USER INSTRUCTIONS

for

BT

SIGNALLING UNIT 101A

Contents

Manufactured for BT by:

Telspec Europe Limited,
Lancaster Parker Road,
Rochester Airport,
Rochester,
Kent, ME1 3QU.

SIGNALLING UNIT 101A

INTRODUCTION

The Signalling Unit 101A is approved for connection to the following Networks:

PBX Extension Ports.
Private Circuit Link Ports in accordance with BS6450 Part 4.
Analogue Private Circuits in accordance with BS6328:Part 1:1985 provided with low frequency signalling facilities.

BABT Approval Licence Number: NS/2363/2/P/604012

This Unit provides the following Ports:

1) Line Interface Port (2 Wire or 4 Wire)
2) Customer Interface Port (2 Wire or 4 Wire, E+M and Signal Earth Out, and Signal Rail In)
3) Power Supply Port

SAFETY WARNINGS

The safety status of the Customer (including E + M) and Line ports is TNV (Telecommunications Network Voltage) as defined by EN41003.

The TNV ports should only be connected to other TNV ports.

The Power Supply port is SELV (Safety Extra Low Voltage) as defined in EN60950 and should only be connected to SELV ports.

Connection of Power Supply. The Unit has been assessed with BT PSU No. 100B/3.

The Signalling Unit 101A can be used with any PSU that meets the following criteria:

1) Approved to either BS6301 or EN41003
2) Passed the requirements of EN60950
3) Limited to 50V maximum output voltage
4) Limited to 5A maximum output current.

SYSTEM CONSIDERATIONS

The Signalling Unit is suitable for connection to point to point speechband circuits which use signalling at a nominal frequency of 2280Hz. In certain modes the Customers Port requires or generates DC and ringing signals. The Unit may only be connected to circuits which have been specially provided for that purpose.

The RTL (receive-to-transmit loss) number applies to the Customer Port in two wire mode.

An RTL number of 15 (receive-to-transmit loss of 15dB) is achieved with Link 9 in position B, and 19 with Link 9 in Position A.

Note that the sum of the RTL numbers of two items of terminal apparatus at opposite ends of a particular point-to-point circuit shall be equal to or greater than 28; in the case of apparatus permitted connection before 5 August 1984 it shall be assumed for the purpose of this calculation to have an RTL number of 14 unless it has been tested and specifically allocated a number other than this.

Note that some methods of connection to a network or circuit are the responsibility of the public telecommunication operator or by a person authorised by that operator.

Wiring between the Unit and the point of connection to the speechband circuit shall comply with the code of practice for the installation of apparatus covered by BS6328, and have transmission characteristics such that no material effect is introduced upon the electrical conditions presented to one another by the Unit and the speechband circuit.

DC interaction between the Customers Port and the speechband circuit is possible in certain modes. A DC unpowered path presenting a high AC impedance is applicable in some modes. The voltage applied to the Customers port should not exceed 56V DC. The maximum current supplied by the Customers port when configured as a feeding circuit is 40mA. The maximum current supplied by the E lead driver is 40mA.

The Unit is designed to be installed and operated within the temperature range of 0°C and 40°C ambient, and relative humidity not exceeding 60%.

INSTALLATION PROCEDURE. To be carried out by an Authorised Installer.

The Unit contains static sensitive devices which may be damaged by handling. During installation, the user should take full antistatic precautions.

The installer must be an employee of the Public Telecommunications Operator (PTO) or a person that has been authorised in writing by the PTO.

The Signalling Unit 101A has been assessed and approved to EN60950 and EN41003 when installed in a shelf, which is enclosed in the Case 303, and the shelf is wired to an Interface Kit 3A.

The installer must ensure that any alternative installation practice complies with EN60950, and EN41003 clause 3.5 (restricted access location).

A **restricted access location** is a room or space where equipment is located and where access can only be gained by service personnel with the use of a special tool or lock and key, or where access is controlled.

Procedure

1) Configure the links on the Unit by referring to the tables on the following pages.

2) Insert the Unit into the Shelf.

3) Fit all blanking plates and covers to the shelf.

LINK CONFIGURATION TABLES

The Links are separated into two types:

1 Signalling options.
2 Transmission Characteristics.

1. Signalling Options

Note:
GEN refers to continuous 25Hz signal. RING refers to cadenced 25Hz signal

A Balanced Battery bothway to Manual 2280Hz

B Gen/Gen bothway to Manual 2280Hz

C B Wire Eth/Gen or Ring (Manual/Automatic)

D Gen/Loop to Manual 2280Hz

E Loop/Ring Out to Manual 2280Hz

F DC5A to AC15A

G Loop/Ring to AC15A

H Gen/Gen bothway to AC15A

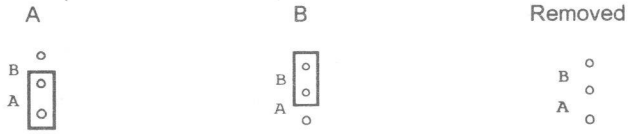
I Loop/Ring to AC15C (ISU)

J Ring/Loop to AC15C, 500/1500ms recall period (ESU)

K Manual 2280Hz to Manual E&M

L AC15C to DC5A

There are three possible positions for each Link:



Manual Options A to E

CUST PORT : 2 wire, 600Ω Impedance
LINE PORT : 2 wire, Complex Impedance
INSERTION LOSS : -4dB

A BALANCED BATTERY TO MANUAL 2280Hz

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	B	A	B	A	A	B	A	A	B	B	A	B	A	B	B	B	A	A	A	A	A	A	A	B	A	B	B	B

B GEN/GEN or 25Hz/25Hz TO MANUAL 2280Hz

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	B	B	B	A	A	B	B	A	A	A	B	B	B	B	A	A	A	A	A	A	A	B	B	B	

C B WIRE EARTH IN / GEN or RING OUT TO MANUAL 2280Hz

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	A	B	A	A	A	B	B	A	A	A	B	A	B	A	A	A	A	A	A	A	A	B	B	B	

NOTE: TO ENABLE AUTOMATIC RECALL OPTION (TIMED "B WIRE ETH IN") - MOVE LINK 18 TO THE A POSITION.

D GEN IN / LOOP OUT TO MANUAL 2280Hz

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	B	B	A	B	B	B	A	A	B	B	B	A	A	B	A	B	B	A	A	A	A	A	A	B	A	B	B	B

E LOOP IN / RING OUT TO MANUAL 2280Hz

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	A	B	A	A	A	B	B	A	A	A	B	B	A	B	A	A	A	A	A	A	A	A	B	B	B

Automatic Options F to J

CUST PORT : 2 wire, Complex Impedance
LINE PORT : 4 wire, 600Ω Impedance
INSERTION LOSS : -4dB

F DC5A TO AC15A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	B	B	A	B	A	B	A	A	A	B	A	A	A	A	B	B	A	A	B	A	B	A	B	B	B	B	B	B

NOTE: FOR 4-WIRE AUDIO CIRCUITS THE INSERTION LOSS MAY BE ADJUSTED TO 0dB.
SEE TRANSMISSION CHARACTERISTICS TABLES FOR LINK CHANGES.

G LOOP IN / RING OUT TO AC15A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	A	B	A	A	A	A	B	A	A	A	A	B	B	B	A	B	A	B	A	B	A	B	B	B	B

H GEN IN / GEN OUT TO AC15A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	B	B	B	A	A	A	B	A	A	A	A	A	B	B	A	B	A	B	A	B	A	B	B	B	B

I LOOP IN / RING OUT TO AC15C (ISU)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	B	B	A	A	B	A	A	A	A	B	A	A	A	A	B	A	A	A	B	A	B	A	B	A	B	B	B	B

J RING IN / LOOP OUT TO AC15C (ESU)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	A	B	A	B	B	B	A	A	A	B	B	A	A	A	A	A	B	A	B	A	B	A	B	B	B	B	B	B

NOTE: FOR 1500ms RECALL MOVE LINK 19 TO THE A POSITION.

Options K and L

CUST PORT : 4 wire, 600Ω Impedance
LINE PORT : 4 wire, 600Ω Impedance
INSERTION LOSS : 0dB

K MANUAL 2280Hz TO MANUAL E&M

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	B	B	B	B	A	B	B	A	A	A	A	A	A	B	B	B	A	A	A	A	B	A	A	B	A	A	A	A

L AC15C TO DC5A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	B	B	B	A	B	A	B	B	A	A	A	A	A	A	A	B	B	A	B	A	A	B	A	A	B	A	A	A	A

2. Transmission Characteristics

LINE PORT OPTIONS				
LINE	LINK	IMPEDANCE	LINKS	
	11		10	23
2W	B	COMPLEX	B	A
4W	A	600Ω	A	B

CUSTOMER PORT OPTIONS						
CUSTOMER LINE	LINKS			IMPEDANCE	LINKS	
	28	29	30		25	27
2W	B	B	B	COMPLEX	B	B
				600Ω	A	A
4W	A	A	A	600Ω	A	A

INSERTION LOSSES			
CUSTOMER TO LINE TX	LINK	LINE RX TO CUSTOMER	LINK
	9		12
0dB	B	0dB	A
-4dB	A	-4dB	B

2280Hz OPTIONS			
RECEIVER LEVELS	LINK	TRANSMIT LEVELS	LINK
	24		15
-30dBm	A	H, -14dBm L, -24dBm	A
Note	-	H, -10dBm	B

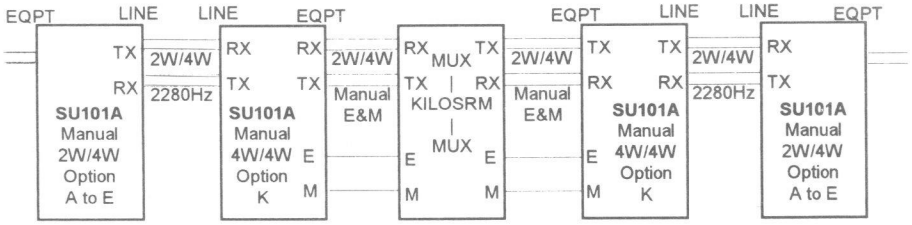
0dB insertion loss is recommended where customer and line audio paths are 4-wire presented.

Where signalling problems are experienced on 2W manual circuits due to circuit losses, an increased receiver sensitivity level is available. This must only be used when advised by the product support unit.

The single -10dB transmit level must only be used on 2W manual circuits.

Applications For Options K and L

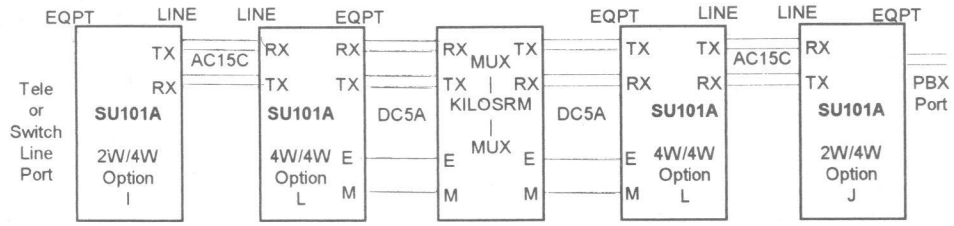
OPTION K - Manual 2280Hz to Manual E&M



Notes: 1. Option A-E Signalling Units should have their Line Ports configured to 4W 600Ω (See Transmission Characteristics)

2. Option K Signalling Units are configured for 0dB Insertion Loss

OPTION L - AC15C to DC5A



Note: Option L Signalling Units are configured for 0dB Insertion Loss

ADDITIONAL INFORMATION

For additional information please refer to BT Document TPU 1964, entitled:

Installation Guide for Signalling Unit 100 Range

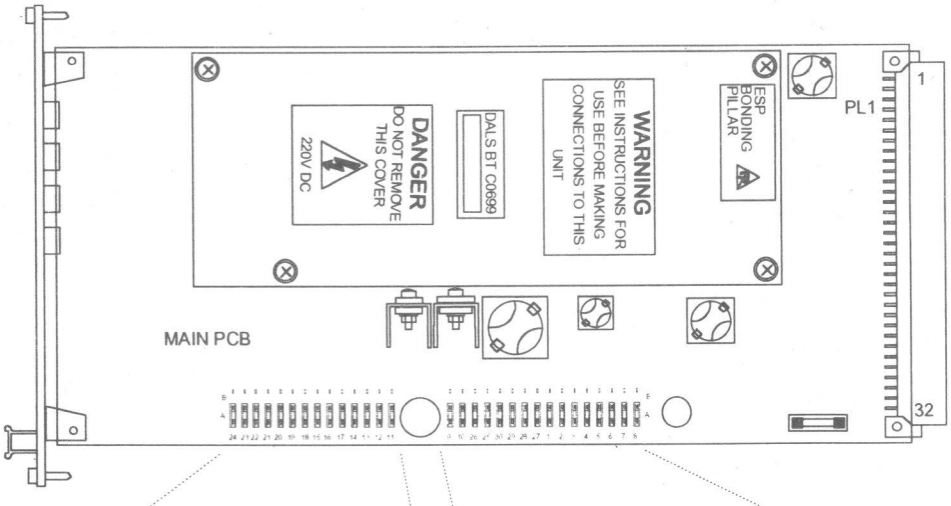
POWER SUPPLY NOTES

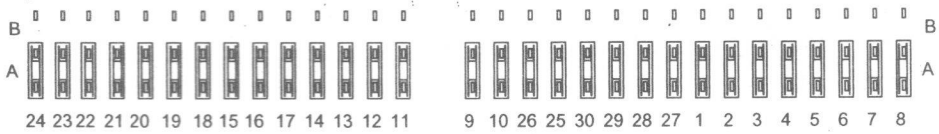
The PSU No. 100B/3 is a general purpose power supply; for use, see power supply User Instructions.

WARNING

- INCORRECT USE OF THE PSU COULD -
EXPOSE THE USER TO HAZARDOUS VOLTAGES
SEE PSU USER INSTRUCTIONS.

LINK LOCATION DIAGRAM





LINKS 1 - 30 SHOWN IN THE 'A' POSITIONS.

101ALNKS