

Network Master Receiver

MODEL TS2000

INSTALLATION GUIDE

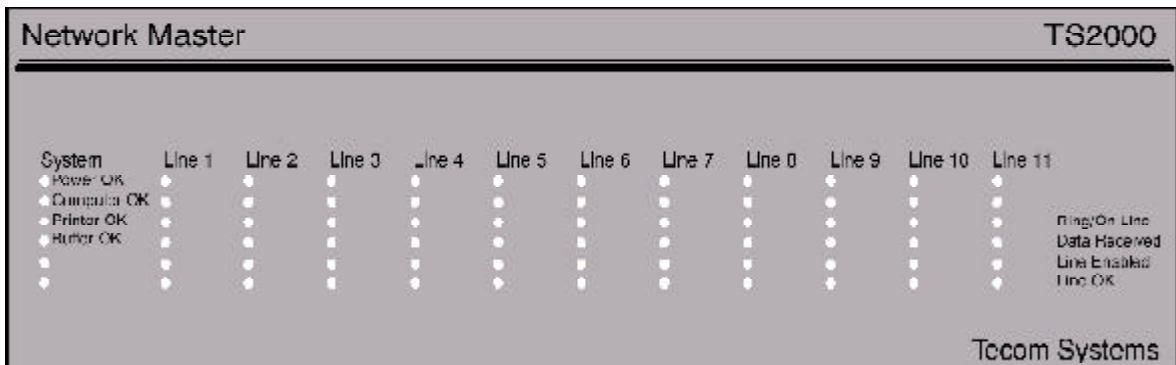
The TS2000 Network Master Receiver is a cost efficient and flexible, communications receiver in a single modular unit. Line cards allow communications over Direct Line, PSTN Dialers, Wireless Radio Packet, x25, DDS x28, Synchronous Dialer x32 and IEI formats.

Connectivity:

Within the rack are slots designed to accept one CPU card and twelve line cards of various communications formats. A printer, VDU and computer connection are provided on the rear of the unit.



The Network Master Receiver is not restricted to Tecom only products, its ability to accept a wide range of reporting formats enables communication with existing third party alarm panels. This degree of flexibility sees the TS2000 used for a variety of applications including, remote monitoring stations where the TS2000 connects to client alarm systems for monitoring and alarm reporting. It can also be used in-house for large sites where monitoring of security events is to be centralised on site.



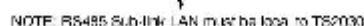
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Contents

SECTION 1 : TS2000 PRODUCT INFORMATION	4
Network Master Receiver Features:	5
Options:	5
Specifications:	6
 SECTION 2 : TS2000 HARDWARE CONFIGURATION	 7
The Layout, Rear:	7
The Layout, Front:	8
Dip Switches - CPU Board:	9
Dip Switches - x25 Line Card:	9
Computer Port Diagnostics:	10
 SECTION 3 : TS2000 OPERATOR'S MANUAL	 11
Operator's Screen:	11
Alarm Screen:	11
Summary Of Operator Commands:	12
Recall Screens:	14
Connecting Direct Line Panels:	15
Direct Line Attenuation:	16
 SECTION 4 : TS2030 NETWORK CONCENTRATOR	 17
Connectivity:	17
Network Concentrator Features:	18
Options:	18
Specifications:	18
 SECTION 5 : TS2030 HARDWARE CONFIGURATION	 19
Dip Switch Settings:	20
Link Events:	20
Output Control:	21
Dialup Operation:	21
 SECTION 6 : TS2040 IEI NETWORK INTERFACE	 22
Connectivity:	22
IEI Network Interface Features:	22
Specifications:	22
 SECTION 7 : TS2050 PARALLEL NETWORK INTERFACE	 23
Connectivity:	23
Parallel Network Interface Features:	23
Specifications:	23

SECTION 8 : TS2060&61 KRONE MODULES	24
Network Direct Line Disconnection Module Features:	24
Uplink & Phone Line Krone Module Features:	24
SECTION 9 : SYSTEM CONFIGURATION	25
System Configuration:	25
Configure System:	25
Printer Mode:	25
Alarm Mode:	25
Internal Events Address:	26
Host Computer:	26
Host Computer Baud Rate:	26
Buffer Size:	26
Offset Acc# with Group Code:	26
User Password:	27
Installer Password:	27
Program Time & Date:	27
Enable Line Cards:	27
Configure PSTN/PL Cards:	28
Configure x25 Card:	30
LineCard Operation:	31
Configure Radio DB:	32
Test Messages:	32
SECTION 10 : COMMANDS	33
Network Master Recalls:	33
Recall Summary of Highway or Downline:	33
Tecom Panel Recalls:	34
Tecom Panel Commands:	34
SECTION 11 : CONTACT ID EVENTS	36
Internal Events:	36
Direct Line Panel Supervision:	37
Events Generated by Challenger:	37
Events Generated by Line Card (LC) for Challenger:	38
Events Generated by x25 Line Card (LC):	38
Events Generated by the Challenger Panel:	39
Contact ID Messages:	39
SECTION 12 : GLOSSARY	44

SECTION 1 : TS2000 PRODUCT INFORMATION



Network Master Receiver : Model TS2000

Network Master Receiver Features:

Each of the Cards housed within the Network Master Receiver have status indicator LEDs. The CPU Card has Power OK, Computer OK, Printer OK and Buffer OK LEDs. The front panel of the receiver features a clear display for all Line Card LEDs and the rear provides a range of ports and connections.

Options:

TS2010	Network Master CPU Card
TS2020	Network Master Line Card supporting PSTN & Direct Line
TS2021	Network Master X25 Radio/X32 Synchronous Dialer Line Card
TS2022	Network Master X28 Direct Dial Service (DDS) Line Card
TS2060	Network Master Direct Line Disconnection Modules
TS2061	Uplink and Phone Line Krone Module

TS2010 Network Master CPU Card

The CPU Card is the central controller which processes Line Card information and provides RS232 ports for a host computer, VDU terminal and printer.

TS2020 Network Master Line Card

The Line Card is a conduit for information being received from field equipment. Each line card supports either direct line or all PSTN dialer formats. When operating in direct line mode a single line card can communicate with up to 4,000 Challenger Panels, with the connection of Network Concentrators (TS2030) and Direct Line Disconnection Modules (TS2060 & TS2061).

TS2021 Network Master X25 Radio Line Card

The TS2021 communicates with the Telstra Digital Mobile Data Radio Networking Gateway via an X25 DDS NTU connection. In the event of an outage on the X25 service the TS2021 will automatically switch to an X32 synchronous dialer connection via Auspac to re-establish communications. Up to 2048 panels, fitted with TS2053 Mobile Data Interfaces, can be polled from a single TS2021.

TS2022 Network Master X28 Line Card

The TS2022 provides a DDS connection to a maximum of 8 TS2030s, providing a higher speed, zero loss, data connection when compared with a standard direct line.

TS2060 Network Master Direct Line Disconnection Modules

The Network Direct Line Module mounts in a standard Krone frame and provides an easy and quick method of multi dropping up to 10 direct line devices. Each tap on the direct line is protected by integral series resistors, which prevent a localised short circuit from disabling a network.

TS2061 Uplink and Phone Krone Modules

The Network Master Concentrator Uplink and Phone Line Krone Module eases the wiring restrictions when connecting the direct line uplink port and PSTN phone line port to the TS2030.

Network Master Receiver : Model TS2000

Specifications:

Power Supply

Input Voltage: 13.8 Volts DC (recommend power supply from TS0073)
Operating Current: 150 mA plus 150mA per line card

Communications

Addressing: All line cards are individually addressed via dip switches
Reporting Formats: Dialer 4 + 2, High Speed, DTMF Highspeed and extended Highspeed as well as DTMF Contact ID, Direct Line, IEI Direct Line, X25, X28, X32

Operating Capacities and Connections

CPU Card: One per Network Master Receiver
Line Card: 12 per Network Master Receiver (in combination)
Operating Temperature: 0 - +70°C

Display

CPU Card LEDS: Power OK, Computer OK, Printer OK, Buffer OK
Line Card LEDS: Specific to line card

Network Master Receiver

MODEL TS2000

SECTION 2 : TS2000 HARD WARE CONFIGURATION

The Layout, Rear:

The Dialer Master Comprises of 1 CPU Card and up to 12 Line Cards.

The CPU Card must be positioned in the most left hand (as viewed for the front) slot, the line cards then can be located in any/all of the other slots, with the first line card being number 0. The location of line cards in the rack is independant of its address which is determined by dip switch settings.

12vdc

A 3 way screw termination strip is provided for 12v dc power, from the left the terminals are as follows:

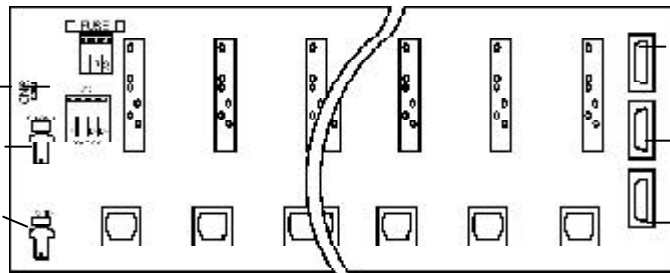
- 1 High Integrity Earth
- 2 0v
- 3 12v

Total current consumption for the Dialer Master can be calculated as 150ma X number of PCB cards installed, ie a minimum system of 1 CPU card & 1 Line Card will require 300ma @ 10.5 - 13.8 V.

Computer Port

DB9 Pin #	Description	Direction
2	RX	In
3	TX	Out
5	Gnd	

Data Format	Data Rate	Selectable
	Number of data bits	8
	Number of stop bits	1
	Parity	None



Earthing

Two 6.8mm Spade connectors are provided on the left hand rear of the rack.

The lower 6.8mm spade connector is to be connected to a High Integrity Earth and is used for lightning protection by each of the line cards.

The Upper 6.8mm spade connector is to be connected to a High Integrity Earth and is used for general protection by earthing the 0v connection to 12v power.

There is an earthing link next to each of the RJ-11 connectors these should be left in place. (linked)
There is also another link next the 3 way 12v dc power connector this should be left in place (linked).

VDU Port

DB9 Pin #	Description	Direction
2	RX	In
3	TX	Out
5	Gnd	

Data Format	Data Rate	4800 Baud
	Number of data Bits	8
	Number of stop bits	1
	Parity	None

VDU Type	ANSI Compatible	Eg QUME 103, VT100
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Telstra Connection' s

Located directly behind each of the line card slots is a RJ-11 modular socket.

603/604

Plugged into the RJ-11

Pin #	PSTN	Private Line
1	Phone +	
2	PSTN +	
3	EARTH	
4		Line +
5	Phone -	
6	PSTN -	Line -

Printer Port

DB9 Pin #	Description	Direction
3	TX	Out
8	CTS	In
5	Gnd	

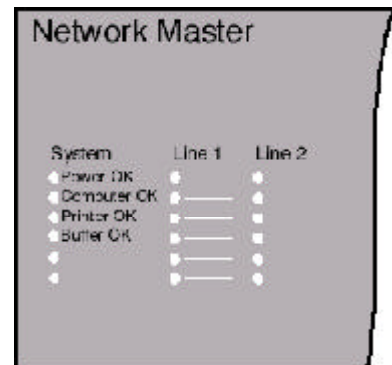
Data Format	Data Rate	4800 Baud
	Number of data Bits	8
	Number of stop bits	1
	Parity	None

Network Master Receiver : Model TS2000

The Layout, Front:

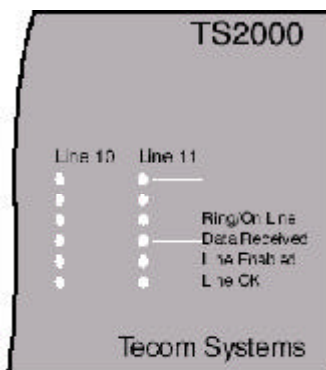
CPU Board

Power Ok	12V DC Power OK.
Computer Ok	Host computer link ok. If this indicator is out, the network master stops receiving events, from both the dialup and direct lines.
Printer Ok	Local Printer link ok. If this Indicator is out, the printer has failed
Buffer Ok	Event Buffer Manager ok. If this Indicator is out, the CPU buffer is full and event processing will cease, having the same effect as the computer failing.
-	Not Used
System Fault	Internal System Fault. Flashing - The system has detected an internal error condition.



PSTN/PL Line Card(s)

-	Not Used
-	Not Used
Ring/Online	Dialup mode - Incoming PSTN line is ringing. Incoming PSTN line is offhook DirectLine mode - In Direct line mode.
Data RCV	Dialup mode - Receiving DTMF data
Line Enable	CPU card is polling the line card.
Line Ok	PSTN line OK. (fault free) Flashing- A computer or Buffer error has been detected and the line card is unable to accepted events



X.25 Line Card(s)

Link Level	On - Ok Off - Fail
Packet Level	On - Ok Off - Fail
Loop Back	On - Ok Off - Fail
DataBase RAM	Flashing - Bad RAM CheckSum On - Programming FLASH DataBase Off - Normal Operation
Line Enable	CPU card is polling the line card.
Line Ok	Off - Highway OK. (fault free) Flashing- A computer or Buffer error has been detected and the line card is unable to accepted events

The connection sequence for the X.25 will be as follows; Link Level first, then Packet Level and finally Loop Back LED.

Network Master Receiver : Model TS2000

Dip Switches - CPU Board:

The CPU Board has a 4 way Dip switch, all switches should be off.

- Sw 1 - off Check Installer Password
 - on Don't Check Install Password
- Sw 2 - off VDU & Printer Baud Rate 4800
 - on VDU & Printer Baud Rate 19.2K
- Sw 3 - Reserved
- Sw 4 - Reserved

Dip Switches - Line Card:

Note : *Dip Switch #2 is only available with the S.M.D Version of CPU board, the firmware must be NM CPU-S.511 or greater. Firmware earlier than this will fix the Baud rate at 4800 for the printer and VDU.*

The Line Card has a 6 way (4 way on PCB 2001B) dip switch used to configure the address of each line card. By convention the most left hand line card will have the lowest address.

All line cards must have a unique address. The slot address has no effect on the address of the the card.

Dip Switch Settings

Line Card Address.	Sw 1	Sw 2	Sw 3	Sw 4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On
10	Off	On	Off	On
11	On	On	Off	On

Dip Switches - x25 Line Card:

The X25 Line card requires an additional daughter board (supplied with the X25 Card) to be plugged into the rear of the rack. This board provides connection for both the X.25 N.T.U (Network Termination Unit) direct connection and the X.32 dialup modem connection into the X25 packet switched network.

Only one connection is required to for the system to work, the X.32 dialup connection was provided as a backup to the direct X.25 connection.

The HH (Hang Highway) Command can be used to Manually switch the communications between X.32 and X.25, X.25 and X.32.

Network Master Receiver : Model TS2000

Dip Switch Settings

Address.	Sw 1	Sw 2	Sw 3	Sw 4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On

Computer Port Diagnostics:

To Aid in the determination of computer port problems. There is a Computer Port window to the left of the Time & Date window on the main alarm screen status bar.

The left hand side of the Computer port window is the transmitter of the network master to the computer, and uses the following single character codes to identify the state of this port,

- M - Message
- R - Retry
- O - Okay Message (in response to a Rcv'd "S" Message)

The Right hand side of the Computer port window is the receiver of the network master from the computer, and uses the following single character codes to identify the state of this port,

- A - Acknowledge Received
- S - "S" Message Received

If the Computer Port is set to None the Computer Port Window will not be blank.

Summary Of Operator Commands:

Commands	Description
PA - Access Area	Access 1 or all Area's
PS - Secure Area	Secure 1 or all Areas
PI - Isolate Input	Isolate input Point
PD - Delsolate Input	Delsolate Input Point
PR - Reset Input	Reset Input Point
PN - Output Point On	Turn on Output Point
PO - Output Point Off	Turn Off Output Point

Recalls

RS - Summary Status	Recall Summary Status of CPU, Line Card, Link or Panel
RE - Area Status	Recall Panel Area Status
RA - Alarm Inputs	Recall Panel Alarm Inputs
RT - Tamper Inputs	Recall Panel Tamper Inputs
RI - Isolated Inputs	Recall Panel Isolated Inputs
RU - Unsealed Inputs	Recall Panel Unsealed Inputs
RR - RAS Status	Recall Panel RAS Status
RD - DGP Status	Recall Panel DGP Status
RC - Comms Errors	Recall Node Comms Errors
RM - Mapped Address	Recall Node Mapped Address
RK - Encryption Keys	Recall Node Encryption Keys

Engineering

MN - Map Node	Map Node Account Number
KN - Key Node	Key Node Encryption Number
AN - Activate Node	Activate Node (online)
RN - Recall Node	Recall Node (Type and Version)
K - Clear Screen	To Clear Screen of Alarms
X - System Configure	Enter Configuration Screens
M - Maximize alarm Screen	Removes recall screen
A - Acknowledge	Stops Beeping
C - Clear Recalls	Clear Recall screen
/ - Redraw Screen	Redraw screen
\ - Redraw Screen	Redraw screen
? - Help	Display Help Screen #1
?? - Help	Display Help Screen #2
- - Logoff	Log off operator from alarm screen
+ - Logon	Log on operator to alarm screen
DH - Dial Node on Hwy	Uses Dialup line card to connect to Node.
HH - Hangup Hwy	Hangup dialup line card.
LH - Loop Hwy	Manually answer incoming call to line card.

Network Master Receiver : Model TS2000

Examples

Recall CPU, Summary or Node

RS HKSLP #
RN HKSLP #

Recall Highway, Summary or Node

RS HKSLP #1
RN HKSLP #1

Recall Panel on Highway, Summary or Node

RS HKSLP #11
RN HKSLP #11

Recall Link/Sub-Link on Highway, Summary or Node

RS HKSLP #110
RN HKSLP #110

Recall Link Down Line, Summary

RS HKSLP #110

Recall Panel on Link Down Line, Summary or Node

RS HKSLP #11001
RN HKSLP #11001

Connect Panel on Highway with default account number

AN HKSLP #11

Connect Panel on Highway with mapped account number

MN HKSLP #11 MAP #123456
AN HKSLP #11

Connect Panel on Link Down Line with default account number

AN HKSLP #11001

Connect Panel on Link Down Line with mapped account number

MN HKSLP #11001 MAP #654321
AN HKSLP #11001

Recall Screens:

```
Link Level      -      Fail
Packet Level   -      Fail
Loop Back      -      Fail
Connection Mode -      X.32
```

[illegible]

```

HKSLP #90000 > LLI-00000000 ACC-090000 POLLING Cat-0 State-x
HKSLP #90001 > LLI-00000000 ACC-090001 POLLING Cat-0 State-x
HKSLP #90002 > LLI-00000000 ACC-090002 POLLING Cat-0 State-x
HKSLP #90003 > LLI-00000000 ACC-090003 POLLING Cat-0 State-x
HKSLP #90004 > LLI-00000000 ACC-090004 POLLING Cat-0 State-x
HKSLP #90005 > LLI-00000000 ACC-090005 POLLING Cat-0 State-x
HKSLP #90006 > LLI-00000000 ACC-090006 POLLING Cat-0 State-x
HKSLP #90007 > LLI-00000000 ACC-090007 POLLING Cat-0 State-x
HKSLP #90008 > LLI-00000000 ACC-090008 POLLING Cat-0 State-x
HKSLP #90009 > LLI-00000000 ACC-090009 POLLING Cat-0 State-x

```

14 TS2000IN.P65 Issue I Revision I: August 1998

Network Master Receiver : Model TS2000

Connecting Direct Line Panels:

Installation of a new panel on the direct line network, is simple requiring only a few steps to be taken:

- 1) Connect the panel to the network, its location within the network determines its physical address.
- 2) Set the direct line address in the panel. *
- 3) Optionally set the encryption key in the panel. *
- 4) Optionally Map the Node address, at the network master. By default the physical address will be used, unless overridden by Map Node command (example below.).
- 5) At the network master, Key the Node (example below) setting the Network Master to the same encryption key as used by the Challenger.
- 6) At the network master, Activate the Node (example below).

Network Master Examples - Link on Highway

MN	HKSLP #110	Map #111000	(Map Node) **
KN	HKSLP #110	Key #0	(Key Node)
AN	HKSLP #110		(Activate Node)

Note : *Sub link number must be included.*

Network Master Examples - Panel on Highway

MN	HKSLP #11	Map #111000	(Map Node) **
KN	HKSLP #11	Key #0	(Key Node)
AN	HKSLP #11		(Activate Node)

Network Master Examples - Panel on Down Line

MN	HKSLP #11001	Map #111001	(Map Node) **
KN	HKSLP #11001	Key #0	(Key Node)
AN	HKSLP #11001		(Activate Node)
AN	HKSLP #11001		(Activate Node)

*Note : *In the Challenger these options can be programmed under "Installer Menu" then "System Options".*

**Note : *If the enter key is pressed on a blank Map # field, then the HKSLP address will be copied into the map field, prefixed by the first digit of the station address.*

Direct Line Attenuation:

The Tecom Systems Direct Line network is designed to multi-drop 10 panels per line segment. The number of panels that may be practically connected in a segment is limited by the attenuation within that segment.

The line performance is given by;

$$RX_{sens} > TX_{pwr} + (n * A_{panel}) + A_{seg} \quad \text{Eqn (1)}$$

Where;

RX_{sens} = Receiver Sensitivity = -43 dBm

TX_{pwr} = Transmission Level (Limited by Austel regulations) = -10 dB

A_{panel} = Attenuation per panel = 3 dBm

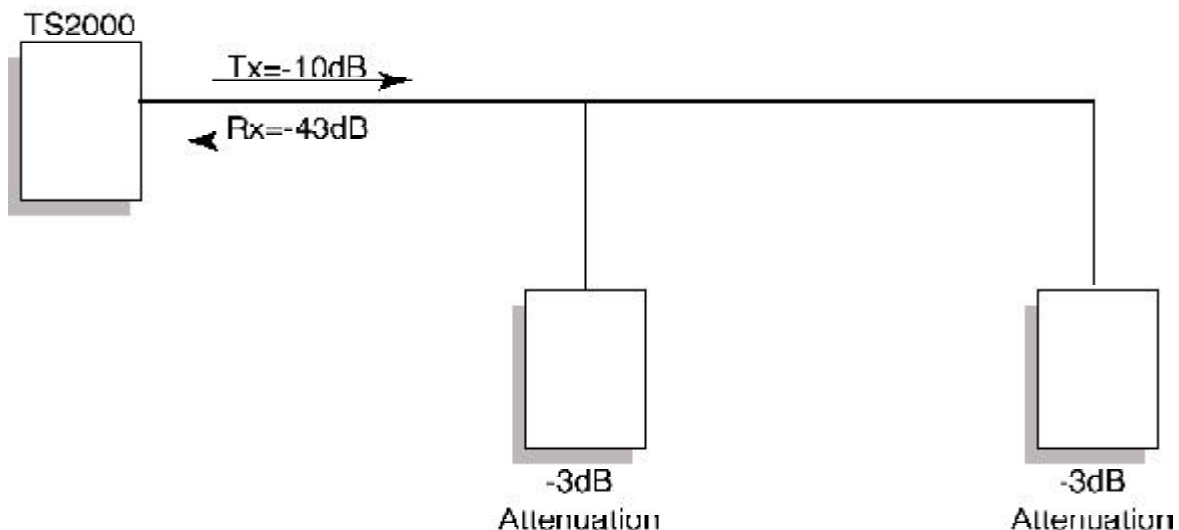
A_{seg} = Attenuation due to line loss, background noise, etc.

Therefore:

$$-43 \text{ dB} > -10 \text{ dB} + (10 * -3 \text{ dBm}) + A_{seg} \quad \text{Eqn (2)}$$

The miscellaneous line losses (A_{seg}) must be less than 3 dBm for the Direct Line network to function properly with 10 panels connected. This is the case when the panels are all physically located near to each other, and may also be achieved when all of the panels are within the same exchange boundary.

If the line losses rise close to, or above the 3 dBm level, the number of panel will have to be reduced until the limitations of Eqn (1) are met.



Network Master Receiver

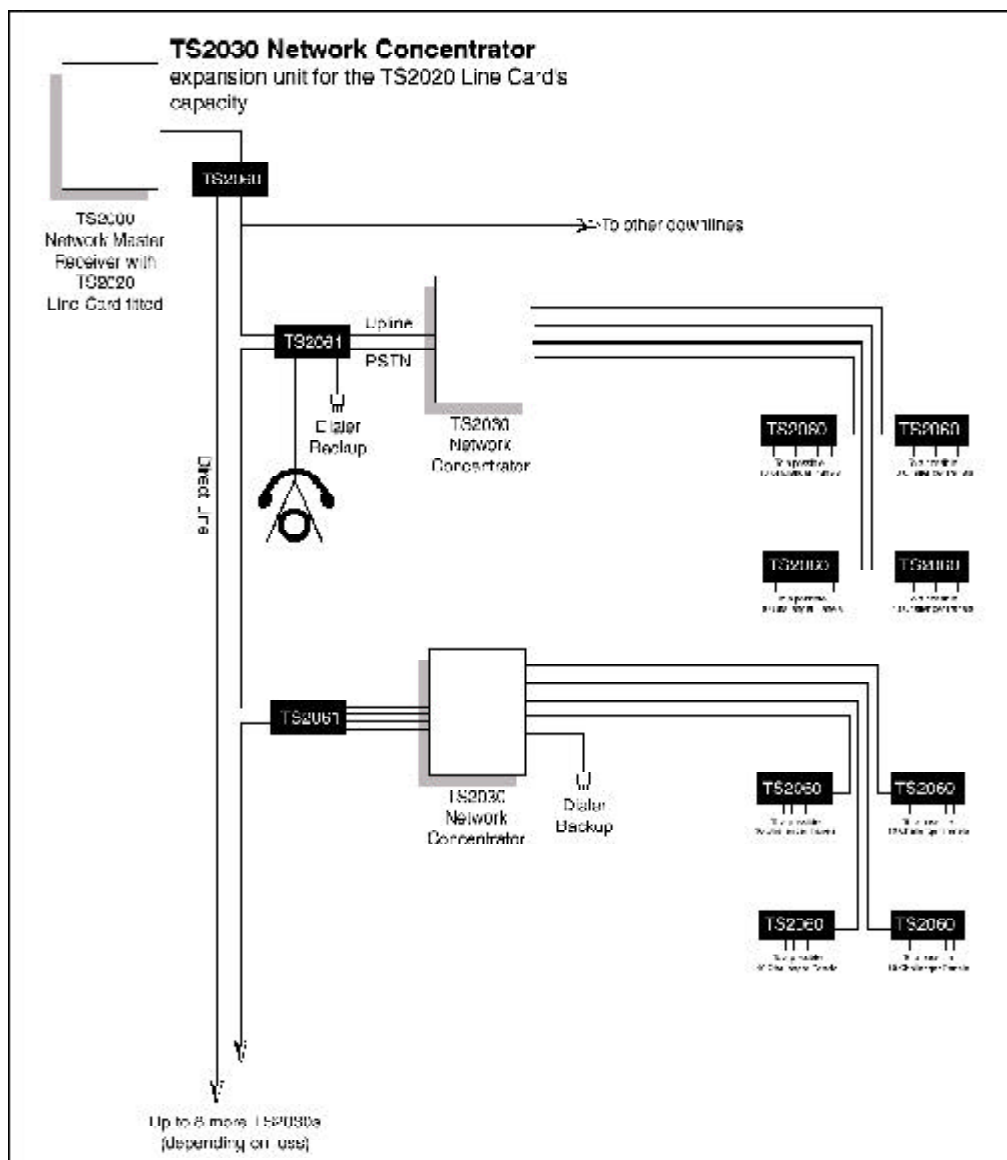
MODEL TS2000

SECTION 4 : TS2030 NETWORK CONCENTRATOR

The TS2030 Network Concentrator is a fully self contained unit used to expand a TS2020's Direct Line capacity by a factor of forty. Strategic utilisation of the TS2030 enables remote grouping of clients and a reduction in the number and length of direct lines required to service a given customer base. Up to 100 TS2030 Network Concentrators, accommodating 40 alarm panels each, may be connected to a single TS2020 Line Card. In the event of a network failure each Concentrator is fitted with a PSTN dialer backup connection for network recovery.

Connectivity:

Used in conjunction with the TS2060 and TS2061 Network Master Disconnection Modules a single TS2030 can communicate with up to 40 Tecom direct line panels or MSS AC HSTs. An onboard DDS connection provides 2400 baud communications with a TS2021 DDS Line Card as an alternative to direct line. Up to 9 sublinks, TS2030s and TS2040s, can be connected to each TS2030.



Network Master Receiver : Model TS2000

Network Concentrator Features:

If the Direct Line should fail an onboard PSTN line provides backup communications. The Network Concentrator has an onboard power supply and charging circuitry housed within its own metal enclosure with front and rear tamper switches. A standard keyswitch connection for arming and disarming of alarm inputs on the Concentrator is also provided.

Options:

TS2030	Network Concentrator
TS2040	IEI Network Interface
TS2060	Network Master Direct Line Disconnection Module
TS2061	Network Master Concentrator Uplink & Phone Line

TS2030 Network Concentrator

Additional TS2030s can be connected to the primary TS2030 as sublinks. Up to 9 can be added, increasing client capacity to 400 per TS2030.

TS2040 IEI Network Interface

The interface allows existing IEI E63 panels and IEI E62 Concentrators to report on the Tecom Direct Line Network to a remote monitoring station. Up to 9 TS2040 can be added to a TS2030 facilitating the addition of up to 144 E63 panels.

TS2060 Network Master Direct Line Disconnection Module

The Network Direct Line Disconnection Module eases wiring restrictions when connecting multiple direct line panels to a single down line. Each down line client connected by a TS2060 is afforded short circuit protection.

TS2061 Network Master Concentrator Uplink & Phone Line Disconnection Module

The Network Master Concentrator Uplink and Phone Line Module eases wiring restrictions when connecting the direct line uplink port and PSTN phone line port to the TS2030.

Specifications:

Power Supply

Input Voltage:	16 - 18 Volts AC Plug Pack (space for 6.5AH battery allocated)
Battery:	Onboard battery charging circuit for 6.5 Amp battery
Operating Current:	850mA maximum (no peripheral devices fitted)
Aux. Power O/P:	100mA maximum (for detectors etc.)

Operating Capacities and Connections

Total Number of TS2060:	4 per TS2030 (dependant on losses)
Total Number of TS2061:	1 per TS2030 (dependant on losses)
Alarm Inputs:	2 x 2 state monitored inputs and one keyswitch
Operating Temperature:	0 - +70°C

Communications

Specified Cable between sublinks:	Belden 8723 or equiv.
Direct Line Monitoring:	Continuous monitoring for Off-Line status of all devices
DDS Connection:	DB25 Male mounted to metal work (RS232)
Addressing:	All remote devices are individually addressed via dip switches
Support Third Party Panels:	MSS ACHST
4 x RJ12:	Down Line (mode 14)*
1 x RJ12:	Up Link / Down Line (mode 14)*
1 x RJ12:	PSTN Dial Back Up (mode 3)*

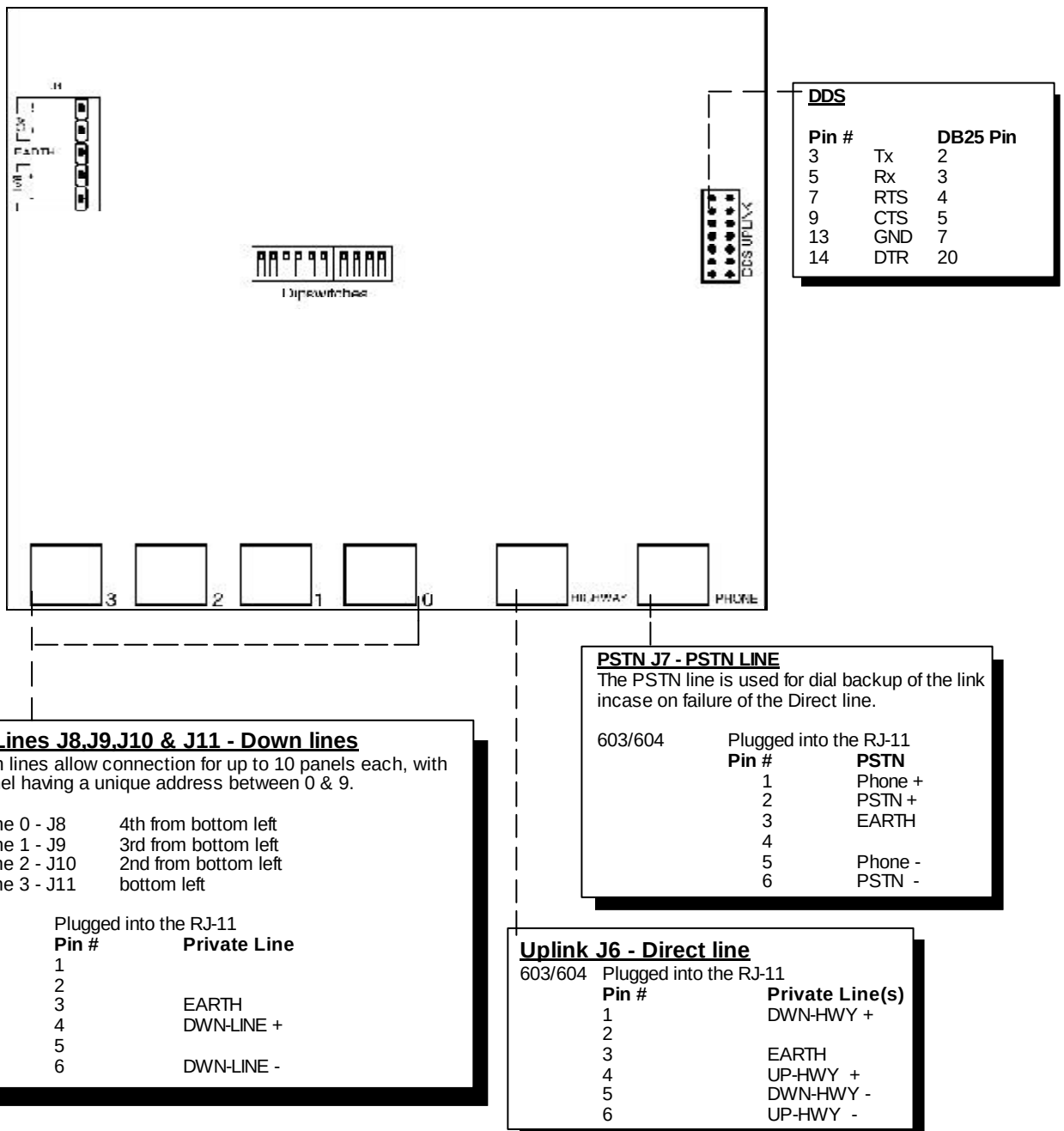
Network Master Receiver

MODEL TS2000

Network Master Receiver : Model TS2000

SECTION 5 : TS2030 HARDWARE CONFIGURATION

The TS2030 Network Concentrator is a fully self contained unit used to expand a TS2020's Direct Line capacity by a factor of forty. Strategic utilisation of the TS2030 enables remote grouping of clients and a reduction in the number and length of direct lines required to service a given customer base. Up to 100 TS2030 Network Concentrators, accommodating 40 alarm panels each, may be connected to a single TS2020 Line Card. In the event of a network failure each Concentrator is fitted with a PSTN dialer backup connection for network recovery.



Network Master Receiver : Model TS2000

Dip Switch Settings:

Address	Sw 1	Sw 2	Sw 3	Sw 4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On

SW5 On - Reserved
 Off - Normal

SW6 On - DDS
 Off - Private Line

Note: The Encryption key has been internally set to 0

Link Events:

System Reset

xx xxxx E305 00 C000 TROUBLE - System Reset

AC Power

xx xxxx E301 00 C000 TROUBLE - AC Power

xx xxxx R301 00 C000 Restore - AC Power

Battery Low

xx xxxx E302 00 C000 TROUBLE - System Battery Low

xx xxxx R302 00 C000 Restore - System Battery Low

Ext Sect 1

xx xxxx E140 00 C001 *ALARM* - ALARM #001

xx xxxx R140 00 C001 Restore - AC Power

Ext Sect 2

xx xxxx E140 00 C002 *ALARM* - ALARM #003

xx xxxx R140 00 C002 Restore - AC Power

Ext Sect 3

xx xxxx E400 00 C003 OPENNING

xx xxxx R400 00 C003 CLOSING

Network Master Receiver : Model TS2000

Output Control:

The following relays are controllable from the TS2000, using PN & PO commands.

Relay #1 - Uplink In Relay

(Connects the uplink private line (from Line Card or upstream link) to the on board modem).

Relay #2 - Uplink Out Relay

(Connects the downlink private line (to the next link) to the on board modem).

Relay #3 - Aux Relay (User definable)

Dialup Operation:

If a PSTN line is installed in the LINK, then as Backup in case of Primary Private Line or DDS failure, a Line Card can be commanded to connected to the Link using the DH, Dial Highway Command.

Note: Dialup connection is only possible when the Primary Connection has failed for more than 60 seconds. The Uplink and Downlink relays can be used for problem determination.

Network Master Receiver

MODEL TS2000

SECTION 6 : TS2040 IEI NETWORK INTERFACE

The IEI Network Interface allows existing IEI panels to report on the Tecom Direct Line Network via a TS2030 to a remote monitoring station.

Connectivity:

Communicating with the TS2000 Network Master on a Tecom Direct Line Network, the IEI Network Interface is connected to a TS2030 Network Concentrator as a sublink. Through this chain, alarms are sent directly to the Network Master to be reported at a remote monitoring station. A Tecom standard metal enclosure houses the TS2040.

IEI Network Interface Features:

The IEI Interface supports all 9 states including partial communications (status 8). Five LEDs indicate, power, up (communicating to TS2030), DN (communication from TS2030), P (polling E62 or E63 panel) and R (E62 or E63 panel responding to polling from TS2040) status' for easy diagnostics. Tone groups are fixed to code set A. The IEI command back facility is fully supported for all addresses.

Specifications:

Power Supply

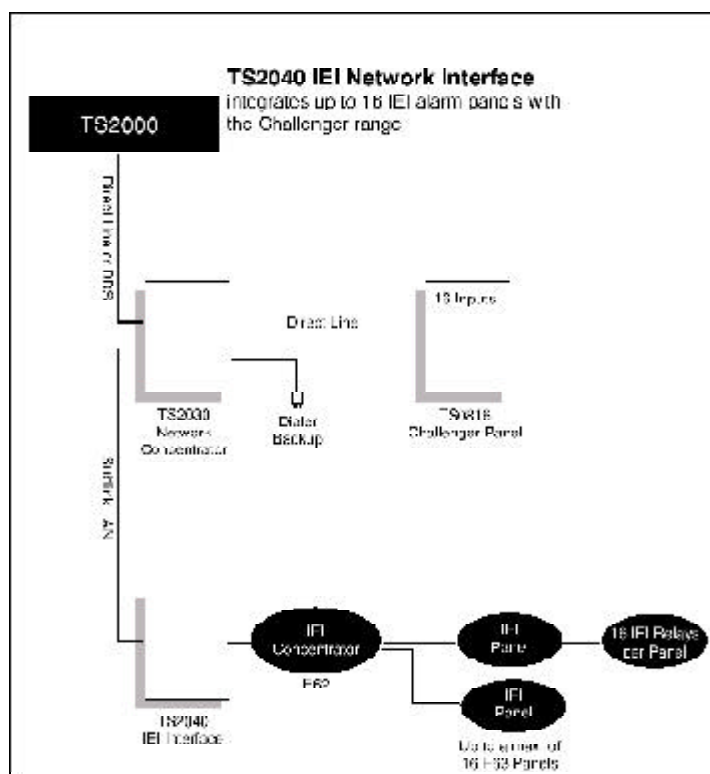
Input Voltage: 10.5 – 13.8 Volts DC
Operating Current: 50mA maximum (no peripheral devices fitted)

Communications

Specified Cable for Challenger and Sublink LAN: Belden 8723 or equiv.
LAN Monitoring: Continuous monitoring for Off-Line status of all devices on the LAN
Addressing: Individually addressed via dip switches
Tone Groups: Code Set A
Operating Temperature: °C

Display

Power LED: Indicates connection of power
UP: Indicates Interface is replying to polling data from the Network Concentrator Link
DN: Indicates Interface is receiving polling data from the Network Connector Link
P: Indicates polling data being sent to the E63 Concentrator or E62 Panel
R: Indicates the E63 or E62 Panel is responding to the polling



Network Master Receiver

MODEL TS2000

SECTION 7 : TS2050 PARALLEL NETWORK INTERFACE

The Parallel Network Interface is a compact unit which provides a number of two-state monitored inputs to the direct line network as well as an interface to third party DC alarm panels.

Connectivity:

The TS2050 interface communicates with the TS2000 Network Master on a Tecom Direct Line Network. Alarms from both the third party alarm panel and the two-state monitored inputs on the TS2050, are sent directly to the Network Master at the monitoring station. Depending on the version of software purchased with the TS2050 either 7 or 8 inputs are provided. A Tecom standard metal enclosure is supplied with the TS2050.

Parallel Network Interface Features:

The TS2050H interface has connections for up to 8 inputs and the TS2050 has 7. Input status' on both versions are reported directly to a remote monitoring station without additional hardware, which is a suitable solution for alarm monitoring only.

Specifications:

Power Supply

Input Voltage: 10.5 – 13.8 Volt DC
Operating Current: 50mA plus third party alarm panel requirements
Auxiliary Power O/P: 12 Volt DC

Communications

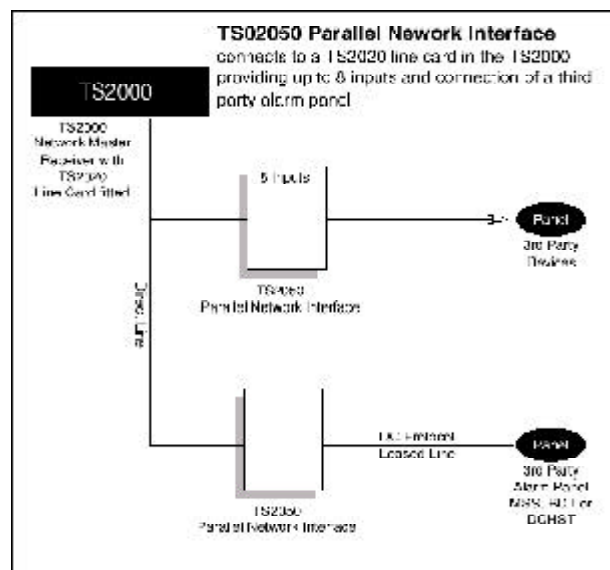
Direct Line Monitoring: Continuous monitoring for Off-Line status of all devices
Addressing: Individually addressed via dip switches
Supported 3rd Party Panels: Wormalds Centascan
MSS DCHST
MSS BCT

Operating Capacities and Connections

Direct Line Plug: Mode 14 Direct Line
Inputs: TS2050H – 8 Alarm Inputs
TS2050 – 7 Alarm Inputs plus one open/close input
Operating Temperature: 0 - +70°C

Display

LEDs: Power, Rx, Tx



SECTION 8 : TS2060&61 KRONE MODULES

Network Master Receiver

MODEL TS2000

Network Master Receiver : Model TS2000

SECTION 9 : SYSTEM CONFIGURATION

System Configuration:

Access to the system configuration menu can only be made by entering X4346 (Substituting your password for the default installer password of 4346) from the alarms screen.

```
1 - Configure System.
2 - Program Time & Date.
3 - Enable Line Cards.

4 - Configure PSTN/PL Cards.

5 - Configure X25 Card.
6 - Configure Radio DB.

7 - Test Messages

X - Alarms Mode.
```

This menu will now be displayed, enter the digit of required function to program.

Configure System:

```
Printer Mode (Space Bar)      : Disabled
Alarm Mode   (Space Bar)      : Enabled
Internal Events Address xxxx  : 9988
Station Prefix (Map)  xx      : 99
Host Computer                               : None
Host Computer Baud Rate          : 600
Buffer Size  (50-250)  xxxx    : 250
Offset Acc# with Group Code     : No
```

Printer Mode:

Use the space bar to select one of the three possible options listed below:

```
Enabled
Only on Computer Fail
Disabled
```

Alarm Mode:

Use the space bar to select one of the three possible options listed below:

```
Enabled
Only on computer fail
Disabled
```

Network Master Receiver : Model TS2000

Internal Events Address:

The Internal Events Address sets the 4 digit account number for all messages generated internally by the Dialer Master.

To set a new account number enter the required 4 digit number followed by the enter key.

Station Prefix (map)

The station number sets the 2 digit receiver group number for all Internal Events. (ie the 2 digit prefix)

To set a new station number enter the required 2 digit number followed by the enter key.

The Map Node command automatically assigns the first digit of the station number as the first digit of the mapped address if no mapped address is entered.

Note: *The station number affects Internal Events only.*

Host Computer:

Use the space bar to select one of the three possible options listed below:

Ademco
Tecom
None

Host Computer Baud Rate:

Use the space bar to select one of the five possible options listed below:

300
600
2400
4800
9600

Buffer Size:

The Dialer Master will buffer between 50 & 250 events to the HOST computer. The size of the buffer can be optimised per installation.

To set a new buffer size, enter the size required followed by the enter key.

Offset Acc# with Group Code:

Use the space bar to select one of the two possible options listed below:

NO: Don't Offset the Panel Account number with the Group Code. (Default)

YES: Offset the Panel Account number with the Group code (add area number to the account number)

Network Master Receiver : Model TS2000

User Password:

The Password is used to limit access to the user functions of the Dialer master, such as activating node and recalls etc.

To set a new Password, enter new 4 digit password followed by the enter key.

Note: The password is hidden until the cursor is moved down to its location.

Installer Password:

The Password is used to limit access to the various installer functions of the Dialer master, such as configuring line cards.

To set a new Password, enter new 4 digit password followed by the enter key.

Note: The password is hidden until the cursor is moved down to its location.

The system will now prompt you with " Save new configuration y/n" enter **y** to save, any other key to abort and not save.

Program Time & Date:

Set Current Time & Date	
Time (hh:mm:ss)	13:21:12
Date (dd/mm/yy)	16/12/08

Time

The current time can be set by entering the required time followed by the enter key, separating the hours, minutes & seconds with spaces : or /.

Date

The current date can be set by entering the required date followed by the enter key, separating the day, month & years with spaces : or /.

The system will now prompt you with " Save new Time & Date y/n" enter **y** to save any other key to abort save.

Enable Line Cards:

Enable Line Cards	
Enter Line Card #	: 0
Line Card	: Enabled

Network Master Receiver : Model TS2000

Enter Line Card

Enter the line card number between 0-11 followed by enter to configure.

Line Card

Use the space bar to select one of the two possible options below:

Enabled (Enables Polling)
Disabled (Disables Polling)

Default Values are shown below for all line cards

Card #

0	Enabled
1	Disabled
2	Disabled
3	Disabled
4	Disabled
5	Disabled
6	Disabled
7	Disabled
8	Disabled
9	Disabled
10	Disabled
11	Disabled

Configure PSTN/PL Cards:

Configure PSTN/PL Cards	
Enter Line Card #	: 0
Station number	: 0
Line Card	: Enabled
Priority	: Instant & Delayed
Mode	: DINI & Tecon V3
Modem Baud Rate	: Auto Sense
Max Dial Attempts	: 1
Answer on ring	: 3
Carrier In (x 0.1sec)	: 50
Carrier Out (x 0.1sec)	: 500
Time Between Attempts	: 01
Hangup Delay (seconds)	: 10

Enter Line Card

Enter the line card number between 0-11 followed by enter to configure.

Note: *Direct Line cards must be numbered between 0 & 9 only.*

Station Number

The station number sets the 2 digit receiver group number for all Ademco and Tecon V1 transactions received by this line card. (ie 2 digit prefix)

To set a new station number enter the required 2 digit number followed by the enter key.

Network Master Receiver : Model TS2000

Line Card

Use the space bar to select one of the two possible options below:

Enabled
Disabled

Priority

Use the space bar to select one of the three possible options below:

Instant
Delayed
Instant & Delayed

Note : *This option has been reserved for future use.*

Mode

Use the space bar to select one of the three possible options below:

DTMF	The line card will only attempt to detect DTMF incoming calls.
DTMF & Tecom V1	At first the line card will attempt to detect DTMF then check for TECOM V1 Incoming calls.
DTMF & Tecom V3	At first the line card will attempt to detect DTMF then check for TECOM V3 Incoming calls.

Note: *Reserved for future use.*

Direct Line	The line card can only be used with TECOM Direct line Equipment.
-------------	--

Modem Baud Rate

Use the space bar to select one of the four possible options below:

Auto sense
300 Baud
1200 Baud
2400 Baud

Note: *Reserved for future use.*

Max Dial Attempts

The maximum number of attempts for outgoing calls can be changed by entering up to a two digit number followed by the enter key.

Note: *This option has been reserved for future use.*

Answer on ring

Answer on ring sets the number of rings before an Incoming call is answered, a value of 0 will never be answered. This value can be changed by entering the new value followed by the enter key.

Carrier In (x 0.1 Sec)

Carrier Timeout for in-coming calls can be programmed here, the unit of time is 100ms, and the default value is 50 (5.0 sec).

Carrier Out (x 0.1 Sec)

Carrier Timeout for out-going calls can be programmed here, the unit of time is 100ms, and the default value is 300 (30.0 sec).

Network Master Receiver : Model TS2000

Time Between Attempts

The redial time (in Seconds) can be programmed here.
(default value of 61 Sec)

Note: This option has been reserved for future use.

Hangup Delay (seconds)

Hangup Delay (seconds) sets the time in seconds that the line card will hold onto a line before hanging up, while communication to a Tecom Panel. The value can be changed by entering the new value followed by the enter key.

The system will now prompt you with " Save new configuration y/n" enter **y** to save any other key to abort save.

Configure x25 Card:

Configure X25 Line Card	
Line Card #	: 1
RNG X25 Address	: 12345678900
Our X25 Address	:
N.U.I.	:
RNG Host Name	: MINIRAM
RNG Host Password	: PASSWORD
Session	: AA
Loop Back timer(0.1sec)	: 600
Station Prefix	: 0
Panel Address Offset	: 0

Save database y/n

RNG X25 Address *

The RNG X25 Address will typically be an 11 digit number that identifies the X25 address of the RNG (Radio Network Gateway) that belongs to your system.

Our X25 Address *

The X25 address of your equipment on the X25 packet switching network, normally not required.

Leave blank if not used.

N.U.I. *

The N.U.I Address is only required when using dialup X.32 connection to the X25 Packet switching network.

Leave blank if not used.

RNG Host Name *

Typically an alpha numeric string to uniquely identify the RNG Host.

RNG Host Password *

Typically an alpha numeric string to validate the line card using the RNG Host

Session *

A two digit alpha numeric identifier, used between the line card and the RNG Host.

Network Master Receiver : Model TS2000

Loop Back Timer (0.1Sec)

The loop back timer defines the time period between loop back messages being sent to the RNG Host, by default this timer will be set to 600, giving a loop back rate of one loop back every 60 sec.

The Loop Backs messages are required for Integrity checks between the Line Card and the RNG Host.

Station Prefix

The station number sets the 2 digit receiver group number for all Events. (ie the 2 digit prefix)

Panel Address Offset

Note: *Reserved for future use.*

* The above Parameters will be Issued by the Communication Carrier upon ordering their services/equipment.

LineCard Operation:

The line Cards support the following formats:

TECOM V1 Dial Up
TECOM V3 Dial Up
TECOM Direct Line (With Encryption)

ADEMCO High Speed
ADEMCO High Speed Checksummed
ADEMCO High Speed Extended
ADEMCO High Speed Extended Checksummed
ADEMCO 4 + 2 Checksummed
ADEMCO Contact Point ID Checksummed

Upon answering the PSTN ring signal the line cards will send out the standard ADEMCO high speed acknowledge tone & wait for a reply from the dialer, up to 3 high speed acknowledge tones will be sent if the dialer does not respond. If the dialer does not respond to the high speed acknowledge tone, then if programmed the line card will try and connect to a TECOM Panel.

Incoming Format

Converted To

Internal Events	: Ademco Contact Point ID
Tecom Dial Up	: Ademco Contact Point ID
Tecom Direct Line	: Ademco Contact Point ID
Ademco High Speed	: Ademco High Speed
Ademco High Speed Extended	: Ademco High Speed Extended
Ademco 4 + 2	: Ademco 4 + 2
Ademco Contact Point ID	: Ademco Contact Point ID

DDS Line Card

There is a DDS Line Card available for use with LINK's that are connected via DDS (Direct Digital Services).

The DDS Connection provides a higher degree of Intergrity of the communication between the LINE CARD and the LINK.

Installation of the DDS LINE CARD requires a special adaptor card (supplied with the DDS Line Card) to be plugged into the rear of the Rack to make connection to the DB25 for the NTU (Network Termination Unit).

Configuration of the DDS Line Card is the same as the PSTN/PL Line Card.

Network Master Receiver : Model TS2000

Configure Radio DB:

Configure Radio DataBase	
Enter HKSLP #	: 10001
Radio LLI	: EE021A66
Polling Category (0-7)	: 0 None

Enter HKSLP #

The HKSLP in this case consist of two main components, the radio network (H) and the Panel within that network (KSLP). The first number, the radio network, directly relates to the line card, which must be an X25 Card (fitted with NM-LCX25 software).

The second four digits must be in the range of 0000-2000, This number must also be unique within that line card and be the same number as programmed in the Challenger for its Radio ID. Eg 0001

Note: All 5 digits must be entered.

Radio LLI

The LLI uniquely Identifies the RPM (Radio Packet Modem), the format of this will be as a 4 byte hexadecimal number. eg EE021A66.

Polling Category (0-7)

Use the space bar to select one of the eight possible options below:

0	None
1-5	Min During Close
2-15	Min During Close
3-30	Min
4-1	per Hour
5-3	Hourly
6-1	per Day
7-1	per Week (No O/C)

Test Messages:

Generate Test Messages	
Confirm Generate Test Messages y/n	

The test message menu will fill the computer Buffer with incrementing point numbers. The purpose of this option is for testing and diagnosing problems with the computer port.

The Test message will use the default CPU system account number and incrementing point numbers, as shown:

999988 601 00 C001 TROUBLE - Test Message
999988 601 00 C002 TROUBLE - Test Message etc

Network Master Receiver

MODEL TS2000

SECTION 10 : COMMANDS

Network Master Recalls:

<u>Recall Node</u>	<u>Address</u>
CPU Summary *	CMD > RN HKSLP # CMD > RS HKSLP #
Highway	CMD > RS HKSLP #1
Panel on Highway	CMD > RN HKSLP #11 CMD > RS HKSLP #11
Link/Sub-link on Highway	CMD > RN HKSLP #110 CMD > RS HKSLP #110
Down Line	CMD > RS HKSLP #1100
Panel on (link) Down Line	CMD > RN HKSLP #11001 CMD > RS HKSLP #11001

Note: * HKSLP Field left blank

Recall Summary of Highway or Downline:

The summary status of each of the highways or downlines can be examined by using the following commands,

Highway	CMD > RS HKSLP #1
Down Line	CMD > RS HKSLP #1100

Recalled - Node State Line Card #0	Hwy #0 Direct Line
Node 0 - Disconnect	Node 5 - Disconnect
Node 1 - Disconnect	Node 6 - Disconnect
Node 2 - Disconnect	Node 7 - Disconnect
Node 3 - Disconnect	Node 8 - Disconnect
Node 4 - Disconnect	Node 9 - Disconnect

Node States

Disconnected	-	Node not being polled Cannot report events in this state.
Online	-	Node online Normal state of node, Capable of reporting events.
Offline	-	Node offline Cannot report events in this state.
Connected	-	Encryption failed Node Offline, Cannot report events in this state. (node replying to non-encrypt polls)
Link	-	Indicates that the node is Network Link.

The commands listed below can be used to recall the state of TEGOM panels connected to the network:

RS-	Summary Status
RE-	Area Status
RA-	Alarm Inputs
RT-	Tamper Inputs
RI-	Isolated Inputs
RU-	Unsealed Inputs
RR-	RAS Status
RD-	DGP Status
RN-	Recall Node

I = Isolates
A = Alarm
T = Tamper
U = Unsealed
F = Fault
A = Access
S = Secure

001 A n n n n n n n n n n n n n n n n n n n n n n n n n

001	A n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	032
033	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	064
065	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	096
097	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	128
129	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	160
161	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	192
193	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	224
225	n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n	256

001 5 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 010

The commands listed below can be used to command the

PA-	Access Area
PS-	Secure Area
PI-	Isolate Input
PD-	Delsolate Input
PR-	Reset Input
PN-	Turn On Ouput Point
PO-	Turn Off Output Point

Network Master Receiver : Model TS2000

Examples are shown below:

Secure all areas of Challenger #1 On Highway #0

CMD >PS HKSLP #01 AREA #0

Access all areas of Challenger #1 On Link #000 Downline #0

CMD >PA HKSLP #00001 AREA #0

Isolate Input #1 of Challenger #1 On Highway #0

CMD >PI HKSLP #01 POINT #1

Network Master Receiver

MODEL TS2000

SECTION 11 : CONTACT ID EVENTS

Internal Events:

69 9988 E130 00 C001	TROUBLE - CPU Reset	
69 9988 E130 00 C002	TROUBLE - Computer Link	
69 9988 R130 00 C002	Restore - Computer Link	
69 9988 E130 00 C003	TROUBLE - Printer Link	
69 9988 R130 00 C003	Restore - Printer Link	
69 9988 E130 00 C004	TROUBLE - 12v dc Power	
69 9988 R130 00 C004	Restore - 12v dc Power	
69 9988 E130 00 C005	TROUBLE - Computer Nack'd (msg lost)	
69 9988 E130 00 C010	TROUBLE - Line Card Comms	(Card 0)
69 9988 E130 00 C010	Restore - Line Card Comms	(Card 0)
69 9988 E130 00 C040	TROUBLE - Line Card Reset	(Card 0)
69 9988 E130 00 C041	TROUBLE - Line Card Reset	(Card 1)
69 9988 E130 00 C042	TROUBLE - Line Card Reset	(Card 2)
69 9988 E130 00 C043	TROUBLE - Line Card Reset	(Card 3)
69 9988 E130 00 C044	TROUBLE - Line Card Reset	(Card 4)
69 9988 E130 00 C045	TROUBLE - Line Card Reset	(Card 5)
69 9988 E130 00 C046	TROUBLE - Line Card Reset	(Card 6)
69 9988 E130 00 C047	TROUBLE - Line Card Reset	(Card 7)
69 9988 E130 00 C048	TROUBLE - Line Card Reset	(Card 8)
69 9988 E130 00 C049	TROUBLE - Line Card Reset	(Card 9)
69 9988 E130 00 C050	TROUBLE - Line Card Reset	(Card 10)
69 9988 E130 00 C051	TROUBLE - Line Card Reset	(Card 11)
69 9988 E130 00 C060	TROUBLE - Telecom Line	(Card 0)
69 9988 R130 00 C060	Restore - Telecom Line	(Card 0)
69 9988 E130 00 C061	TROUBLE - Telecom Line	(Card 1)
69 9988 R130 00 C061	Restore - Telecom Line	(Card 1)
69 9988 E130 00 C062	TROUBLE - Telecom Line	(Card 2)
69 9988 R130 00 C062	Restore - Telecom Line	(Card 2)
69 9988 E130 00 C063	TROUBLE - Telecom Line	(Card 3)
69 9988 R130 00 C063	Restore - Telecom Line	(Card 3)
69 9988 E130 00 C064	TROUBLE - Telecom Line	(Card 4)
69 9988 R130 00 C064	Restore - Telecom Line	(Card 4)
69 9988 E130 00 C065	TROUBLE - Telecom Line	(Card 5)
69 9988 R130 00 C065	Restore - Telecom Line	(Card 5)
69 9988 E130 00 C066	TROUBLE - Telecom Line	(Card 6)
69 9988 R130 00 C066	Restore - Telecom Line	(Card 6)
69 9988 E130 00 C067	TROUBLE - Telecom Line	(Card 7)
69 9988 R130 00 C067	Restore - Telecom Line	(Card 7)
69 9988 E130 00 C068	TROUBLE - Telecom Line	(Card 8)
69 9988 R130 00 C068	Restore - Telecom Line	(Card 8)
69 9988 E130 00 C069	TROUBLE - Telecom Line	(Card 9)
69 9988 R130 00 C069	Restore - Telecom Line	(Card 9)
69 9988 E130 00 C070	TROUBLE - Telecom Line	(Card 10)
69 9988 R130 00 C070	Restore - Telecom Line	(Card 10)
69 9988 E130 00 C071	TROUBLE - Telecom Line	(Card 11)
69 9988 R130 00 C071	Restore - Telecom Line	(Card 11)

Note: The Computer Nack'd (msg lost) message is generated by the Dialer Master CPU card if it receives 6 NACK's from the host computer in response to any one message. The Dialer Master will then throw away that message, as not to stop the operation of the system.

Network Master Receiver : Model TS2000

Direct Line Panel Supervision:

The examples below indicate the various supervisory events the network reports.

A) Activate Node - Node did not come online

10:15:00 07/02 [02] 123456 E359 00 C000 *ALARM* - Panel Activated

B) Activate Node - Node came online correctly

10:16:00 07/02 [02] 123456 E359 00 C000 *ALARM* - Panel Activated
10:16:01 07/02 [02] 123456 R359 00 C000 *RESTORE* - Panel Activated
10:16:02 07/02 [02] 123456 R357 00 C000 *RESTORE* - D/L Panel Polling

C1) Node Offline - Line fault or panel powered down

10:17:00 07/02 [02] 123456 E357 00 C000 *ALARM* - D/L Panel Polling

C2) Node Online - Line fault restored or panel powered up

10:17:30 07/02 [02] 123456 R357 00 C000 *RESTORE* - D/L Panel Polling

D1) Node substituted

10:18:00 07/02 [02] 123456 E357 00 C000 *ALARM* - D/L Panel Polling
10:18:30 07/02 [02] 123456 E358 00 C000 *ALARM* - Encryption Error

D2) Node Activated after substitution

10:18:40 07/02 [02] 123456 E359 00 C000 *ALARM* - Panel Activated
10:18:41 07/02 [02] 123456 R359 00 C000 *RESTORE* - Panel Activated
10:18:42 07/02 [02] 123456 R357 00 C000 *RESTORE* - D/L Panel Polling
10:18:43 07/02 [02] 123456 R358 00 C000 *RESTORE* - Encryption Error

E1) BCT offline - Panel powered down

10:19:00 07/02 [02] 123456 E357 00 C000 *ALARM* - D/L Panel Polling

E2) BCT Online - Panel powered up (only BCT's Auto activate)

10:20:00 07/02 [02] 123456 E358 00 C000 *ALARM* - Encryption Error
10:20:01 07/02 [02] 123456 R357 00 C000 *RESTORE* - D/L Panel Polling
10:20:02 07/02 [02] 123456 E358 00 C000 *RESTORE* - Encryption Error

Events Generated by Challenger:

E353 - NCL Fail (NCL is Native Command Language). This is the communications failure between the Challenger and the RPM. Reasons could be cable is cut between Challenger and RPM, RPM faulty, Challenger Faulty. This message is sent to the monitoring Station via dialer.

R353 - NCL Restore

E354 - Host Fail (Host = NM-LCX25 [X25 Card in the TS2000 receiver]). This means that the X25 line card (LC) is faulty or the communication from the X25 Line card to the Telstra base station is down. In this case the Telstra Base Station will send a message to the Challenger, then the Challenger will send a message to the monitoring station via the dialer.

R354 - Host Fail Restore.

Network Master Receiver : Model TS2000

- E355 - Out Of Range (RPM not in RF range of cell). Radio does not see the Telstra base station).
R355 - Out Of Range Restore.
- E356 - ACK Fail (The Challenger has not received an acknowledgement to the alarm). Reason could be wrong LLI number, radio ID number, mismatch of parameters in old RPM, Telstra network is running slow or out of Range.
R356 - ACK Fail Restore.
- E358 - Panel Encryption Error. The Challenger Panel has been substituted with an other Panel.
R358 - Panel Encryption Restore.

Events Generated by Line Card (LC) for Challenger:

- E357 - Offline (Failed to Poll). If the LC sends a poll message and the Challenger does not acknowledge it, then 30 seconds later the LC will send another poll message. After the 3rd poll message sent when no ACK has been received, this error will be generated. A reason for for this could be the Telstra network is too slow or there is a configuration issue.
- R357 - Offline Restore.

Events Generated by x25 Line Card (LC):

- E305 00 C10X - Line Card restart. (Equivalent a CPU restart). The on board CPU has been restarted).
- E330 00 C13X - Packet Level Fail. This message is generated when the connection (link) between the X25 LC and Telstra/AustPac network has failed. Packet level MUST be restored before the radio clients can operate.
R330 00 C13X - Packet Level Fail Restore.
- E330 00 C12X - Link Level Fail. This message is generated when the connection (link) between the X25 LC and the Telstra/Austpac network has failed. Link level MUST be restored before the packet level can restore and before radio clients can operate. Some causes for this message can be faulty hardware in either the X25 Line Card, modem, NTU or AustPac.
R330 00 C12X - Link Level Fail Restore.
- E350 00 C14X - X25 Call Fail (X25 call failed or call address is wrong). Can be caused by the RNG X25 address programmed in the Line Card may be incorrect, Telstra's RNG may be down or AustPac may be down.
R350 00 C14X - X25 Call Fail Restore.
- E354 00 C15X - Host Loop Back. Loop back is between Telstra and and X25 card. After the first packet is sent and after about 600secs (10 Mins), a loop back test occurs to make sure that Telstra is present. If not, this error will be generated.
R354 00 C15X - Host Loop Back Restore.
- E303 00 C16X - may have defaulted.
E303 00 C16X - Ram Bad Restore.
- E303 00 C17X - PA_Flash Corrupt . X25 flash RAM is corrupt, Database is corrupt.
R303 00 C17X - PA_Flash Corrupt Restore.
- E303 00 C18X - PA_RAM Corrupt. X25 RAM is Corrupt.
R303 00 C18X - PA_RAM Corrupt restore.

Network Master Receiver : Model TS2000

E354 00 C19X - Radio Message Bad (Received message from radio, CRC fail) It could be a Telstra or X25 Message Corruption.

Events Generated by the Challenger Panel:

E303 00 C065 to C080 - DGP encryption error.

E303 00 C017 to C064 - RAS encryption error.

E334 00 C000 to C015 - Panel Link offline.

Note: *X = Line Card Number*

Contact ID Messages:

Event	Message
-------	---------

Medical Alarms - 100

100 Medical	*EMERG* - Personal Emergency #
101 Pendant Transmitter	*EMERG* - Personal Emergency #
102 Fail to report in	*EMERG* - Fail to Check In #

Fire Alarms - 110

110 Fire Alarm	*FIRE* - Fire Alarm #
111 Smoke	*FIRE* - Smoke Detector #
112 Combustion	*FIRE* - Combustion #
113 Water Flow	*FIRE* - Water Flow #
114 Heat Sensor	*FIRE* - Heat Sensor #
115 Pull Station	*FIRE* - Pull Station #
116 Duct Sensor	*FIRE* - Duct Sensor #
117 Flame Sensor	*FIRE* - Flame Sensor #
118 Near Alarm	*FIRE* - Near Alarm #

Panic Alarms - 120

120 Panic	*PANIC* - Panic #
121 Duress	*PANIC* - Duress #
122 Silent Panic	*PANIC* - Silent Panic #
123 Audible Panic	*PANIC* - Audible Panic #

Burglar Alarms - 130

130 Burglary	*BURG* - Burglary #
131 Perimeter	*BURG* - Perimeter #
132 Interior	*BURG* - Interior #
133 24 Hour	*BURG* - 24 Hour #
134 Entry/Exit	*BURG* - Entry/Exit #
135 Day/Night	*BURG* - Day/Night #
136 Outdoor	*BURG* - Outdoor #
137 Tamper	*BURG* - Tamper #
138 Near Alarm	*BURG* - Near Alarm #

Network Master Receiver : Model TS2000

General Alarms - 140

140 General Alarm	*ALARM* - Alarm #	
141 Polling Loop Open	*ALARM* - Polling Loop Open	
142 Polling Loop Short	*ALARM* - Polling Loop Short	
143 Expansion Module Fail	*ALARM* - Exp. Module Fail #	
144 Sensor Tamper	*ALARM* - Sensor Tamper #	
145 Expansion Module Tamper	*ALARM* - Exp. Module Tamper #	
148 TECOM DGP	*ALARM* - DGP #	***
149 TECOM Console	*ALARM* - Console #	***

24 Hour Non-Burglary - 150 and 160

150 24 Hr. Non-Burg	*ALARM* - 24 Hr. Non-Burg #	
151 Gas Detected	*ALARM* - Gas Detected #	
152 Refrigeration	*ALARM* - Refrigeration #	
153 Loss of heat	*ALARM* - Heating System #	
154 Water Leakage	*ALARM* - Water Leakage #	
155 Foil Break	*ALARM* - Foil Break #	
156 Day trouble	*ALARM* - Day Zone #	
157 Low bottled gas level	*ALARM* - Low Gas Level #	
158 High Temp	*ALARM* - High Temperature #	
159 Low Temp	*ALARM* - Low Temperature #	
161 Loss of air flow	*ALARM* - Air Flow #	

24 Hour Non-Burglary - 150 and 160

200 Fire Supervisory	SUPER - Fire Supervisory #	
201 Low Water Pressure	SUPER - Low Water Pressure #	
202 Low CO2	SUPER - Low CO2	
202 Gate Valve Sensor	SUPER - Gate Value #	
204 Low Water Level	SUPER - Low Water Level #	
205 Pump Activated	SUPER - Pump Activation #	
206 Pump Failure	SUPER - Pump Failure #	

System Troubles - 300 and 310

300 System Trouble	TROUBLE - System Trouble	
301 AC loss	TROUBLE - AC Power	
302 Low System Battery	TROUBLE - System Low Battery	
303 RAM checksum bad	TROUBLE - Bad RAM Checksum	
304 ROM checksum bad	TROUBLE - Bad ROM Checksum	
305 System Reset	TROUBLE - System Reset	
306 Panel program changed	TROUBLE - Programming Changed	
307 Self Test Failure	TROUBLE - Self Test Failure	
308 System Shutdown	TROUBLE - System Shutdown	
309 Battery Test Failure	TROUBLE - Battery Test Failure	
310 Ground Fault	TROUBLE - Ground Fault #	

Sounder/Relay Troubles - 320

320 Sounder/Relay	TROUBLE - Sounder/Relay #	
321 Bell/Siren #1	TROUBLE - Bell/Siren #1	
322 Bell/Siren #2	TROUBLE - Bell/Siren #2	
323 Alarm Relay	TROUBLE - Alarm Relay	

Network Master Receiver : Model TS2000

324 Trouble Relay	TROUBLE - Trouble Relay
325 Reversing Relay	TROUBLE - Reversing Relay

System Peripheral Troubles - 330 and 340

330 System Peripheral	TROUBLE - Sys. Peripheral #
331 Polling Loop Open	TROUBLE - Polling Loop Open
332 Polling Loop Short	TROUBLE - Polling Loop Short
333 Exp. Module Fail	TROUBLE - Exp. Module Fail #
334 Repeater Failure	TROUBLE - Repeater Failure #
335 Printer Paper Out	TROUBLE - Printer Paper Out
335 Local Printer	TROUBLE - Local Printer

Communication Troubles - 350 and 360

350 Communication	TROUBLE - Communication Trouble	
351 Phone Line #1	TROUBLE - Phone Line #1	
352 Phone Line #2	TROUBLE - Phone Line #2	
353 Radio Transmitter	TROUBLE - Radio Transmitter	
354 Fail To Communicate	TROUBLE - Fail to communicate	
355 Loss of radio Super	TROUBLE - Radio Supervision	
356 Loss of Central Polling	TROUBLE - Central Radio Polling	
357 TECOM D/L Panel Polling	TROUBLE - D/L Panel Polling	***
358 TECOM Encryption Error	TROUBLE - Encryption Error	***
359 TECOM Panel Activated	TROUBLE - Panel Activated	***
360 TECOM Panel Substitution	TROUBLE - Panel Substitution	***

Protection Loop Troubles - 360

370 Protection Loop	TROUBLE - Protection Loop #
371 Protection Loop Open	TROUBLE - Prot. Loop Open #
372 Protection Loop Short	TROUBLE - Prot. loop Short #
373 Fire trouble	TROUBLE - Fire Loop #

Protection Loop Troubles - 360

380 Sensor Trouble	TROUBLE - Sensor Trouble #
381 Loss of super. - RF	TROUBLE - RF Sensor Super #
382 Loss of super. - RPM	TROUBLE - RPM Sensor Super #
383 Sensor tamper	TROUBLE - Sensor Tamper #
384 RF xmtr low battery	TROUBLE - RF Sensor Batt. #

Open/Close - 400

400 Open/Close	OPENING
	CLOSING
401 O/C by user	OPENING - User #
	CLOSING - User #
402 Group O/C	OPENING - Group # User #
	CLOSING - Group # User #
403 Automatic O/C	OPENING - Automatic
	CLOSING - Automatic
404 Late to O/C	OPENING - Late
	CLOSING - Late

Network Master Receiver : Model TS2000

405 Deferred O/C	
406 Cancel	OPENING - Cancel
407 Remote	OPENING - Remote
	CLOSING - Remote
408 Quick Arm	CLOSING - Quick Arm
409 Keyswitch O/C	OPENING - Keyswitch
	CLOSING - Keyswitch

Remote Access - 410

411 Callback request made	REMOTE - Callback Requested	
412 Success - download/access	REMOTE - Successful Access	
413 Unsuccessful access	REMOTE - Unsuccessful access	
414 System Shutdown	REMOTE - System Shutdown	
415 Dialler Shutdown	REMOTE - Dialler Shutdown	
416 Remote Connect	REMOTE - Remote Connect	***

Access Control - 420

421 Access Denied	ACCESS - Access Denied - User #
422 Access Remote by User	ACCESS - Access Gained - User #
425 Invalid Code	ACCESS - Invalid Code

Sounder/Relay Disables - 520

520 Sounder/Relay disable	DISABLE - Sounder/Relay #
521 Bell 1 disable	DISABLE - Bell/Siren - #1
522 Bell 2 disable	DISABLE - Bell/Siren - #2
523 Alarm relay disable	DISABLE - Alarm Relay
524 Trouble relay disable	DISABLE - Trouble Relay
525 Reversing Relay disable	DISABLE - Reversing Relay

Communication Disables - 550

551 Dialler disabled	DISABLE - Dialler Disable
552 Radio xmitter disable	DISABLE - Radio Disable

Isolates - 570

570 Section Isolated	ISOLATE - Isolate #
571 Fire Isolated	ISOLATE - Fire Isolate #
572 24 Hour Isolate	ISOLATE - 24 Hour Isolate #
573 Burg. Isolate	ISOLATE - Burg. Isolate
574 Group Bypass	ISOLATE - Group Isolate

Test/Misc - 600

601 Manual trigger test	TEST - Manually Triggered
602 Periodic test report	TEST - Periodic
603 Periodic RF xmission	TEST - Periodic Radio
604 Fire Test	TEST - Fire Test
605 Status report to follow	STATUS - Status Follows

Network Master Receiver : Model TS2000

606 Listen-in to follow	LISTEN - Listen-in Active	
607 Walk Test Mode	TEST - Walk Test Mode	
608 Area out of Time Zone	TEST - Area Time Zone	***

Network Master Receiver

MODEL TS2000

SECTION 12 : GLOSSARY

Glossary:

Network Master	:Comprises of a CPU Card and between 1 and 12 Line Cards.
CPU Card	:Central Processing Unit, and the left most card in the rack.
Line Card	:Provides the Telecom Interface between the Highway and the Network Master, the first line card in number 0 and is located in the 2nd slot.
Highway	:Telecom Private Line originating from a Line Card, providing multi-drop connection to panels and links.
Link	:Provides the Telecom Interface for down lines to expand the network, Links connect to the Network Master via Highways.
Sub-link	:Provide the Telecom Interface for additional down lines to expand the network, Sub-Links direct connect to Links via the RS485 LAN
Downline	:Telecom Private Line originating from a Link, providing multi-drop connections to panels.
HKSLP	:Physical addressing scheme whereas: H=Highway (range 0-9) K=Link (range 0-9) S=Sub-link (range 0-9) L=Line (range 0-3) P=Panel (range 0-9)

Note: *The panels physical position within the network determines its address.*

Map	: 6 digit account number (as output to computer)
Key	:Encryption key 0-255 (set to 0 if not challenger)
PSTN	:Public Switched Telephone Network
P-Line	:Telecom Private Line
UP-HWY	:Highway connecting to Network Master
DWN-HWY	:Highway connection to next link, down line.

Network Master Receiver : Model TS2000

POLLING	:An inquiry message continually sent to the node to invoke a response from the node.
DISCONNECT	:Polling disabled.
ONLINE	:Polling enabled, and node responding correctly.
OFFLINE	:Polling enabled, and node is not responding at all.
CONNECT	:Polling enabled, node responding with encryption failed. In this state alarm and recall messages are disabled.
RPM	:Radio Packet Modem
RNG	:Radio Network Gateway

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