CI-V REFERENCE GUIDE

HF/50 MHz TRANSCEIVER

# IC-7300MK2

Icom Inc.

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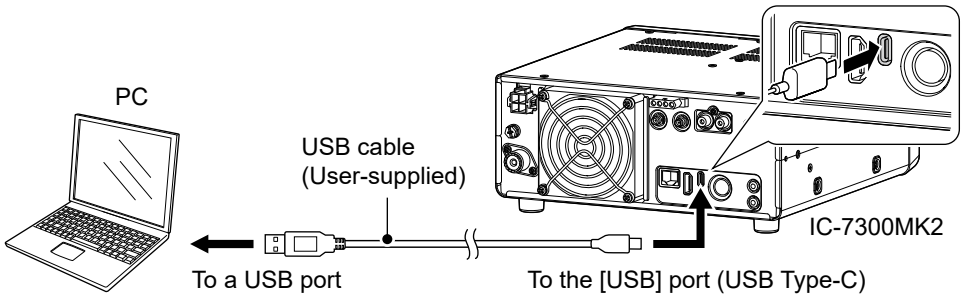
# REMOTE CONTROL

## Remote control (CI-V) information

### ◇ CI-V connection

Using the CI-V (ICOM Communication Interface V) system, you can remotely control the transceiver's operating frequency, operating mode, and the VFO/Memory selection from your PC.
The CI-V connection is easy to make– connect the transceiver to your PC with a user-supplied USB cable, as shown below.

| |
|---|
| To use the USB cable between the transceiver and a PC, you must first install a USB driver.<br>The latest USB driver and installation guide can be downloaded from the Icom website.<br><br>Carefully read the guide before installing the driver.<br>https://www.icomjapan.com/support/ |




ⓘ Make the connection as short as possible. The transceiver may not be recognized by the PC, depending on the USB cable length.

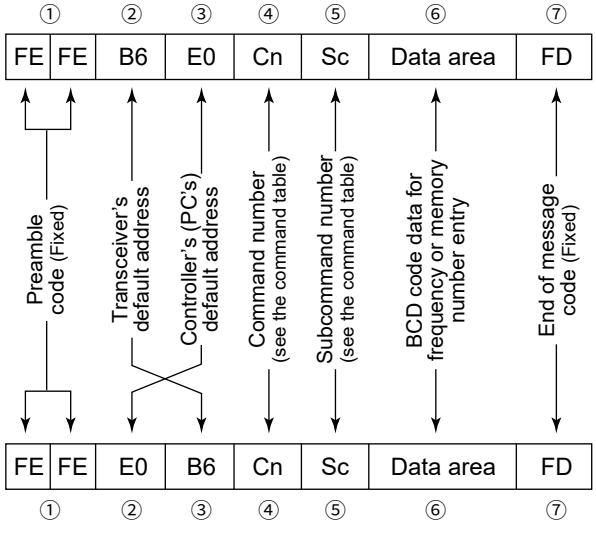
### ◇ Preparing

Before using CI-V commands, you must configure the settings for the transceiver's CI-V address, baud rate*, and the Transceive function that can be found in the Set mode. Refer to the IC-7300MK2 BASIC MANUAL for more details.
* Required only when the controller (PC) is connected to the [REMOTE] jack on the rear panel.

### ◇ About the data format

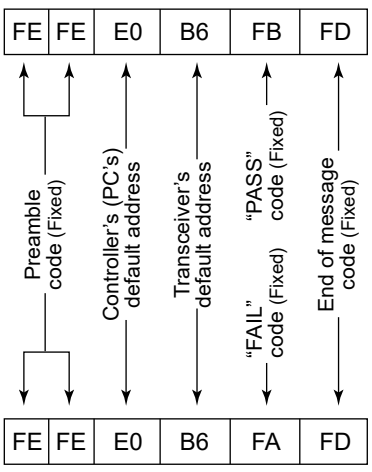
The figure below describes the CI-V data format. Data formats differ according to command numbers, and some commands require an additional Subcommand and/or a Data area.

**Controller (PC) to IC-7300MK2**




**IC-7300MK2 to controller (PC)**

**"PASS" message to controller (PC)**




**"FAIL" message to controller (PC)**

## Remote control (CI-V) information

**NOTE:**

- Commands with an asterisk (*) allow you to read or write setting values. To read the current settings, send the command without any subcommand or data.
  ⓘ However, for some commands, you must specify the channel number, setting item number, or other relevant information in the subcommand or data section to read the corresponding settings or content.
- When the setting item below is set to “All Volume Levels,” operating AF•RF/SQL or AF•RF/SQL will cancel remote controls for AF gain, RF gain, and squelch level, overriding these controls with the values corresponding to the current positions of AF•RF/SQL and AF•RF/SQL.

  MENU » SET > Function > **Cancel CI-V Remote Set Levels**

### ◇ Command table

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 00 | | See p. 16. | Sets and outputs the current operating frequency. |
| 01 | | See p. 16. | Sets and outputs the current operating mode. |
| 02 | | See p. 16. | Reads the current upper and lower edge frequencies. |
| 03 | | See p. 16. | Reads the current operating frequency. |
| 04 | | See p. 16. | Reads the current operating mode. |
| 05 | | See p. 16. | Sets the current operating frequency. |
| 06 | | See p. 16. | Sets the operating mode. |
| 07 | | | Switches to the VFO mode. |
| | 00 | | Switches to the VFO mode and selects VFO A. |
| | 01 | | Switches to the VFO mode and selects VFO B. |
| | A0 | | Equalizes VFO A and VFO B. |
| | B0 | | Exchanges VFO A with VFO B. |
| 08 | | | Switches to the Memory mode. |
| | | 00 01 ~ 00 99 | Selects the Memory channel. (00 01=M-CH01, 00 99=M-CH99) |
| | | 01 00 | Selects the Programmed Scan Edge channel P1. |
| | | 01 01 | Selects the Programmed Scan Edge channel P2. |
| 09 | | | Stores the displayed contents (operating frequency, mode, and so on) into the selected Memory channel. |
| 0A | | | Copies the selected Memory channel’s contents to the VFO. |
| 0B | | | Clears the selected Memory channel and resets it to a blank channel.<br>ⓘ P1 and P2 cannot be cleared. |
| 0E | 00 | | Stops the current scan in progress. |
| | 01 | | Starts a Programmed or Memory scan.<br>ⓘ In the VFO mode, a programmed scan will begin.<br>ⓘ In the Memory mode, a Memory scan will begin. |
| | 02 | | Starts a Programmed scan. |
| | 03 | | Starts a ⊿F scan. |
| | 12 | | Starts a Fine Programmed scan. |
| | 13 | | Starts a Fine ⊿F scan. |

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 0E | 22 | | Starts a Memory scan. |
| | 23 | | Starts a Select Memory scan. |
| | Ax<br>See p. 16. | | Sets the frequency span for ⊿F scan. |
| | B0 | | Releases the Select Memory channel. |
| | B1 | | Sets the channel as a Select Memory channel. |
| | | 01 ~ 03 | Sets the channel as a specific Select Memory channel. (01=SEL1, 02=SEL2, 03=SEL3) |
| | B2 | 00 ~ 03 | Sets whether all or one of the Select Memory channels is scanned. (00=ALL, 01=SEL1, 02=SEL2, 03=SEL3) |
| | D0 | | Turns the Scan Resume function OFF. |
| | D3 | | Turns the Scan Resume function (Close&Delay) ON. |
| 0F | | 00/01 | Reads the ON/OFF status of the Split function. (00=OFF, 01=ON) |
| | 00 | | Turns the Split function OFF. |
| | 01 | | Turns the Split function ON to transmit and receive on different frequencies. |
| 10* | | 00 ~ 08 | Sets or reads the tuning step. (00=OFF (10 Hz or 1 Hz)<br>01=0.1 kHz,<br>02=1 kHz,<br>03=5 kHz,<br>04=9 kHz,<br>05=10 kHz,<br>06=12.5 kHz,<br>07=20 kHz,<br>08=25 kHz)<br>ⓘ The tuning step will automatically be set to 1 Hz for the Fine Tuning function. |
| 11* | | 00/20 | Sets or reads the ON/OFF status of the 20 dB attenuator. (00=OFF, 20=ON) |
| 12* | 00 | 00/01 | Sets or reads the ON/OFF status of a receiving antenna. (00=OFF, 01=ON) |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 13 | 00 | | Requests the transceiver to announce the current S-meter level, operating frequency, and operating mode.<br>ⓘ The S-meter level will not be announced when the S-Level SPEECH function is set to OFF (1A 05 00 44 00). |
| | 01 | | Requests the transceiver to announce the current S-meter level and operating frequency.<br>ⓘ The S-meter level will not be announced when the S-Level SPEECH function is set to OFF (1A 05 00 44 00). |
| | 02 | | Requests the transceiver to announce the current operating mode.<br>ⓘ The mode will be announced following the current frequency announcement. |
| 14* | 01 | 00 00 ~ 02 55 | Sets or reads the AF gain.<br>(00 00=Minimum ~ 02 55=Maximum) |
| | 02 | 00 00 ~ 02 55 | Sets or reads the RF gain.<br>(00 00=Minimum ~ 02 55=Maximum) |
| | 03 | 00 00 ~ 02 55 | Sets or reads the squelch level.<br>(00 00=Minimum ~ 02 55=Maximum) |
| | 05 | 00 00 ~ 02 55 | Sets or reads the peak frequency for the Audio Peak Filter. (10 Hz steps)<br>(00 00=Pitch–550 Hz ~<br>01 28=Pitch ~<br>02 55=Pitch+550 Hz) |
| | 06 | 00 00 ~ 02 55 | Sets or reads the Noise Reduction level.<br>(00 00=0% ~ 02 55=100%) |
| | 07 | 00 00 ~ 02 55 | Sets or reads the shift value for the Digital Twin Passband Tuning (inner: PBT1).<br>(00 00=Narrows the upper frequency. ~<br>01 28=Passband center frequency ~<br>02 55=Narrows the lower frequency.) |
| | 08 | 00 00 ~ 02 55 | Sets or reads the shift value for the Digital Twin Passband Tuning (outer: PBT2).<br>(00 00=Narrows the upper frequency. ~<br>01 28=Passband center frequency ~<br>02 55=Narrows the lower frequency.) |
| | 09 | 00 00 ~ 02 55 | Sets or reads the CW pitch frequency. (5 Hz steps)<br>(00 00=300 Hz ~<br>01 28=600 Hz ~<br>02 55=900 Hz) |
| | 0A | 00 00 ~ 02 55 | Sets or reads the RF power.<br>(00 00=Minimum ~ 02 55=Maximum) |
| | 0B | 00 00 ~ 02 55 | Sets or reads the microphone gain.<br>(00 00=Minimum ~ 02 55=Maximum) |
| | 0C | 00 00 ~ 02 55 | Sets or reads the keying speed.<br>(00 00=6 WPM ~ 02 55=48 WPM) |
| | 0D | 00 00 ~ 02 55 | Sets or reads the Notch filter setting.<br>(00 00=Moves to higher frequencies. ~<br>01 28=Middle of the passband width ~<br>02 55=Moves to lower frequencies.) |
| | 0E | 00 00 ~ 02 55 | Sets or reads the Speech Compressor level.<br>(00 00=0 ~ 02 55=10) |
| 14* | 0F | 00 00 ~ 02 55 | Sets or reads the Break-in delay setting.<br>(00 00=2.0d ~ 02 55=13.0d) |
| | 12 | 00 00 ~ 02 55 | Sets or reads the Noise Blanker level. (00 00=0% ~ 02 55=100%) |
| | 15 | 00 00 ~ 02 55 | Sets or reads the gain of the monitored audio.<br>(00 00=0% ~ 02 55=100%) |
| | 16 | 00 00 ~ 02 55 | Sets or reads the VOX sensitivity level.<br>(00 00=0% ~ 02 55=100%) |
| | 17 | 00 00 ~ 02 55 | Sets or reads the ANTI VOX sensitivity level.<br>(00 00=0% ~ 02 55=100%)<br>ⓘ Higher values make the VOX function less sensitive to the audio. |
| | 19 | 00 00 ~ 02 55 | Sets or reads the LCD backlight brightness.<br>(00 00=0% ~ 02 55=100%) |
| 15 | 01 | 00/01 | Reads the Open/Closed status of the Noise or S-meter squelch.<br>(00=Closed, 01=Open) |
| | 02 | 00 00 ~ 02 55 | Reads the S-meter level.<br>(00 00=S0 ~<br>01 20=S9 ~<br>02 41=S9+60 dB) |
| | 05 | 00/01 | Reads the Open/Closed status of the squelch considering various squelch functions.<br>(00=Closed, 01=Open) |
| | 07 | 00/01 | Reads the status of the OVF (Overflow) indicator.<br>(00=Not displayed, 01=Displayed) |
| | 11 | 00 00 ~ 02 55 | Reads the current Po meter level.<br>(00 00=0% ~<br>01 43=50%~<br>02 13=100%)<br>ⓘ “00 00” will be returned while receiving. |
| | 12 | 00 00 ~ 02 55 | Reads the current SWR meter level.<br>(00 00=SWR1.0, 00 48=SWR1.5,<br>00 80=SWR2.0, 01 20=SWR3.0)<br>ⓘ “00 00” will be returned while receiving. |
| | 13 | 00 00 ~ 02 55 | Reads the current ALC meter level.<br>(00 00=Minimum ~ 01 20=Maximum)<br>ⓘ “00 00” will be returned while receiving. |
| | 14 | 00 00 ~ 02 55 | Reads the current COMP meter level.<br>(00 00=0 dB ~<br>01 30=15 dB ~<br>02 10=30 dB)<br>ⓘ “00 00” will be returned while receiving. |
| | 15 | 00 00 ~ 02 55 | Reads the current VD meter level.<br>(00 00=0 V, 00 13=10 V, 02 41=16 V) |
| | 16 | 00 00 ~ 02 55 | Reads the current ID meter level.<br>(00 00=0, 00 97=10, 01 46=15,<br>02 41=25) |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 16* | 02 | 00 ~ 02 | Sets or reads the ON/OFF status of a preamp.<br>(00=OFF, 01=P.AMP1 ON, 02=P.AMP2 ON) |
| | 12 | 01 ~ 03 | Sets or reads the AGC time constant.<br>(01=FAST, 02=MID, 03=SLOW) |
| | 22 | 00/01 | Sets or reads the ON/OFF status of the Noise Blanker function.<br>(00=OFF, 01=ON) |
| | 32 | 00 | Turns the APF OFF. |
| | | 01 | Turns the WIDE APF ON.<br>(The 320 Hz APF will be ON when the APF type is set to SHARP.) |
| | | 02 | Turns the MID APF ON.<br>(The 160 Hz APF will be ON when the APF type is set to SHARP.) |
| | | 03 | Turns the NAR APF ON.<br>(The 80 Hz APF will be ON when the APF type is set to SHARP.) |
| | 40 | 00/01 | Sets or reads the ON/OFF status of the Noise Reduction function.<br>(00=OFF, 01=ON) |
| | 41 | 00/01 | Sets or reads the ON/OFF status of the Auto Notch filter.<br>(00=OFF, 01=ON) |
| | 42 | 00/01 | Sets or reads the ON/OFF status of the Repeater tone.<br>(00=OFF, 01=ON) |
| | 43 | 00/01 | Sets or reads the ON/OFF status of the Tone squelch.<br>(00=OFF, 01=ON) |
| | 44 | 00/01 | Sets or reads the ON/OFF status of the Speech Compressor function.<br>(00=OFF, 01=ON) |
| | 45 | 00/01 | Sets or reads the ON/OFF status of the Monitor function.<br>(00=OFF, 01=ON) |
| | 46 | 00/01 | Sets or reads the ON/OFF status of the VOX function.<br>(00=OFF, 01=ON) |
| | 47 | 00 ~ 02 | Sets or reads the ON/OFF status of the Break-in function in the CW mode.<br>(00=OFF,<br>01=Semi Break-in function ON,<br>02=Full Break-in function ON) |
| | 48 | 00/01 | Sets or reads the ON/OFF status of the Manual Notch function.<br>(00=OFF, 01=ON) |
| | 4F | 00/01 | Sets or reads the ON/OFF status of the Twin Peak Filter.<br>(00=OFF, 01=ON)<br>ⓘ Can be turned ON only when the Mark frequency and Shift frequency are set to 2125 Hz and 170 Hz, respectively.) |
| 16* | 50 | 00/01 | Sets or reads the ON/OFF status of the Lock function.<br>(00=OFF, 01=ON)<br>ⓘ (MAIN DIAL) or the panel display is locked, depending on the Lock function setting (1A 05 00 48). |
| | 56 | 00/01 | Sets or reads the IF filter shape.<br>(00=SHARP, 01=SOFT) |
| | 57 | 00 ~ 02 | Sets or reads the filter width for the Manual Notch function.<br>(00=WIDE, 01=MID, 02=NAR) |
| | 58 | 00 ~ 02 | Sets or reads the transmit filter bandwidth for the SSB mode.<br>(00=WIDE, 01=MID, 02=NAR)<br>ⓘ Depending on whether the Speech Compressor function is set to ON or OFF (16 44 00/01), one of the TX bandwidths corresponding to the following commands will be applied: WIDE (Command: 1A 05 00 14), MID (Command: 1A 05 00 15), or NAR (Command: 1A 05 00 16) |
| | 65 | 00/01 | Sets or reads the ON/OFF status of the IP Plus function.<br>(00=OFF, 01=ON) |
| | 66 | 00/01 | Sets or reads the ON/OFF status of the TX Inhibit function.<br>(00=OFF, 01=ON) |
| 17 | | See p. 16. | Sends CW messages.<br>ⓘ When the transceiver is transmitting or the Break-in function is ON in the CW mode, a message will be transmitted as CW code when you remotely send it from the controller (PC). |
| 18 | 00 | | Turns the transceiver OFF. |
| | 01 | | Turns the transceiver ON.<br>See p. 16. |
| 19 | 00 | | Reads the transceiver ID. |
| 1A* | 00 | See p. 17. | Sets or reads a specific Memory channel content. |
| | 01 | See p. 19. | Sets or reads a specific band stacking register content. |
| | 02 | See p. 19. | Sets or reads a specific Keyer Memory content.<br>ⓘ Multiple channels can simultaneously have the same contest number.<br>ⓘ A single channel can have several contest numbers at the same time. |
| | 03 | See p. 19. | Sets or reads the IF filter width. |
| | 04 | See p. 20. | Sets or reads the AGC time constant. |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Tone Control/TBW > **RX** | | |
| | | | | **SSB** |
| | | 00 | 01 | See p. 20. | Sets or reads the RX HPF/LPF settings. |
| | | 00 | 02 | 00 ~ 10 | Sets or reads the RX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 03 | 00 ~ 10 | Sets or reads the RX Tone (Treble) level. (00=–5 ~ 10=+5) |
| | | | | | **AM** |
| | | 00 | 04 | See p. 20. | Sets or reads the RX HPF/LPF settings. |
| | | 00 | 05 | 00 ~ 10 | Sets or reads the RX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 06 | 00 ~ 10 | Sets or reads the RX Tone (Treble) level. (00=–5 ~ 10=+5) |
| | | | | | **FM** |
| | | 00 | 07 | See p. 20. | Sets or reads the RX HPF/LPF settings. |
| | | 00 | 08 | 00 ~ 10 | Sets or reads the RX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 09 | 00 ~ 10 | Sets or reads the RX Tone (Treble) level. (00=–5 ~ 10=+5) |
| | | | | | **CW** |
| | | 00 | 10 | See p. 20. | Sets or reads the RX HPF/LPF settings. |
| | | | | | **RTTY** |
| | | 00 | 11 | See p. 20. | Sets or reads the RX HPF/LPF settings. |
| | | SET > Tone Control/TBW > **TX** | | |
| | | | | | **SSB** |
| | | 00 | 12 | 00 ~ 10 | Sets or reads the TX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 13 | 00 ~ 10 | Sets or reads the TX Tone (Treble) level. (00=–5 ~ 10=+5) |
| | | 00 | 14 | See p. 20. | Sets or reads the TBW (WIDE) setting. |
| | | 00 | 15 | See p. 20. | Sets or reads the TBW (MID) setting. |
| | | 00 | 16 | See p. 20. | Sets or reads the TBW (NAR) setting. |
| | | | | | **SSB-D** |
| | | 00 | 17 | See p. 20. | Sets or reads the TBW setting. |
| | | | | | **AM** |
| | | 00 | 18 | 00 ~ 10 | Sets or reads the TX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 19 | 00 ~ 10 | Sets or reads the TX Tone (Treble) level. (00=–5 ~ 10=+5) |
| | | | | | **FM** |
| | | 00 | 20 | 00 ~ 10 | Sets or reads the TX Tone (Bass) level. (00=–5 ~ 10=+5) |
| | | 00 | 21 | 00 ~ 10 | Sets or reads the TX Tone (Treble) level. (00=–5 ~ 10=+5) |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > **Function** | | |
| | | 00 | 22 | 00 00 ~ 02 55 | Sets or reads the Beep Level. (00 00=Minimum ~ 02 55=Maximum) |
| | | 00 | 23 | 00/01 | Sets or reads the Beep Level Limit setting. (00=OFF, 01=ON) |
| | | 00 | 24 | 00/01 | Sets or reads the Beep (Confirmation) setting. (00=OFF, 01=ON) |
| | | 00 | 25 | 00 ~ 03 | Sets or reads the Band Edge Beep setting. (00=OFF 01=ON (Default) 02=ON (User) 03=ON (User) & TX Limit) |
| | | 00 | 26 | 00 ~ 02 | Sets or reads the RF/SQL Control setting. (00=Auto, 01=SQL, 02=RF+SQL) |
| | | 00 | 27 | 00/01 | Sets or reads the Cancel CI-V Remote Set Levels setting. (00=All Volume Levels, 01=Operated Volume Level) |
| | | 00 | 28 | 00/01 | Sets or reads the MF Band ATT setting. (00=OFF, 01=ON) |
| | | SET > Function > **TX Delay** | | |
| | | | | | **HF** |
| | | 00 | 29 | 00 ~ 05 | Sets or reads the TX Delay setting. (00=OFF, 01=10 ms, 02=15 ms, 03=20 ms, 04=25 ms, 05=30 ms) |
| | | | | | **50M** |
| | | 00 | 30 | 00 ~ 05 | Sets or reads the TX Delay setting. (00=OFF, 01=10 ms, 02=15 ms, 03=20 ms, 04=25 ms, 05=30 ms) |
| | | | | | **70M** |
| | | 00 | 31 | 00 ~ 05 | Sets or reads the TX Delay setting. (00=OFF, 01=10 ms, 02=15 ms, 03=20 ms, 04=25 ms, 05=30 ms) |
| | | SET > **Function** | | |
| | | 00 | 32 | 00 ~ 05 | Sets or reads the Time-Out Timer (CI-V) setting. (00=OFF, 01=3 min, 02=5 min, 03=10 min, 04=20 min, 05=30 min) ⓘ Valid only for transmission initiated by a CI-V command or by pushing TRANSMIT on the transceiver. |
| | | SET > Function > **SPLIT** | | |
| | | 00 | 33 | 00/01 | Sets or reads the Quick SPLIT setting. (00=OFF, 01=ON) |
| | | 00 | 34 | See p. 20. | Sets or reads the FM SPLIT Offset (HF) setting. |
| | | 00 | 35 | See p. 20. | Sets or reads the FM SPLIT Offset (50M) setting. |
| | | 00 | 36 | 00/01 | Sets or reads the SPLIT LOCK setting. (00=OFF, 01=ON) |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Function > **Tuner** | | |
| | | 00 37 | 00/01 | Sets or reads the [TUNER] Switch setting.<br>(00=Manual, 01=Auto) |
| | | 00 38 | 00/01 | Sets or reads the PTT Start setting.<br>(00=OFF, 01=ON) |
| | | SET > **Function** | | |
| | | 00 39 | 00 ~ 02 | Sets or reads the RTTY Mark Frequency setting.<br>(00=1275 Hz, 01=1615 Hz, 02=2125 Hz) |
| | | 00 40 | 00 ~ 02 | Sets or reads the RTTY Shift Width setting.<br>(00=170 Hz, 01=200 Hz, 02=425 Hz) |
| | | 00 41 | 00/01 | Sets or reads the RTTY Keying Polarity setting.<br>(00=Normal, 01=Reverse) |
| | | SET > Function > **SPEECH** | | |
| | | 00 42 | 00/01 | Sets or reads the SPEECH Language setting.<br>(00=English, 01=Japanese) |
| | | 00 43 | 00/01 | Sets or reads the SPEECH Speed setting.<br>(0=Slow, 01=Fast) |
| | | 00 44 | 00/01 | Sets or reads the S-Level SPEECH setting.<br>(00=OFF, 01=ON) |
| | | 00 45 | 00/01 | Sets or reads the MODE SPEECH setting.<br>(00=OFF, 01=ON) |
| | | 00 46 | 00 00 ~ 02 55 | Sets or reads the SPEECH Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | SET > **Function** | | |
| | | 00 47 | 00/01 | Sets or reads the [SPEECH/LOCK] Switch setting.<br>(00=SPEECH/LOCK, 01=LOCK/SPEECH) |
| | | 00 48 | 00/01 | Sets or reads the Lock Function setting.<br>(00=MAIN DIAL, 01=PANEL)<br>ⓘ When PANEL is selected, keys and dials are also locked except for AF•RF/SQL, AF⊙RF/SQL, POWER, and SPEECH. |
| | | 00 49 | 00/01 | Sets or reads the Memo Pad Quantity setting.<br>(00=5 ch, 01=10 ch) |
| | | 00 50 | 00 ~ 02 | Sets or reads the MAIN DIAL Auto TS setting.<br>(00=OFF, 01=Low, 02=High) |
| | | 00 51 | 00/01 | Sets or reads the MIC Up/Down Speed setting.<br>(00=Slow, 01=Fast) |
| | | 00 52 | 00/01 | Sets or reads the Quick RIT/ΔTX Clear setting.<br>(00=OFF, 01=ON) |
| | | 00 53 | 00 ~ 02 | Sets or reads the [NOTCH] Switch (SSB) setting.<br>(00=Auto, 01=Manual, 02=Auto/Manual) |
| | | 00 54 | 00 ~ 02 | Sets or reads the [NOTCH] Switch (AM) setting.<br>(00=Auto, 01=Manual, 02=Auto/Manual) |
| | | 00 55 | 00/01 | Sets or reads the SSB/CW Synchronous Tuning setting.<br>(00=OFF, 01=ON) |
| | | 00 56 | 00/01 | Sets or reads the CW Normal Side setting.<br>(00=LSB, 01=USB) |
| | | SET > Function > **Front Key Customize** | | |
| | | 00 57 | See p. 21. | Sets or reads the [VOX/BK-IN] setting. |
| | | 00 58 | See p. 23. | Sets or reads the [AUTOTUNE] setting. |
| | | 00 59 | See p. 21. | Sets or reads the [△] setting. |
| | | 00 60 | See p. 21. | Sets or reads the [▽] setting. |
| | | SET > Function > **MIC Key Customize** | | |
| | | 00 61 | See p. 21. | Sets or reads the [UP] setting. |
| | | 00 62 | See p. 21. | Sets or reads the [DN] setting. |
| | | SET > **Function** | | |
| | | 00 63 | 00/01 | Sets or reads the Screen Capture [POWER] SW setting.<br>(00=OFF, 01=ON) |
| | | 00 64 | 00/01 | Sets or reads the Screen Capture File Type setting.<br>(00=PNG, 01=BMP) |
| | | 00 65 | 00/01 | Sets or reads the Keyboard Type setting.<br>(00=Ten-key, 01=Full Keyboard) |
| | | 00 66 | 00 ~ 02 | Sets or reads the Full Keyboard Layout setting.<br>(00=English, 01=German, 02=French) |
| | | 00 67 | 00/01 | Sets or reads the Calibration Marker setting.<br>(00=OFF, 01=ON) |
| | | 00 68 | 00 00 ~ 02 55 | Sets or reads the REF Adjust setting.<br>(00 00=0%, 02 55=100%) |
| | | SET > Connectors > **USB AF/IF Output** | | |
| | | 00 69 | 00/01 | Sets or reads the Output Select setting.<br>(00=AF, 01=IF) |
| | | 00 70 | 00 00 ~ 02 55 | Sets or reads the AF Output Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 00 71 | 00/01 | Sets or reads the AF SQL setting.<br>(00=OFF (Open), 01=ON) |
| | | 00 72 | 00/01 | Sets or reads the AF Beep/Speech... Output setting.<br>(00=OFF, 01=ON) |
| | | 00 73 | 00 00 ~ 02 55 | Sets or reads the IF Output Level setting.<br>(00 00=0% ~ 02 55=100%) |

## Remote control (CI-V) information

◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Connectors > **ACC AF/IF Output** | | |
| | | 00 74 | 00/01 | Sets or reads the Output Select setting.<br>(00=AF, 01=IF) |
| | | 00 75 | 00 00 ~ 02 55 | Sets or reads the AF Output Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 00 76 | 00/01 | Sets or reads the AF SQL setting.<br>(00=OFF (Open), 01=ON) |
| | | 00 77 | 00/01 | Sets or reads the AF Beep/Speech... Output setting.<br>(00=OFF, 01=ON) |
| | | 00 78 | 00 00 ~ 02 55 | Sets or reads the IF Output Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | SET > Connectors > **LAN AF/IF Output** | | |
| | | 00 79 | 00/01 | Sets or reads the Output Select setting.<br>(00=AF, 01=IF) |
| | | 00 80 | 00/01 | Sets or reads the AF SQL setting.<br>(00=OFF (Open), 01=ON) |
| | | SET > Connectors > **MOD Input** | | |
| | | 00 81 | 00 00 ~ 02 55 | Sets or reads the USB MOD Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 00 82 | 00 00 ~ 02 55 | Sets or reads the ACC MOD Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 00 83 | 00 00 ~ 02 55 | Sets or reads the LAN MOD Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 00 84 | 00 ~ 05 | Sets or reads the DATA OFF MOD setting.<br>(00=MIC, 01=USB, 02=ACC,<br>03=MIC, USB, 04=MIC, ACC<br>05=LAN) |
| | | 00 85 | 00 ~ 05 | Sets or reads the DATA MOD setting.<br>(00=MIC, 01=USB, 02=ACC,<br>03=MIC, USB, 04=MIC, ACC<br>05=LAN) |
| | | SET > Connectors > **External Keypad** | | |
| | | 00 86 | 00/01 | Sets or reads the VOICE setting.<br>(00=OFF, 01=ON) |
| | | 00 87 | 00/01 | Sets or reads the KEYER setting.<br>(00=OFF, 01=ON) |
| | | 00 88 | 00/01 | Sets or reads the RTTY setting.<br>(00=OFF, 01=ON) |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Connectors > **CI-V** | | |
| | | 00 89 | 00/01 | Sets or reads the CI-V Transceive setting.<br>(00=OFF, 01=ON) |
| | | 00 90 | 00 00 ~ 02 23 | Sets or reads the USB/LAN→REMOTE Transceive Address setting.<br>(00 00=00h ~ 02 23=DFh) |
| | | 00 91 | 00/01 | Sets or reads the CI-V Output (for ANT) setting.<br>(00=OFF, 01=ON) |
| | | 00 92 | 00/01 | Sets or reads the CI-V USB (A) Echo Back setting.<br>(00=OFF, 01=ON) |
| | | 00 93 | 00/01 | Sets or reads the CI-V USB (B) Echo Back setting.<br>(00=OFF, 01=ON) |
| | | SET > **Connectors** | | |
| | | 00 94 | 00/01 | Sets or reads the USB (B) Function setting.<br>(00=RTTY Decode, 01=CI-V) |
| | | 00 95 | 00/01 | Sets or reads the SEND Relay Output setting.<br>(00=OFF, 01=ON) |
| | | SET > Connectors > **USB SEND/Keying** | | |
| | | 00 96 | 00 ~ 04 | Sets or reads the the USB SEND setting.<br>(00=OFF,<br>01=USB (A) DTR,<br>02=USB (A) RTS,<br>03=USB (B) DTR<br>04=USB (B) RTS)<br>ⓘ USB (A) and USB (B) are the 2 virtual COM ports on the [USB] port on the rear panel.<br>ⓘ You cannot select the same terminal used for USB Keying (CW) or USB Keying (RTTY) setting. |
| | | 00 97 | 00 ~ 04 | Sets or reads the USB Keying (CW) setting.<br>(00=OFF,<br>01=USB (A) DTR,<br>02=USB (A) RTS,<br>03=USB (B) DTR<br>04=USB (B) RTS)<br>ⓘ USB (A) and USB (B) are the 2 virtual COM ports on the [USB] port on the rear panel.<br>ⓘ You cannot select the same terminal used for the USB SEND setting. |
| | | 00 98 | 00 ~ 04 | Sets or reads the USB Keying (RTTY) setting.<br>(00=OFF,<br>01=USB (A) DTR,<br>02=USB (A) RTS,<br>03=USB (B) DTR<br>04=USB (B) RTS)<br>ⓘ USB (A) and USB (B) are the 2 virtual COM ports on the [USB] port on the rear panel.<br>ⓘ You cannot select the same terminal used for the USB SEND setting. |

## Remote control (CI-V) information

◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > **Connector** | | |
| | | 00 99 | 00/01 | Sets or reads the PTT Port Function setting.<br>(00=PTT Input,<br>01=PTT Input + SEND Output) |
| | | SET > **Network** | | |
| | | 01 00 | 00/01 | Sets or reads the DHCP (valid after restart) setting.<br>(00=OFF, 01=ON) |
| | | 01 01 | See p. 21. | Sets or reads the IP Address (valid after restart) setting.<br>ⓘ Valid when DHCP is set to OFF (1A 05 01 00 00).<br>ⓘ You cannot set the same address as “Default Gateway.” |
| | | 01 02 | See p. 21. | Reads the IP address obtained by DHCP (valid after restart).<br>ⓘ When DHCP is set to OFF (1A 05 01 00 00), the manually set IP address will be returned. |
| | | 01 03 | 01 ~ 30 | Sets or reads the Subnet Mask (valid after restart) setting.<br>(01=128.0.0.0 (1 bit) ~<br>30=255.255.255.252 (30 bit))<br>ⓘ Valid when DHCP is set to OFF (1A 05 01 00 00). |
| | | 01 04 | See p. 21. | Sets or reads the Default Gateway (valid after restart) setting.<br>ⓘ Valid when DHCP is set to OFF (1A 05 01 00 00).<br>ⓘ You cannot set the same address as “IP Address.” |
| | | 01 05 | See p. 21. | Sets or reads the Primary DNS Server (valid after restart) setting.<br>ⓘ Valid when DHCP is set to OFF (1A 05 01 00 00). |
| | | 01 06 | See p. 21. | Sets or reads the Secondary DNS Server (valid after restart) setting.<br>ⓘ Valid when DHCP is set to OFF (1A 05 01 00 00). |
| | | 01 07 | See p. 18. | Sets or reads the Network Name setting.<br>(Up to 15 characters) |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Network > **Remote Settings** | | |
| | | 01 08 | 00/01 | Sets or reads the Network Control (valid after restart) setting.<br>(00=OFF, 01=ON) |
| | | 01 09 | 00/01 | Sets or reads the Power OFF Setting (for Remote Control) setting.<br>(00=Only Shutdown,<br>01=Standby/Shutdown) |
| | | 01 10 | 00 00 01 ~ 06 55 35 | Sets or reads the Control Port (UDP) (valid after restart) setting.<br>(00 00 01=1 ~ 06 55 35=65535) |
| | | 01 11 | 00 00 01 ~ 06 55 35 | Sets or reads the Serial Port (UDP) (valid after restart) setting.<br>(00 00 01=1 ~ 06 55 35=65535) |
| | | 01 12 | 00 00 01 ~ 06 55 35 | Sets or reads the Audio Port (UDP) (valid after restart) setting.<br>(00 00 01=1 ~ 06 55 35=65535) |
| | | 01 13 | 00/01 | Sets or reads the Internet Access Line (valid after restart) setting.<br>(00=FTTH (Fiber To The Home),<br>01=ADSL/CATV) |
| | | 01 14 | See p. 18. | Sets or reads the the Network Radio Name setting.<br>(Up to 16 characters) |
| | | SET > **Display** | | |
| | | 01 15 | 00 00 ~ 02 55 | Sets or reads the LCD Backlight setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 01 16 | 00/01 | Sets or reads the Display Type setting.<br>(00=A (Black backgound),<br>01=B (Blue background)) |
| | | 01 17 | 00/01 | Sets or reads the Display Font setting.<br>(00=Square, 01=Round) |
| | | 01 18 | 00/01 | Sets or reads the Meter Peak Hold setting.<br>(00=OFF, 01=ON) |
| | | 01 19 | 00/01 | Sets or reads the Memory Name setting.<br>(00=OFF, 01=ON) |
| | | 01 20 | 00/01 | Sets or reads the MN-Q Popup (MN OFF→ON) setting.<br>(00=OFF, 01=ON) |
| | | 01 21 | 00/01 | Sets or reads the BW Popup (PBT) setting.<br>(00=OFF, 01=ON) |
| | | 01 22 | 00/01 | Sets or reads the BW Popup (FIL) setting.<br>(00=OFF, 01=ON) |
| | | 01 23 | 00 ~ 03 | Sets or reads the Screen Saver setting.<br>(00=OFF, 01=15 minutes,<br>02=30 minutes, 03=60 minutes) |

## Remote control (CI-V) information

◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > Display > **External Display** | | |
| | | 01 24 | 00/01 | Sets or reads the External Display setting. (00=OFF, 01=ON) |
| | | 01 25 | 00 ~ 02 | Sets or reads the Resolution setting. (00=640x480, 01=1024x768, 02=1280x720) |
| | | 01 26 | 00/01 | Sets or reads the Audio Output setting. (00=OFF, 01=ON) |
| | | SET > **Display** | | |
| | | 01 27 | 00/01 | Sets or reads the Opening Message setting. (00=OFF, 01=ON) |
| | | 01 28 | See p. 18. | Sets or reads the My Call setting. (Up to 10 characters) |
| | | 01 29 | 00/01 | Sets or reads the Power ON Check setting. (00=OFF, 01=ON) |
| | | 01 30 | 00/01 | Sets or reads the Display Language setting. (00=English, 01=Japanese) |
| | | 01 31 | 00/01 | Sets or reads the System Language setting. (00=English, 01=Japanese) |
| | | SET > Time Set > **Date/Time** | | |
| | | 01 32 | 20 20 01 01 ~ 20 99 12 31 | Sets or reads the Date setting. (20 20 01 01=2020/01/01 ~ 20 99 12 31=2099/12/31) |
| | | 01 33 | 00 00 ~ 23 59 | Sets or reads the Time setting. (00 00=00:00 ~ 23 59=23:59) |
| | | 01 34 | 00/01 | Sets or reads the NTP Function setting. (00=OFF, 01=ON) |
| | | 01 35 | See p. 18. | Sets or reads the NTP Server Address setting. (Up to 64 characters) |
| | | SET > **Time Set** | | |
| | | 01 36 | See p. 22. | Sets or reads the UTC Offset setting. |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | **SCOPE SET:** SCOPE > EXPD/SET (Touch for 1 second) | | |
| | | 01 37 | 00/01 | Sets or reads the Scope during Tx (CENTER Type) setting. (00=OFF, 01=ON) |
| | | 01 38 | 00 ~ 02 | Sets or reads the the Max Hold setting. (00=OFF, 01=10s Hold, 02=ON) |
| | | 01 39 | 00 ~ 02 | Sets or reads the CENTER Type Display setting. (00=Filter Center, 01=Carrier Point center, 02=Carrier Point center (Abs. Freq.)) |
| | | 01 40 | 00/01 | Sets or reads the Marker Position (Fix Type/SCROLL Type) setting. (00=Filter Center, 01=Carrier Point) |
| | | 01 41 | 00/01 | Sets or reads the VBW setting. (00=Narrow, 01=Wide) |
| | | 01 42 | 00 ~ 03 | Sets or reads the Averaging setting. (00=OFF, 01=2, 02=3, 03=4) |
| | | 01 43 | 00/01 | Sets or reads the Waveform Type setting. (00=Fill, 01=Fill+Line) |
| | | 01 44 | See p. 22. | Sets or reads the Waveform Color (Current) setting. |
| | | 01 45 | See p. 22. | Sets or reads the Waveform Color (Line) setting. |
| | | 01 46 | See p. 22. | Sets or reads the Waveform Color (Max Hold) setting. |
| | | 01 47 | 00/01 | Sets or reads the Waterfall Display setting. (00=OFF, 01=ON) |
| | | 01 48 | 00 ~ 02 | Sets or reads the Waterfall Speed setting. (00=Slow, 01=Mid, 02=Fast) |
| | | 01 49 | 00 ~ 02 | Sets or reads the Waterfall Size (Expand Screen) setting. (00=Small, 01=Mid, 02=Large) |
| | | 01 50 | 00 ~ 07 | Sets or reads the Waterfall Peak Color Level setting. (00=Grid 1 ~ 07=Grid 8) |
| | | 01 51 | 00/01 | Sets or reads the Waterfall Marker Auto-hide setting. (00=OFF, 01=ON) |
| | | SCOPE > EXPD/SET (Touch for 1 second) > **Fixed Edges** | | |
| | | | | **0.03 ~ 1.60** |
| | | 01 52 | See p. 22. | Sets or reads the No.1 setting. |
| | | 01 53 | | Sets or reads the No.2 setting. |
| | | 01 54 | | Sets or reads the No.3 setting. |
| | | 01 55 | | Sets or reads the No.4 setting. |
| | | | | **1.60 ~ 2.00** |
| | | 01 56 | See p. 22. | Sets or reads the No.1 setting. |
| | | 01 57 | | Sets or reads the No.2 setting. |
| | | 01 58 | | Sets or reads the No.3 setting. |
| | | 01 59 | | Sets or reads the No.4 setting. |
| | | | | **2.00 ~ 6.00** |
| | | 01 60 | See p. 22. | Sets or reads the No.1 setting. |
| | | 01 61 | | Sets or reads the No.2 setting. |
| | | 01 62 | | Sets or reads the No.3 setting. |
| | | 01 63 | | Sets or reads the No.4 setting. |

## Remote control (CI-V) information

◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SCOPE > EXPD/SET (Touch for 1 second) > **Fixed Edges** | | |
| | | | | **6.00 ~ 8.00** |
| | | 01 | 64 | Sets or reads the No.1 setting. |
| | | 01 | 65 | Sets or reads the No.2 setting. |
| | | 01 | 66 | Sets or reads the No.3 setting. |
| | | 01 | 67 | Sets or reads the No.4 setting. |
| | | | | **8.00 ~ 11.00** |
| | | 01 | 68 | Sets or reads the No.1 setting. |
| | | 01 | 69 | Sets or reads the No.2 setting. |
| | | 01 | 70 | Sets or reads the No.3 setting. |
| | | 01 | 71 | Sets or reads the No.4 setting. |
| | | | | **11.00 ~ 15.00** |
| | | 01 | 72 | Sets or reads the No.1 setting. |
| | | 01 | 73 | Sets or reads the No.2 setting. |
| | | 01 | 74 | Sets or reads the No.3 setting. |
| | | 01 | 75 | Sets or reads the No.4 setting. |
| | | | | **15.00 ~ 20.00** |
| | | 01 | 76 | Sets or reads the No.1 setting. |
| | | 01 | 77 | Sets or reads the No.2 setting. |
| | | 01 | 78 | Sets or reads the No.3 setting. |
| | | 01 | 79 | Sets or reads the No.4 setting. |
| | | | | **20.00 ~ 22.00** |
| | | 01 | 80 | Sets or reads the No.1 setting. |
| | | 01 | 81 | Sets or reads the No.2 setting. |
| | | 01 | 82 | Sets or reads the No.3 setting. |
| | | 01 | 83 | Sets or reads the No.4 setting. |
| | | | | **22.00 ~ 26.00** |
| | | 01 | 84 | Sets or reads the No.1 setting. |
| | | 01 | 85 | Sets or reads the No.2 setting. |
| | | 01 | 86 | Sets or reads the No.3 setting. |
| | | 01 | 87 | Sets or reads the No.4 setting. |
| | | | | **26.00 ~ 30.00** |
| | | 01 | 88 | Sets or reads the No.1 setting. |
| | | 01 | 89 | Sets or reads the No.2 setting. |
| | | 01 | 90 | Sets or reads the No.3 setting. |
| | | 01 | 91 | Sets or reads the No.4 setting. |
| | | | | **30.00 ~ 45.00** |
| | | 01 | 92 | Sets or reads the No.1 setting. |
| | | 01 | 93 | Sets or reads the No.2 setting. |
| | | 01 | 94 | Sets or reads the No.3 setting. |
| | | 01 | 95 | Sets or reads the No.4 setting. |
| | | | | **45.00 ~ 60.00** |
| | | 01 | 96 | Sets or reads the No.1 setting. |
| | | 01 | 97 | Sets or reads the No.2 setting. |
| | | 01 | 98 | Sets or reads the No.3 setting. |
| | | 01 | 99 | Sets or reads the No.4 setting. |
| | | | | **60.00 ~ 74.80** |
| | | 02 | 00 | Sets or reads the No.1 setting. |
| | | 02 | 01 | Sets or reads the No.2 setting. |
| | | 02 | 02 | Sets or reads the No.3 setting. |
| | | 02 | 03 | Sets or reads the No.4 setting. |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | **AUDIO SCOPE SET:** AUDIO > EXPD/SET (Touch for 1 second) | | |
| | | 02 | 04 | Sets or reads the FFT Scope Waveform Type setting. (00=Line, 01=Fill) |
| | | 02 | 05 | Sets or reads the FFT Scope Waveform Color setting. |
| | | 02 | 06 | Sets or reads the FFT Scope Waterfall Display setting. (00=OFF, 01=ON) |
| | | 02 | 07 | Sets or reads the Oscilloscope Waveform Color setting. |
| | | **KEYER 001:** KEYER/DECODE > KEYER > EDIT/SET > 001 SET | | |
| | | 02 | 08 | Sets or reads the Number Style setting. (00=Normal, 01=190→ANO, 02=190→ANT, 03=90→NO, 04=90→NT) |
| | | 02 | 09 | Sets or reads the Count Up Trigger (M1) setting. (00=OFF, 01=ON) |
| | | 02 | 10 | Sets or reads the Count Up Trigger (M2) setting. (00=OFF, 01=ON) |
| | | 02 | 11 | Sets or reads the Count Up Trigger (M3) setting. (00=OFF, 01=ON) |
| | | 02 | 12 | Sets or reads the Count Up Trigger (M4) setting. (00=OFF, 01=ON) |
| | | 02 | 13 | Sets or reads the Count Up Trigger (M5) setting. (00=OFF, 01=ON) |
| | | 02 | 14 | Sets or reads the Count Up Trigger (M6) setting. (00=OFF, 01=ON) |
| | | 02 | 15 | Sets or reads the Count Up Trigger (M7) setting. (00=OFF, 01=ON) |
| | | 02 | 16 | Sets or reads the Count Up Trigger (M8) setting. (00=OFF, 01=ON) |
| | | 02 | 17 | 00 01 ~ 99 99 Sets or reads the Present Number setting. (00 01=1 ~ 99 99=9999) |

## Remote control (CI-V) information

◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | SET > **CW-KEY Set** | | |
| | | 02 18 | 00 00 ~ 02 25 | Sets or reads the Side Tone Level setting.<br>(00 00=0% ~ 02 55=100%) |
| | | 02 19 | 00/01 | Sets or reads the Side Tone Level Limit setting.<br>(00=OFF, 01=ON) |
| | | 02 20 | 01 ~ 60 | Sets or reads the Keyer Repeat time setting.<br>(01=1 sec. ~ 60=60 sec.) |
| | | 02 21 | 28 ~ 45 | Sets or reads the Dot/Dash Ratio setting.<br>(28=1:1:2.8 ~ 45=1:1:4.5; 0.1 steps) |
| | | 02 22 | 00 ~ 03 | Sets or reads the Rise Time setting.<br>(00=2 ms, 01=4 ms,<br>02=6 ms, 03=8 ms) |
| | | 02 23 | 00/01 | Sets or reads the Paddle Polarity setting.<br>(00=Normal, 01=Reverse) |
| | | 02 24 | 00 ~ 02 | Sets or reads the Key Type setting.<br>(00=Straight, 01=Bug, 02=Paddle) |
| | | 02 25 | 00/01 | Sets or reads the MIC Up/Down Keyer setting.<br>(00=OFF, 01=ON) |
| | | **KEYER DECODE SET:** KEYER/DECODE > KEYER > EDIT/SET | | |
| | | 02 26 | 00/01 | Sets or reads the Decode Display setting.<br>(00=OFF, 01=ON) |
| | | 02 27 | 00/01 | Sets or reads the Japanese Morse Decode setting.<br>(00=OFF, 01=ON)<br>ⓘ System language must be set to Japanese (1A 05 01 31 01). |
| | | **RTTY DECODE SET:** RTTY DECODE > EXPD/SET (Touch for 1 second) | | |
| | | 02 28 | 00 ~ 03 | Sets or reads the FFT Scope Averaging setting.<br>(00=OFF, 01=2, 02=3, 03=4) |
| | | 02 29 | See p. 22. | Sets or reads the FFT Scope Waveform Color setting. |
| | | 02 30 | 00/01 | Sets or reads the Decode USOS setting.<br>(00=OFF, 01=ON) |
| | | 02 31 | 00/01 | Sets or reads the Decode New Line Code setting.<br>(00=CR, LF, CR+LF, 01=CR+LF) |
| | | 02 32 | 00/01 | Sets or reads the TX USOS setting.<br>(00=OFF, 01=ON) |
| | | 02 33 | See p. 22. | Sets or reads the Font Color (Receive) setting. |
| | | 02 34 | See p. 22. | Sets or reads the Font Color (Transmit) setting. |

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | **RTTY 001:** RTTY DECODE > TX MEM > EDIT/SET > 001 SET | | |
| | | 02 35 | 00/01 | Sets or reads the Count Up Trigger (RT1) setting.<br>(00=OFF, 01=ON) |
| | | 02 36 | 00/01 | Sets or reads the Count Up Trigger (RT2) setting.<br>(00=OFF, 01=ON) |
| | | 02 37 | 00/01 | Sets or reads the Count Up Trigger (RT3) setting.<br>(00=OFF, 01=ON) |
| | | 02 38 | 00/01 | Sets or reads the Count Up Trigger (RT4) setting.<br>(00=OFF, 01=ON) |
| | | 02 39 | 00/01 | Sets or reads the Count Up Trigger (RT5) setting.<br>(00=OFF, 01=ON) |
| | | 02 40 | 00/01 | Sets or reads the Count Up Trigger (RT6) setting.<br>(00=OFF, 01=ON) |
| | | 02 41 | 00/01 | Sets or reads the Count Up Trigger (RT7) setting.<br>(00=OFF, 01=ON) |
| | | 02 42 | 00/01 | Sets or reads the Count Up Trigger (RT8) setting.<br>(00=OFF, 01=ON) |
| | | 02 43 | 00 01 ~ 99 99 | Sets or reads the Present Number setting.<br>(00 01=1 ~ 99 99=9999) |
| | | RTTY DECODE > < 1 > > **LOG** | | |
| | | 02 44 | 00/01 | Sets or reads the Decode Log setting.<br>(00=OFF, 01=ON) |
| | | **RTTY DECODE LOG SET:** RTTY DECODE > < 1 > > LOG > Log Set | | |
| | | 02 45 | 00/01 | Sets or reads the File Type setting.<br>(00=Text, 01=HTML) |
| | | 02 46 | 00/01 | Sets or reads the Time Stamp setting.<br>(00=OFF, 01=ON) |
| | | 02 47 | 00/01 | Sets or reads the Time Stamp (Time) setting.<br>(00=Local, 01=UTC) |
| | | 02 48 | 00/01 | Sets or reads the Time Stamp (Frequency) setting.<br>(00=OFF, 01=ON) |
| | | **CW DECODE SET:** KEYER/DECODE > CW DECODE > SET | | |
| | | 02 49 | See p. 22. | Sets or reads the FFT Scope Waveform Color setting. |
| | | 02 50 | See p. 22. | Sets or reads the Signal Level Waveform Color setting. |
| | | 02 51 | See p. 22. | Sets or reads the Font Color (Receive) setting. |
| | | 02 52 | See p. 22. | Sets or reads the Font Color (Transmit) setting. |
| | | **SCAN SET:** SCAN > SET | | |
| | | 02 53 | 00/01 | Sets or read the SCAN Speed setting.<br>(00=Slow, 01=Fast) |
| | | 02 54 | 00/01 | Sets or reads the SCAN Resume setting.<br>(00=OFF, 01=ON) |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | | Data | Description |
|---|---|---|---|---|
| 1A* | 05 | **VOICE TX:** VOICE > TX LEVEL | | |
| | | 02 55 | 00 00 ~ 02 25 | Sets or reads the TX LEVEL setting.<br>(00 00=0% ~ 02 55=100%) |
| | | **VOICE TX SET:** VOICE > REC/SET > **SET** | | |
| | | 02 56 | 00/01 | Sets or reads the Auto Monitor setting.<br>(00=OFF, 01=ON) |
| | | 02 57 | 01 ~ 15 | Sets or reads the Repeat Time setting.<br>(01=1 sec. ~ 15=15 sec.) |
| | | RECORD > **Recorder Set** | | |
| | | 02 58 | 00/01 | Sets or reads the TX REC Audio setting.<br>(00=Direct, 01=Monitor) |
| | | 02 59 | 00/01 | Sets or reads the RX REC Condition setting.<br>(00=Always, 01=Squelch Auto) |
| | | 02 60 | 00/01 | Sets or reads the File Split setting.<br>(00=OFF, 01=ON) |
| | | 02 61 | 00/01 | Sets or reads the PTT Auto REC setting.<br>(00=OFF, 01=ON) |
| | | 02 62 | 00 ~ 03 | Sets or reads the PRE-REC for PTT Auto REC setting.<br>(00=OFF, 01=5 sec, 02=10 sec, 03=15 sec) |
| | | RECORD > **Player Set** | | |
| | | 02 63 | 00 ~ 03 | Sets or reads the Skip Time setting.<br>(00=3 sec, 01=5 sec, 02=10 sec, 03=30 sec) |
| | | **MENU SET:** ⚙ | | |
| | | 02 64 | See p. 22. | Sets or reads the CW [KEYER/DECODE] Key setting.<br>(00=Select screen,<br>01=KEYER<br>(Hold down: Select screen),<br>02=DECODE<br>(Hold down: Select screen)) |
| | | **NB:** FUNCTION > NB (Touch for 1 second) | | |
| | | 02 65 | 00 ~ 09 | Sets or reads the DEPTH setting.<br>(00=1 ~ 09=10) |
| | | 02 66 | 00 00 ~ 02 25 | Sets or reads the WIDTH setting.<br>(00 00=1 ~ 02 55=100) |
| | | **VOX:** FUNCTION > VOX (Touch for 1 second) | | |
| | | 02 67 | 00 ~ 20 | Sets or reads the Delay setting.<br>(00=0.0 sec. ~ 20=2.0 sec. in 0.1 sec. steps) |
| | | 02 68 | 00 ~ 03 | Sets or reads the Voice delay setting.<br>(00=OFF, 01=Short, 02=Mid, 03=Long) |
| | | **APF:** FUNCTION > ② > APF (Touch for 1 second) | | |
| | | 02 69 | 00/01 | Sets or reads the TYPE setting.<br>(00=SHARP, 01=SOFT) |
| | | 02 70 | 00 ~ 06 | Sets or reads the AF LEVEL setting.<br>(00=0 dB ~ 06=6 dB) |

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 1A* | 06 | See p. 22. | Sets or reads the DATA mode and filter width settings. |
| | 07 | 00/01 | Sets or reads the NTP server access.<br>(00=Terminate, 01=Initiate) |
| | 08 | 00 ~ 02 | Reads the the NTP server access result.<br>(00=Accessing, or have not accessed after Power ON,<br>01=Successful,<br>02=Failed)<br>ⓘ "00" will be returned immediately after turning the transceiver ON.<br>ⓘ "02" will be returned when time synchronization is stopped by the command 1A 07 00. |
| 1B* | 00 | See p. 23. | Sets or reads the Repeater tone frequency. |
| | 01 | See p. 23. | Sets or reads the TSQL tone frequency. |
| 1C* | 00 | 00/01 | Sets or reads the RX/TX status of the transceiver.<br>(00=RX, 01=TX)<br>ⓘ Every time the transceiver switches between transmit and receive, its TX/RX status will automatically be output when the CI-V Output (for ANT) is set to ON (1C 04 01). |
| | 01 | 00 ~ 02 | Sets or reads the tuning status of the internal antenna tuner.<br>(00=OFF, 01=ON, 02=Tune) |
| | 02 | 00/01 | Sets or reads whether to monitor the transmit frequency by the XFC function.<br>(00=OFF, 01=ON) |
| | 03 | See p. 16. | Reads the transmit frequency.<br>ⓘ Each time the transmit frequency changes, it will automatically be output when the CI-V Output (for ANT) is set to ON (1C 04 01).<br>ⓘ Setting the transmit frequency using this command is not allowed. |
| | 04 | 00/01 | Sets or reads the CI-V Output (for ANT) setting.<br>(00=OFF, 01=ON) |
| 1E | 00 | | Reads the number of available TX frequency bands. |
| | 01 | See p. 16. | Reads the upper and lower edge frequencies of a specific frequency band. |
| | 02 | | Reads the maximum number of the User Band Edges.<br>ⓘ "30" will be returned. |
| | 03* | See p. 16. | Sets or reads the upper and lower edge frequencies of a specific User Band Edge. |

## Remote control (CI-V) information

### ◇ Command table

| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 21* | 00 | See p. 23. | Sets or reads the RIT frequency. |
| | 01 | 00/01 | Sets or reads the ON/OFF status of the RIT function.<br>(00=OFF, 01=ON) |
| | 02 | 00/01 | Sets or reads the ON/OFF status of the ⊿TX function.<br>(00=OFF, 01=ON) |
| 25* | | See p. 23. | Sets or reads the operating frequency for the Selected or Unselected VFO. |
| 26* | | See p. 23. | Sets or reads the operating mode, ON/OFF status of the data mode, and IF filter width for the Selected or Unselected VFO. |
| 27* | 00 | See p. 24. | Outputs the scope waveform data to the controller (PC).<br>ⓘ The waveform data will be output to the controller (PC) only when both the spectrum scope (27 10) and the waveform data output function (27 11) are set to ON. |
| | 10 | 00/01 | Sets or reads the ON/OFF status of the spectrum scope.<br>(00=OFF, 01=ON) |
| | 11 | 00/01 | Sets or reads whether to output the scope waveform data to the controller (PC).<br>(00=OFF, 01=ON)<br>ⓘ Valid only when sent through the [USB] or [LAN] port. |
| | 12 | 00<br>(Main only) | Sets or reads whether to use the Main or Sub scope. |
| | 13 | 00<br>(Single only) | Sets or reads whether to use the Single or Dual scope. |
| | SCOPE > **CENT/FIX** (Touch/Touch for 1 second) | | |
| | 14 | See p. 25. | Sets or reads the scope mode between the Center, Fixed, SCROLL-C, and SCROLL-F. |
| | SCOPE > **SPAN** (Touch/Touch for 1 second) | | |
| | 15 | See p. 25. | Sets or reads the Span setting for the Center or SCROLL-C mode. |
| | SCOPE > **EDGE** | | |
| | 16 | See p. 25. | Sets or reads the Scope Edge Number setting for the Fixed or SCROLL-F mode. |
| | SCOPE > **HOLD** | | |
| | 17 | See p. 25. | Sets or reads the ON/OFF status of the Scope Hold function. |
| | SCOPE > **REF** | | |
| | 19 | See p. 25. | Sets or reads the Scope Reference level setting. |
| | SCOPE > **SPEED** | | |
| | 1A | See p. 25. | Sets or reads the Scope Sweep speed setting. |

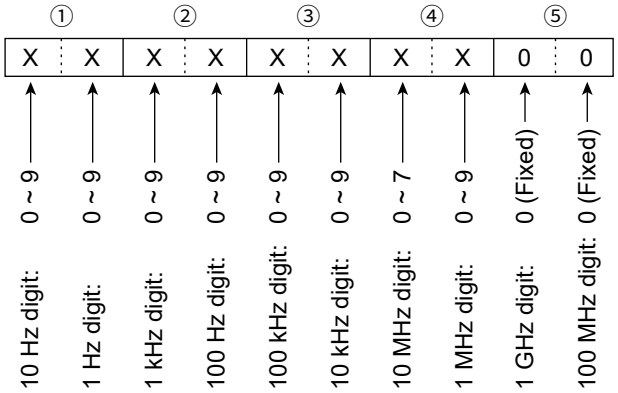
| Cmd. | Subcmd. | Data | Description |
|---|---|---|---|
| 27* | **SCOPE SET:** SCOPE > EXPD/SET (Touch for 1 second) | | |
| | 1B | 00/01 | Sets or reads the Scope during Tx (CENTER TYPE) setting.<br>(00=OFF, 01=ON) |
| | 1C | 00 ~ 02 | Sets or reads the CENTER Type Display setting.<br>(00=Filter Center,<br>01=Carrier Point Center,<br>02=Carrier Point Center (Abs. Freq.)) |
| | 1D | See p. 25. | Sets or reads the Scope VBW setting. |
| | SCOPE > EXPD/SET (Touch for 1 second) > **Fixed Edges** | | |
| | 1E | See p. 26. | Sets or reads the Scope Fixed Edge frequencies. |
| | **SCOPE SET:** SCOPE > EXPD/SET (Touch for 1 second) | | |
| | 20 | 00/01 | Sets or reads the Marker Position (FIX Type/SCROLL Type) setting.<br>(00=Filter Center, 01=Carrier Point) |
| 28 | 00 | 00 | Stops the Voice TX memory transmission. |
| | | 01 ~ 08 | Starts a Voice TX memory transmission.<br>(01=T1 ~ 08=T8) |

Remote control (CI-V) information

## ◇ Command formats

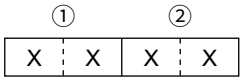
**• Operating frequency**

Command: 00, 03, 05, 1C 03




**• Operating mode**

Command: 01, 04, 06

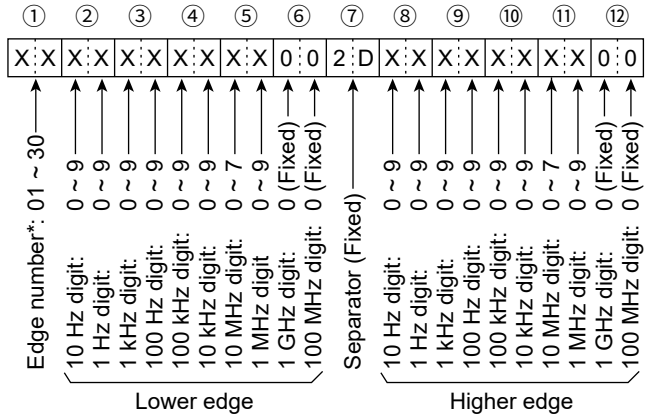



| ①Operating mode | | ②Filter |
|---|---|---|
| 00=LSB | 05=FM | 01=FIL1 |
| 01=USB | 07=CW-R | 02=FIL2 |
| 02=AM | 08=RTTY-R | 03=FIL3 |
| 03=CW | — | — |
| 04=RTTY | — | — |

ⓘ Filter setting (②) can be skipped with commands 01 and 06. In that case, “FIL1” is selected with command 01 and the default filter setting of the operating mode is automatically selected with command 06.

**• Band edge frequency settings**

Command: 02*, 1E 01, 1E 03




* When obtaining the edge number (by the command “02”), the edge number ① is not returned.

**• Frequency span for ⊿F scanning**

Command: 0E Ax

| x | Frequency span |
|---|---|
| 1 | ±5 kHz |
| 2 | ±10 kHz |
| 3 | ±20 kHz |
| 4 | ±50 kHz |
| 5 | ±100 kHz |
| 6 | ±500 kHz |
| 7 | ±1 MHz |

**• Codes for CW message contents**

Command: 17

To send CW messages of up to 30 characters, use the following character codes.

| Character | ASCII code | Character | ASCII code |
|---|---|---|---|
| 0 ~ 9 | 30 ~ 39 | ’ | 27 |
| A ~ Z | 41 ~ 5A | ( | 28 |
| a ~ z | 61 ~ 7A | ) | 29 |
| / | 2F | = | 3D |
| ? | 3F | + | 2B |
| . | 2E | ” | 22 |
| − | 2D | @ | 40 |
| , | 2C | ^ | 5E |
| : | 3A | Space | 20 |

ⓘ “FF” stops sending CW messages.

ⓘ “^” is used to transmit a string of characters with no inter-character space.

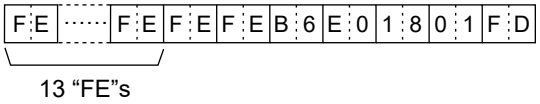
**• Turning the transceiver ON**

Command: 18 01

To send this command through the [REMOTE] jack, you must enter multiple “FE” characters. The required number of “FE” entries depends on the baud rate.

- 19200 bps: 25 “FE”s
- 9600 bps: 13 “FE”s
- 4800 bps: 7 “FE”s

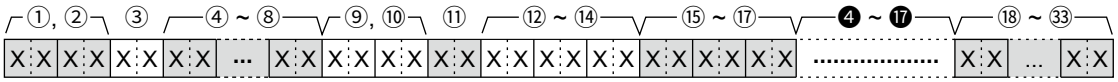
**Example:** When the baud rate is 9600 bps, enter 13 “FE”s.



## Remote control (CI-V) information

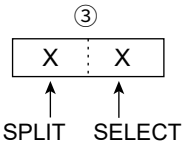
◇ Command formats

• **Memory channel content**
Command: 1A 00




①, ② **Memory channel number**
00 01 ~ 00 99: Memory channel 01 ~ 99
01 00: Programmed scan edge P1
01 01: Programmed scan edge P2

③ **Split and Select memory setting**



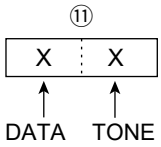

| SPLIT | SELECT |
|---|---|
| 0=OFF | 0=OFF |
| 1=ON | 1=★1 |
| | 2=★2 |
| | 3=★3 |

ⓘ Set 00 for P1 and P2.

④ ~ ⑧ **Operating frequency setting**
ⓘ See “Operating frequency.” (p. 16)

⑨, ⑩ **Operating mode setting**
ⓘ See “Operating mode.” (p. 16)

⑪ **Data mode and tone type settings**




| DATA | TONE |
|---|---|
| 0=OFF | 0=OFF |
| 1=ON | 1=TONE |
| | 2=TSQL |

⑫ ~ ⑭ **Repeater tone frequency setting**

⑮ ~ ⑰ **Tone squelch frequency setting**
ⓘ See “Repeater tone/tone squelch frequency settings.” (p. 23)

⑱ ~ ㉝ **Memory name settings**
Up to 16 characters.
ⓘ See “Codes for character entries.” (p. 18)

To clear a memory channel content, send the command “1A 00 XX XX FF.”
ⓘ Enter a desired memory channel number* into “XX XX.”
* Except for “01 00” and “01 01” (P1/P2).

**NOTE:**
- The same data as ④ ~ ⑰ are stored in ❹ ~ ⑰.
- When the Split function is ON, the data of ❹ ~ ⑰ is used for transmission.
- Even if the Split function is OFF, we recommend that you set the same data as ④ ~ ⑰ into ❹ ~ ⑰ to match your transceiver.

## Remote control (CI-V) information

◇ Command formats

• **Codes for character entries**

Command: 1A 00,
1A 05 01 07, 01 14, 01 28, 01 35

- Character codes— Letters and Numbers

| Character | ASCII code | Character | ASCII code |
|---|---|---|---|
| A ~ Z | 41 ~ 5A | a ~ z | 61 ~ 7A |
| 0 ~ 9 | 30 ~ 39 | | |

- Character codes— Symbols

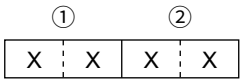
| Character | ASCII code | Character | ASCII code |
|---|---|---|---|
| ! | 21 | # | 23 |
| $ | 24 | % | 25 |
| & | 26 | \ | 5C |
| ? | 3F | ” | 22 |
| ’ | 27 | ’ | 60 |
| ^ | 5E | + | 2B |
| – | 2D | * | 2A |
| / | 2F | . | 2E |
| , | 2C | : | 3A |
| ; | 3B | = | 3D |
| < | 3C | > | 3E |
| ( | 28 | ) | 29 |
| [ | 5B | ] | 5D |
| { | 7B | } | 7D |
| \| | 7C | _ | 5F |
| ˜ | 7E | @ | 40 |

| Cmd. | Sub cmd. | | | Setting item |
|---|---|---|---|---|
| 1A | 00 | | | Memory name (⑱ ~ ㉝)<br>(up to 16 characters)<br><br>ⓘUsable characters:<br>A to Z, a to z, 0 to 9, (space), ! “ # $ % & ’ ( ) * +, - . / : ; < = > ? @ [ \ ] ^ _ ’ { \| } ~ |
| | 05 | 01 | 07 | Network > **Network Name**<br>(up to 15 characters)<br><br>ⓘUsable characters:<br>A to Z, 0 to 9, -, _ |
| | | 01 | 14 | Network > **Network Radio Name***<br>(up to 16 characters)<br><br>ⓘIllegal characters: \ (space) |
| | | 01 | 28 | Display > **My Call**<br>(up to 10 characters)<br><br>ⓘUsable characters:<br>A to Z, 0 to 9, / @ - . |
| | | 01 | 35 | Time Set > Date/Time > **NTP Server Address**<br>(up to 64 characters)<br><br>ⓘUsable characters:<br>A to Z, a to z, 0 to 9, - . |

## Remote control (CI-V) information

◇ Command formats

**• Band stacking register**
Command: 1A 01




**NOTE:** When configuring the contents, add the operating frequency, mode, and other relevant data,* after the frequency band and register code below.
* See ④ ~ ⑰ on “Memory channel content.” (p. 17)

**① Frequency band codes**

| Code | Freq. band | Frequency range (unit=MHz) |
|---|---|---|
| 01 | 1.8 | 1.800000 ~ 1.999999 |
| 02 | 3.5 | 3.400000 ~ 4.099999 |
| 03 | 7 | 6.900000 ~ 7.499999 |
| 04 | 10 | 9.900000 ~ 10.499999 |
| 05 | 14 | 13.900000 ~ 14.499999 |
| 06 | 18 | 17.900000 ~ 18.499999 |
| 07 | 21 | 20.900000 ~ 21.499999 |
| 08 | 24 | 24.400000 ~ 25.099999 |
| 09 | 28 | 28.000000 ~ 29.999999 |
| 10 | 50 | 50.000000 ~ 54.000000 |
| 11 | GENE | Other than above |

**② Register codes**

| Code | Registered number |
|---|---|
| 01 | 1 (Display on left side) |
| 02 | 2 (Display in center) |
| 03 | 3 (Display on right side) |

To read the contents, the register code should be added after the frequency band code, as shown below.
**Example:** When reading the frequency displayed in the center of the display in the 21 MHz band, use code “07 02.”

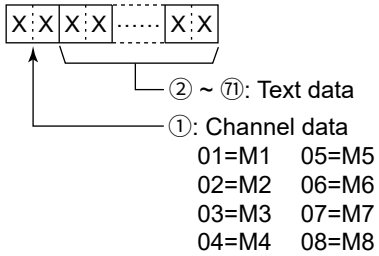
**• Keyer memory character entries**
Command: 1A 02

**Character codes**

| Character | ASCII code | Description |
|---|---|---|
| 0 ~ 9 | 30 ~ 39 | Numbers |
| A ~ Z | 41 ~ 5A | Letters |
| Space | 20 | Word space |
| / | 2F | Symbol |
| ? | 3F | Symbol |
| , | 2C | Symbol |
| . | 2E | Symbol |
| @ | 40 | Symbol |
| ^ | 5E | Example: To send $\overline{\text{BT}}$, enter “5E 42 54” |
| * | 2A | Inserts the contest number |

ⓘ Spaces after the end of the sentence are not necessary.
ⓘ To clear the Keyer memory contents, send one or more spaces.

**• Keyer memory content**
Command: 1A 02




**• IF filter width settings**
Command: 1A 03

| Mode | Data | Steps |
|---|---|---|
| SSB/CW/RTTY | 00 ~ 09 | 50 ~ 500 Hz (50 Hz) |
| SSB/CW | 10 ~ 40 | 600 Hz ~ 3.6 kHz (100 Hz) |
| RTTY | 10 ~ 31 | 600 Hz ~ 2.7 kHz (100 Hz) |
| AM | 00 ~ 49 | 200 Hz ~ 10.0 kHz (200 Hz) |

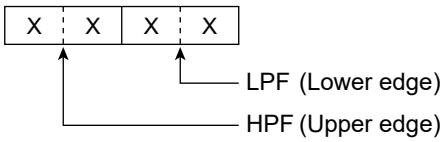
## Remote control (CI-V) information

◇ Command formats

• **AGC time constant settings**
Command: 1A 04

| Data | AGC time constant (sec.) | |
|---|---|---|
| | SSB/CW/RTTY | AM |
| 00 | OFF | OFF |
| 01 | 0.1 | 0.3 |
| 02 | 0.2 | 0.5 |
| 03 | 0.3 | 0.8 |
| 04 | 0.5 | 1.2 |
| 05 | 0.8 | 1.6 |
| 06 | 1.2 | 2.0 |
| 07 | 1.6 | 2.5 |
| 08 | 2.0 | 3.0 |
| 09 | 2.5 | 4.0 |
| 10 | 3.0 | 5.0 |
| 11 | 4.0 | 6.0 |
| 12 | 5.0 | 7.0 |
| 13 | 6.0 | 8.0 |

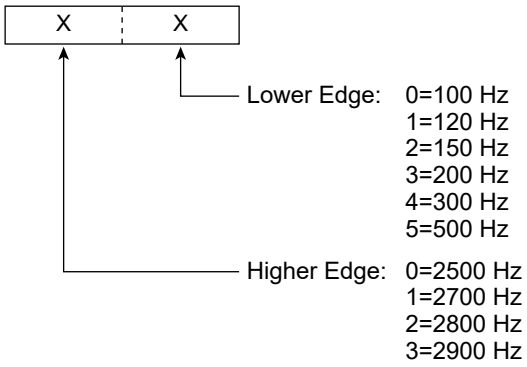
• **RX HPF/LPF settings for each operating mode**
Command: 1A 05 00 01, 00 04, 00 07
00 10, 00 11



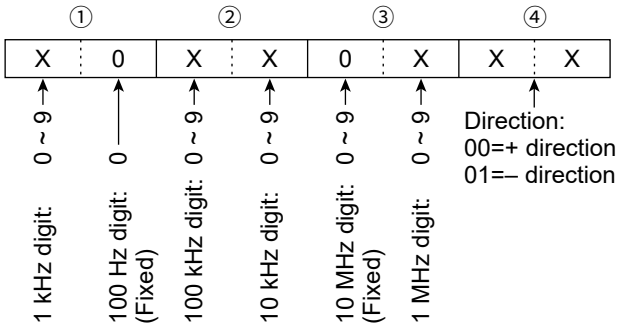

| HPF | | LPF | |
|---|---|---|---|
| Code | Frequency | Code | Frequency |
| 00 | Through | 05 ~ 24 | 500 ~ 2400 Hz |
| 01 ~20 | 100 ~ 2000 Hz | 25 | Through |

ⓘ The value of the HPF should be smaller than that of the LPF.

• **SSB/SSB-DATA transmission passband width settings**
Command: 1A 05 00 14, 00 15, 00 16, 00 17




• **Split offset frequency setting**
Command: 1A 05 00 34, 00 35



## Remote control (CI-V) information

◇ Command formats

**• [VOX/BK-IN] setting**
Command: 1A 05 00 57

| Data | Function |
|---|---|
| 00 | VOX/BK-IN |
| 01 | RX-ANT |
| 02 | APF |
| 03 | PRESET |
| 04 | Voice/Keyer/RTTY Memory 1 |
| 05 | Voice/Keyer/RTTY Memory 2 |
| 06 | Voice/Keyer/RTTY Memory 3 |
| 07 | Voice/Keyer/RTTY Memory 4 |

**• [AUTOTUNE] setting**
Command: 1A 05 00 58

| Data | Function |
|---|---|
| 00 | AUTOTUNE |
| 01 | RX-ANT |
| 02 | APF |
| 03 | PRESET |
| 04 | Voice/Keyer/RTTY Memory 1 |
| 05 | Voice/Keyer/RTTY Memory 2 |
| 06 | Voice/Keyer/RTTY Memory 3 |
| 07 | Voice/Keyer/RTTY Memory 4 |

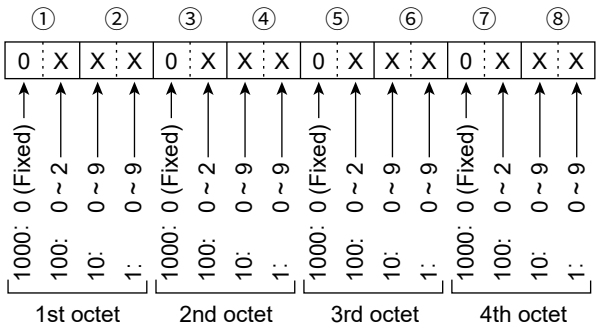
**• [△]/[▽] setting**
Command: 1A 05 00 59, 00 60

| Data | Function |
|---|---|
| 00 | M-CH UP |
| 01 | M-CH DOWN |
| 02 | RX-ANT |
| 03 | APF |
| 04 | PRESET |
| 05 | Voice/Keyer/RTTY Memory 1 |
| 06 | Voice/Keyer/RTTY Memory 2 |
| 07 | Voice/Keyer/RTTY Memory 3 |
| 08 | Voice/Keyer/RTTY Memory 4 |

**• Remote MIC Key setting**
Command: 1A 05 00 61, 00 62

| Data | Function |
|---|---|
| 00 | - - - (No function assigned) |
| 01 | UP |
| 02 | DOWN |
| 03 | UP (VFO: kHz) |
| 04 | DOWN (VFO: kHz) |
| 05 | XFC |
| 06 | VFO/MEMO |
| 07 | BAND UP |
| 08 | BAND DOWN |
| 09 | SPEECH |
| 10 | MODE |
| 11 | Voice/Keyer/RTTY Memory 1 |
| 12 | Voice/Keyer/RTTY Memory 2 |
| 13 | Voice/Keyer/RTTY Memory 3 |
| 14 | Voice/Keyer/RTTY Memory 4 |
| 15 | TS |
| 16 | MPAD |
| 17 | SPLIT |
| 18 | A/B |
| 19 | TUNER |

**• IP address setting**
Command: 1A 05 01 01, 01 02, 01 04, 01 05, 01 06



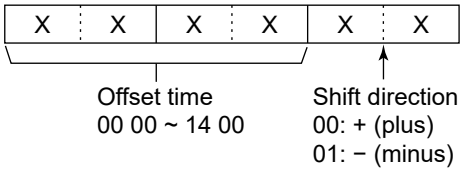

ⓘ Set each octet to 00 00 ~ 02 55.
ⓘ FF=blank in command: 1A 05 01 04, 01 05, 01 06

## Remote control (CI-V) information

◇ Command formats

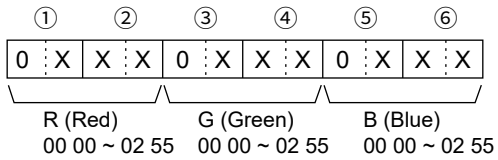
**• UTC offset setting**

Command: 1A 05 01 34



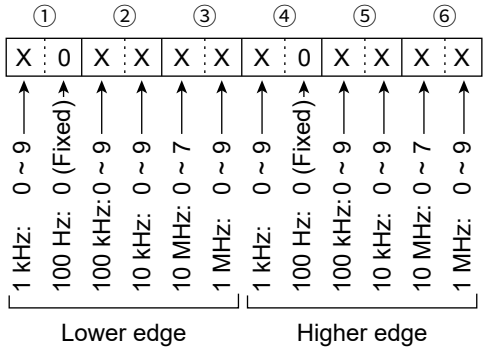

**• Color setting**

Command: 1A 05 01 44, 01 45, 01 46, 02 05, 02 07, 02 29, 02 33, 02 34, 02 49, 02 50, 02 51, 02 52




**• Bandscope edge frequency settings**

Command: 1A 05 01 52 ~ 02 03



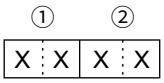

**• "KEYER/DECODE" behavior settings**

Command: 1A 05 02 64

| Data | Touch | Hold |
|---|---|---|
| 00 | Select screen | |
| 01 | KEYER screen | Select screen |
| 02 | DECODE screen | Select screen |

**• DATA mode with filter width settings**

Command: 1A 06




**① DATA mode**

| SSB/AM/FM | CW/RTTY |
|---|---|
| 00=OFF | 00=OFF (Fixed) |
| 01=ON | |

**② Filter setting**

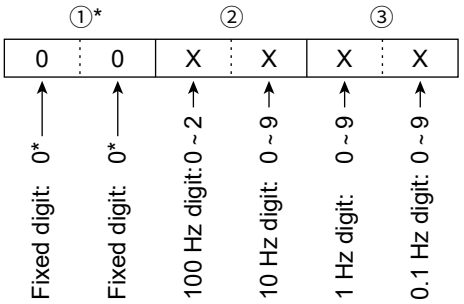
| SSB/AM/FM | | CW/RTTY |
|---|---|---|
| DATA mode (①) OFF | DATA mode (①) ON | |
| 00=OFF (Fixed) | 01=FIL 1 | 00=OFF (Fixed) |
| | 02=FIL 2 | |
| | 03=FIL 3 | |

ⓘ When ① is set to 00 (OFF), ② must be set to 00 (OFF) as well.

## Remote control (CI-V) information

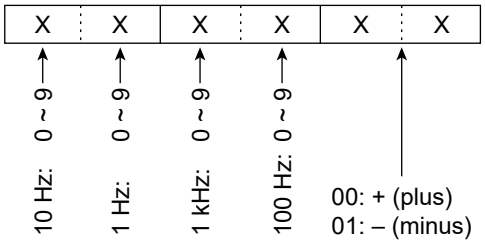
◇ Command formats

• **Repeater tone/tone squelch frequency settings**
Command: 1B 00, 1B 01

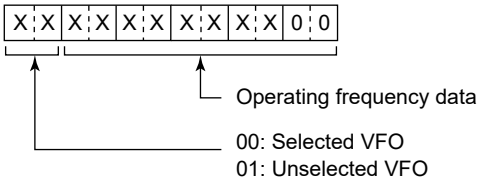



* Not necessary when setting a frequency.

• **RIT frequency settings**
Command: 21 00

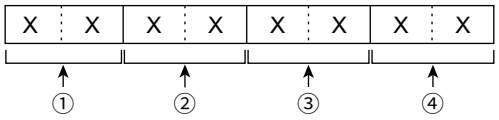



• **Selected or Unselected VFO frequency settings**
Command: 25




• **Selected or Unselected VFO's operating mode and filter settings**
Command: 26

Both data and filter settings can be skipped. In that case, "DATA OFF" and the default filter setting of the operating mode are automatically selected.

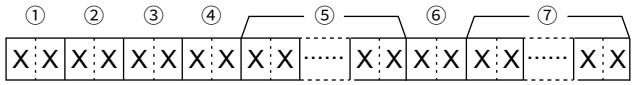



| ① **VFO** | ② **Operating mode** | | ③ **Data mode** | ④ **Filter** |
|---|---|---|---|---|
| 00= Selected VFO | 00=LSB | 05=FM | 00=OFF | 01=FIL1 |
| | 01=USB | 07=CW-R | 01=ON | 02=FIL2 |
| 01= Unselected VFO | 02=AM | 08=RTTY-R | | 03=FIL3 |
| | 03=CW | | | |
| | 04=RTTY | | | |

## Remote control (CI-V) information

◇ Command formats

• **Scope waveform data**
Command: 27 00




① **Selected or Unselected VFO**
00=Selected VFO (Fixed)

② **Order of division data (Current)**
01 ~ 11

③ **Division number (Maximum)**
01 (LAN), 11 (USB)

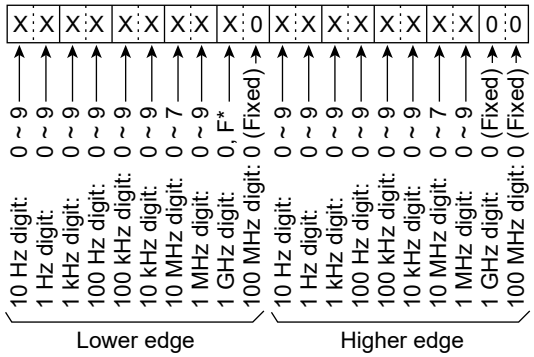
When data is sent to the controller (PC) through the [LAN] port on the transceiver's rear panel, it is sent all at once. On the other hand, when the data is sent through the [USB] port, it is divided into 11 segments and sent in sequential order.

| | Division number | Data length | |
|---|---|---|---|
| **LAN** | 01 | 490 | |
| **USB** | 11 | 1st data | 15 |
| | | 2nd or later data | 53 |
| | | 11th data | 28 |

The 1st data sends only the wave information (① ~ ⑥) without the waveform data (⑦). The 2nd or later data sends the minimum wave information (① ~ ③), and the waveform data (⑦).

④ **Spectrum scope mode data**
- 00=Center mode scope
- 01=Fixed mode scope
- 02=SCROLL-C mode scope
- 03=SCROLL-F mode scope

⑤ **Waveform information**
The waveform information differs, depending on the Spectrum scope mode.
- In the Center mode:
  Center frequency and span are sent.
  See page 16 for Operating frequency data, and page 25 for the Scope span settings (② ~ ⑥).
- In the Fixed, SCROLL-C, and SCROLL-F modes:
  The lower and higher edge frequencies are sent.




* "F" means that the Lower edge frequency is a negative value.

⑥ **Out of range information**
- 00=In range
- 01=Out of range

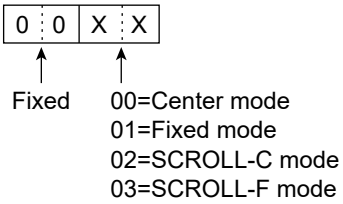
ⓘ If the scope data is out of range, the waveform data (⑦) is omitted.

⑦ **Waveform data**
The controller (PC) determines the data range or length of the waveform data.
- Data range: 00 ~ A0 (0 ~ 160)
- Data length: 475

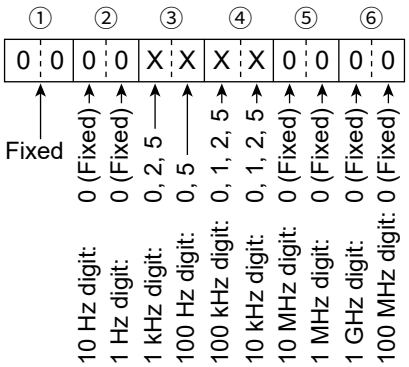
## Remote control (CI-V) information

◇ Command formats

**• Spectrum scope mode settings**
Command: 27 14

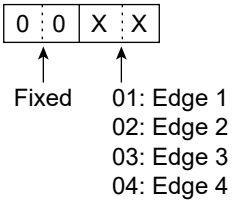



**• Scope span settings**
(for the Center and SCROLL-C mode)
Command: 27 15

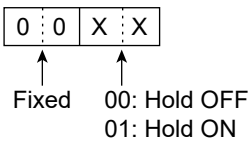



| Span (kHz) | |
|---|---|
| 2500 | 2.5 |
| 5000 | 5 |
| 10000 | 10 |
| 25000 | 25 |
| 50000 | 50 |
| 100000 | 100 |
| 250000 | 250 |
| 500000 | 500 |

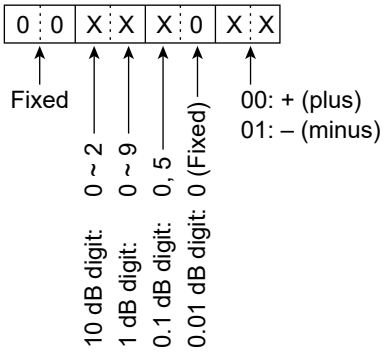
**• Scope Edge number settings**
(for the Fixed and SCROLL-F mode)
Command: 27 16




**• Scope Hold settings**
Command: 27 17

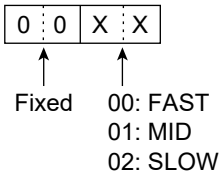



**• Scope Reference level settings**
Command: 27 19

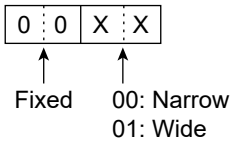



Adjustable range: –20.0 dB ~ +20.0 dB
in 0.5 dB steps.

**• Scope Sweep speed settings**
Command: 27 1A



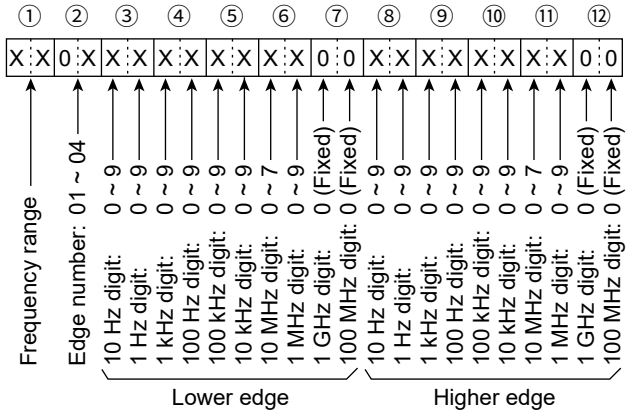

**• Scope VBW (Video Band Width) settings**
Command: 27 1D



## Remote control (CI-V) information

◇ Command formats

• **Scope Fixed edge frequency settings**
Command: 27 1E




ⓘ Entry of less than 1 kHz digits are ignored.

① **Selectable Frequency ranges**

| Data | Frequency range (unit=MHz) |
|---|---|
| 01 | 0.03 ~ 1.60 |
| 02 | 1.60 ~ 2.00 |
| 03 | 2.00 ~ 6.00 |
| 04 | 6.00 ~ 8.00 |
| 05 | 8.00 ~ 11.00 |
| 06 | 11.00 ~ 15.00 |
| 07 | 15.00 ~ 20.00 |
| 08 | 20.00 ~ 22.00 |
| 09 | 22.00 ~ 26.00 |
| 10 | 26.00 ~ 30.00 |
| 11 | 30.00 ~ 45.00 |
| 12 | 45.00 ~ 60.00 |
| 13 | 60.00 ~ 74.80 |

② **Selectable Edge number:**
01=1
02=2
03=3
04=4

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