SIN 300

Issue 1.3
June 2015

Suppliers' Information Note

For The BT Network

BT MusicLine 2000

Service Description

This document does not form a part of any contract with BT customers or suppliers.

Users of this document should not rely solely on the information in this document, but should carry out their own tests to satisfy themselves that terminal equipment will work with the BT network.

BT reserves the right to amend or replace any or all of the information in this document.

BT shall have no liability in contract, tort or otherwise for any loss or damage, howsoever arising from use of, or reliance upon, the information in this document by any person.

Due to technological limitations a very small percentage of customer interfaces may not comply with some of the individual characteristics which may be defined in this document.

Publication of this Suppliers' Information Note does not give or imply any licence to any intellectual property rights belonging to British Telecommunications plc or others. It is your sole responsibility to obtain any licences, permissions or consents which may be necessary if you choose to act on the information supplied in the SIN.

This SIN is available in Portable Document Format (pdf) from: http://www.btplc.com/sinet/

Enquiries relating to this document should be directed to: sinet.helpdesk@bt.com

CONTENTS

1. Introduction

This Suppliers Information Note (SIN) describes the BT MusicLine 2000 range of services and provides technical information for terminal equipment manufacturers and suppliers.

2. Service outline

2.1 Application

MusicLine 2000 is a highly flexible point-to-point service that meets today's variety of needs of Radio and TV broadcasters. The standard service consists of a Forward Direction 15kHz stereophonic service. Options allow for additional Forward Direction or Reverse Direction 15kHz channels, as well as the inclusion of multiple control channels and multiple 64kbit/s channels.

MusicLine 2000 meets the needs of FM broadcasters and is also suitable for other high quality speech or music transmissions. Additional options can be used to increase the number of programmes carried and also provide telemetry, data transfer and inter-studio communications.

Uses include multiple delivery of programmes to transmitter sites. The service can be adapted to provide full remote operation of a studio enabling economies to be made by pooling engineering and programming resources at off-peak times.

2.2 Technology

The service is a transmission path connecting two points within the UK.

This service uses an NTE configured to deliver the chosen customers requirements (see 2.3 below) This bearer circuit provides a basic service of a unidirectional stereo audio circuit, analogue presented at each end.

2.3 Options

The basic service provides a high quality audio stereo path in one direction.

Several options may be added singly or in combination to the basic service as outlined below.

2.3.1 Audio Channels 1-4

Audio channels 1 & 2 are provided with the basic service.

One or two additional 15 kHz audio channels may be added in either forward and/or reverse directions.

2.3.2 Fifth Channel

A fifth channel may be configured in any ONE of the following options below**:**

a) One additional 15kHz audio channel may be added in the forward direction (However this fifth forward 15kHz audio channel can only be used in conjunction with channels 1-4 all being in the forward direction as well),or

b) Six bi-directional speechband (3.5kHz) channels may be added to the basic service (this is only available in conjuction with channels 1-4 being used to provide 2 forward and 2 reverse 15kHz channels) or,

c) Three bi-directional 64kbit/s data channels and three bi-directional speechband (3.5kHz) channels.

2.3.3 RS232 Channel

The equipment can supply a duplex RS232 at 9600 Baud. The RS232 interface is offered as an optional addition to the basic service. This option is presented as a 25-way D type female connector.

2.4 Customer Accommodation

The service requires the customer to provide accommodation (including space, power, security and environmental control) for terminating equipment.

MusicLine 2000 NTE is rack/cabinet mounted using standard 19 inch mounting practice.

3. Service availability

This product is no longer available for new supply.

4. Technical specification

4.1 Interface presentation

The following interfaces are provided by the Network Terminating Equipment (NTE):

NTE Interfaces	Electrical presentation	Physical presentation
Audio Inputs Each Channel	Balanced pair 600 Ohms Termination Impedance Max level +9dBm *note 3* Nominal Bandwidth: 20Hz to 15kHz Loss/Frequency for any single frequency: ±0.5dB; Range: 20Hz to 14kHz ±0.75dB; Range: 14kHz to 15kHz	Customer connection - solder tags Test access - 2 by 4 mm U links *note 1*
Audio Outputs Each Channel	Balanced pair 600 Ohms Source Impedance Max level +9dBm *note 3* Nominal Bandwidth: 20Hz to 15kHz Loss/Frequency for any single frequency: ±0.5dB; Range: 20Hz to 14kHz ±0.75dB; Range: 14kHz to 15kHz	Customer connection - solder tags Test access - 2 by 4 mm U links *note 1*
Speechband Inputs Each Channel	Balanced pair 600 Ohms Termination Impedance Max level +9dBm *note 4* Nominal Bandwidth: 300Hz to 3.4kHz. ITU-T Rec.G.712[1] Figure 3/G.712 refers.	Customer connection - solder tags Test access - 2 by 4 mm U links *note 1*
Speechband Outputs Each Channel	Balanced pair 600 Ohms Source Impedance Max level +9dBm *note 4* Nominal Bandwidth: 300Hz to 3.4kHz. ITU-T Rec.G.712[1] Figure 3/G.712 refers.	Customer connection - solder tags Test access - 2 by 4 mm U links *note 1*
64kbit/s Data	Bi-directional data RS422 64 kbit/s +/- 50 ppm	15 Way D type connector Female on data access panel Male for Customer Cable *note 2*
RS232 (A and B ends)	RS232 Serial Binary Data Duplex Asynchronous @ 9600 Baud conforming to ITU-T V.24[2]	25 way D-type Female (BT Equipment) Male (Customer Cable)

Table 1

Note 1: These services are presented to the customer by means of a front mounted 19 inch practise test access panel occupying 1 RU of space.

Note 2: These services are presented to the customer by means of a 19 inch practise rear mounted data access panel occupying 2 RU of space.

Note 3: Maximum level - total power level over the range 20Hz to 15kHz is not to exceed +9dBm.

Note 4: Maximum level - total power level over the range 300Hz to 3.4kHz is not to exceed +9dBm.

4.2 Connection Details

4.2.1 RS422 Data Connections (Socket)

Pin No.	Signal	Description
2	TX +	Transmit Data + ve leg
9	TX -	Transmit Data - ve leg
4	RX +	Receive Data + ve leg
11	RX -	Receive Data + ve leg
6	TC +	Transmit Clock + ve leg
13	TC -	Transmit Clock - ve leg
8	GND	Ground
1	GND	Ground / connector screen

Transmit is the direction in which an electrical signal originating in the terminal equipment passes to the MusicLine circuit.

4.2.2 RS232 Data Connections (Socket)

Pin No.	Signal	Description
2	TXD	Transmit Data
3	RXD	Receive Data
5	GND	Ground

Transmit is the direction in which an electrical signal originating in the terminal equipment passes to the MusicLine circuit.

4.3 Network Terminating Equipment (NTE)

4.3.1 Power Requirements

The rack/cabinet requires a customer supplied local mains 10 amp un-switched fused spur 50 Hz AC power source within 2 metres of the equipment.

The NTE requires a -48 volt DC power supply provided by a Power Unit. The power consumption of the NTE will be approximately 25 watts.

A customer supplied -48volt DC supply shall conform to BTNR 2511 [3]
EN 60950 [4] and EN41003 [5]

NOTE: A 13 amp socket from a technical supply for test equipment in close proximity to the rack/cabinet should be supplied.

4.3.2 Earthing Arrangements

A quiet earth will be required for the equipment.

The normal mains supply earth should not be connected to the BT rack/cabinet in addition to the Quiet (Technical) Earth.

Inter-Rack earthing (i.e.: between the BT rack and any customer rack). Customer rack earth must not be mains earth. The resistance between the BT rack and the Customer rack, must be less than 0.25 Ohms.

The mains safety earth should not be connected to the quiet / technical earth as this will compromise noise performance and introduce earth loops.

5. Further information

If you have enquiries relating to this document please contact: sinet.helpdesk@bt.com

6. References

ITU-T Recommendations

[1]	G.712	Digital Transmission Systems -Terminal equipments - Coding of analogue signals by pulse code modulation.
[2]	V.24	List of Definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)

British Telecom Network Requirements

[3]	BTNR 2511	British Telecom Network Requirements Interface of Telecommunications Equipment - Nominal 48 Volt negative DC power Supply

British Standards

[4]	BS EN 60950	Safety of information technology equipment, including electrical business equipment.
[5]	BS EN 41003	Particular safety requirements for equipment connected to telecommunications networks.

7. Glossary

BTNR	British Telecom Network Requirements
D-type	Computer / Broadcast industry standard connector
ITU-T	International Telecommunications Union - Telecommunications standardisation section (formerly CCITT)
NTE	Network Terminating Equipment
RS 232	Physical Interface electrically Unbalanced allowing data exchange to ITU-V.24
RS 422	Physical Interface electrically Balanced allowing data exchange to ITU-V.24
SIN	Suppliers' Information Note
Technical Supply	A quiet /filtered mains supply
V.24	short form of : ITU-T V24 - List of Definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)

8. History

Issue 1	March 1998	First Issued
Issue 1.1	April 2004	Contact Details updated. Approval Requirements statement removed, information available via SINet Useful Contacts page.
Issue 1.2	April 2013	Updated to advise that this product is no longer available for new supply.
Issue 1.3	June 2015	Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/

-END-