Raytheon

# ACU-1000 Quick Help Sheets

| System Programming | Command | n = Selection | Factory |
|---|---|---|---|
| Enter Programming mode | * 9 9 | None | N/A |
| Console Override | * 3 7 | None | N/A |
| Select Module to Program | * 0 1 n n | n n = slot extension (two digits must be entered). | N/A |
| Exit Programming Mode | * # | None | N/A |
| Reset Modules to Factory Settings | * 9 9 9 9 | None | N/A |
| Enable System PINs | * 2 9 n | 0 = Disable PINs 1 = Enable PINs in *Priority* operation, 2 = Enable PINs in *Exclusive* operation | Disabled |
| Program PINs | * 3 0 nnnnx | nnnn is the four digit PIN, x is the security level from 0 to 9, 0 = not secure (PIN not required), 1=least secure, 9 = most secure | PIN Database Cleared |
| Delete PINs | * 3 1 nnnn | nnnn is the four digit PIN | N/A |
| **HSP-2 Programming** | **Command** | **n = Selection** | **Factory** |
| 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 sec | No Delay |
| **HSP-2 Jumper Settings** | **Jumper** | **Selections** | **Factory** |
| Speaker Output | JP1 | Pins 1-2 [Internal Speaker]<br>Pins 2-3 [External Speaker] | Internal |
| MIC Level | JP4, 5, 6 | JP4: -6dB gain, JP5: 0dB gain, JP6: +6dB gain | 0 dB gain |
| Line Out Level (P13) | JP7, 8, 9 | JP7: -6dB gain, JP8: 0dB gain, JP9: +6dB gain | 0 dB gain |

| DSP-2 Pin Out P1-P12 | Signal | Description |
|---|---|---|
| 1 | Ground | Ground connection |
| 2 | RXD | RX Data; used for special functions only |
| 3 | /AUX Out1 | Auxiliary Output 1- Active low; used for special functions only |
| 4 | /AUX In 1 | Auxiliary Input 1- Active low; used for special functions only |
| 5 | Ground | Ground connection |
| 6 | TX Out B | Balanced transmit audio output |
| 7 | Audio Gnd | Audio ground connection for unbalanced inputs/outputs |
| 8 | RX In A | Balanced receive audio input |
| 9 | TXD | TX Data; used for special functions only |
| 10 | /AUX Out2 | Auxiliary Output 2- Active low; used for special functions only |
| 11 | /AUX In 2 | Auxiliary Input 2- Active low; used for special functions only |
| 12 | /PTT Out | Active low PTT output to a transmitter |
| 13 | /COR In | COR input from a receiver, active low |
| 14 | TX Out A | Balanced transmit audio output |
| 15 | RX In B | Balanced receive audio input |

**Phone: (919) 790-1011 Fax: (919) 790-1456 Email: acu.sales@raytheon.com**

Raytheon

# ACU-1000 Quick Help Sheets

| DSP Module 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 | Act Low |
| Full/Half Duplex | * 0 8 n | 0 = Full, 1 = Half | Half |
| DTMF Mute Timer Value | * 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 s, 8 = 4 s, 9 = 4.5 sec | Off |
| 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 |
| Audio Delay VOX 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 | 60 ms |
| Audio Delay VMR Mode | * 1 0 n | Less than 220 ms not allowed. 0,1,2,3,4,5 = 220 ms, 6 = 260 ms, 7 = 300 ms | 220 ms |
| VMR/VOX Threshold | * 1 1 n | 0 = Low (Highest Sensitivity), 1 = Med1, 2 = Med2, 3 = High (Lowest Sensitivity), 9 = Reserved for special application – 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 s, 7 = 1.575 s | 375 ms |
| VMR Hang Time | * 1 2 n | Less than 775 not allowed, 1, 2, 3 = 775 ms, 4 = 975 ms, 5 = 1.175 sec, 6 = 1.375 sec, 7 = 1.575 sec | 775 ms |
| COR (squelch) 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 |
| 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 s, 9 = 20 s | 10 sec |
| COR Sampling Interval | * 2 0 n | 0 = 1 sec, 1 = 2 sec, 2 = 3 sec, 3 = 4 sec, 4 = 5 sec, 5 = 6 sec, 6 = 7 sec, 7 = 8 sec, 8 = 9 sec, 9 = 10 sec | 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 Squelched | * 2 3 n | 0 = Muted, 1 = Not Muted | Muted |
| Transmit Keying Tones | * 2 5 n | 0 = None; 1 = 1950 Hz Continuous; 2 = EIA | 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 sec. | 100 ms |
| PTT or COR Priority (Half Duplex only) | * 2 7 n | 0 = COR Priority; 1 = PTT Priority. | PTT Priority |
| Keying Tone Amplitude | * 2 8 n | 0 = -6 dB, 1 = -9 dB, 2 = -12 dB, 3 = -15 dB | -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. | Standard |
| 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 |

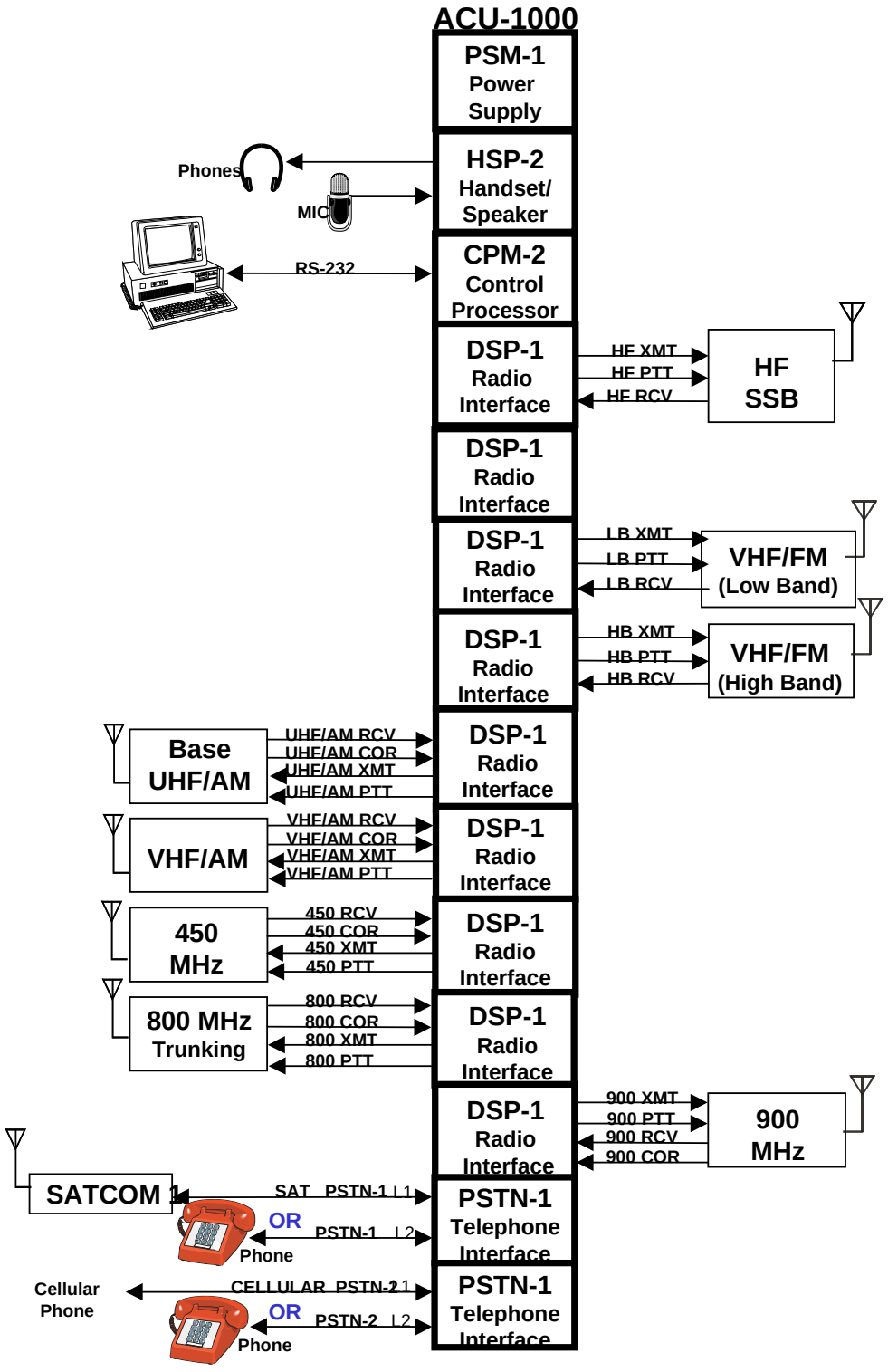
**Phone: (919) 790-1011 Fax: (919) 790-1456 Email: acu.sales@raytheon.com**

Raytheon

# ACU-1000 Quick Help Sheets

| PSTN Module Programming | 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 s, 8 = 4 s, 9 = 4.5 s | Off |
| 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, S, 2 = 1.5 sec, 3 = 2.0 sec | 1 sec |
| Four Wire/Two Wire Operation | * 2 4 n | 0=2-Wire, 1= 4-Wire w/hybrid, 2= 4-Wire; no hybrid 3= STU-III w/hybrid, 4=STU-III, no hybrid | 2-Wire |
| Module security level | * 3 2 n | 0 = Not Secure, 1 =Least Secure, 9 = Most Secure | Not Secure |
| Ringing Time | * 3 7 n | 0 = No ring, 1 = 30 sec, 2 = 60 sec, 3 = Continuous | 30 sec. |
| DTMF 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 min |
| 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 |

| LP-1 Module 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 s, 8 = 4 s, 9 = 4.5 s | Off |
| 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 | 10 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 sec | 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 |
| Ringing Time | * 3 7 n | 0 = No ring, 1 = 30 sec, 2 = 60 sec, 3 = Continuous | 30 sec. |
| DTMF 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-1000 Application: Cross-Band Retransmission over Six Frequency Bands**