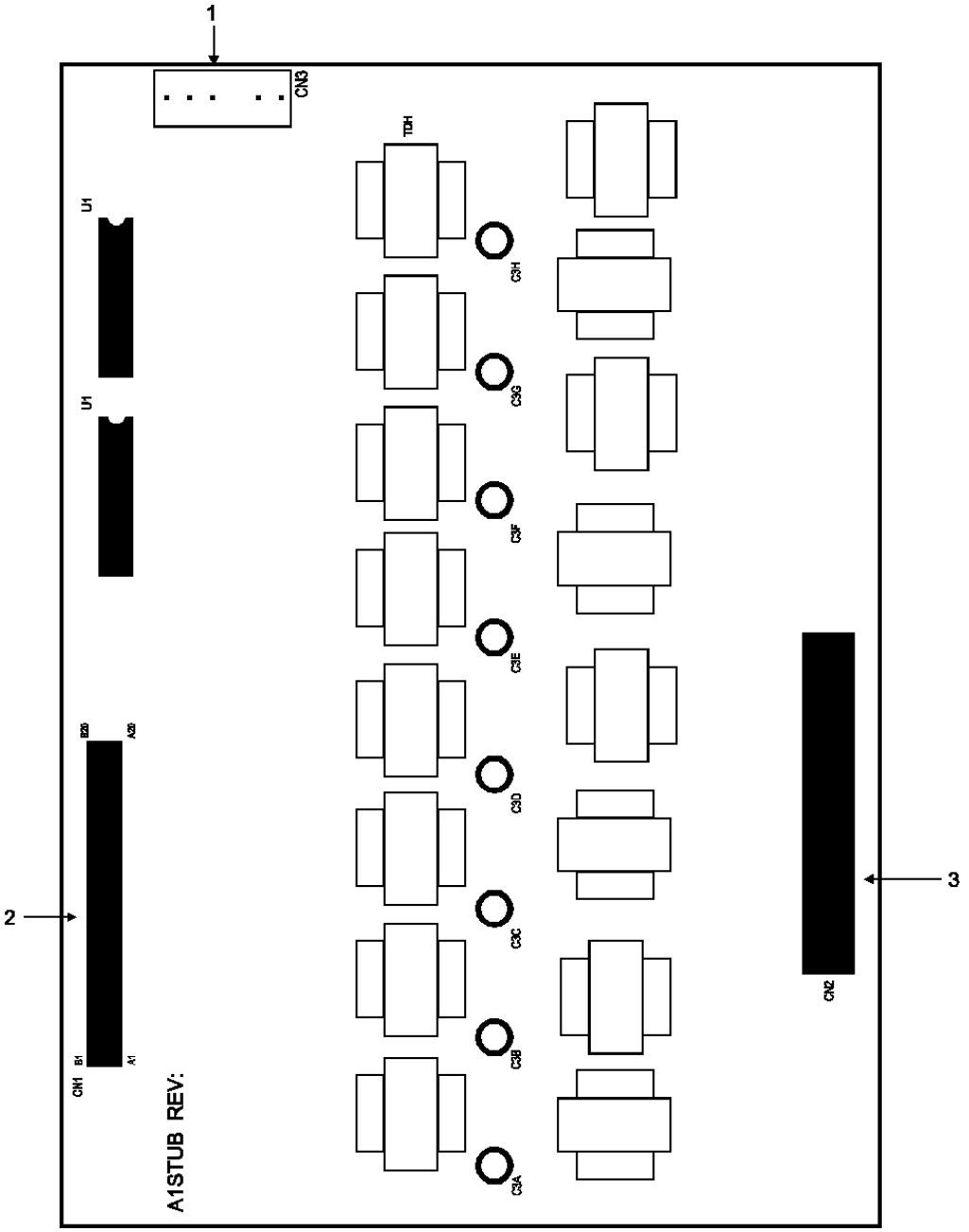


Fig 1-6. A1STUB Module Layout

Explanation of A1STUB Symbols

1. **POWER** : Connect to A1PWUB
2. **CN1** : Connect to A1MBUB.
3. **CN2** : Connect to A1CTBA.

■ A1TKUA (Trunk Unit)

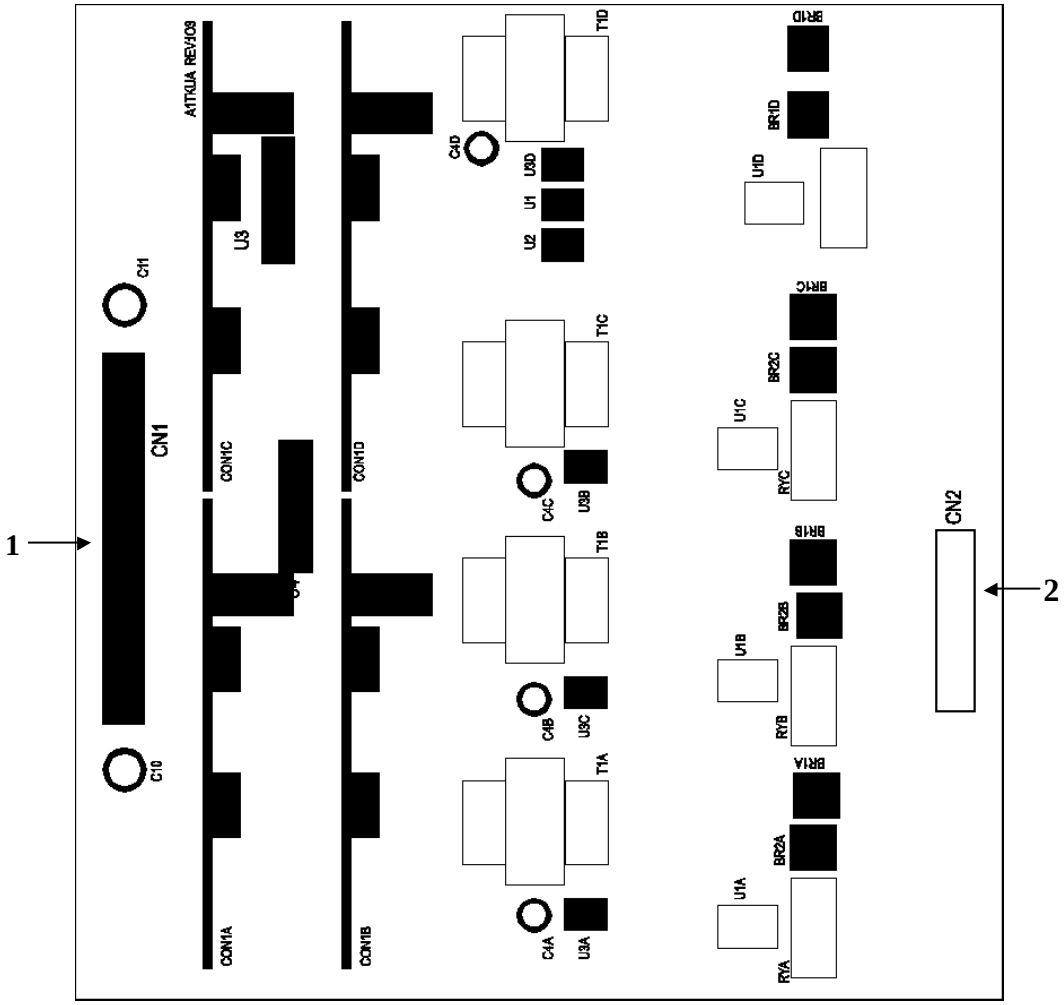


Fig. 1-7. A1TKUA Module Layout

Explanation of A1TKUA Symbols

1. **CN1** : Connect to A1MBUB.
2. **CN2** : Connect to A1CTBA.

■ A1SLCA (Single Line Card)

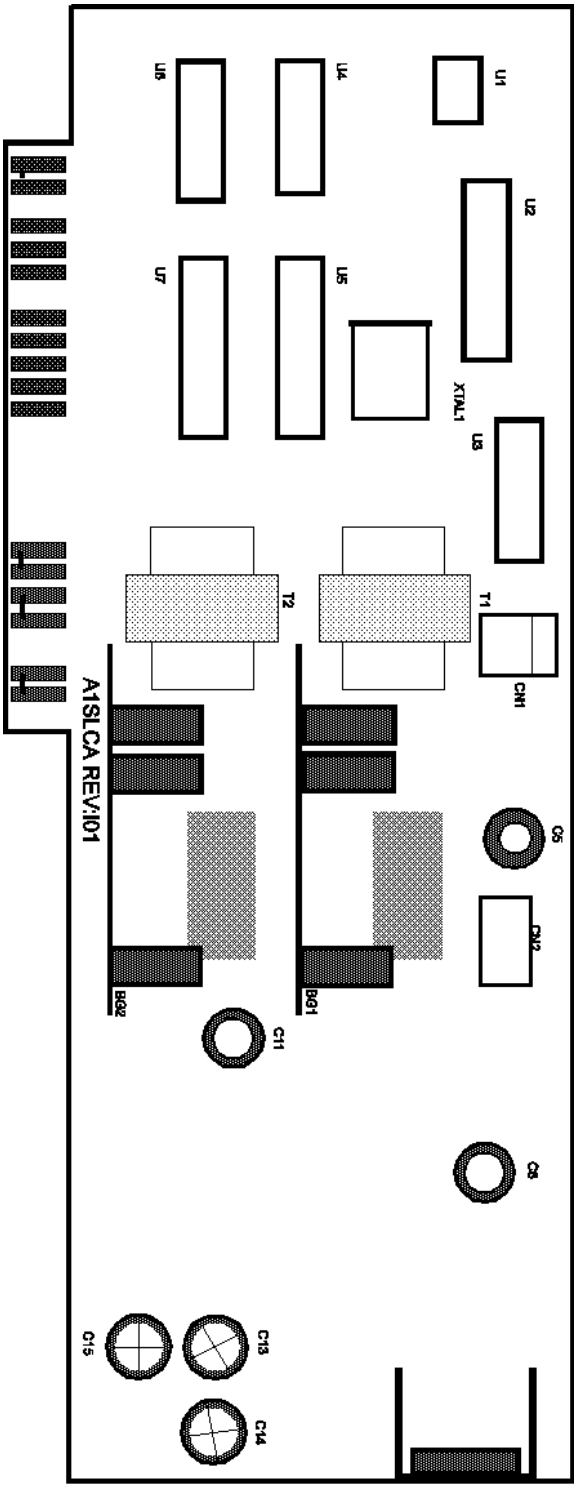


Fig. 1-8. A1SLCA Module Layout

CN1 : Connect to A1PWUB
CN2 : Connect to A1CTBA

■ A1VSCA (Voice Service Card)

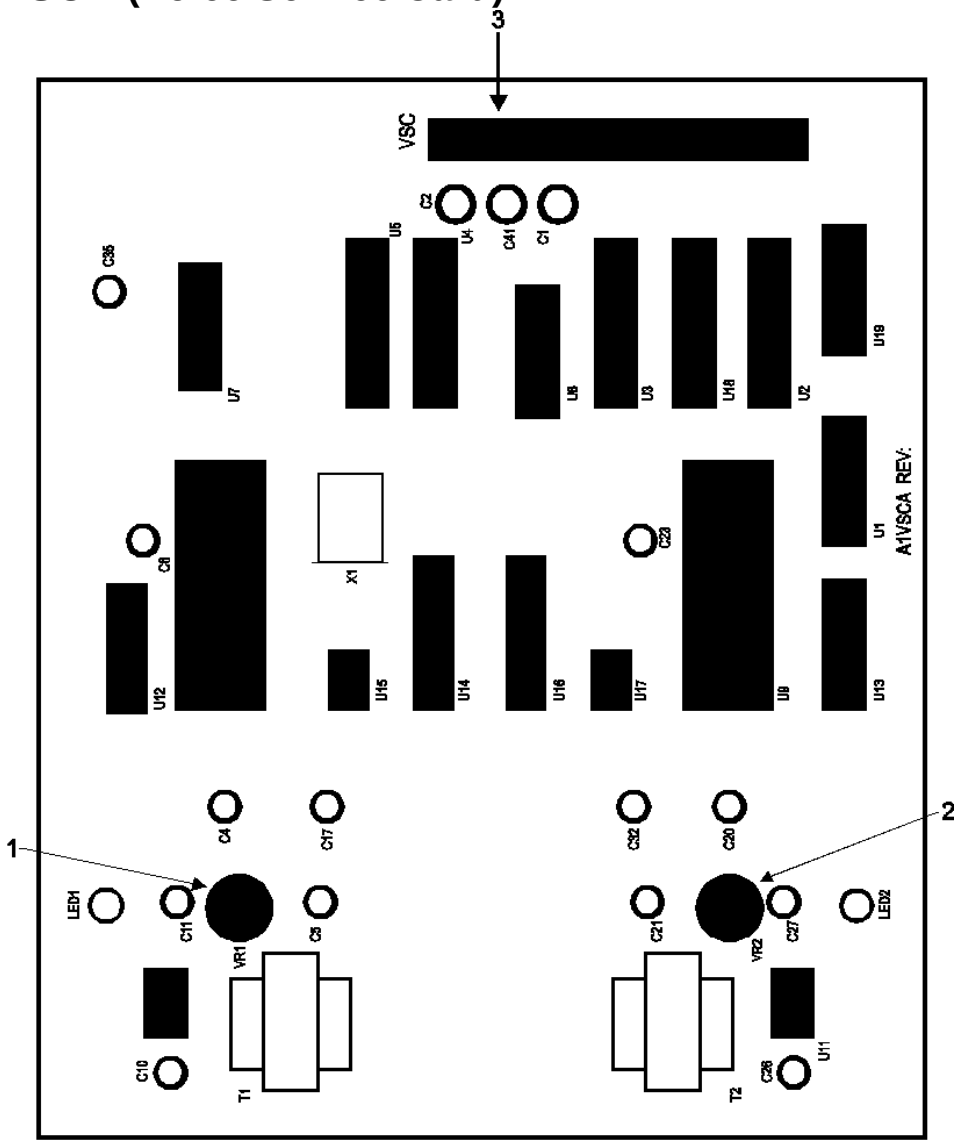


Fig. 1-9. A1VSCA Module Layout

Explanation of A1VSCA Symbols

1. **VR1**: Volume Level Adjustment for replaying first voice channel
2. **VR2**: Volume Level Adjustment for replaying second voice channel
3. **VSC**: Connect to A1MBUB.

■ AKPMA (Key Phone Main Board)

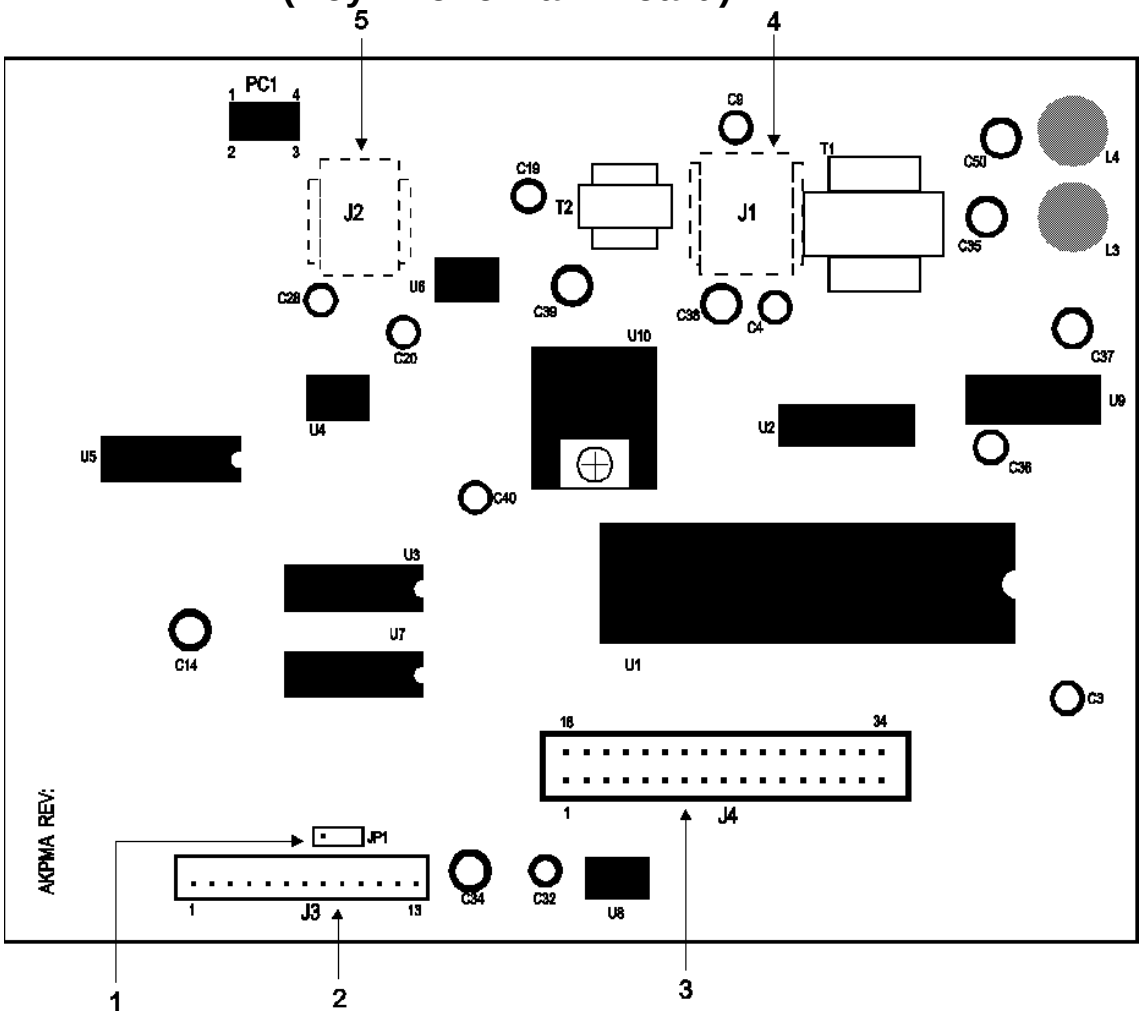
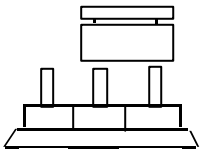


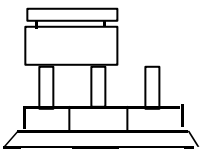
Fig. 1-10. AKPMA Module Layout

Explanation of AKPMA Symbols

1. **JP1** : Handsfree function selection.



Without Handsfree function
(When AHFBA is not installed)



With Handsfree function
(When AHFBA is installed)

2. **J3** : Connect to AHFBA.
3. **J4** : Connect to AKPBA.
4. **J1** : Connect 6p4c (or 6p6c) Line Cord to the System's Station Port.
5. **J2** : Connect 4p4c Spring Cord to Handset.

■ A1SLUB (8 Analogue Extension Card)

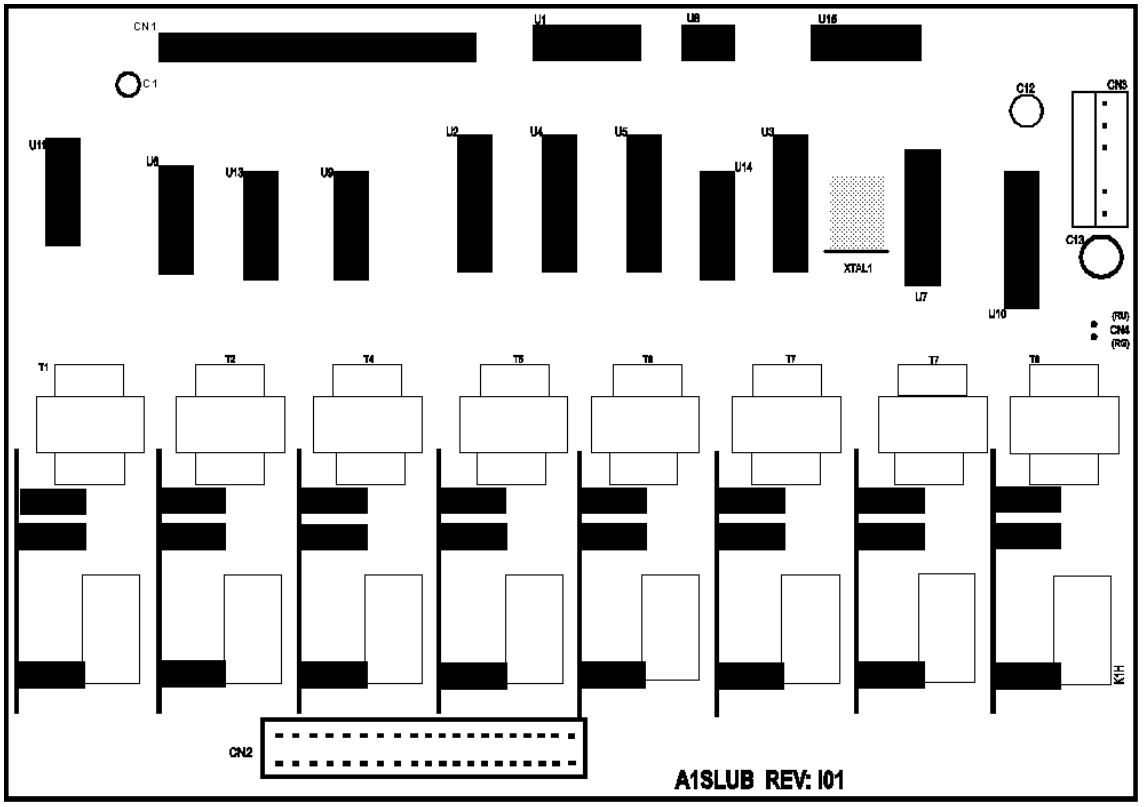


Fig. 1-11. SLUB Module Layout

1. **CN1** : Connect to A1MBUB
2. **CN2** : Connect to A1CTBA
3. **CN3** : Connect to A1PWUB
4. **CN4** : Connect to CN3 or CN4 on A1RGCB

■ A1RSCA (Local Programming/SMDR Card)

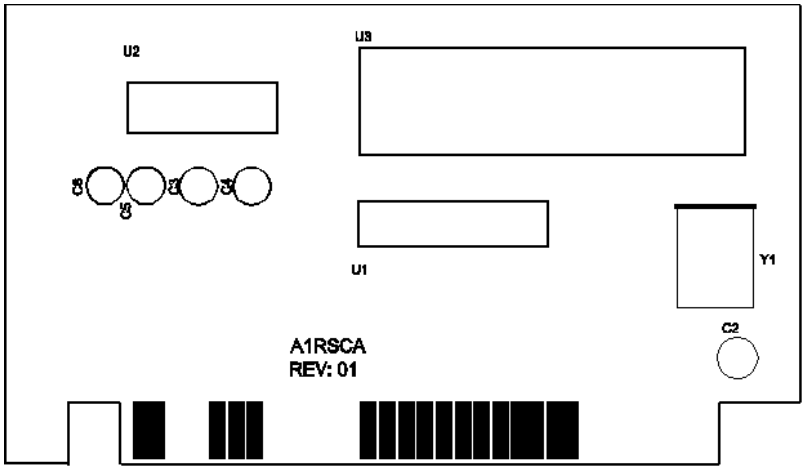


Fig. 1-12. RSCA Module Layout

Plug in to RS232 Slot
Components face up
Use SMxx Software

■ A1RPCA (Remote Programming Card)

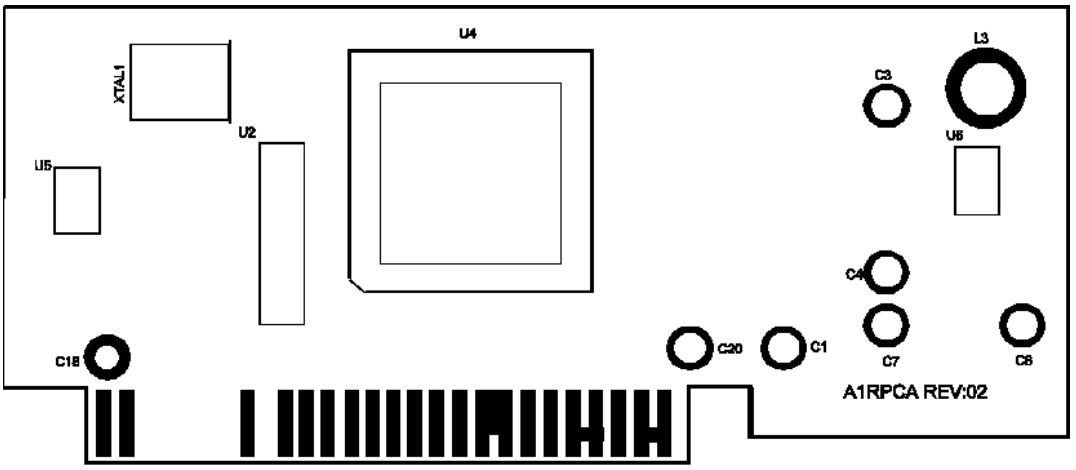


Fig. 1-13. RPCA Module Layout

Plug in to Modem (AV24) or RS232 (AV16) Slot
Components face up
Use SMxx Software

■ A1RGCB (Ring Generator Card)

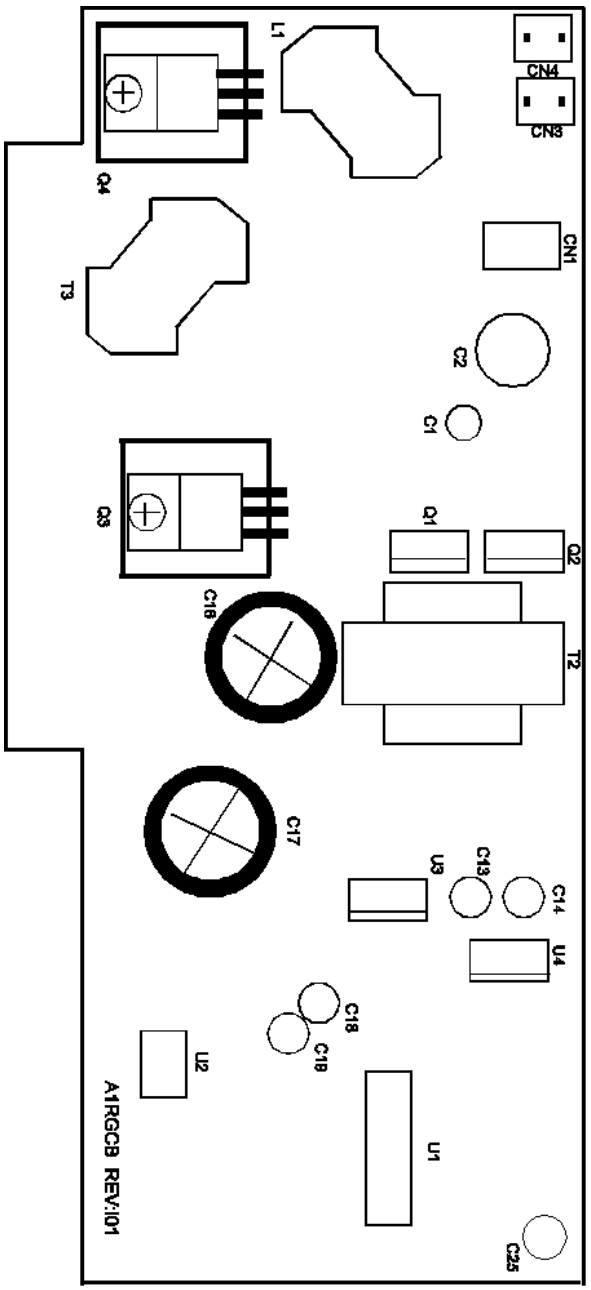


Fig. 1-14. RGCB Module Layout

CN1 : Connect to A1PWUB
CN2, CN3, CN4 : Connect to A1HYUB or A1SLUB

■ A1HYUB (Hybrid Card - 6 Analogue 2 Key)

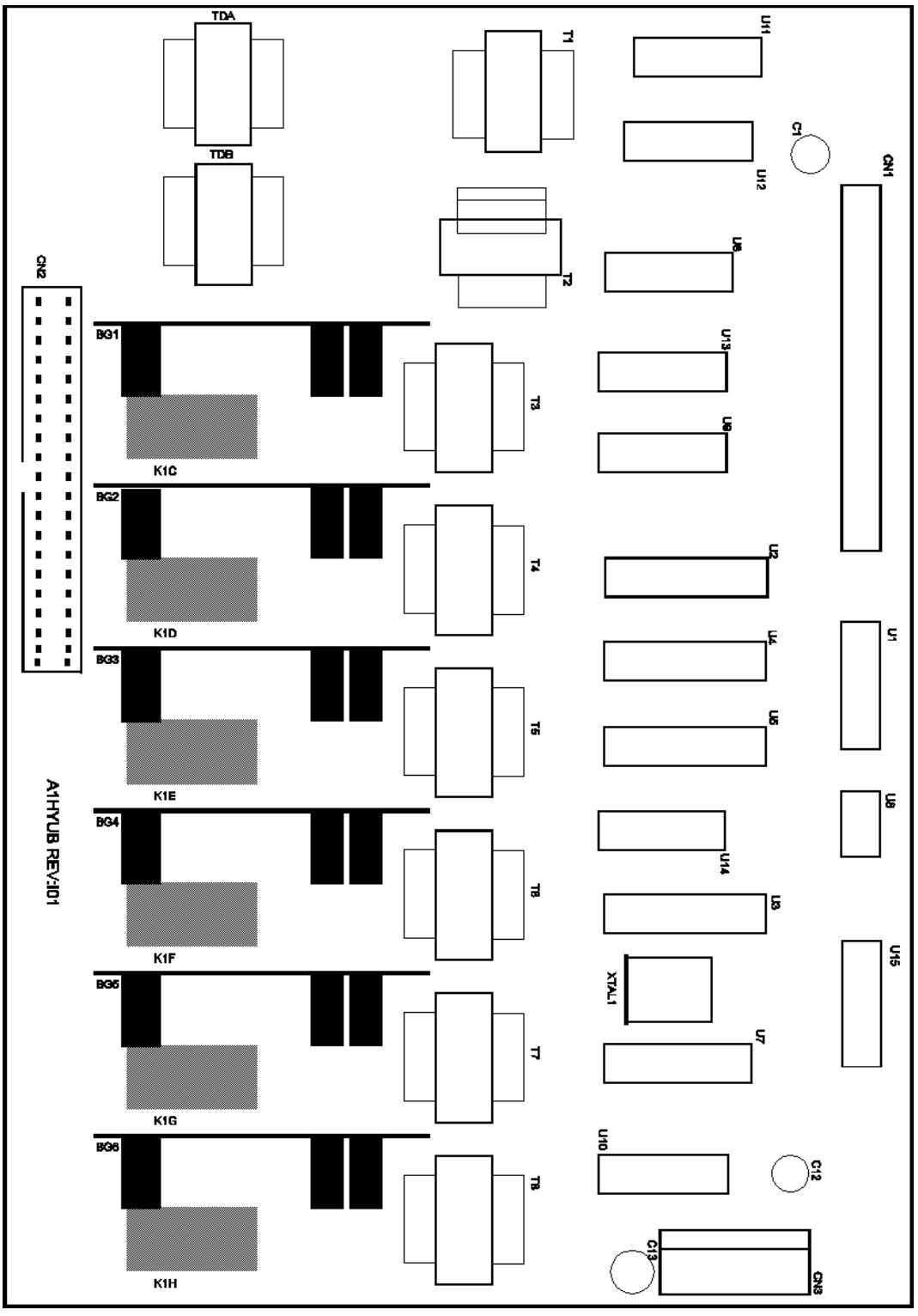


Fig. 1-15. HYUB Module Layout

1. **CN3** : Connect to A1PWUB
2. **CN4** : Connect to A1RGCB
3. **CN1** : Connect to A1MBUB
4. **CN2** : Connect to MDF1 or MDF2

Installation and Wiring

System Wall Mounting Installation

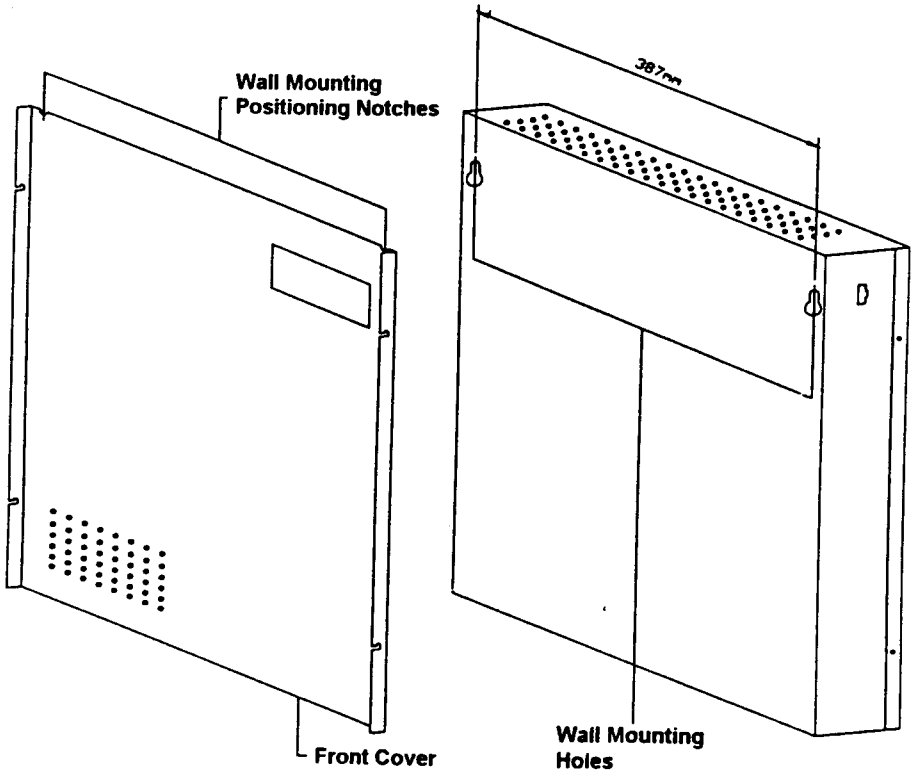


Fig. 1-16. System Wall Mount Layout

- Remove the system front cover.
- Use the two notches at the top of the front cover to mark the position on the wall where unit is to be mounted.
- Drive appropriate mounting screws into wall, according to marked positions.
- Suspend *AV*-16/24 system on the wall by matching the mounting holes on the back cover to the screws.

Warning. Some brick/concrete walls may sweat or leak so an appropriate backing board may be required to mount the system on.

■ Facsimile Connection

The AV-16/24 system can support a maximum of two FAX machines connected via the CN5 FAX connector. When using this point for connection the following should be noted.

1. The CN5 connection is for an RJ12 6P-6C connector using contacts 3 (FAX1T) and 4 (FAX1R) for the first FAX machine and contacts 1 (FAX2T) and 6 (FAX2R) for the second FAX machine. Refer to diagram on Page 22.
   Note: Contacts 2 and 5 are not connected.

2. FAX1T and FAX1R points connect across the CO Line 4 input and FAX2T AND FAX2R points connect across the CO Line 8 input.
   Note: These points are not extensions but rather parallel connections across the CO lines concerned.

3. Programming Zone 220 (FAX MONITOR) should be set to 1 to enable this feature. With this feature set, the system monitors lines 4 and 8 as applicable and will deny access to them by a phone user if the FAX machine has the line looped.

4. Incoming ring assignment (Zones 600/601) should be set so that no handsets ring on the fax line/s. The FAX machine will recognise the ring on the incoming line and answer it.

If preferred, FAX machines can be installed as analogue extensions and therefore installation is as per a normal SLT.

■ Power Fail Telephone (PFT) Connection

Two Single Line Telephones (SLT) can be connected to a AV-16/24 system for use during power failure situations These phones are connected to CN6.

The CN6 connection is for an RJ12 6P-6C connector using contacts 3 (PFT1T) and 4 (PFT1R) for the first PFT and contacts 1 (PFT2T) and 6 (PFT2R) for the second PFT. Refer to diagram on Page 22.
Note: Contacts 2 and 5 are not connected.

Under normal operation this output is isolated by relay contacts and therefore an SLT connected to CN6 will have no dial tone. In the event of the system loosing power these relay contacts close to complete the circuit for the PFTs to operate as a normal phone.

Note: When connection is made to the PFT CO 1 is fed to PFT 1 and CO line 2 is fed to PFT 2

System Back-up Battery Installation

- **External Cabling Connection**: Connect 2 wires cables (**Male Connector** from the Battery) to the System Battery Back-up **Female Connector** in **Fig. 1-14**.

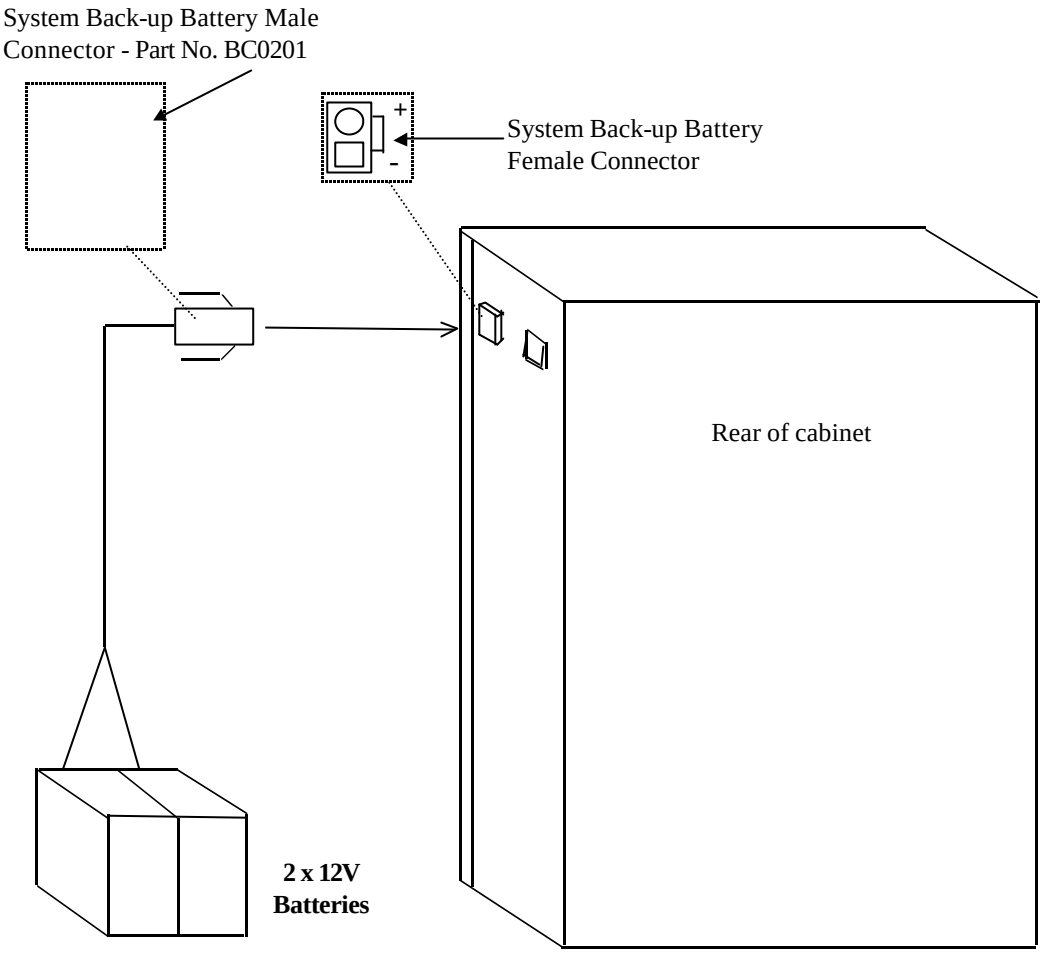
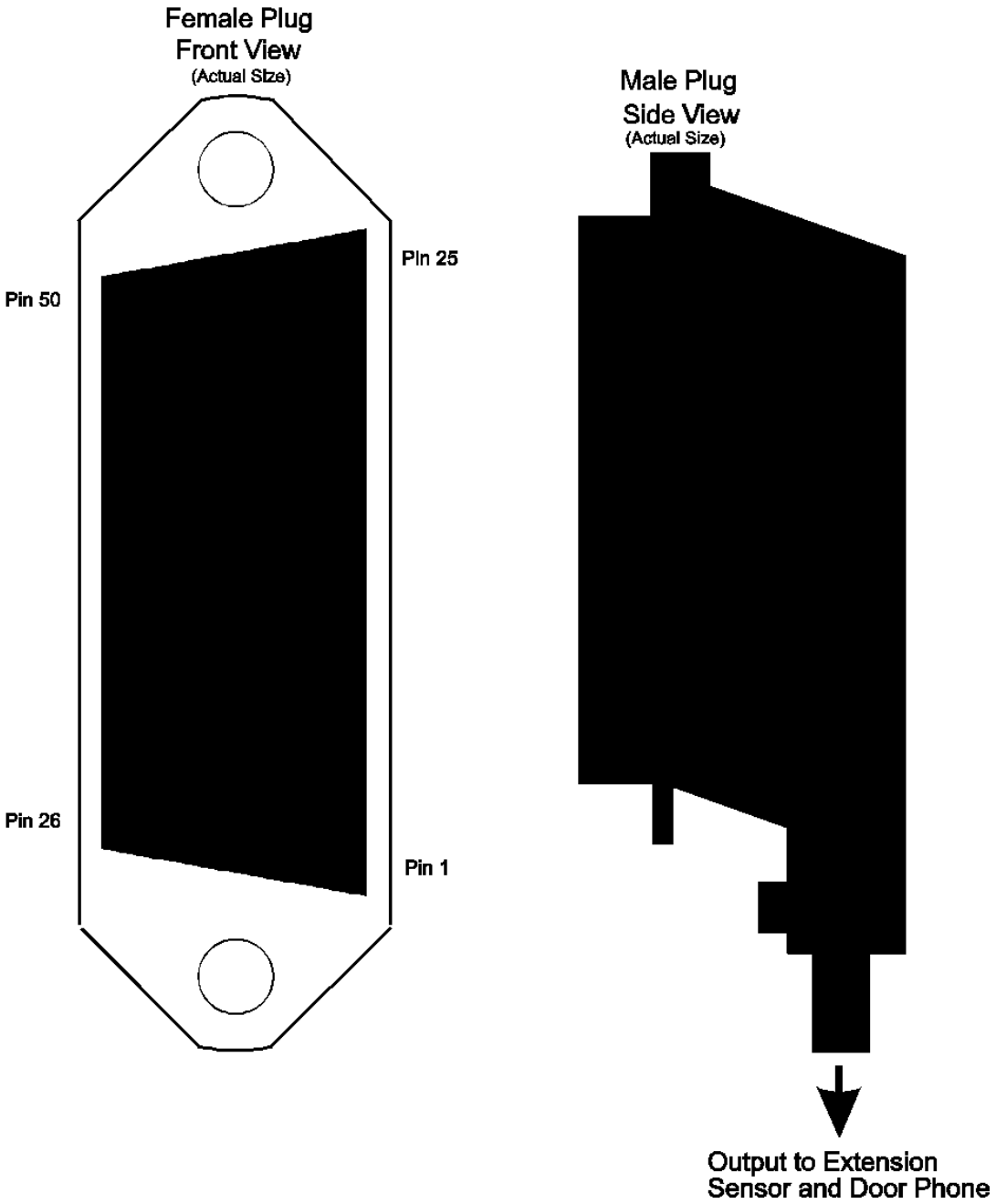
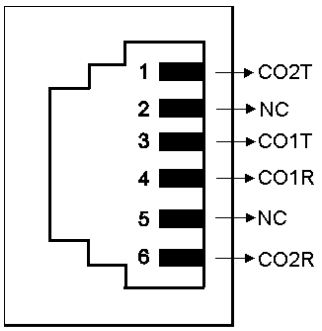


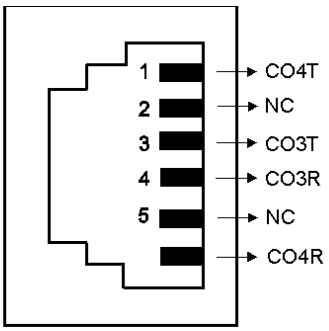
Fig. 1-17. Battery Cabling Connection Layout

MAIN EQUIPMENT
CONNECTOR DATA

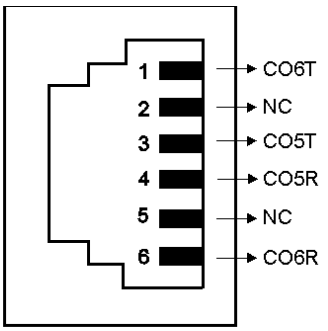




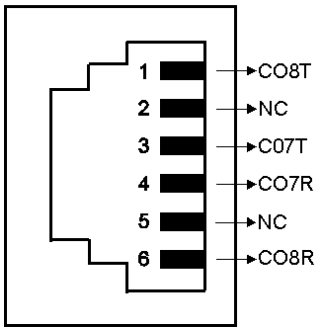
CN1



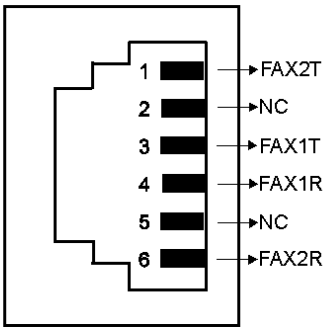
CN2



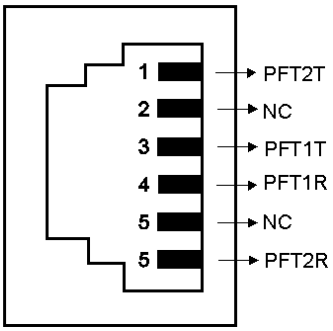
CN3



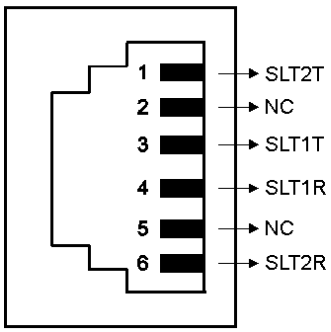
CN4



CN5



CN6



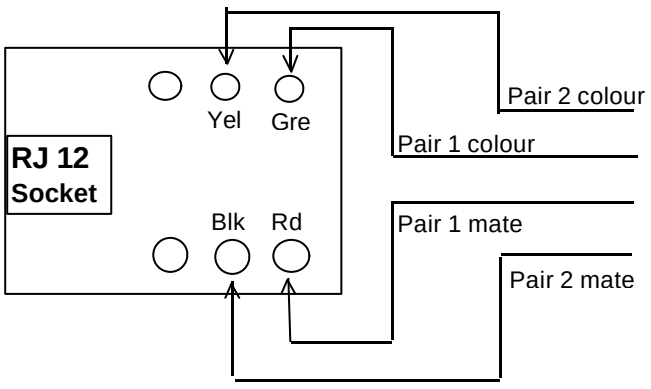
CN7

APPENDIX C
SOCKET CONNECTIONS

50 Pins (25 Pairs) Male Amphenol Connector Layout of MDF1 for A1STUB

Pair	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Pair 2 for STATION 1
Pair 3	Pair 1 for STATION 2
Pair 4	Pair 2 for STATION 2
Pair 5	Pair 1 for STATION 3
Pair 6	Pair 2 for STATION 3
Pair 7	Pair 1 for STATION 4
Pair 8	Pair 2 for STATION 4
Pair 9	Pair 1 for STATION 5
Pair 10	Pair 2 for STATION 5
Pair 11	Pair 1 for STATION 6
Pair 12	Pair 2 for STATION 6
Pair 13	Pair 1 for STATION 7
Pair 14	Pair 2 for STATION 7
Pair 15	Pair 1 for STATION 8
Pair 16	Pair 2 for STATION 8
Pair 17	Not Connected
Pair 18	Not Connected
Pair 19	Sensor 1
Pair 20	Sensor 2
Pair 21	External Music
Pair 22	External Page
Pair 23	Door 1
Pair 24	Door 2
Pair 25	Not Connected

The above pairs refer to the standard colour coding as they appear when terminated on Krone frames.

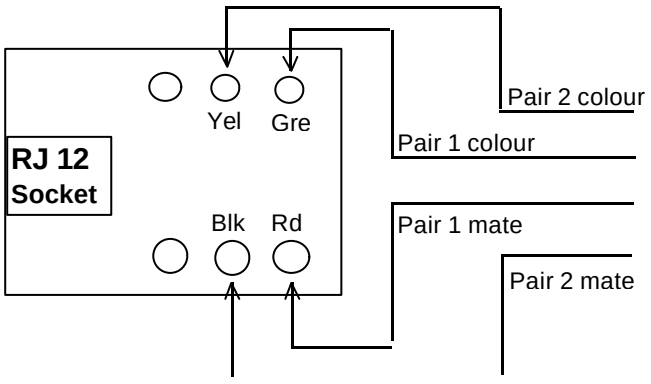


Socket Wiring Diagram for Key Station

50 Pins (25 Pairs) Male Amphenol Connector of MDF2/3 for A1STUB

	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Pair 2 for STATION 1
Pair 3	Pair 1 for STATION 2
Pair 4	Pair 2 for STATION 2
Pair 5	Pair 1 for STATION 3
Pair 6	Pair 2 for STATION 3
Pair 7	Pair 1 for STATION 4
Pair 8	Pair 2 for STATION 4
Pair 9	Pair 1 for STATION 5
Pair 10	Pair 2 for STATION 5
Pair 11	Pair 1 for STATION 6
Pair 12	Pair 2 for STATION 6
Pair 13	Pair 1 for STATION 7
Pair 14	Pair 2 for STATION 7
Pair 15	Pair 1 for STATION 8
Pair 16	Pair 2 for STATION 8
Pair 17	Not Connected
Pair 18	Not Connected
Pair 19	Not Connected
Pair 20	Not Connected
Pair 21	Not Connected
Pair 22	Not Connected
Pair 23	Not Connected
Pair 24	Not Connected
Pair 25	Not Connected

The above pairs refer to the standard colour coding
as they appear when terminated on Krone frames.

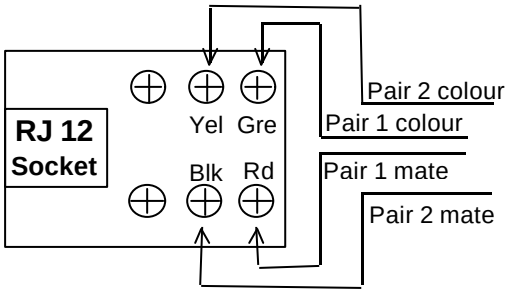


Socket Wiring Diagram for Key Station

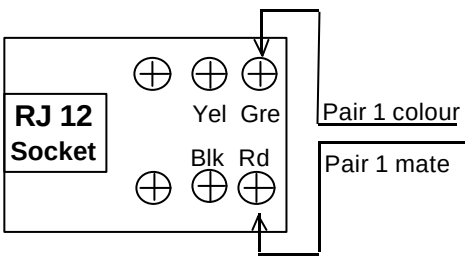
50 Pins (25 Pairs) Male Amphenol Connector of MDF1 for A1HYUB

	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Pair 2 for STATION 1
Pair 3	Pair 1 for STATION 2
Pair 4	Pair 2 for STATION 2
Pair 5	Not Connected
Pair 6	Not Connected
Pair 7	Pair 1 for STATION 3
Pair 8	Not Connected
Pair 9	Pair 1 for STATION 4
Pair 10	Not Connected
Pair 11	Pair 1 for STATION 5
Pair 12	Not Connected
Pair 13	Pair 1 for STATION 6
Pair 14	Not Connected
Pair 15	Pair 1 for STATION 7
Pair 16	Not Connected
Pair 17	Pair 1 for STATION 8
Pair 18	Not Connected
Pair 19	Sensor 1
Pair 20	Sensor 2
Pair 21	External Music
Pair 22	External Page
Pair 23	Door 1
Pair 24	Door 2
Pair 25	Not Connected

The above pairs refer to the standard colour coding
as they appear when terminated on Krone frames.



For Stations 1 &



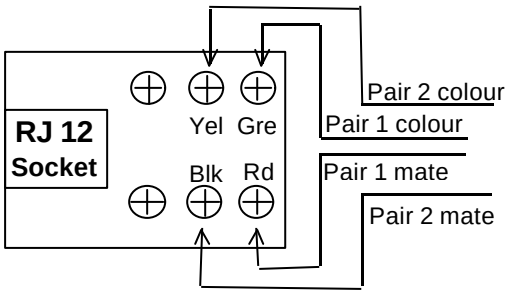
For Stations 3 to

Wiring diagram for socket provided with each

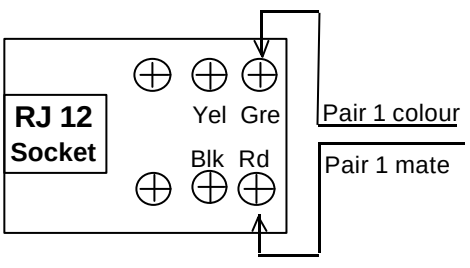
50 Pins (25 Pairs) Male Amphenol Connector of MDF2/3 for A1HYUB

Pairs	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Pair 2 for STATION 1
Pair 3	Pair 1 for STATION 2
Pair 4	Pair 2 for STATION 2
Pair 5	Not Connected
Pair 6	Not Connected
Pair 7	Pair 1 for STATION 3
Pair 8	Not Connected
Pair 9	Pair 1 for STATION 4
Pair 10	Not Connected
Pair 11	Pair 1 for STATION 5
Pair 12	Not Connected
Pair 13	Pair 1 for STATION 6
Pair 14	Not Connected
Pair 15	Pair 1 for STATION 7
Pair 16	Not Connected
Pair 17	Pair 1 for STATION 8
Pair 18	Not Connected
Pair 19	Not Connected
Pair 20	Not Connected
Pair 21	Not Connected
Pair 22	Not Connected
Pair 23	Not Connected
Pair 24	Not Connected
Pair 25	Not Connected

The above pairs refer to the standard colour coding as they appear when terminated on Krone frames.



For Stations 1 &



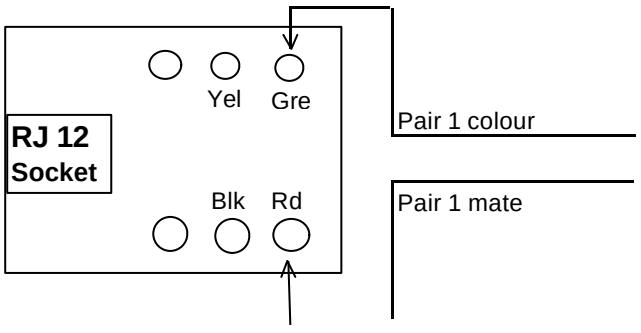
For Stations 3 to

Wiring diagram for socket provided with each

50 Pins (25 Pairs) Male Amphenol Connector of MDF1 for A1SLUB

Pair	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Not Connected
Pair 3	Pair 1 for STATION 2
Pair 4	Not Connected
Pair 5	Not Connected
Pair 6	Not Connected
Pair 7	Pair 1 for STATION 3
Pair 8	Not Connected
Pair 9	Pair 1 for STATION 4
Pair 10	Not Connected
Pair 11	Pair 1 for STATION 5
Pair 12	Not Connected
Pair 13	Pair 1 for STATION 6
Pair 14	Not Connected
Pair 15	Pair 1 for STATION 7
Pair 16	Not Connected
Pair 17	Pair 1 for STATION 8
Pair 18	Not Connected
Pair 19	Sensor 1
Pair 20	Sensor 2
Pair 21	External Music
Pair 22	External Page
Pair 23	Door 1
Pair 24	Door 2
Pair 25	Not Connected

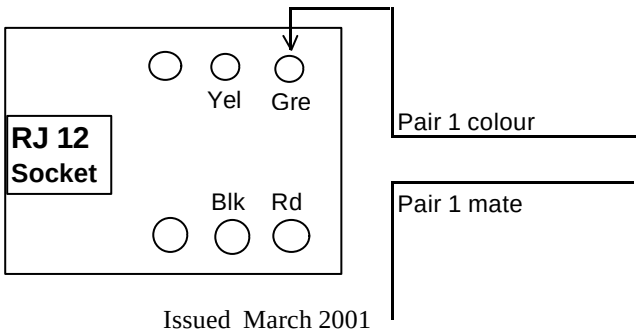
The above pairs refer to the standard colour coding as they appear when terminated on Krone frames.



50 Pin (25 Pairs) Male Amphenol Connector of MDF2/3 for A1SLUB

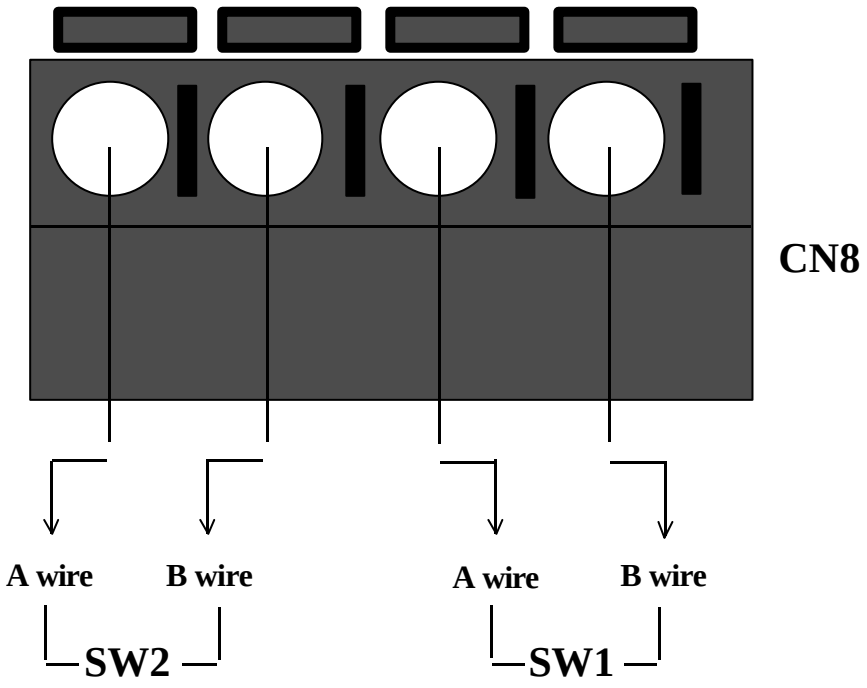
	Status
Pair 1	Pair 1 for STATION 1
Pair 2	Not Connected
Pair 3	Pair 1 for STATION 2
Pair 4	Not Connected
Pair 5	Not Connected
Pair 6	Not Connected
Pair 7	Pair 1 for STATION 3
Pair 8	Not Connected
Pair 9	Pair 1 for STATION 4
Pair 10	Not Connected
Pair 11	Pair 1 for STATION 5
Pair 12	Not Connected
Pair 13	Pair 1 for STATION 6
Pair 14	Not Connected
Pair 15	Pair 1 for STATION 7
Pair 16	Not Connected
Pair 17	Pair 1 for STATION 8
Pair 18	Not Connected
Pair 19	Not Connected
Pair 20	Not Connected
Pair 21	Not Connected
Pair 22	Not Connected
Pair 23	Not Connected
Pair 24	Not Connected
Pair 25	Not Connected

The above pairs refer to the standard colour coding
as they appear when terminated on Krone frames.



AV-16/24 Programming Cable Information

DB9 Connector	DB9 Connector
2	2
3	3
4	4
5	5
6	6



DOOR SWITCH