



Supervision Signaling

This appendix defines the signaling generation/detection capabilities for analog line and trunk interface cards; and T1 and E1 supervision signaling capabilities.

Refer to the *Cisco VCO/4K ISDN Supplement* for information on the PRI/N signaling characteristics.

Table A-1 through Table A-5 define the supervision signaling capabilities for the following cards: SLIC, DID, UTC Loop Start, UTC Ground Start, and E+M analog cards.

Table A-1 SLIC Analog Supervision Signaling Capabilities

Signaling	SLIC Capability
Seize Effect: Detect (inward)	Loop current
Seize Effect: Generate (outward)	Apply ring voltage (2.0 seconds on, 4.0 seconds off)
Wink: Detect	No
Wink: Generate	No
Hookflash: Detect	Loop open for 300 ms to 800 ms
Hookflash: Generate	No
Answer Supervision: Detect (true answer)	Loop closed at far end
Answer Supervision: Generate (answerback)	No
Disconnect: Detect	Loop open for > 800 ms at far end
Disconnect: Generate	No

Table A-2 DID Analog Supervision Signaling Capabilities

Signaling	DID Capability
Seize Effect: Detect (inward)	Loop current
Seize Effect: Generate (outward)	Not Applicable
Wink: Detect	No
Wink: Generate	Reverse battery for 200 ms
Hookflash: Detect	No
Hookflash: Generate	Nonreverse battery for 500 ms
Answer Supervision: Detect (true answer)	Not applicable

Table A-2 *DID Analog Supervision Signaling Capabilities (continued)*

Signaling	DID Capability
Answer Supervision: Generate (answerback)	Battery reversal
Disconnect: Detect	Loop open at far end
Disconnect: Generate	Nonreverse battery

Table A-3 *UTC LS Analog Supervision Signaling Capabilities*

Signaling	UTC Loop Start Capability
Seize Effect: Detect (inward)	Ring voltage
Seize Effect: Generate (outward)	Close loop
Wink: Detect	Battery reversal for 140 ms to 700 ms
Wink: Generate	No
Hookflash: Detect	No
Hookflash: Generate	Open loop for 500 ms
Answer Supervision: Detect (true answer)	Battery reversal
Answer Supervision: Generate (answerback)	Close loop
Disconnect: Detect	No
Disconnect: Generate	Open loop

Table A-4 *UTC GS Analog Supervision Signaling Capabilities*

Signaling	UTC Ground Start Capability
Seize Effect: Detect (inward)	Ring voltage
Seize Effect: Generate (outward)	Ground ring
Wink: Detect	Battery reversal for 140 ms to 170 ms
Wink: Generate	No
Hookflash: Detect	No
Hookflash: Generate	Open loop for 500 ms
Answer Supervision: Detect (true answer)	Battery reversal
Answer Supervision: Generate (answerback)	Close loop
Disconnect: Detect	Battery removed for > 700 ms at far end
Disconnect: Generate	Open loop

Table A-5 *E+M Analog Supervision Signaling Capabilities*

Signaling	E+M Capability
Seize Effect: Detect (inward)	E lead raised
Seize Effect: Generate (outward)	Raise M lead

Table A-5 E+M Analog Supervision Signaling Capabilities (continued)

Signaling	E+M Capability
Wink: Detect	E lead raised for 100 ms to 350 ms
Wink: Generate	Raise M lead for 250 ms
Hookflash: Detect	E lead lowered for 100 ms to 350 ms
Hookflash: Generate	Lower M lead for 250 ms
Answer Supervision: Detect (true answer)	E lead raised for > 350 ms
Answer Supervision: Generate (answerback)	Raise M lead
Disconnect: Detect	E lead lowered for > 150 ms
Disconnect: Generate	Lower M lead

Table A-6 through Table A-10 define the supervision signaling capabilities for T1 digital cards.



Note

On the ICC T1 card, E+M signaling may be modified using the programmable protocol feature.

Table A-6 E+M Supervision Signaling Capabilities

Signaling	T1 E+M Capability
Seize Effect: Detect (inward)	A/B bits = 11 in Rx stream
Seize Effect: Generate (outward)	A/B bits = 11 in Tx stream
Wink: Detect	A/B bits = 11 in Rx stream for 110 ms to 350 ms
Wink: Generate	A/B bits = 11 in Tx stream for 250 ms
Hookflash: Detect	A/B bits = 00 in Rx stream for 300 ms to 800 ms
Hookflash: Generate	A/B bits = 00 in Tx stream for 500 ms
Answer Supervision: Detect (true answer)	A/B bits = 11 in Rx stream for > 350 ms
Answer Supervision: Generate (answerback)	A/B bits = 11 in Tx stream
Disconnect: Detect	A/B bits = 00 in Rx stream for > 800 ms
Disconnect: Generate	A/B bits = 00 in Tx stream

Table A-7 FXO LS Supervision Signaling Capabilities

Signaling	T1 FXO Loop Start Capability
Seize Effect: Detect (inward)	A/B bits = 11 in Rx stream
Seize Effect: Generate (outward)	Apply ringing Tx A/B bits = 00/01 (2.0 seconds on, 4.0 seconds off)
Wink: Detect	Not supported
Wink: Generate	Not supported
Hookflash: Detect	A/B bits = 01 in Rx stream for 300 ms to 800 ms
Hookflash: Generate	Not supported

Table A-7 FXO LS Supervision Signaling Capabilities (continued)

Signaling	T1 FXO Loop Start Capability
Answer Supervision: Detect (true answer)	A/B bits = 11 in Rx stream
Answer Supervision: Generate (answerback)	A/B bits = 01 in Tx stream
Disconnect: Detect	A/B bits = 01 in Rx stream for > 800 ms
Disconnect: Generate	Not supported

Table A-8 FXS LS Supervision Signaling Capabilities

Signaling	T1 FXS Loop Start Capability
Seize Effect: Detect (inward)	Ring detected Rx A/B bits = 00/01 (2.0 seconds on, 4.0 seconds off)
Seize Effect: Generate (outward)	A/B bits = 11 in Tx stream
Wink: Detect	Not supported
Wink: Generate	Not supported
Hookflash: Detect	Not supported
Hookflash: Generate	A/B bits = 01 in Tx stream for 500 ms
Answer Supervision: Detect (true answer)	A/B bits = 01 in Rx stream
Answer Supervision: Generate (answerback)	A/B bits = 11 in Tx stream
Disconnect: Detect	Not supported
Disconnect: Generate	A/B bits = 01 in Tx stream

Table A-9 FXO GS Supervision Signaling Capabilities

Signaling	T1 FXO Ground Start Capability
Seize Effect: Detect (inward)	A/B bits = 00 in Rx stream
Seize Effect: Generate (outward)	Apply ringing Tx A/B bits = 00/01 (2.0 seconds on, 4.0 seconds off)
Wink: Detect	Not supported
Wink: Generate	Not supported
Hookflash: Detect	Not supported
Hookflash: Generate	Not supported
Answer Supervision: Detect (true answer)	A/B bits = 11 in Rx stream
Answer Supervision: Generate (answerback)	A/B bits = 01 in Tx stream
Disconnect: Detect	A/B bits = 01 in Rx stream for > 170 ms
Disconnect: Generate	A/B bits = 11 in Tx stream

Table A-10 FXS GS Supervision Signaling Capabilities

Signaling	T1 FXS Ground Start Capability
Seize Effect: Detect (inward)	Ring detected Rx A/B bits = 00/01 (2.0 seconds on, 4.0 seconds off)
Seize Effect: Generate (outward)	A/B bits = 00 in Tx stream
Wink: Detect	Not supported
Wink: Generate	Not supported
Hookflash: Detect	Not supported
Hookflash: Generate	Not supported
Answer Supervision: Detect (true answer)	A/B bits = 01 in Rx stream
Answer Supervision: Generate (answerback)	A/B bits = 01 in Tx stream
Disconnect: Detect	A/B bits = 01 in Rx stream for > 170 ms
Disconnect: Generate	A/B bits = 11 in Tx stream

**Note**

You can adjust the timing values for four span cards from the Trunk Timing Configuration screen. These values include WINK-DET MIN and MAX, WINK SEND, FLASH-DET MIN and MAX, FLASH SEND, OFFHOOK MIN, and GUARD. The timing values for single span cards cannot be adjusted.

**Note**

A flashhook affects the A/B bits the same as a call disconnect. A call disconnect cannot be declared until the MAX FLASH detect time expires. This can slow down call disconnects. To disable FLASH detect timing, set the FLASH-DET MIN and MAX times to 0.

Table A-11 defines the E1 CAS/R2 supervision signaling capabilities. Table A-12 defines the E1 CAS/Mercury supervision signaling capabilities.

**Note**

On the ICC E1 card, CAS/R2 signaling may be modified using the programmable protocol feature.

Table A-11 E1 CAS/R2 Supervision Signaling Capabilities

Signaling	E1 CAS/R2 Capability
Seize: Detect	A/B bits = 00 in Rx stream
Seize: Generate	A/B bits = 00 in Tx stream
Seize Ack: Detect ¹	A/B bits = 11 in Rx stream
Seize Ack: Generate ²	A/B bits = 11 in Tx stream
Answer: Detect	A/B bits = 01 in Rx stream
Answer: Generate	A/B bits = 01 in Tx stream
Clear Forward: Detect	A/B bits = 10 in Rx stream

Table A-11 E1 CAS/R2 Supervision Signaling Capabilities (continued)

Signaling	E1 CAS/R2 Capability
Clear Forward: Generate	A/B bits = 10 in Tx stream
Clear Back: Detect	A/B bits = 11 in Rx stream
Clear Back: Generate	A/B bits = 11 in Tx stream
Idle: Detect	A/B bits = 10 in Rx stream
Idle: Generate	A/B bits = 10 in Tx stream

1. WINK-DET MIN defines how long the Four Span E1 should wait for a Seize Ack. WINK report sent to VCO/4K system software.
2. Automatically generated by card within 40 ms.

**Note**

WINK SEND, WINK- DET MAX, and FLASH are not used by E1 cards.

Table A-12 E1 CAS/Mercury Supervision Signaling Capabilities

Signaling	E1 CAS/Mercury Capability
Seize: Detect	A/B bits = 01 in Rx stream
Seize: Generate	A/B bits = 01 in Tx stream
Delay Dial: Detect ¹	A/B bits = 01 in Rx stream
Delay Dial: Detect ²	A/B bits = 01 in Tx stream within 30 ms
Proceed To Send: Detect	A/B bits = 11 in Rx stream
Proceed To Send: Generate ³	A/B bits = 11 in Tx stream
Answer: Detect	A/B bits = 01 in Rx stream
Answer: Generate	A/B bits = 01 in Tx stream
Disconnect: Detect	A/B bits = 11 in Rx stream
Disconnect: Generate	A/B bits = 11 in Rx stream
Idle: Detect	A/B bits = 11 in Rx stream
Idle: Generate	A/B bits = 11 in Tx stream

1. WINK-DET MIN defines how long the delay must last. WINK report sent to the VCO/4K system software.
2. Automatically generated by card. Remains until WINK token is executed.
3. Generated when the WINK token is executed.

**Note**

WINK SEND, WINK-DET MAX, and FLASH are not used by E1 cards.
