Telos Series 2101 – T1 Trunk Requirements

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This Data Sheet describes the specifications for using a T1 trunk between the Series 2101 hub and a PBX in the USA & Canada, when PRI is not available.

Introduction

One of the major advantages to putting the Series 2101 Hub "behind" the PBX is the ability to offer integration between the two systems. For instance, a call made to the general station number can be transferred to a given studio.

Therefore, the preferred interface is two-way tie trunks between the PBX and the Series 2101. In certain configurations, these trunks will also act as tandem trunks, as when the System 2101 is not equipped with CO trunks to the LEC (Local Exchange Carrier). In this case, the 2101 must be permitted to draw dial tone on the tie trunks. Another requirement in this case, is for the PBX to route certain incoming calls (based on the DID) directly to these tie trunks.

In other possible scenarios, the Series 2101's primary CO trunking will be via trunks directly to the LEC, and a relatively small number of tie trunks to the PBX would be required to allow "transfer" of calls from the PBX to the 2101 and to allow calling local extensions. This document does not necessarily cover those cases.

Trunk Requirements

Physical Interface Specifications

The Telos 2101-0510 T1/PRI interface is a DSX-1 device.

Framing: ESF (Extended Super Frame)
Coding: B8ZS (Bipolar 8 Zero Substitution)
Clocking: Typically from incoming T-span (see below)
Signaling:
> Robbed Bit Channel Associated Signaling according to TIA/EIA-464-B-1996 using A and B bits only (see below)

Clocking Considerations

Telos recommends that all T-Span clocking be derived from the network via a T-Span from the LEC CO. If the PBX is not deriving clock from the network (via digital trunking) special considerations must be made. In cases where the Series 2101 has trunks to both the LEC and a PBX, the LEC will be considered to be a master clock. In the case where the 2101 has no CO trunks the 2101 will derive clocking from the T-Span between the PBX and 2101 and the PBX must derive clock from the LEC CO.

Signaling & Supervision

Signaling & Supervision required

1. Incoming tandem mode – Calls arriving at the PBX with DID numbers on the 2101 should be forwarded to the 2101 with address information.

2. Outgoing tandem mode – 2101 users should be able to dial through the PBX to the LEC CO switch. The 2101 provides DP (using CAS signaling) at 10 pps. In-band DTMF tones become available for end-to-end signaling once the digit collection timer expires.

3. 2101-to-PBX Calls – 2101 users should be able to dial extensions on the PBX. The 2101 can provide DP (using CAS signaling).

4. PBX to 2101 transfer. A PBX station should be capable of transferring a call to the 2101 using whatever method the PBX normally uses for this function.

Signaling & Supervision methods

Robbed Bit signaling over the DSX-1 DS1 will be used. A and B bits will be used for signaling. The 2101 uses the following Signaling and Supervision for tie trunks as defined in EIA/TIA-468-B-96 (Specific references given below):

1. Tie Trunk (wink start E&M emulation) Signaling (6.2.2). The PBX must provide a two-way (combination) trunk that delivers address information in DP form using the A & B bits. The PBX must deliver on-hook/off-hook status using the A & B bits. The PBX shall receive on-hook/off-hook status from the 2101 on the A bit. The PBX shall receive DP information (if used) on the A bit.

2. On calls from the 2101 to the PBX the A & B Bit patterns described in (6.2.2.1) shall be used. Timing of these bit patterns shall be as defined for E&M analog trunks in (4.2.4). DP address information will comply with (Annex E4.1-4.2).

3. On calls from the PBX to the 2101 (or calls from the network routed by the PBX) the A & B bit sequences described in (6.2.2.3) shall be used. Timing of these bit patterns shall be as defined for E&M analog trunks in (4.2.4). DP address information shall comply with (Annex E4.1). EIA/TIA-464-B-96 (Annex E4.1(2)) notwithstanding, the repetition rate to the 2101 *shall not exceed 10 pulse per second*.

4. The DP address information from PBX-to-2101 will consist of a fixed number of address digits. *PBX vendor must specify the number of address digits to be used.*

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