



ACU-T Installation Checklist

Provide Proper DC Power.	See Section 2.6.
Make Interconnections.	See Section 2.8 for External Interconnect Information.
Serial Remote Control needed?	Set Serial Remote control ON with CPM SW1-3. Set Baud Rate with CPM SW1-1 and 2.
Adjust Audio Input Levels if necessary.	See Programming Items for the DSP-1 in Section 2-10.
Adjust Audio Output Levels if necessary.	See Programming Items for the DSP-1 in Section 2-10.
Set COR Type and Polarity.	See Programming Items for the DSP-1 in Section 2-10.
Set Squelch Type if necessary	See Programming Items for the DSP-1 in Section 2-10.
Set Telephone Line Level if necessary.	See Programming Items for the PSTN-1 in Section 2-10.
Is COR Sampling needed?	See Programming Items for the DSP-1 in Section 2-10.
Is Noise Reduction Needed?	See Programming Items for the DSP-1 in Section 2-10.

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Numerous other configuration options available but not included in this checklist. See Sections 2.9 through 2.11.

ACU-T Interface Module Operational Commands			
Command Item	Command	Description	Factory Default
Make a Connection	* n n	Connect the module to extension n n.	No Connections
Break the Current Connections	* #	Remove the module from any connections that it is currently participating in.	N/A
Attention Command	* * *	ACU-T responds with the extension number of the module being queried.	N/A
Monitor Function	* 3 4 n n	n n = Extension to be monitored. * 3 4 n n toggles between Monitor Mode and Normal (non-monitoring) Mode.	Monitoring Disabled (Normal Mode)
Data /Command Mode	* 8 0	Toggles between Data Mode and Command Modes. Module must be connected before using.	Command Mode
System Reset	* 9 0 n n	Performs system reset. “n n” is system reset code that can be set only via top panel keypad (see manual for full info).	Feature Disabled



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HSP-4 Operational Commands			
Command Item	Command	n = Selection	Factory
Make A Connection	* n n	Connect HSP-4 to extension n n	N/A
Break the Current Connections	* #	Remove the HSP-4 from any connections that it is currently participating in.	N/A
Attention Command	* * *	ACU-T responds by identifying the extension number of the HSP-4 module being queried: "Extension 00".	N/A
Report Connections	* 3 0	Voice prompts list all current connections for the entire ACU-T.	N/A
Disconnect Another Extension	* 3 3 n n	Remove extension n n from any connections that it is currently participating in.	N/A
Monitor Function	* 3 4 n n	* 3 4 n n toggles between Monitor On and Monitor Off. n n = Extension to be monitored by the HSP-4 speaker & handset.	Monitor Off
Store Connections	* 3 6	Store the current connection configuration for automatic recall at power-up.	None Stored; No connections at power-up
Regain Control	* 3 7	Regain system-programming control from the ACU Controller.	N/A
Data/Command Mode	* 8 0	Toggles between Data Mode and Command Mode.	Command Mode
System Reset	* 9 0 n n	Perform system reset. If n n is any series of digits other than 00, the system is reset ("n n" is the system reset code, entered via the top panel keypad. If	Disabled

HSP-4 Operational Commands

n n is 00, the feature is disabled.)

ACU-T Configuration Programming Items

System Programming	Command	n = Selection	Factory
Enter Programming Mode	* 9 9	N/A	N/A
ACU Controller Override	* 3 7	N/A	N/A
Select Module to Program	* 0 1 n n	n n = The module's extension (two digits must be entered)	N/A
Exit Programming Mode	* #	N/A	N/A
Reset Modules to Factory Settings	* 9 9 9 9	N/A	N/A
Enable PIN Security And Select Security Mode	* 2 9 n	0 = Disable PIN Security, 1 = Enable PIN Security in <i>Priority</i> operation 2 = Enable PIN Security in <i>Exclusive</i> operation	Disabled
Program PIN Number Database	* 3 0 nnnx	nnnn is the four digit PIN x is the security level from 0 to 9 for that PIN 0 = not secure (PIN not required), 1=least secure, up to 9 = most secure	PIN Database Cleared
Delete a PIN	* 3 1 nnnn	nnnn is the four digit PIN	N/A
HSP-4 Programming	Command	n = Selection	Factory
Squelch Mode	* 5 3 n	0 = Mic (HSP Handset Mic Switch) 1 = VOX	Mic



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ACU-T Configuration Programming Items			
DSP-1 Programming	Command	n = Selection	Factory
Receive Level	* 0 2 n	0 = 12dBm, 1 = 8dBm, 2 = 4dBm, 3 = 0dBm, 4 = -4dBm, 5 = -8dBm, 6 = -12dBm, 7 = -16dBm, 8 = -20dBm, 9 = -26dBm	0dBm
Transmit Level	* 0 3 n	0 = -26dBm, 1 = -20dBm, 2 = -16dBm, 3 = -12dBm, 4 = -8dBm, 5 = -4dBm, 6 = 0dBm, 7 = 4dBm, 8 = 8dBm, 9 = 12dBm	0dBm
COR Polarity	* 0 4 n	0 = Active Low, 1 = Active High	Active Low
Full/Half Duplex	* 0 8 n	0 = Full Duplex, 1 = Half Duplex	Half Duplex
DTMF Mute Timer Value	* 0 9 n	0 = Off, 1 = 0.5 sec, 2 = 1 s, 3 = 1.5 s, 4 = 2 s, 5 = 2.5 s, 6 = 3 s, 7 = 3.5 s, 8 = 4 s, 9 = 4.5 seconds	Off
RX Audio Delay (H/W COR Mode)	* 1 0 n	0 = 20 ms, 1 = 60 ms, 2 = 100 ms, 3 = 140 ms, 4 = 180 ms, 5 = 220 ms, 6 = 260 ms, 7 = 300 ms	20 ms
RX Audio Delay (VOX)	* 1 0 n	0 = 20 ms, 1 = 60 ms, 2 = 100 ms, 3 = 140 ms, 4 = 180 ms, 5 = 220 ms, 6 = 260 ms, 7 = 300 ms	60 ms
RX Audio Delay (VMR)	* 1 0 n	Less than 220 ms not allowed. 0,1,2,3,4,5 all = 220 ms, 6 = 260 ms, 7 = 300 ms	220 ms
VMR/VOX Threshold	* 1 1 n	0 = Low Threshold (Highest Sensitivity), 1 = Med1, 2 = Med2, 3 = High Threshold (Lowest Sensitivity), 4 to 9 = Reserved for special applications – do not use	Med1
VOX Hang Time	* 1 2 n	0 = 175 ms, 1 = 375 ms, 2 = 575 ms, 3 = 775 ms, 4 = 975 ms, 5 = 1.175 sec, 6 = 1.375 sec, 7 = 1.575 seconds	775 ms
VMR Hang Time	* 1 2 n	< 775 not allowed, 1, 2, 3 = 775 ms, 4 = 975 ms, 5 = 1.175 sec, 6 = 1.375 sec, 7 = 1.575 seconds	775 ms
COR (squellch) Type	* 1 4 n	0 = COR, 1 = VMR, 2 = Reserved, 3 = VOX	VOX
COR Sampling On/Off	* 1 8 n	0 = Disabled, 1 = Enabled	Disabled



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ACU-T Configuration Programming Items			
DSP-1 (continued)	Command	n = Selection	Factory
COR Sampling Initial Delay Time	* 1 9 n	0 = 2 sec, 1 = 4 sec, 2 = 6 sec, 3 = 8 sec, 4 = 10 sec, 5 = 12 sec, 6 = 14 sec, 7 = 16 sec, 8 = 18 sec, 9 = 20 seconds	10 sec
COR Sampling Interval	* 2 0 n	0 = 1 sec, 1 = 2 s, 2 = 3 s, 3 = 4 s, 4 = 5 s, 5 = 6 s, 6 = 7 s, 7 = 8 s, 8 = 9 s, 9 = 10 seconds	5 sec
COR Sampling Window Width	* 2 1 n	0 = 50 ms, 1 = 100 ms, 2 = 150 ms, 3 = 200 ms, 4 = 250 ms, 5 = 300 ms, 6 = 350 ms, 7 = 400 ms, 8 = 450 ms, 9 = 500 ms	150 ms
Noise Reduction Value	* 2 2 n	0 = Off, 1 = Minimum... 9 = Maximum	Off
Audio Muted when Squelch	* 2 3 n	0 = Muted, 1 = Not Muted	Muted
Transmit Keying Tones	* 2 5 n	0 = None, 1 = 1950 Hz Continuous, 2 = EIA Keying Sequence; F1 (1950 Hz) Function Tone	None
COR Inhibit Time after PTT	* 2 6 n	0 = None, 1 = 100 ms, 2 = 200 ms, 3 = 400 ms, 4 = 800 ms, 5 = 1 sec, 6 = 2 sec, 7 = 3 sec, 8 = 4 sec, 9 = 5 seconds	100 ms
PTT or COR Priority	* 2 7 n	0 = COR Priority; 1 = PTT Priority (PTT/COR Priority applies to Half Duplex operation only)	PTT Priority
Keying Tone Amplitude	* 2 8 n	0 = -6 dB, 1 = -9 dB, 2 = -12 dB, 3 = -15 dB (Does not apply to EIA Keying Sequence)	-9 dB
Module Security level	* 3 2 n	0 = Not Secure, 1 =Least Secure, 9 = Most Secure	Not Secure
DTMF Enable	* 3 8 n	0 = Disabled, 1 = Enabled	Enabled
High Frequency Equalizer	* 3 9 n	0 = Reserved, 1 = 5 dB cut, 2 = 3.5 dB cut, 3 = 2 dB cut, 4 = Flat, 5 = 2 dB boost, 6 = 3.5 dB boost, 7 = 5 dB boost, 8 and 9 = Reserved	Flat
DTMF Pre-emphasis	* 4 0 n	0 = DTMF Pre-emphasized, 1 = DTMF Not Pre-emphasized	Pre-emphasis
TX Audio Delay (was "Radio Type Selection")	* 4 3 n	0 = No Delay, 1= TX Audio Delay = 200ms, 2= TX Audio Delay = 400ms, 3= TX Audio Delay = 600ms, 4= TX Audio Delay = 800ms, 5 through 9 Reserved	No Delay
Voice Prompt Initiation Delay	* 4 4 n	0 = No Delay, 1 = 50 ms, 2 = 100 ms, 3 = 500 ms, 4 = 750 ms, 5 = 1 sec, 6 = 2 sec, 7 = 3 sec, 8 = 4 sec, 9 = 5 seconds	100 ms



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ACU-T Configuration Programming Items			
PSTN-1	Command	n = Selection	Factory
Telephone Line Levels	* 0 2 n	0 = 0dBm, 1 = -3dBm, 2 = -6dBm, 3 = -9dBm, 4 = -12dBm, 5 = -15dBm, 6 = -18dBm, 7 = -21dBm, 8 = -24dBm	-9dBm
Telephone RX Level Boost	* 0 3 n	0 = 0 dB, 1 = 2.5 dB, 2 = 4.5 dB, 3 = 6 dB, 4 = 7.4 dB, 5 = 8.5 dB, 6 = 9.5 dB, 7 = 10.5 dB, 8 = 11.3 dB, 9 = 12 dB	6 dB
PSTN Type	* 0 5 n	0 = Normal, 1 = Satcom	Normal
PSTN Dialing Mode	* 0 6 n	0 = DTMF, 1 = Pulse	DTMF
DTMF Mute Timer	* 0 9 n	0 = Off, 1 = 0.5 sec, 2 = 1 sec, 3 = 1.5 sec, 4 = 2 sec, 5 = 2.5 sec, 6 = 3 sec, 7 = 3.5 sec, 8 = 4 sec, 9 = 4.5 seconds	Off
RX Audio Delay Time	* 1 0 n	0 = 10 ms, 1 = 22 ms, 2 = 35 ms, 3 = 47 ms, 4 = 60 ms, 5 = 72 ms, 6 = 85 ms, 7 = 97 ms	35 ms
VOX Threshold	* 1 1 n	0 = VOX Off, 1 & 2 = Low, 3 = High, 9 = VOX Off	Low
VOX Hang Time	* 1 2 n	0 = 500 ms, 1 = 1 sec, 2 = 1.5 sec, 3 = 2.0 seconds	1 second
Four-Wire/Two-Wire Operation	* 2 4 n	0=2-Wire, 1= 4-Wire w/hybrid, 2= 4-Wire; no hybrid 3= 4-Wire w/hybrid, AUX OUT goes high, 4=4-Wire no hybrid, AUX OUT goes high	Two-Wire
Module security level	* 3 2 n	0 = Not Secure, 1 =Least Secure, 9 = Most Secure	Not Secure
Outgoing Ring Time	* 3 7 n	0 = No ring, 1 = 30 sec, 2 = 60 sec, 3 = Continuous	30 seconds
DTMF Command Enable	* 3 8 n	0 = Disabled, 1 = Enabled	Enabled
Inactivity Disconnect Timer	* 4 2 n	0 = None, 1 = 30 sec, 2 = 1 min, 3 = 2 min, 4 = 5 min, 5 = 10 min, 6, 7, 8 & 9 = Reserved	2 minutes
Voice Prompt Initiation Delay	* 4 4 n	0 = No Delay, 1 = 50 ms, 2 = 100 ms, 3 = 500 ms, 4 = 750 ms, 5 = 1 sec, 6 = 2 sec, 7 = 3 sec, 8 = 4 sec, 9 = 5 seconds	No Delay



ACU-T Quick Reference Sheets

ACU-T Configuration Programming Items			
LP-1 Programming	Command	n = Selection	Factory
DTMF Mute Timer	* 0 9 n	0 = Off, 1 = 0.5 sec, 2 = 1 sec, 3 = 1.5 sec, 4 = 2 sec, 5 = 2.5 sec, 6 = 3 sec, 7 = 3.5 sec, 8 = 4 sec, 9 = 5 seconds	Off
RX Audio Delay Time	* 1 0 n	0 = 10 ms, 1 = 35 ms, 2 = 60 ms, 3 = 85 ms, 4 = 110 ms, 5 = 135 ms, 6 = 160 ms, 7 = 185 ms	60 ms
VOX Threshold	* 1 1 n	0 = VOX Off, 1 = Low, 2 = Med, 3 = High, 9 = Off	Med
VOX Hang Time	* 1 2 n	0 = 10 ms, 1 = 750 ms, 2 = 1.5 sec, 3 = 2.25 seconds	750 ms
Module security level	* 3 2 n	0 = Not Secure, 1 = Least Secure, 9 = Most Secure	Not Secure
Dial and Busy Tone Style	* 3 3 n	0 = USA Style, 1 – 9 = Reserved.	USA
Ring Cadence	* 3 4 n	0 = USA Style, 1 = European Style, 2 – 9 = Reserved	USA
Dial Tone Enable	* 3 5 n	0 = Dial Tone Disabled, 1 = Dial Tone Enabled	Enabled
Ringback Enable	* 3 6 n	0 = Ringback Disabled, 1 = Ringback Enabled	Enabled
Outgoing Ring Time	* 3 7 n	0 = No Outgoing Ring, 1 = 30 seconds, 2 = 60 seconds, 3 = Continuous	30 seconds
DTMF Command Enable	* 3 8 n	0 = DTMF Disabled, 1 = DTMF Enabled	Enabled
Voice Prompt Initiation Delay	* 4 4 n	0 = No Delay, 1 = 50 ms, 2 = 100 ms, 3 = 500 ms, 4 = 750 ms, 5 = 1 sec, 6 = 2 sec, 7 = 3 sec, 8 = 4 sec, 9 = 5 seconds	No Delay



ACU-T Quick Reference Sheets

ACU-T Hardware Configuration Settings		
Power Supply	Designator	Factory Setting
Charger On/Off	N/A	Charger Off
HSP-4 Module Configuration	Designator	Factory Setting
Internal/External Speaker Selection	JP-1	Internal Speaker
CPM-2 Module Configuration	Designator	Factory Setting
Serial Port Baud Rate	SW1-1, 2	9600
Remote Control Enable/Disable	SW1-3	Enabled
Serial Sync Character Requirement	SW1-4	Not Required
Reserved for Future Use.	SW1-5	Off
Chassis Configuration	SW1-6, 7	Single Chassis
Manufacturing Test Enable/Disable	SW1-8	Disabled
Store Configurations Enable/Disable	SW2-1	Enabled
Reserved for Future Use.	SW2-2,3,4,5,6,7,8	Off
Reserved for Future Use.	All of SW-3	Off



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ACU-T Hardware Configuration Settings		
DSP-1 Module Configuration	Designator	Factory Setting
Hi/Low Input Impedance	JP1	Low (600 Ohms)
Input Balanced/Unbalanced	JP2	Balanced
PSTN-1 Module Configuration	Designator	Factory Setting
Ringer Volume	R73	Mid-Range
Tel Line 1 Tip connection to Rear Panel	JP2	Disabled
Tel Line 1 Ring connection to Rear Panel	JP1	Disabled
Tel Line 2 Tip connection to Rear Panel	JP4	Disabled
Tel Line 2 Ring connection to Rear Panel	JP3	Disabled