RM5000EX
OPERATIONS MANUAL

CRISIS ALERT

Contents

INTRODUCTION

The EX500 exchange processor is Crisis Alert Central Exchange. Subscriber cards for the RM5000 are used with this processor. One EX500 with one, two or three DP983 subscriber cards are monted in the first DP984 card rack for a capacity of 24 intercom stations. intercom stations. By adding a second DP984 card rack and additional LC500 subscriber cards the capasity can be increased from 24 to 56 intercom stations.
The EX500 has all of the features of the DXC910 .
The EX500 board includes a two wire data network (RS485) for connection of external annunciators (DAD104 or DS16), log-printer interface (DNA100), PC interface (DNA100) video switcher interface (DNA200). This data network has capacity of eight devices. All devices are connected in parallel on the data pair (star or loop). Each device must be given a different network address (dip switch programming). The EX500 sets its address on SW2, the DAD104 has the switches (S1) located on the back, the DNA100 has the switches (SW2) located on the front panel. A typical system may use address:
08 for the EX500
09 for the first DAD104
0A for the second DAD104
0D for the DNA200
0E for the DNA100 with a log-printer
0F for the DNA100 at the PC
(see the Network manual for setting network address).
The number of call digits are set by SW3 on the EX500 card and the Battery RAM must be reset after changing number of call digits. All other programming is done from the PC connected to the DNA100. The PC can run Terminal for Windows 3.11, Hyperterm for Windows 95/98, Procomm + or any other emulation software with VT100 emulation.
When the PC is first connected to the DNA100 the Status Display screen will be displayed. Press CTR X on the PC to go to the main menu and select 6 - COMMUNICATIONS LINK.
You will now be asked for a network address. Enter **08** to program the EX500 or **0D** to program the DNA200. The network will now set up a transparant link to the device that you want to program. See the apropriate device manual for programming details. Use the **SNA** command to associate an intercom station with a DAD104, printer or video monitor. Programming commands may be put in a text file in the PC and then uploaded to do the programming (> is the pace character).

The following manuals are available:
EX500, Crisis Alert Interface for RM5000 (This manual)
DNA100, Digital Network Interface
DAD104, Digital Annunciator Dsplay
NETWORK, Specification for the two wire Network

FEATURES

STANDARD FEATURES

3 Links
Hands free Loudspeaking
Confidential Softspeaking
T-Button for manual control of speech direction
Microphone mute
Date transmission for remote control
Privacy
Camp on busy extension
Crisis Alert Network Interface

SYSTEM FEATURES

2 ,3 or 4 Digit call numbers
Program distribution (98)
All Call (70)
7 Group Calls (71-77)
Meet me (8-90)
Group Conference
Battery Charger Alarm
Event log printer interface (DNA100 required)
Video switcher interface (DNA200 required)
Computer Interface (DNA300 required)
Pocket Page Interface (DNA400 required)

INDIVIDUAL FEATURES

Direct access
10 Direct dial
Simplex always
Assignable call numbers
12 Alphanumeric caller ID
Personal queue for incoming calls
Autodialer for use with TELCO interface
External display of the personal queue (DAD104, DS16,DNA300)
7 Transfer numbers for each subscriber (with programmable delay)
Priority
Line Supervision
Silent Ring for receiver with Annunciator

NUMBER PLAN

IDLE:

10-65	Subscriber number 2 digit dial
100-155	Subscriber number 3 digit dial
1000-1055	Subscriber number 4 digit dial
70	All Call
71-77	Group Calls
90	Respond to meet-me
98	Program distribution

PRIVACY:

0	Accept call

CONVERSATION (INITIATOR):

X	Cancel call
8	Activate meet-me from Group Call or All Call
10-65	Add on conference 2 digit dial
100-155	Add on conference 3 digit dial
1000-1055	Add on conference 4 digit dial

CONVERSATION (RECEIVER):

X	Cancel call

FEATURES DESCRIPTION

HANDSFREE/LOUDSPEAKING

When two intercom stations are connected, either party may speak to the other hands free without touching any buttons.

CONFIDENTIAL/SOFTSPEAKING

At any time during the call, either one or both parties may pick up their station (AA904 or AA916) and use it as a handset for a confidential conversation. When both parties are in handset mode, the system operates in open duplex mode and both parties may talk and listen at the same time.

SIMPLEX

The T-button may be used to control the speech direction (push to talk release to listen). This is useful when one of the intercom stations are in a noisy area. Either party may use this function. If both stations are pushing the T-button the control is given to the station that pushed T last. Either party may revert to handsfree mode by tapping the T-button or touching the side strip on the AA904. Any call number may be programmed with the privilege “simplex always” . When a call is placed from or to a station with the “simplex always” privilege, the initiator will be in listen mode and the T-button must be used to change the speech direction.

MICROPHONE CUTOFF

To temporary mute the microphone during conversation, the mute button may be pressed down.

DIRECT DIALLING

It is possible to program keys 0 to 9 of each intercom station’s keypad to speed dial frequently called numbers. When a programmed key is pressed, a dialtone is heard as normal. If a second key is pressed within 1.2 seconds (programmable subscriber timer) then a normal dial sequence is taken.

DIRECT ACCESS

It is possible to program one call number for each intercom station to be activated by short DC-shift (<1 sec). This type of calling is used with door stations and elevator stations that do not have a tone dialer.

ALARM

Long DC shift (1sec<) will send ALARM to the call number programmed for Direct Access.

LINE SUPERVISION

Line Super vision is activated with Privelege #10.
0 Volt on the audio line will send FAULT to the call number programmed for Direct Access.

TWO BUTTON DC SHIFT SUB-STATION

Direct Access and Direct Dial #1 are programmed to activate this feature.
Short DC shift (<1sec) will send CALL to the call number programmed for Direct Dial #1.
Long DC shift (1sec<) will send ALARM to the call number programmed for Direct Access.
0 Volt on the audio line will send FAULT to the call number programmed for Direct Access.

REMOTE CONTROL

DTMF tones may be sent from one intercom station to the other for remote control. The keypad on the station sends standard telephone dialing tones (CCITT). This is mainly used for electric door-lock release and for dialling out to the public telephone network (PTT). The microphone mute function must be activated while pushing a number key to disable conference add-on . When the B-subscriber (receiver of the call) is programmed with the privilege "DTMF Device" then the number keys may be activated without pushing the microphone mute key.

CAMP ON BUSY EXTENSION

The caller may camp-on to a busy extension for 15 seconds (programmable subscriber timer), after which the call will be automatically cancelled. If the called party becomes free within this time, the connection will be established with warning tone to both parties.

PRIVACY

The stations privacy switch controls the privacy status. When the B-subscriber is in privacy both stations gets the ringing tone. The B-subscriber may accept the call by pressing the 0-button within 15 seconds (programmable subscriber timer). This operation is valid when the B-subscriber is not using personal queue.

PRIORITY

When a station is programmed with the privelege “Priority” it may connect to a busy or privacy station by dialling “0” . This is only possible if the busy station does not have Priority privelege.

PERSONAL QUE

Each intercom station has a Personal Queue. This queue is activated with privilege “Personal Queue”. All received calls are then put in the personal que and the intercom station will ring (2 second on, 3 second off) until the call is answered by pressing the 0-key. When the call is cancelled (X) the next call in queue starts ringing after 2 seconds (programmable subscriber timer). With the privilege “Automatic Answer” the call is automatically connected without pushing the 0-key.
Calls are inserted to the personal queue on a first in first out within each priority level (1-9). The priority level is the Call Priority of the calling station (level 1 is highest priority). The calling station may be connected to Ringing Tone, Program Channel or silence when in que. The personal queue may be displayed and answered on a DAD104.

TRANSFER

Call Transfer is used to distribute incoming calls to additional intercom station. Call transfer is using the personal que. Each subscriber may be programmed with 7 transfer numbers with delays. When a call is place to a intercom station with “personal queue” the call will be inserted in the personal que of the called station. When the transfer 1 delay expires the call will be placed in the personal que of the transfer 1 intercom station. The transfer 2 delay is then activated and when it expires the call is inserted in the personal que of the transfer 2 intercom station. This sequence is then repeated for transfers 3-7 if programmed. The incoming call is now in the personal queue of multiple intercom stations and when one of them answer the call it is removed from all the personal queues. The transfer delay is 0 - 9 minutes or infinite. If a transfer station is in privacy then the delay to that station is set to 0 and the call will transfer instantly (used for night transfer). Personal Queue is always used when calls transfer to another intercom station independent of the “personal queue” privilege.

ALL CALL

Allows for one way paging from one station to all other stations in the exchange and will override other calls (they will reconnect when the All Call is completed). The initiating station must have privilege "All Call Access". The duration of the All Call is limited to 60 seconds (programmable subscriber timer). The call number for All Call is 70. The All Call is terminated with X, or 8 for call back (meet me). One of the stations can then dial 90 to call back to the All Call initiator. The call back is active until one station dials 90 or a new call back is activated from another All Call or Group Call. It is possible to exclude receivers from the All Call. This is done by entering call numbers in the All Call exclusion group (group #0).

GROUP CALL

Allows for one way paging from one station to a group of stations and will override normal calls (they will reconnect when the Group Call is completed). The initiating station must have privilege "Group Call Access". The duration of the Group Call is limited to 60 seconds (programmable subscriber timer). There are 7 Group Calls in the system with access call numbers 71-77. The Group Call is terminated with X, or 8 for call back (meet me). One of the stations can then dial 90 to be connected to the Group Call initiator. The call back is active until one station dials 90 or a new call back is activated from another All Call or Group Call. Call number of the receivers are entered in the Group Call groups (group 1-7). All station may be a members of multiple Group Call groups. Only one Group Call can be active at a time. Stations calling Group Call when it is in use may camp on until it is free.

GROUP PRIVILEGES

Global privilege: Pages groups in multiple EX500 centrals simultaniously.
T privilege: T button must be used for group calls
C privilege: The group is used for group conference, receivers can talk by using the T button.

PROGRAM DISTRIBUTION

The system has one program channel for distribution of music or other programs source.
The access code is 98. The connection to program distribution does not effect normal intercom operations. When a call is initiated or received, the music is put on hold until the call is completed and then it is automatically reconnected.

TWO WAY RADIO

The RM5000 system may be connected to a radio base station for communication on a closed two-way radio network. An interface unit (IF935) is required and is given an ordinary subscriber number. If the radio system is simplex PTT then the subscriber number should be programmed with privilege “Simplex Always” The radio receive signal may be connected to the program distribution channel for monitoring.

TELEPHONE NETWORK

An interface (IF934P) can be supplied to operate between a telephone network and the RM5000EX. The interface is used to make calls from any intercom station to the telephone network and to make call from an outside telephone to any intercom station.
The interface may be used as a speed dialer to a telephone number used for answering intercom calls from elevator intercoms in a night transfer mode of operation. The device type of the interface is set to PBX, and the speed dial number is programmed from the DNA100. A delay may be entered as P1 for one second delay to P9 for 9 second delay. Example: P29P31234567 will delay 2 seconds (waiting for dial tone), dial 9, delay 3 seconds, then dial 1234567. When a call enters the personal que of the interface it will speed dial the remote telephone number, connect the station in que to the telephone line and then wait for disconnect from the remote telephone before releasing the connection between the interface and the intercom station. After 2 seconds (programmable subscriber timer) the next call in personal que will repeat the process.
If the interface does not have the privilege “Personal Queue” then calls made to the interface will not activate the dialer and the phone number must be manually dialed. If transfers are activated from other stations (lobby master) , then theses calls are automatically placed in the personal que of the interface and will use the speed dialer out on the telephone line. This way a motor room master may use the interface for manually dialed calls, while elevator intercoms that dial the lobby master will be transferred to the personal que of the interface and use the speed dialer. The lobby master may have a infinite transfer delay during the day when all calls are answered by the lobby master. At night the lobby master is placed in privacy and all calls are transferred to the telephone interface.

REMOTE SUBSTATION

The RM5000EX system may be used to multiplex sub-stations from a CB901. These substations will have the subscriber card in the RM5000 instead of the CB901. One or more interlinks for audio will interconnect the the RM5000 (IF500)and the CB901(IF950). One data link is used for signalling (DNB100). FAULT and CALL are sent from the RM5000EX to the CB901CA for display on a DAD104. Substations may be dialed directly from any master on the CB901. All/Group calls (70-77) are also available via the Interlink.

Example:
8 remote stations , 2 Interlinks
Subscriber Address: 18-1F (call number 132-139) in CB901.
Subscriber Address: 00- 07 (call number 132-139) in EX500.
CB901 Network Address 08
EX500 Network Address 09
IF500 Interlink installed in Multiuse Ports subscriber address 4A and 4B, call numbers 158 and 159.
CB901CA programming: See DXC901 manual.
EX500 programming.
1. Undefine call numbers 100-155
2. Set call numbers 132-139 starting at subscriber address 00
3. Set Device type 5 (REM) for call numbers 132-139.
4. Set RemoteNet to 08 for call numbers 132-139.
5. Set RemoteLEQ to 18 for call number 132, 19 for 133, 1A for 134, 1B for 135, 1C for 136, 1D for 137, 1E for 138 and 1F for 139.
6. Set privelege Group call access(5) for call numbers 158 and 159.

DIRECT ACCESS MASTER

This master station will connect to the intercom stations programmeed in the Direct Acces when a contact closure activates Initiativ. When the contact closure is removed the station will cancell.

CONFIGURATION

One DNA100 is used as a programming interface to the EX500. The DNA100 has one RS232 port for connection to dumb terminal or a PC running PROCOM+ emulating WYSE50 or VT100.
Select main menu "6-COMMUNICATION LINK" on the DNA100 to sets up a link between the PC and the EX500 (consult the DNA100 manual on the procedure to set up the communication link). The Configuration is done from the PC and the information is stored in battery RAM in the EX500. When the system is first installed the RAM must be reset before the system is configured. After configuring the system the DNA100 may be removed.

SYNTAX

TYPE FONTS

boldface type$_{cr}$	indicates user input
`Courier font`	indicates output

COMMAND

The command consists of a command word plus one or more parameters.
The command may be entered on one line with the parameters separated by spaces.
>**command par1 par2 par3**$_{cr}$

The command may be entered in prompt mode with parameters separated by carriage return. The prompt will indicate what type of parameter value is required.
>**command**$_{cr}$
`Prompt>`**par1**$_{cr}$
`Prompt>`**par2**$_{cr}$
`Prompt>`**par3**$_{cr}$
>

PROMPT

< >	Angle brackets enclose input parameters.
$	Hexadecimal value (default is decimal).
-	Range of values may be entered.
..	Periods indicate that only ONE value is required from the range of values.
*	Wild card means all values in a range of values.
/	Optional input selection separator.
U	Undefined

ERROR HANDLING

Misspelled command input will give the following error message:
`Unknown Command`
Parameter errors will print `ERROR:` and then prompt for the parameter again.

HELP

HELP COMMANDS

Help lists all help commands in the Configuration program. Type HELP, H or ?.

```
>HELP cr

EX500 Command Summary:
====== ======================
HELP  Help
H     Help
?     Help
HS    Help Set  Commands
HL    Help List Commands
HPT   Help Privilege Types
>
```

LIST COMMANDS

```
>HL cr

EX500 List Commands:
====== ======================
LCN   List Call Number
LDA   List Direct Access
LDD   List Direct Dial
LGCM  List Group Call Members
LTN   List Transfer Numbers
LLE   List Line Equipment
LPT   List Privilege Type
LST   List Subscriber Timers
LSD   List Speed Dial Numbers
>
```

SET COMMANDS

>**HS**$_{cr}$

```
EX500 Set Commands:
====== ======================
SAP   Set Alarm Priority
SCN   Set Call Number
SCNU  Set Call Number Undefined
SCP   Set Call Priority
SCID  Set Caller ID
SDA   Set Direct Access
SDD   Set Direct Dial
SDT   Set Device Type
SGCM  Set Group Call Members
STN   Set Transfer Number
STD   Set Transfer Delay
SNA   Set Network Address
SPT   Set Privilege Type
SQP   Set QUE Program Channel
SST   Set Subscriber Timer
SSD   Set Speed Dial Number
>
```

PRIVILEGE TYPES

>**HPT**$_{cr}$

```
 ID Privilege
==== =================
  1 Simplex Always
  2 Voice Control A
  3 DTMF Device
  4 All Call Access
  5 Group Call Access
  6 Conference Initiator
  7 Personal Queue
  8 Automatic Answer
  9 Priority Access
 10 Line Supervision
 11 Silent Ring
>
```

LINE EQUIPMENT

The Line Equipment Number is the location of the intercom station in the central exchange. The number is hexadecimal in the range $00-$3D (62 subscribers). All individual station programming is done to this line equipment number. The programmed information may be listed by Line Equipment Number or by Call Number.

COMMANDS

LLE	List Line Equipment	(sorted by Line Equipment Number)
LCN	List Call Number	(sorted by Call Number)

Example:

```
>LLE<cr>
Line Equipment Number <$00-$3D/*> : 00-06<cr>

Line   Call                      In   Priority      Network Address    Remote
Equ.   Number  Caller ID  Type  QUE Alarm Call Display Printer Video  NET LEQ
==== ========= ========== ==== ==== ===== ==== ======= ======= =====  === ===
$00    10      Lobby      ICM  RING   1    3       0A     0B    ...   ... ...
$01    11      Car 1A     ICM  ....   1    5      ...     0B    ...   ... ...
$02    12      Car 1B     ICM  ....   1    5      ...     0B    ...   ... ...
$03    13      Car 2A     ICM  ....   1    5      ...     0B    ...   ... ...
$04    14      Car 2B     ICM  ....   1    5      ...     0B    ...   ... ...
$05    15      MotorRoom  ICM  RING   1    3      ...     0B    ...   ... ...
$06    16      Phone Line PTT  RING   1    3      ...     0B    ...   ... ...

>
```

CALL NUMBER

Call numbers are assigned to all Line Equipment Numbers when the system is defaulted (network address set to $00). The first Line Equipment will be call number 10, 100 or 1000 depending on the number of call digits in the system . All remaining line equipment numbers are assigned consecutive call numbers. These call numbers may be reassigned.

PROGRAMMING

The following commands are used for this feature:

SCNU	Set Call Number Undefined
SCN	Set Call Number

Example: Change the call numbers from default 100-155 to 200-255. This is useful when two or more exchanges are connected via Tie-line. Use the R(range) option to assign call numbers to a range of line equipment numbers.

```
>SCN[cr]
Call Number <100-999/*> : 200-255[cr]
Line Equipment Number (R=range, S=single) <R/S> : R[cr]
Line Equipment Number <$00..$4F> : 00[cr]
>LLE[cr]
Line Equipment Number <$00-$3D/*> : 00-03[cr]

Line   Call                    In   Priority      Network Address    Remote
Equ.   Number  Caller ID  Type  QUE Alarm Call Display Printer Video  NET LEQ
==== ========= ========== ==== ==== ===== ==== ======= ======= =====  === ===
$00    200                ICM  RING   1     3       ...   ...    ...   ... ...
$01    201                ICM  RING   1     5       ...   ...    ...   ... ...
$02    202                ICM  RING   1     5       ...   ...    ...   ... ...
$03    203                ICM  RING   1     5       ...   ...    ...   ... ...

>
```

Example: Connect a Tie-line unit from the other exchange (100-155) to Line Equipment 00.
Use the S(single) option to assign call numbers to a single line equipment number (the Tie-line).

```
>SCN[cr]
Call Number <100-999/*> : 100-155[cr]
Line Equipment Number (R=range, S=single) <R/S> : S[cr]
Line Equipment Number <$00..$4F> : 00[cr]
>LLE[cr]
Line Equipment Number <$00-$3D/*> : 00-03[cr]

Line   Call                    In   Priority      Network Address    Remote
Equ.   Number  Caller ID  Type  QUE Alarm Call Display Printer Video  NET LEQ
==== ========= ========== ==== ==== ===== ==== ======= ======= =====  === ===
$00    100--155           ICM  RING   1     3       ...   ...    ...   ... ...
$01    201                ICM  RING   1     5       ...   ...    ...   ... ...
$02    202                ICM  RING   1     5       ...   ...    ...   ... ...
$03    203                ICM  RING   1     5       ...   ...    ...   ... ...

>
```

When calls are made to call numbers between 100 and 155 the Tie-line will send the calls to the other exchange.

CALLER ID

Each subscriber in the system has 12 alphanumeric characters for identification. This ID is available for display on the called station (DAD104) and for Event Logging (DNA100). Default is all spaces.

PROGRAMMING

The following commands are used for this feature:

SCID Set Caller ID
LCN List Call Number

Example: Set Caller ID for call number 14 to “Lobby”.

```
>SCID<cr>
Call Number <10-99/*> : 14<cr>
Caller ID <alphanumeric> : Lobby<cr>
>LCN<cr>
Call Number <10-99/*> : 14<cr>

Line   Call                    In    Priority     Network Address     Remote
Equ.   Number  Caller ID  Type QUE  Alarm Call Display Printer Video  NET LEQ
==== ========= ========== ==== ==== ===== ==== ======= ======= =====  === ===
$04    14      Lobby      ICM  RING   1     5      ...   ...    ...   ... ...
>
```

DEVICE TYPES

The device type defines the operation of intercom stations.

Type0 = Undefined
Type1 = SUB (DC shift substation)
Type2 = ICM (Master station or substation using speed-dial)
Type3 = PTT (Telephone line)
Type4 = TIE (Intersystem Tie-line)
Type5 = REM (Remote subscriber)
Type6 = ILK (Interlink)
Type7 = DAM (Direct Acces Master)

PROGRAMMING

The following commands are used for this feature.

SDT Set Device Type
LCN List Call Number

```
>SDT[cr]
Call Number <10-99/*> : 11-14[cr]
Device Type(0=U 1=SUB 2=ICM 3=PTT 4=TIE 5=REM 6=ILK)<0..6> : 1[cr]
>LCN[cr]
Call Number <10-99/*> : 11-14[cr]

Line   Call                      IN  Priority      Network Address    Remote
Equ.   Number  Caller ID  Type  QUE Alarm Call Display Printer Video  NET LEQ
==== ========= ========== ==== ==== ===== ==== ======= ======= =====  === ===
$01    11      Car 1A     SUB  RING    1    5      ...    0B    ...   ... ...
$02    12      Car 1B     SUB  RING    1    5      ...    0B    ...   ... ...
$03    13      Car 2A     SUB  RING    1    5      ...    0B    ...   ... ...
$04    14      Car 2B     SUB  RING    1    5      ...    0B    ...   ... ...
>
```

PRIVILEGE TYPES

Privileges are assigned to each subscriber number for access to features of the system. Default has no privileges enabled.

PROGRAMMING

The following commands are used for this feature:

HPT	Help Privilege Types
SPT	Set Privilege Type
LPT	List Privilege Types

Display all Privilege Types

```
>HPT[cr]

  ID  Privilege
====  =============
   1  A,B Simplex Always
   2  A   Voice Control
   3  B   DTMF Device
   4  A   All   Call Access
   5  A   Group Call Access
   6  A   Conference Access
   7  B   Personal Queue
   8  B   Automatic Answer
   9  A   Priority
  10      Line Supervision
  11  B   Silent Ring
```

Example: Add All Call Access (Privilege 4) for Subscriber number 11.

```
>SPTcr
Call Number <10-99/*> : 11cr
Privilege ID <1..9> : 4cr
<+/-/=> : +cr
>
```

Display the result.

```
>LPTcr
Call Number <10-99/*> : 11cr
Privilege ID <1-9/*> : 4cr

Call Number  ID Privelege
=========== ======================
    11       4  All Call Access

>
```

PRIVILEGE DEFINITIONS

1 Simplex Always A,B:
This privilege will force simplex mode operation when this intercom is initiating or receiving a call.
The initiator of the call will start in receive mode.

2 Voice Control:
The initiator of the call can use th *-key (DTMF) to control the speech direction. Each time the *-key is momentraly hit the speech dirction changes. This is useful when telphones needs to control the simplex function.

10 Line Supervision:
A intercom station (ICM and SUB) with this privilege will be monitored.
A fault is activated with open or shorted wires or loss of power to the intercom station.
The fault is sent to the direct acces number programmed for this station.

DIRECT ACCESS

There is one direct dial access number for each subscriber (DC shift).

PROGRAMMING

The following commands are used for this feature.

SDA Set Direct Access
LDA List Direct Access

Example 1: Set direct access for subscriber 12 to dial subscriber 18.

```
>SDA[cr]
Call Number <10-99/*> : 12[cr]
Call Number to be dialed <10..99/U> : 18[cr]
>LDD[cr]
Call Number <10-99/*> : 12[cr]

Call Number  DA  DD-0 DD-1 DD-2 DD-3 DD-4 DD-5 DD-6 DD-7 DD-8 DD-9
============ ====  ==== ==== ==== ==== ==== ==== ==== ==== ==== ====
    12        18

>
```

DIRECT DIAL

There are 10 direct dial numbers for each subscriber (key 0-9).

PROGRAMMING

The following commands are used for this feature.

SDD Set Direct Dial
LDD List Direct Dial

Example 1: Set direct dial for subscriber 14 key #5 to dial subscriber 23.

```
>SDD[cr]
Call Number <10-99/*> : 14[cr]
Key Number <0..9> : 5[cr]
Call Number to be dialed <10..99/U> : 23[cr]
>LDD[cr]
Call Number <10-99/*> : 14[cr]
```

```
Call Number   DA  DD-0 DD-1 DD-2 DD-3 DD-4 DD-5 DD-6 DD-7 DD-8 DD-9
=========== ====  ==== ==== ==== ==== ==== ==== ==== ==== ==== ====
    14                                      23

>
```

SUBSCRIBER TIMERS

There are 8 timers that can be set individually for each subscriber. A timer value of 0 means no time limit.

PROGRAMMING

The following commands are used for this feature.

SST Set Subscriber Timer
LST List Subscriber Timers

Example: Set warning tone length (timer 2) to 1 sec. when subscriber 15 receives calls .

```
>SST<cr>
Call Number <10-99/*> : 15<cr>
Timer ID <1..8> : 2<cr>
Timer Value <0....50> :10<cr>
>LST<cr>
Call Number <10-99/*> : 15<cr>
Timer ID <1..8> : *<cr>

Call Number  ID Timer                Setting  Resolution  Limit
===========  ======================= =======  ==========  =====
    14        1  Direct Dial     (A)     12     0.1 sec     30
              2  Warning Tone    (B)     10     0.1 sec     50
              3  Call Length     (A)            1.0 sec    240
              4  Group Call      (A)     60     1.0 sec    600
              5  All Call        (A)     60     1.0 sec    600
              6  PQUE Ring Delay (B)      2     1.0 sec    240
              7  Camp on Privacy (A)     15     1.0 sec    240
              8  Camp on Busy    (A)     20     1.0 sec    240
>
```

PERSONAL QUE

Each intercom station has a Personal Queue. This queue is activated with Privelege ID number 7. All received calls are put in personal que and the intercom station will ring (2 sec on, 3 sec off) until the call is answered by pressing the 0 key. When the call is cancelled (X) the next call in queue starts ringing after 2 seconds. This time is programmable (Timer ID number 6).
Calls are inserted to the personal queue on a first in first out within each priority level (1-9). The priority level is the Call Priority of the calling station (level 1 is highest priority). The calling station may be connected to Ringing Tone, Program Channel or silence when in que.

PROGRAMMING

The following commands are used for this feature

SPT	Set Privelege Type
SST	Set Subscriber Timer
SQP	Set Que Program Channel
SCP	Set Call Priority
LPT	List Privelege Type
LST	List Subscriber Timer
LCN	List Call Number

Example: Intercom station 10 is using personal queue to receive calls with 1 second delay between calls. Intercom stations 11-14 will get ringing tone when they call intercom 10. Intercom 11 will get calling priority 3 and intercom 12-14 will get priority level 4.

```
>SPT<cr>
Call Number <10-99/*> : 10<cr>
Privelege ID <1..7> : 7<cr>
<+/-/=> : +<cr>
>SST<cr>
Call Number <10-99/*> : 10<cr>
Timer ID <1..8> : 6<cr>
Timer Value <0....240> :1<cr>
>SQP<cr>
Call Number <10-99/*> : 11-14<cr>
Program Channel in QUE (0=None, 1=Program, 2=Ringback) <0..2> : 2<cr>
>SCP<cr>
Call Number <10-99/*> : 11<cr>
Priority Level <1..9> : 3<cr>
>SCP<cr>
Call Number <10-99/*> : 12-14<cr>
Priority Level <1..9> : 4<cr>
>
```

TRANSFER

Call Transfer is used to distribute incoming calls to additional intercom station. Each subscriber has 7 transfer numbers. Transfers are processed sequentially, transfer 1 must activate before transfer 2 is activated and transfer 3 will not activate until transfer 2 is activated and so on. With each transfer there is a delay before the call is transferred. The delay is in increments of 6 seconds :
00 = no delay,
01 = 6 second delay
20 = 2 minute delay
98 = 9 minutes 48 seconds
99 = infinite delay

If a transfer station is in privacy then the delay to that station is set to 0 and the call will transfer instantly (used for night transfer). Personal Queue is always used when calls transfer to another intercom station. When a call transfers it also remains in queue of the transferring station. The call can then be answerred by the transferred station or by the transferring station .

PROGRAMMING

The following commands are used for this feature.

STN	Set Transfer Number
STD	Set Transfer Delay
LTN	List Transfer Numbers

Example: Make calls to subscriber 14 transfer to subscribers 20 and 21 if subscriber 18 does not answer the call within 60 seconds.

```
>STN[cr]
Call Number <10-99/*> : 14[cr]
Transfer Number <1..7> : 1[cr]
Call Number to be dialed <10..99/U> : 20[cr]
>STN 14 2 21[cr]
>STD[cr]
Call Number <10-99/*> : 14[cr]
Transfer Number <1..7> : 1[cr]
Transfer Delay(6 sec) <00..99> : 10[cr]
>LTN[cr]
Call Number <10-99/*> : 14[cr]

Call Number TRFR: 1 TRFR: 2 TRFR: 3 TRFR: 4 TRFR: 5 TRFR: 6 TRFR: 7
   (CN)    DLY--CN DLY--CN DLY--CN DLY--CN DLY--CN DLY--CN DLY--CN
=========== ======= ======= ======= ======= ======= ======= =======
   14     10---20 -----21 ------- ------- ------- ------- -------
>
```

ANNUNCIATOR DISPLAY

Any intercom station in the system may use an annunciator display (DAD104) to display and answer calls in the personal queue. Each DAD104 is assigned to only one intercom station.

PROGRAMMING

The following commands are used for this feature.
SNA Set Network Address
LCN List Call Number

Example: Subscriber 10 is assigned to the DAD104 with network address 0A (hex). The network address is set with DIP-switch in the DAD104.
>**SNA**$_{cr}$
Call Number <10-99/*> : **10**$_{cr}$
Node Type (1=Annunciator 2=Printer 3=Video 4=RemoteNet 5=RemoteLEQ) <1..5> : **1**$_{cr}$
Network Address <$00..$FF> : **0A**$_{cr}$

EVENT LOG PRINTER

The event log printer is connected to the system using one dedicated DNA100. The printer will print events for all intercom stations that have been assigned to this printer.

PROGRAMMING

The following commands are used for this feature.
SNA Set Network Address
LCN List Call Number

Example: Subscribers 10-17 are assigned to log events to the printer with network address 0B (hex). The network address is set with DIP-switch in the DNA100.
>**SNA**$_{cr}$
Call Number <10-99/*> : **10-17**$_{cr}$
Node Type (1=Annunciator 2=Printer 3=Video) <1..3> : **2**$_{cr}$
Network Address <$00..$FF> : **0B**$_{cr}$

CAMERA SWITCHER

The camera switcher is connected to the system using one dedicated DNA200. The camera switcher will connect a camera to a video monitor when the call is answerred by the intercom station equipped with a video monitor. Intercom stations with monitors are programmed with the address of the DNA200. Monitor address and camera address are programmed inside the DNA200 (see separate documentation).

PROGRAMMING

The following commands are used for this feature.

SNA Set Network Address
LCN List Call Number

Example: Subscribers 10 and 17 with monitors are assigned to camera switcher with network address 0C (hex). The network address is set with DIP-switch in the DNA200.

```
>SNA cr
Call Number <10-99/*> : 10 cr
Node Type (1=Annunciator 2=Printer 3=Video) <1..3> : 3 cr
Network Address <$00..$FF> : 0C cr
>SNA 17 3 0C cr

>LCN cr
Call Number <10-99/*> : 10-17 cr

Line   Call                    IN   Priority
Equ.   Number  Caller ID  Type  QUE Alarm Call Annunciator Printer Video
==== ========= ========== ==== ==== ==== ===== =========== ======= =====
$00    10      Lobby      ICM  RING   1    3       0A        0B     0C
$01    11      Car 1A     ICM  ....   1    5      ...        0B    ...
$02    12      Car 1B     ICM  ....   1    5      ...        0B    ...
$03    13      Car 2A     ICM  ....   1    5      ...        0B    ...
$04    14      Car 2B     ICM  ....   1    5      ...        0B    ...
$05    15      MotorRoom  ICM  RING   1    4      ...        0B    ...
$06    16      Phone Line PTT  RING   1    4      ...        0B    ...
$07    17      Security   ICM  RING   1    2      ...        0B     0C

>
```

To remove a Annunciator, Printer or Video Monitor from a intercom station, set the network address of the device to 00.

BATTERY CHARGER MONITOR

When the RM5000 is equipped with battery backup the battery voltage is monitored. If the input voltage is higher then 25 Volt then the battery is being charged and D6 is ON. If AC power is lost or the battery charger fails then the battery voltage will fall below the 25 Volt and D6 will turn OFF. At the same time Power Fail Alarm may be sent to the DAD104 (if programmed) and the system is running on battery power. This alarm can only be cleared by restoring the battery voltage to 25 Volt or higer.

PROGRAMMING

The following commands are used for this feature.

SCN	Set Call Number
SCID	Set Caller ID
SNA	Set Network Address
LCN	List Call Number

Example: Subscribers 10 has a DAD104 with network address 09 (hex). Power Fail Alarms from the EX500 are to be sent to this DAD. First we assign call number 00 to the EX500 at Line Equipment Number 4F(hex).

```
>SCN<cr>
Call Number <10-99/*> : 00<cr>
Line Equipment Number <$00..$3F> : 4F<cr>
>SCID 00 EX500<cr>
>SNA<cr>
Call Number <10-99/*> : 00<cr>
Node Type (1=Annunciator 2=Printer 3=Video) <1..3> : 1<cr>
Network Address <$00..$FF> : 09<cr>
>LCN<cr>
Call Number <10-99/*> : 00<cr>

Line   Call                    In    Priority
Equ.  Number  Caller ID  Type QUE  Alarm Call Annunciator Printer Video
==== ========= ========== ==== ==== ===== ==== =========== ======= =====
$4F    00      EX500       ICM  RING   1     5       09       ...    ...
>
```

ALL CALL

Allows for one way paging from one station to all other stations in the exchange and will override other calls (they will reconnect when the All Call is completed). The initiating station must have privilege "All Call Access". The duration of the All Call is limited to 60 seconds (programmable subscriber timer). The call number for All Call is 70. The All Call is ended with X for termination or 8 for call back (meet me). One of the stations can then dial 90 to call back to the All Call initiator. The call back is active until one station dials 90 or a new call back is activated from another All Call or Group Call. It is possible to exclude receivers from the All Call. This is done by entering call numbers in the All Call exclusion group (group #0).

GROUP CALL

Allows for one way paging from one station to a group of stations and will override normal calls (they will reconnect when the Group Call is completed). The initiating station must have privilege "Group Call Access". The duration of the Group Call is limited to 60 seconds (programmable subscriber timer). There are 7 Group Calls in the system with access call numbers 71-77. The Group Call is terminated with X or 8 for call back (meet me). One of the stations can then dial 90 to be connected to the Group Call initiator. The call back is active until one station dials 90 or a new call back is activated from another All Call or Group Call. Call number of the receivers are entered in the Group Call groups (group 1-7). All station may be a members of multiple Group Call groups. Only one Group Call can be active at a time. Stations calling Group Call when it is in use may camp on until it is free.

PROGRAMMING

The following commands are used for this feature.

SGCM	Set Group Call Members
LGCM	List Group Call Members
SPT	Set Privilege Type

Example 1: Exclude stations 10 and 11 from All Call #0 (70).

```
>SGCM<cr>
Call Number <10-99/*> : 10-11<cr>
Group Number <0..7> : 0<cr>
<+/-/=> : +<cr>
>
```

Example 2: Include stations 12-26 in Group Call #3 (73).

```
>SGCM<cr>
Call Number <10-99/*> : 12-26<cr>
Group Number <0..7> : 3<cr>
```

```
<+/-/=> : +cr
>
```

Example 3: Exclude stations 15 from Group Call #3 (73).

```
>SGCMcr
Call Number <10-99/*> : 15cr
Group Number <0..7> : 3cr
<+/-/=> : -cr
>
```

Example 4: Include stations 18 only in Group Call #6 (76) .

```
>SGCMcr
Call Number <10-99/*> : 18cr
Group Number <0..7> : 6cr
<+/-/=> : =cr
>
```

Example 5: Group Conference for stations 10-16 in Group Call #1 (71) .

```
>SGCMcr
Call Number <10-99/*> : 10-16cr
Group Number <0..7> : 1cr
<+/-/=> : =cr
>SGCPcr
Group Number <0..7> : 1cr
Group Privilege (0=Allcall 1=Global 2=T 3=Conference) <0..3> : 3cr
<+/-/=> : +cr
>SGCPcr
Group Number <0..7> : 1cr
Group Privilege (0=Allcall 1=Global 2=T 3=Conference) <0..3> : 2cr
<+/-/=> : +cr
```

Display the result of example 1 - 5.

>**LGCM**$_{cr}$

```
Group  Call
Number Number  Receivers
====== ======  ================================================
  0 A    70      10   11
  1   TC 71
  2      72
  3  G   73      12   13   14   16   17   19   20   21   22   23
                 24   25   26
  4      74
  5      75
  6      76      18
  7      77
>
```

GROUP CONFERENCE

Group Conference may be used for Emergency Communication/Paging.

Example:
10 AA916 Master station with Annunciator for display of Faults DAD104 ($09).
11-16 GS921DAM Handset Stations with Push ToTalk button.
17-20 IF935 Paging Interface.

Programming:
Master station 10.
SNA 10 1 09 (DAD assigned to master statation)
SPT 10 7 + (Activate Personal Que)
SPT 10 5 + (Activate Group Call Access)

Handset Stations 11-16.
SDT 11-16 7 (Direct Access Master)
SDA 11-16 10 (Faults are sent to 10)
SPT 11-16 10 + (Line Supervision)
SPT 11-16 5 + (Activate Group Call Access)
SDD 11-16 1 71 (Call Group Call 71 when handset is lifted)

Paging Interface 17-20.
SDT 17-20 1 (Sub)
SDA 17-20 10 (Faults are sent to 10)
SPT 17-20 10 + (Line Supervision)

Group Call 1 (71).
SGCM 10-20 1 + (Include stations 10 -20 in group call #1)
SGCP 1 2 + (T button must be used when talking)
SGCP 1 3 + (Activate Group Conference)
SST 10-20 4 30 (Set Group Call time limit to 30 seconds)

TELEPHONE LINE INERFACE

The interface may be used as a speed dialer to a telephone number used for answering intercom calls from elevator intercoms in a night transfer mode of operation. The device type of the interface is set to PBX. A delay may be entered as P1 for one second delay to P9 for 9 second delay. Example: P29P31234567 will delay 2 seconds (waiting for dial tone), dial 9, delay 3 seconds, then dial 1234567.

PROGRAMMING

The following commands are used for this feature.

SDT	Set Device Type
LCN	List Call Number
SSD	Set Speed Dial Number
LSD	List Speed Dial Number
SPT	Set Privilege Type

Example:

```
>SDT 27 PBXcr
>SSD 27 P29P31234567cr
>SPT 27 7 +cr
```

BACKUP

Backup generates programming commands required to restore the configuration of the EX500. These commands may be downloaded and stored in a file on the PC. This file can then be uploaded to restore the configuration of the EX500.

PROGRAMMING

The following command is used for this feature.

BAK	Backup

Example:

```
>BAKcr
Call Number <100-999/*> : 100-101cr
!
!   BACKUP START: 2008/01/18
!
! EX500 VERSION: 2007/11/06
!
SCN 10 00
SCID 10 SECURITY
```

```
SDT 10 2
SQP 10 2
SAP 10 1
SCP 10 5
SCN 11 01
SCID 11 EAST GATE
SDT 11 2
SQP 11 2
SAP 11 1
SCP 11 5
!
! END OF TRANSFER
```

Software Version 2007/01/04.

Commands generated by the backup command:

```
SAP   Set Alarm Priority
SCN   Set Call Number
SCP   Set Call Priority
SCID  Set Caller ID
SDT   Set Device Type
SQP   Set QUE Program Channel
```

Commands not generated:

```
SCNU  Set Call Number Undefined
SDA   Set Direct Access
SDD   Set Direct Dial
SGCM  Set Group Call Members
SGCP  Set Group Call Privilege
STN   Set Transfer Number
STD   Set Transfer Delay
SNA   Set Network Address
SPT   Set Privilege Type
SST   Set Subscriber Timer
SSD   Set Speed Dial Number
```

INSTALLATION

POWER HOOKUP:

Use DC power supply.

Connect +24VDC to TB1 pin 1
Connect Ground (minus) to TB1 pin 2

PROGRAM DISTRIBUTION

TB2 pin 1 Audio inn +
TB2 pin 2 Audio inn -
TB2 pin 3 No Connection
TB2 pin 4 No Connection

CRISIS ALERT NETWORK

The EX500 has a one pair RS485 bidirectional port for communication with Crisis Alert Devices:

DNA100 Used for programming or for interfacing to Log Printer
DNA200 Camera switcher Interace
DNA300 Computer Control Interace
DNA400 Pocket Page Interace
DAD104 Annunicator Display
DS16 Direct select Annunciator, 16 line

TB3 pin 1 Data +
TB3 pin 2 Data -
TB3 pin 3 +24V out (fused)
TB3 pin 4 Ground (minus)
TB3 pin 5 External Alarm
TB3 pin 6 External Alarm

The DNA100 can be connected directly to J1 for programming.

The EX500 has 3 LEDs for displaying network communication:

M Master LED. This LED is ON if the EX500 is the Master on the Network.
T TX Data. Blinks when EX500 transmit to the network.

R RX Date. Blinks when other devices transmit to the network.

SWITCH PROGRAMMING

SW2 on PCB1001 is the crisis alert network address.
Network 1 Node 0 is normally used (Address $08):

1	2	3	4	5	6	7	8
OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF

SW4 on PCB500 (EX500) is used for selecting number of digits in call numbers when the system is defaulted.:

1	2	
OFF	OFF	Special preprogrammed configuration (Reserved)
OFF	ON	2 Digit Dialing (10-55)
ON	OFF	3 Digit Dialing (100-155)
ON	ON	4 Digit Dialing (1000-1055)

RESET BATTERY RAM

The Battery RAM must be initialized when the system is first installed. All programmable features are set to default and all station are assigned call numbers .

PROCEDURE:

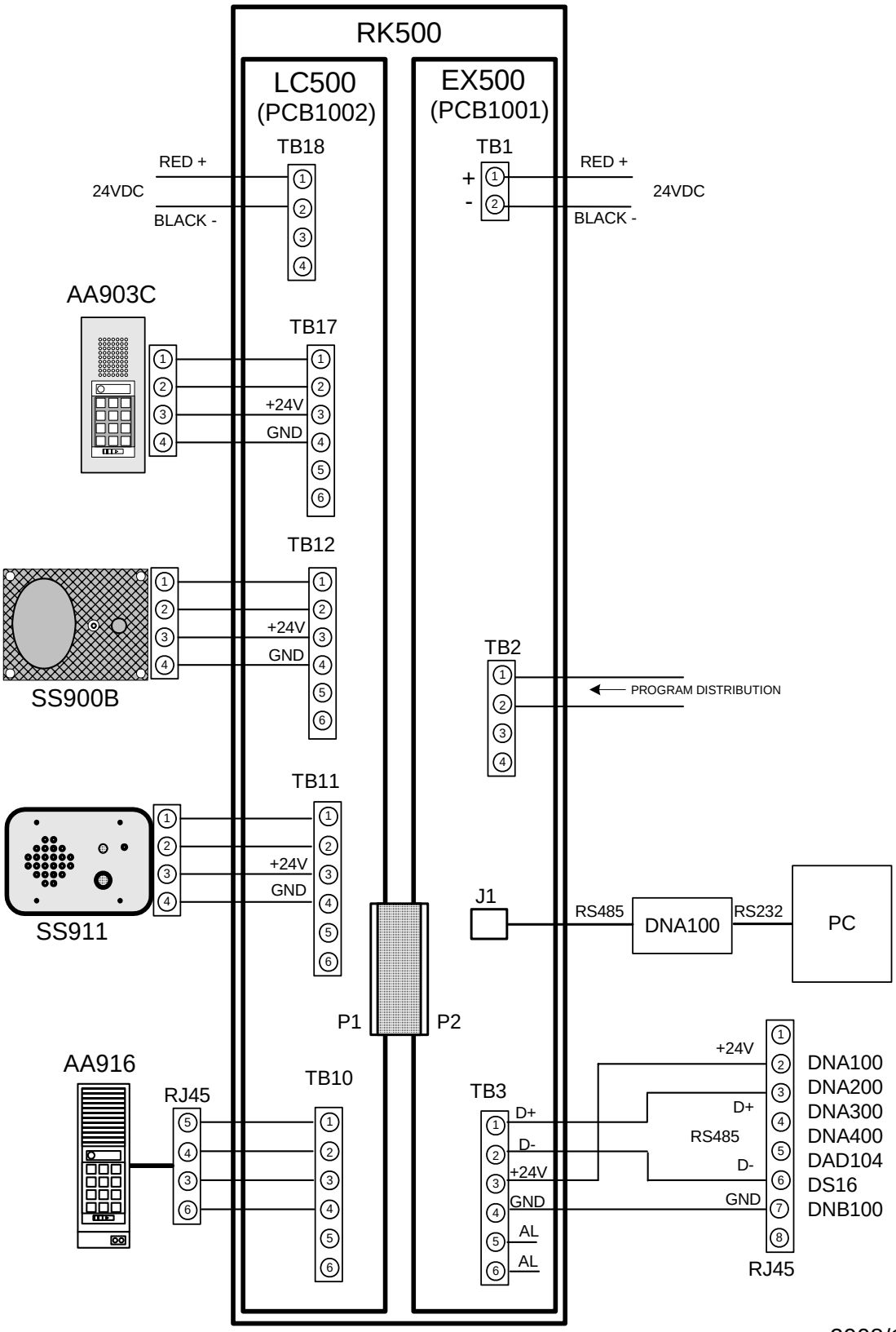
1. Set all 8 dip switches in SW2 (EX500) to OFF.
2. Set SW3 (EX500) for number of call digits.
3. Push and release the Reset Switch on EX500 (SW4).

LED M (EX500) will blink 4 times during RAM Test (apx. 2 sec.).
The RAM will initialize (1 sec.).
LED M will flash rapidly to indicate that the initialization is complete.

4. Set SW2 (EX500) to proper network address (turn switch 4 ON)
5. Push and release the Reset Switch on EX500 (SW4).

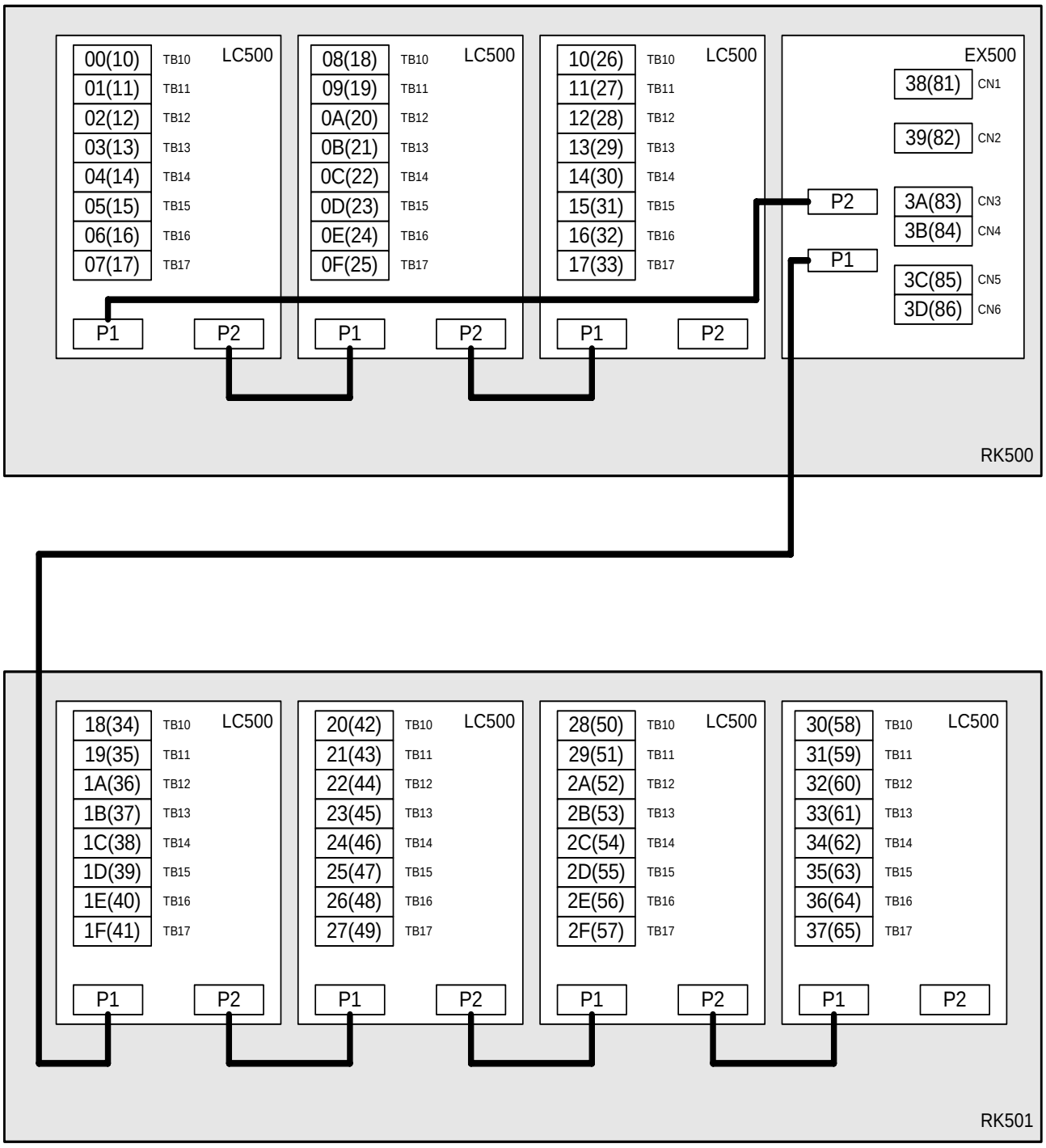
LED M (EX500) will blink 4 times during RAM Test .
The system is now operational.

Intercom Connections
Data Connections

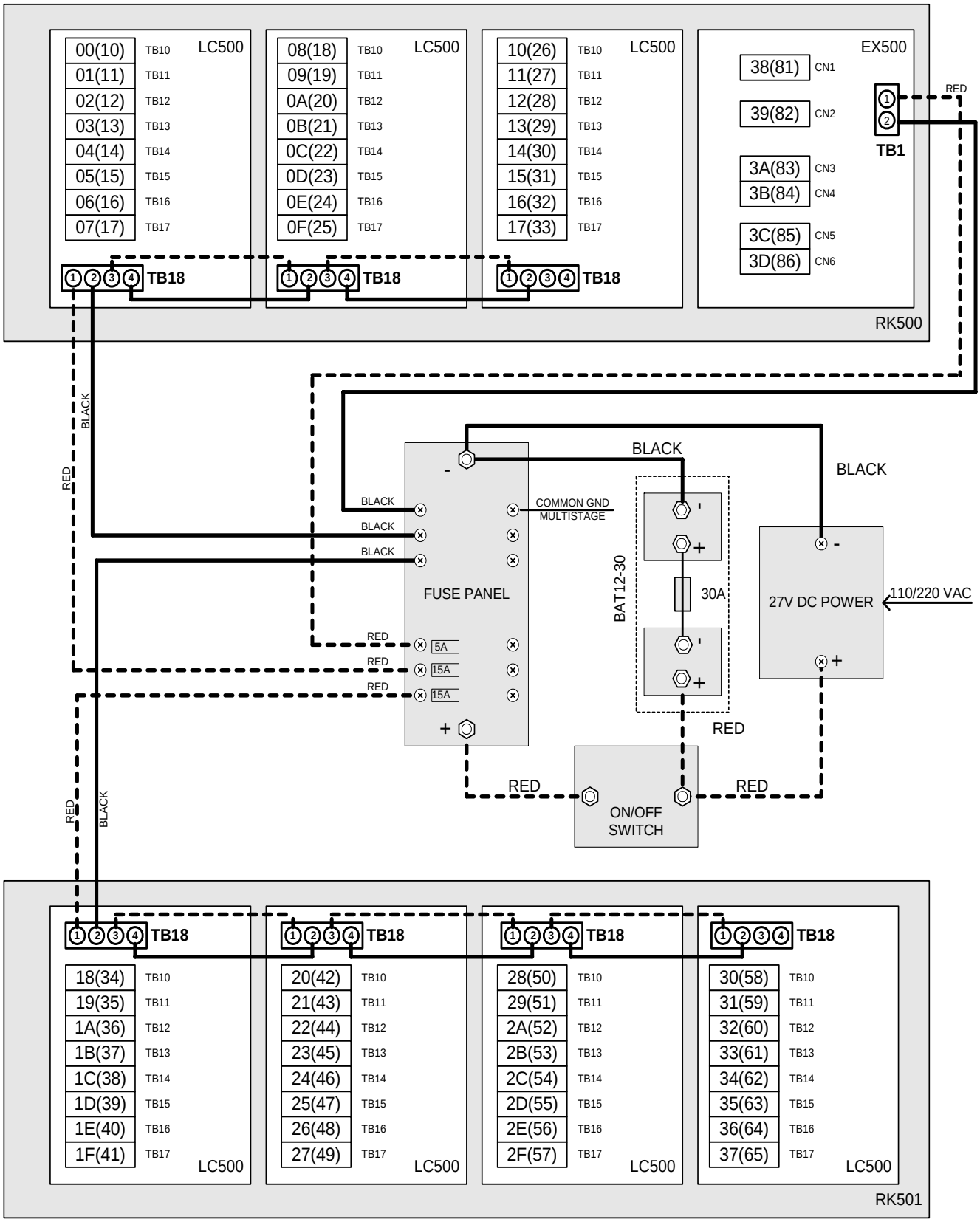


2008/1/18

Ribbon Cable Interconnections



Power Connections



TWO STAGE EX500

Two EX500 are interconnected to form one system. One to four audio links and one RS485 data link are used to connect the two centrals.

PROGRAMMING

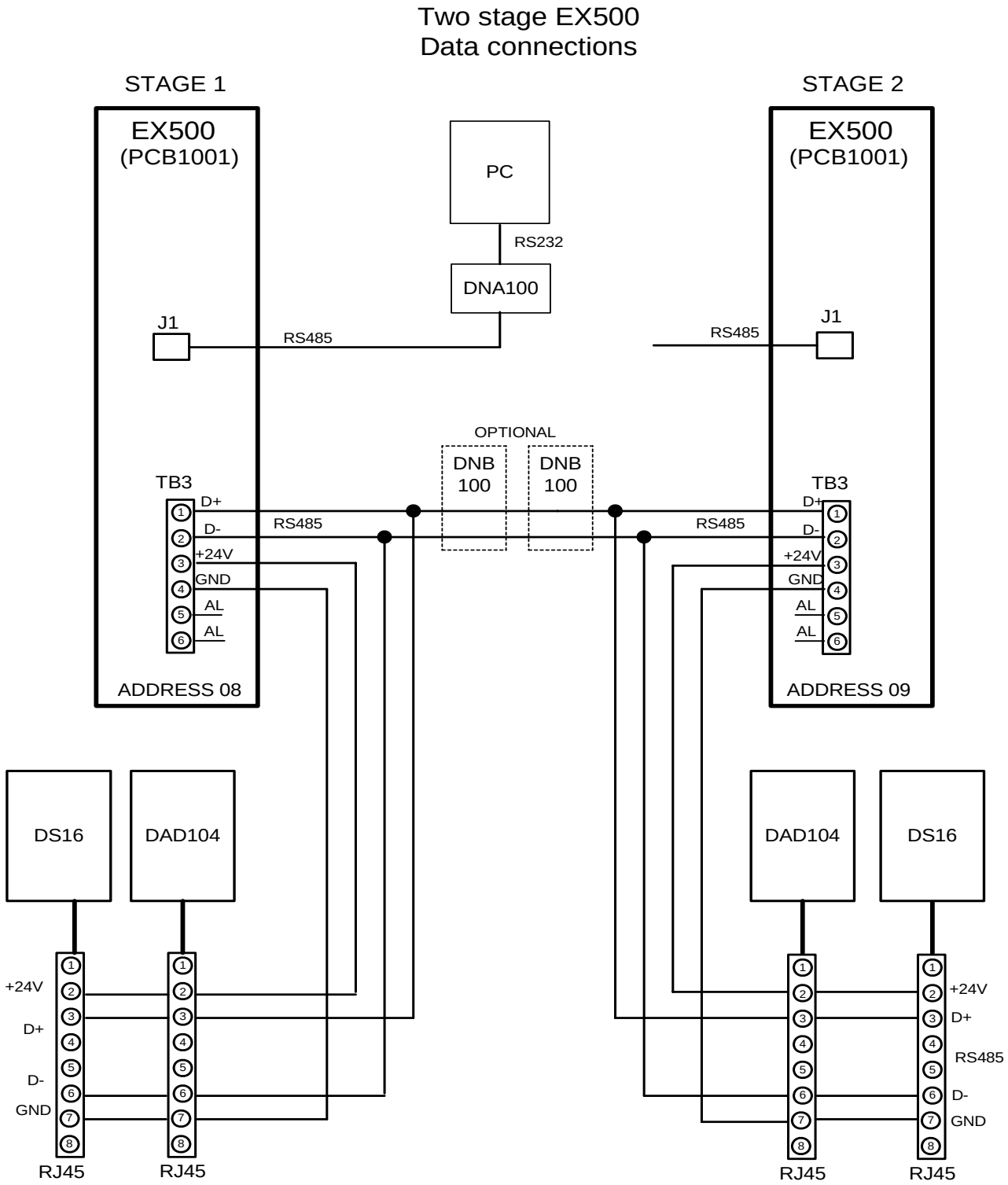
STAGE 1 (address $08)
1. Set number of call digits = 3 (page 34).
2. Initialize battery RAM (page 34).
3. Set network Address = 08 (page 34)
4. Undefine call numbers (SCNU *)
5. Define call numbers (SCN 100-155 R 00) for intercoms (line equipment $00-$37)
6. Define call numbers (SCN 181-186 R 38) for multiuse ports (line equipment $38-$3D)
7. Program Interlinks.

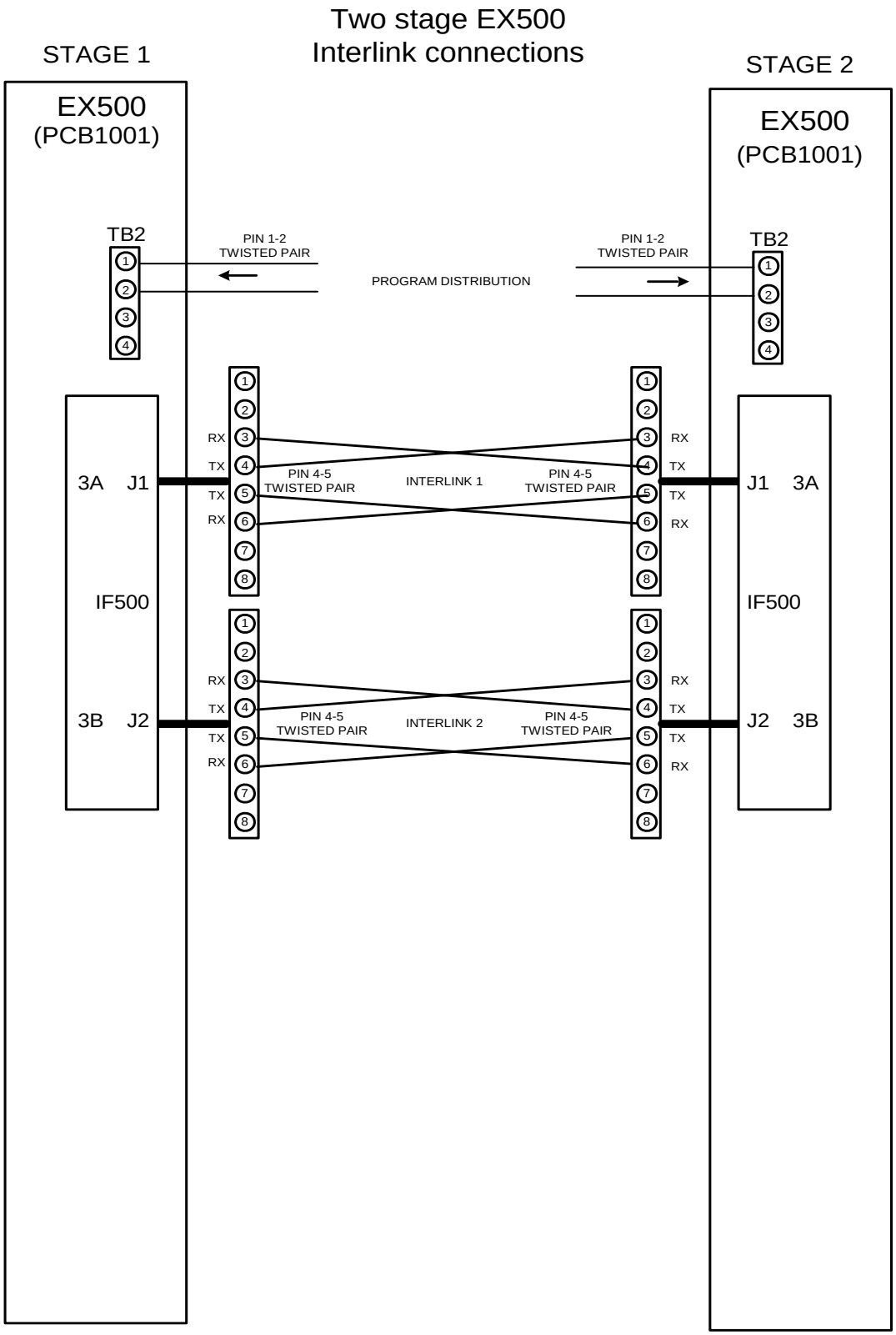
	Interlink1	Interlink2	Interlink3	Interlink4
Set device type ILK	SDT 183 6	SDT 184 6	SDT 185 6	SDT 186 6
Set remote net	SNA 183 4 09	SNA 184 4 09	SNA 185 4 09	SNA 186 4 09
Set remode line equ.	SNA 183 5 3A	SNA 184 5 3B	SNA 185 5 3C	SNA 186 5 3D

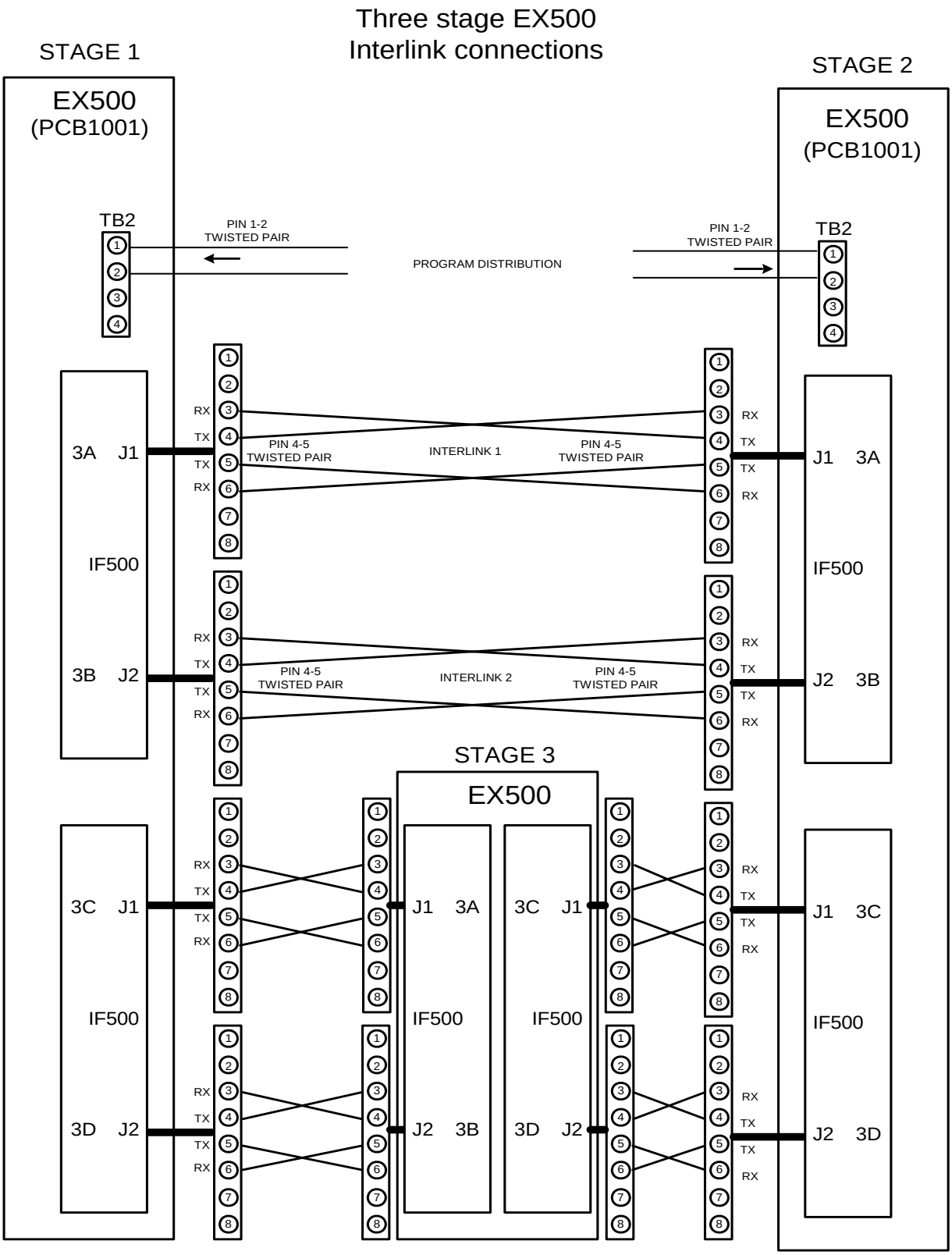
STAGE 2 (address $09)
1. Set number of call digits = 3 (page 34).
2. Initialize battery RAM (page 34).
3. Set network Address = 09 (page 34)
4. Undefine call numbers (SCNU *)
5. Define call numbers (SCN 200-255 R 00) for intercoms (line equipment $00-$37)
6. Define call numbers (SCN 281-286 R 38) for multiuse ports (line equipment $38-$3D)
7. Program Interlinks.

	Interlink1	Interlink2	Interlink3	Interlink4
Set device type ILK	SDT 283 6	SDT 284 6	SDT 285 6	SDT 286 6
Set remote net	SNA 283 4 08	SNA 284 4 08	SNA 285 4 08	SNA 286 4 08
Set remode line equ.	SNA 283 5 3A	SNA 284 5 3B	SNA 285 5 3C	SNA 286 5 3D

Push Reset Button on Stage 1 and Stage 2


Two stage EX500
Data connections
STAGE 1
STAGE 2
EX500
(PCB1001)
EX500
(PCB1001)
PC
RS232
DNA100
J1
RS485
RS485
J1
OPTIONAL
DNB
100
DNB
100
TB3
D+
D-
+24V
GND
AL
AL
RS485
RS485
TB3
D+
D-
+24V
GND
AL
AL
ADDRESS 08
ADDRESS 09
DS16
DAD104
DAD104
DS16
+24V
D+
D-
GND
+24V
D+
RS485
D-
GND
RJ45
RJ45
RJ45
RJ45


Two stage EX500
Interlink connections
STAGE 1
EX500
(PCB1001)
STAGE 2
EX500
(PCB1001)
TB2
PIN 1-2
TWISTED PAIR
PROGRAM DISTRIBUTION
PIN 1-2
TWISTED PAIR
TB2
3A J1
IF500
3B J2
RX
TX
TX
RX
PIN 4-5
TWISTED PAIR
INTERLINK 1
PIN 4-5
TWISTED PAIR
J1 3A
IF500
J2 3B
INTERLINK 2


Three stage EX500
Interlink connections
STAGE 1
EX500
(PCB1001)
STAGE 2
EX500
(PCB1001)
TB2
PIN 1-2
TWISTED PAIR
PROGRAM DISTRIBUTION
PIN 1-2
TWISTED PAIR
TB2
3A J1
IF500
3B J2
RX
TX
TX
RX
PIN 4-5
TWISTED PAIR
INTERLINK 1
PIN 4-5
TWISTED PAIR
J1 3A
IF500
J2 3B
INTERLINK 2
PIN 4-5
TWISTED PAIR
PIN 4-5
TWISTED PAIR
STAGE 3
EX500
3C J1
3D J2
J1 3A
J2 3B
3C J1
3D J2
J1 3C
J2 3D