ICOM

CI-V REFERENCE GUIDE

HF/50MHz TRANSCEIVER

IC-7610

Icom Inc.

Table of contents

Remote control—— 2
■ Remote control (CI-V) information …… 2
◇ CI-V connection …… 2
◇ Preparing …… 2
◇ About the data format …… 2
◇ Command table …… 3
◇ Command formats …… 10

Remote control

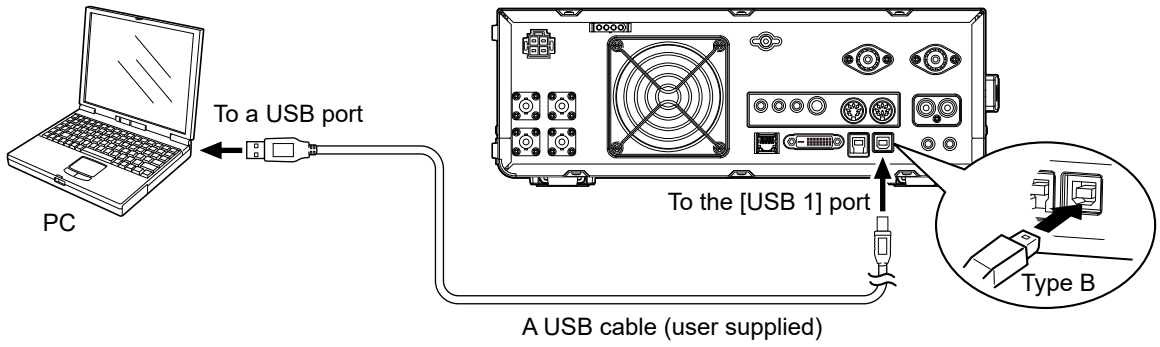
■ Remote control (CI-V) information

◇ CI-V connection

The transceiver's operating frequency, mode, VFO and memory selection, can be remotely controlled using a PC.

• Use a USB cable (user supplied) to connect the IC-7610 and the PC (controller).
The required USB driver and driver installation guide can be downloaded from the Icom web site.
https://www.icomjapan.com/support/firmware_driver/
ⓘThe download procedure on the web page may be changed without notice.

• **Connection example**



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

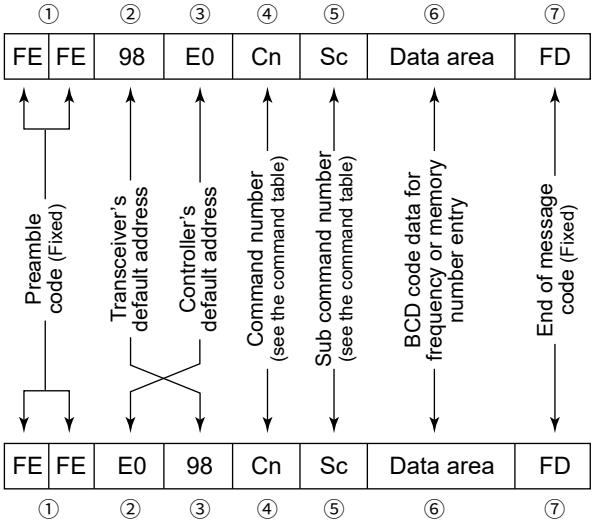
◇ Preparing

The Icom Communications Interface V (CI-V) is used for remote control.
To control the transceiver, first set its address, data communication speed, and transceive function.
These settings are set in Set mode (Refer to the IC-7610 instruction manual).

◇ About the data format

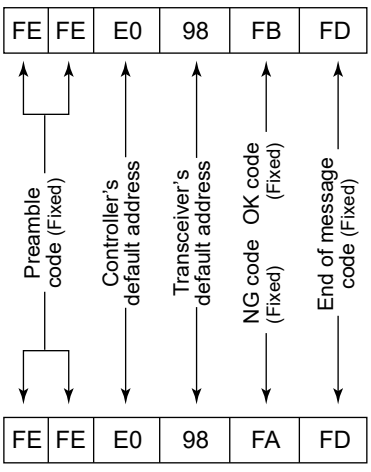
The CI-V system can be written using the following data formats. Data formats differ according to command numbers. A data area or sub command is added for some commands.

Controller to IC-7610



IC-7610 to controller

OK message to controller



NG message to controller

NOTE: Operating some control dials overrides CI-V commands. If a control dial (such as the AF Volume dial that has a mark on it) is rotated after sending a CI-V command, the command will be overwritten by the operation.

◇ Command table

Cmd.	Sub cmd.	Data	Description
00		see p. 10	Send frequency data (transceive)
01		see p. 10	Send mode data (transceive)
02		see p. 10	Read band edge frequencies
03		see p. 10	Read operating frequency
04		see p. 10	Read operating mode
05		see p. 10	Set operating frequency
06		see p. 10	Set operating mode
07	㉙		Select the VFO mode
	B0		Exchange main and sub bands
	B1		Equalize main and sub bands
	C0		Turn OFF Dualwatch
	C1		Turn ON Dualwatch
	C2*	00 or 01	Send/read the dualwatch setting (00=OFF, 01=ON)
	D0		Select the main band
	D1		Select the sub band
	D2*	00	Send/read main band selection
		01	Send/read sub band selection
08			Select the Memory mode
		00 01 ~ 00 99	Select the Memory channel (00 01=M-CH01, 00 99=M-CH99)
		01 00	Select program scan edge channel P1
		01 01	Select program scan edge channel P2
09			Memory write
0A			Memory copy to VFO
0B			Memory clear
0E	00		Cancel the scan
	01		Start a Programmed/memory scan
	02		Start a Programmed scan
	03		Start a ⊿F scan
	12		Start a Fine programmed scan
	13		Start a Fine ⊿F scan
	22		Start a Memory scan
	23		Start a Select memory scan
	Ax (x=1 ~ 7)		Select ⊿F scan span (x=1 (±5 kHz), x=2 (±10 kHz), x=3 (±20 kHz), x=4 (±50 kHz), x=5 (±100 kHz), x=6 (±500 kHz), x=7 (±1 MHz))
	B0		Clear the Select channel setting
	B1		Set as select channel (The previously set number by CI-V is set after turning power ON, or "1" is selected if no selection is performed.)
		01 ~ 03	Set the channel as a Select channel (01=SEL1, 02=SEL2, 03=SEL3)
	B2	00 ~ 03	Set the Select memory scan channel (00=ALL, 01=SEL1, 02=SEL2, 03=SEL3)
	D0		Set Scan resume OFF
	D3		Set Scan resume ON
0F		00	Read Split OFF setting
		01	Read Split ON setting
	00		Turn OFF the Split function
	01		Turn ON the Split function
10*		00 ~ 08	Send/read the tuning step (00=OFF (10 Hz or 1 Hz), 01=100 Hz, 02=1 kHz, 03=5 kHz, 04=9 kHz, 05=10 kHz, 06=12.5 kHz, 07=20 kHz, 08=25 kHz)
11* ㉙		00	Send/read attenuator OFF setting
		03	Send/read 3 dB attenuator setting
		06	Send/read 6 dB attenuator setting
		09	Send/read 9 dB attenuator setting
		12	Send/read 12 dB attenuator setting
		15	Send/read 15 dB attenuator setting
		18	Send/read 18 dB attenuator setting
		21	Send/read 21 dB attenuator setting
		24	Send/read 24 dB attenuator setting

Cmd.	Sub cmd.	Data	Description
11* ㉙		27	Send/read 27 dB attenuator setting
		30	Send/read 30 dB attenuator setting
		33	Send/read 33 dB attenuator setting
		36	Send/read 36 dB attenuator setting
		39	Send/read 39 dB attenuator setting
		42	Send/read 42 dB attenuator setting
		45	Send/read 45 dB attenuator setting
12* ㉙	00*1	00 or 01	Select/read ANT1 selection (00=RX ANT OFF, 01=RX ANT ON)
	01*1	00 or 01	Select/read ANT2 selection (00=RX ANT OFF, 01=RX ANT ON)
13	00		Speech all data with voice synthesizer (S meter level, frequency and mode)
	01		Speech the operating frequency and S meter level by voice synthesizer
	02		Speech the operating mode by voice synthesizer ⓘThe mode is announced after the ongoing speech.
14*	01 ㉙	00 00 ~ 02 55	Send/read the AF level (00 00=min. ~ 02 55=max.)
	02 ㉙	00 00 ~ 02 55	Send/read the RF gain level (00 00=min. ~ 02 55=max.)
	03 ㉙	00 00 ~ 02 55	Send/read the squelch level (00 00=min. ~ 02 55=max.)
	05 ㉙	00 00 ~ 02 55	Send/read the APF position (10 Hz steps) (00 00=Pitch–550 Hz, 01 28=Pitch, 02 55=Pitch+550 Hz)
	06 ㉙	00 00 ~ 02 55	Send/read the NR level (00 00=0%, 02 55=100%)
	07 ㉙	00 00 ~ 02 55	Send/read inner [TWIN PBT] position (00 00=max. CCW, 01 28=center, 02 55=max. CW)
	08 ㉙	00 00 ~ 02 55	Send/read outer [TWIN PBT] position (00 00=max. Counter Clockwise, 01 28=center, 02 55=max. Clockwise)
	09	00 00 ~ 02 55	Send/read CW pitch (5 Hz steps) (00 00=300 Hz, 01 28=600 Hz, 02 55=900 Hz)
	0A	00 00 ~ 02 55	Send/read RF power (00 00=min. ~ 02 55=max.)
	0B	00 00 ~ 02 55	Send/read MIC gain (00 00=min. ~ 02 55=max.)
	0C	00 00 ~ 02 55	Send/read keying speed (00 00=6 wpm ~ 02 55=48 wpm)
	0D ㉙	00 00 ~ 02 55	Send/read Notch filter setting (00 00=max. Counter Clockwise, 01 28=center, 02 55=max. Clockwise)
	0E	00 00 ~ 02 55	Send/read the COMP level (00 00=0 ~ 02 55=10)
	0F	00 00 ~ 02 55	Send/read the Break-IN Delay setting (00 00=2.0 d ~ 02 55=13.0 d)
	12 ㉙	00 00 ~ 02 55	Send/read NB level (00 00=0% ~ 02 55=100%)
	13 ㉙	00 00 ~ 02 55	Send/read the DIGI-SEL shift amount (00 00=min. ~ 02 55=max.)
	14	00 00 ~ 02 55	Send/read DRIVE gain (00 00=0% ~ 02 55=100%)
	15	00 00 ~ 02 55	Send/read Monitor audio [MONI] level (00 00=0% ~ 02 55=100%)
	16	00 00 ~ 02 55	Send/read the VOX gain (00 00=0% ~ 02 55=100%)
	17	00 00 ~ 02 55	Send/read the Anti VOX gain (00 00=0% ~ 02 55=100%)
	19	00 00 ~ 02 55	Send/read LCD backlight brightness (00 00=0% ~ 02 55=100%)
15	01 ㉙	00 or 01	Read noise or S-meter squelch status (00=Close, 01=Open)
	02 ㉙	00 00 ~ 02 55	Read S-meter level (00 00=S0, 01 20=S9, 02 41=S9+60 dB)
	05 ㉙	00 or 01	Read various squelch (tone squelch, and so on) status (00=Close, 01=Open)

◇ Command table

Cmd.	Sub cmd.	Data	Description
15	07 ㉙	00 or 01	Read the Overflow status (00=OVF indicator is OFF, 01=OVF indicator is ON)
	11	00 00 ~ 02 55	Read the PO meter level (00 00=0% ~ 01 43=50% ~ 02 12=100%)
	12	00 00 ~ 02 55	Read SWR meter level (00 00=SWR1.0, 00 48=SWR1.5, 00 80=SWR2.0, 01 20=SWR3.0)
	13	00 00 ~ 02 55	Read ALC meter level (00 00=Min. ~ 01 20=Max.)
	14	00 00 ~ 02 55	Read COMP meter level (00 00=0 dB, 01 30=15 dB, 02 41=30 dB)
	15	00 00 ~ 02 55	Read Vd meter level (00 00=0 V, 01 51=10 V, 02 11=16 V)
	16	00 00 ~ 02 55	Read Id meter level (00 00=0A, 00 77=10A, 01 65=20A, 02 41=30A)
16*	02 ㉙	00	Preamp OFF
		01	Preamp 1 ON
		02	Preamp 2 ON
	12 ㉙	01 ~ 03	Set the AGC time constant (01=FAST, 02=MID, 03=SLOW)
	22 ㉙	00 or 01	Set the Noise blanker (00=OFF, 01=ON)
	32 ㉙	00	Audio peak filter OFF
		01	Audio peak filter WIDE ON (320 Hz is selected when SHARP APF is set)
		02	Audio peak filter MID ON (160 Hz is selected when SHARP APF is set)
		03	Audio peak filter NAR ON (80 Hz is selected when SHARP APF is set)
	40 ㉙	00 or 01	Set the Noise reduction (00=OFF, 01=ON)
	41 ㉙	00 or 01	Set the Auto Notch function (00=OFF, 01=ON)
	42 ㉙	00 or 01	Set the Repeater tone (00=OFF, 01=ON)
	43 ㉙	00 or 01	Set the Tone squelch (00=OFF, 01=ON)
	44	00 or 01	Set the Speech compressor (00=OFF, 01=ON)
	45	00 or 01	Set the Monitor [MONI] function (00=OFF, 01=ON)
	46	00 or 01	Set the VOX function (00=OFF, 01=ON)
	47	00	BK-IN function OFF
		01	Semi BK-IN function ON
		02	Full BK-IN function ON
	48 ㉙	00 or 01	Set the Manual Notch function (00=OFF, 01=ON)
	4E ㉙	00 or 01	Set the DIGI-SEL function (00=OFF, 01=ON)
	4F ㉙	00 or 01	Set the Twin peak filter (00=OFF, 01=ON) (Can be turned ON only when Mark and Shift are set to 2125 Hz and 170 Hz, respectively)
	50	00 or 01	Set the Dial lock function (00=OFF, 01=ON)
	53*2 ㉙	00 or 01	Set the ANT-RX I/O (00=OFF, 01=ON)
	56 ㉙	00 or 01	Set the DSP IF filter type (00=SHARP, 01=SOFT)
	57 ㉙	00 ~ 02	Set the Manual Notch width (00=WIDE, 01=MID, 02=NAR)
	58	00 ~ 02	Set the SSB transmit bandwidth (00=WIDE, 01=MID, 02=NAR) (One of following values is applied, depending on the "COMP" status (ON or OFF): WIDE (Command: 1A 05 00 15), MID (Command: 1A 05 00 16), or NAR (Command: 1A 05 00 17))
	5E	00 or 01	MAIN/SUB Tracking function (00=OFF, 01=ON)
	65 ㉙	00 or 01	Set the IP Plus function (00=OFF, 01=ON)
	66	00 or 01	Send/read the TX Inhibit function (00=OFF, 01=ON)
	67	00 or 01	Send/read the DPD function (00=OFF, 01=ON)

Cmd.	Sub cmd.		Data	Description
17*3			see p. 10	Send CW messages
18	00			Turn OFF the transceiver
	01*4			Turn ON the transceiver
19	00			Read the transceiver ID
1A*	00		see p. 11	Send/read memory contents
	01		see p. 10	Send/read band stacking register contents
	02*6		see p. 13	Send/read memory keyer contents
	03 ㉙		see p. 12	Send/read the selected IF filter width
	04 ㉙		see p. 12	Send/read the selected AGC time constant
	05	00 01	see p. 12	Tone Control/TBW > RX > Send/read SSB RX HPF/LPF settings
		00 02	00 ~ 10	Tone Control/TBW > RX > Send/read SSB RX Tone (Bass) level (00=–5 ~ 10=+5)
		00 03	00 ~ 10	Tone Control/TBW > RX > Send/read SSB RX Tone (Treble) level (00=–5 ~ 10=+5)
		00 04	see p. 12	Tone Control/TBW > RX > Send/read AM RX HPF/LPF settings
		00 05	00 ~ 10	Tone Control/TBW > RX > Send/read AM RX Tone (Bass) level (00=–5 ~ 10=+5)
		00 06	00 ~ 10	Tone Control/TBW > RX > Send/read AM RX Tone (Treble) level (00=–5 ~ 10=+5)
		00 07	see p. 12	Tone Control/TBW > RX > Send/read FM RX HPF/LPF settings
		00 08	00 ~ 10	Tone Control/TBW > RX > Send/read FM RX Tone (Bass) level (00=–5 ~ 10=+5)
		00 09	00 ~ 10	Tone Control/TBW > RX > Send/read FM RX Tone (Treble) level (00=–5 ~ 10=+5)
		00 10	see p. 12	Tone Control/TBW > RX > Send/read CW RX HPF/LPF settings
		00 11	see p. 12	Tone Control/TBW > RX > Send/read RTTY RX HPF/LPF settings
		00 12	see p. 12	Tone Control/TBW > RX > Send/read PSK RX HPF/LPF settings
		00 13	00 ~ 10	Tone Control/TBW > TX > Send/read SSB TX Tone (Bass) level (00=–5 ~ 10=+5)
		00 14	00 ~ 10	Tone Control/TBW > TX > Send/read SSB TX Tone (Treble) level (00=–5 ~ 10=+5)
		00 15	see p. 12	Tone Control/TBW > TX > Send/read SSB TX bandwidth for wide
		00 16	see p. 12	Tone Control/TBW > TX > Send/read SSB TX bandwidth for mid
		00 17	see p. 12	Tone Control/TBW > TX > Send/read SSB TX bandwidth for narrow
		00 18	00 ~ 10	Tone Control/TBW > TX > Send/read AM TX Tone (Bass) level (00=–5 ~ 10=+5)
		00 19	00 ~ 10	Tone Control/TBW > TX > Send/read AM TX Tone (Treble) level (00=–5 ~ 10=+5)
		00 20	00 ~ 10	Tone Control/TBW > TX > Send/read FM TX Tone (Bass) level (00=–5 ~ 10=+5)
		00 21	00 ~ 10	Tone Control/TBW > TX > Send/read FM TX Tone (Treble) level (00=–5 ~ 10=+5)
		00 22	00 00 ~ 02 55	Function > Beep Level (00 00=min. ~ 02 55=max.)
		00 23	00 or 01	Function > Beep Level Limit (00=OFF, 01=ON)
		00 24	00 or 01	Function > Beep (Confirmation) (00=OFF, 01=ON)
		00 25	00 or 01	Function > Band Edge Beep (00=OFF, 01=ON) (ON = Beep sounds with a default amateur band)
			02	Function > Band Edge Beep (02=ON (User))
			03	Function > Band Edge Beep (03=ON (User) & TX Limit)

◇ Command table

Cmd.	Sub cmd.		Data	Description
1A*	05	00 26	00 50 ~ 02 00	Function > Beep Sound (MAIN) (00 50=500 Hz ~ 02 00=2000 Hz)
		00 27	00 50 ~ 02 00	Function > Beep Sound (SUB) (00 50=500 Hz ~ 02 00=2000 Hz)
		00 28	00 ~ 02	Function > RF/SQL Control (00=Auto, 01=SQL, 02=RF+SQL)
		00 29	00 ~ 05	Function > TX Delay > HF (00=OFF, 01=10 ms, 02=15 ms, 03=20 ms, 04=25 ms, 05=30 ms)
		00 30	00 ~ 05	Function > TX Delay > 50M (00=OFF, 01=10 ms, 02=15 ms, 03=20 ms, 04=25 ms, 05=30 ms)
		00 31	00 ~ 05	Function > Time-Out Timer (CI-V) (00=OFF, 01=3 min., 02=5 min., 03=10 min., 04=20 min., 05=30 min.)
		00 32	00 or 01	Function > Quick Dualwatch (00=OFF, 01=ON)
		00 33	00 or 01	Function > SPLIT > Quick SPLIT (00=OFF, 01=ON) (Setting the [SPLIT] key operation when it is held down for 1 second.)
		00 34	00 or 01	Function > SPLIT > Display Keypad on Quick SPLIT (00=OFF, 01=ON)
		00 35	see p. 12	Function > SPLIT > FM SPLIT Offset (HF)
		00 36	see p. 12	Function > SPLIT > FM SPLIT Offset (50M)
		00 37	00 or 01	Function > SPLIT > SPLIT LOCK (00=OFF, 01=ON)
		00 38	00 or 01	Function > Tuner > PTT Start (00=OFF, 01=ON)
		00 39	00 or 01	Function > Transverter Function (00=Auto, 01=ON)
		00 40	see p. 12	Function > Transverter Offset
		00 41	00 ~ 02	Function > RTTY Mark Frequency (00=1275 Hz, 01=1615 Hz, 02=2125 Hz)
		00 42	00 ~ 02	Function > RTTY Shift Width (00=170 Hz, 01=200 Hz, 02=425 Hz)
		00 43	00 or 01	Function > RTTY Keying Polarity (00=Normal, 01=Reverse)
		00 44	00 ~ 02	Function > PSK Tone Frequency (00=1000 Hz, 01=1500 Hz, 02=2000 Hz)
		00 45	00 or 01	Function > SPEECH > SPEECH Language (00=English, 01=Japanese)
		00 46	00 or 01	Function > SPEECH > SPEECH Speed (00=Slow, 01=Fast)
		00 47	00 or 01	Function > SPEECH > S-Level SPEECH (00=OFF, 01=ON)
		00 48	00 or 01	Function > SPEECH > MODE SPEECH (00=OFF, 01=ON)
		00 49	00 00 ~ 02 55	Function > SPEECH > SPEECH Level (00 00=0% ~ 02 55=100%)
		00 50	00 or 01	Function > [SPEECH/LOCK] Switch (00=SPEECH/LOCK, 01=LOCK/SPEECH)
		00 51	00 or 01	Function > Lock Function (00=MAIN DIAL, 01=PANEL)
		00 52	00 or 01	Function > Memo Pad Quantity (00=5 ch, 01=10 ch)
		00 53	00 ~ 02	Function > MAIN DIAL Auto TS (00=OFF, 01=Low, 02=High)
		00 54	00 or 01	Function > MAIN DIAL Select (USB DIAL–SUB Only) (00=Main only, 01=Main/Sub)
		00 55	00 or 01	Function > MAIN/SUB Tracking [MAIN/SUB] Switch (00=OFF, 01=ON)
		00 56	00 or 01	Function > MIC Up/Down Speed (00=Slow, 01=Fast)
		00 57	00 or 01	Function > Quick RIT/ΔTX Clear (00=OFF, 01=ON)
		00 58	00 ~ 02	Function > [NOTCH] Switch (SSB) (00=Auto, 01=Manual, 02=Auto/Manual)
		00 59	00 ~ 02	Function > [NOTCH] Switch (AM) (00=Auto, 01=Manual, 02=Auto/Manual)
		00 60	00 or 01	Function > FILTER Screen MAIN/SUB Select (00=Fix, 01=Auto (by FILTER, PBT Operation))
		00 61	00 or 01	Function > SSB/CW Synchronous Tuning (00=OFF, 01=ON)

Cmd.	Sub cmd.		Data	Description
1A*	05	00 62	00 or 01	Function > CW Normal Side (00=LSB, 01=USB)
		00 63	00 or 01	Function > Screen Keyboard Type (00=Ten-key, 01=Full Keyboard)
		00 64	00 ~ 02	Function > Screen Full Keyboard Layout (00=English, 01=German, 02=French)
		00 65	00 or 01	Function > Screen Capture [POWER] Switch (00=OFF, 01=ON)
		00 66	00 or 01	Function > Screen Capture Keyboard [Print Screen] (00=OFF, 01=ON)
		00 67	00 or 01	Function > Screen Capture Storage Media (00=SD Card, 01=USB flash drive)
		00 68	00 or 01	Function > Screen Capture File Type (00=PNG, 01=BMP)
		00 69	00 or 01	Function > Calibration Marker (00=OFF, 01=ON)
		00 70	00 00 ~ 05 11	Function > REF Adjust (00 00=0%, 05 11=100%)
		00 71	00 ~ 30	Connectors > Phones > Level (00=–15 dB ~ 30=+15 dB)
		00 72	00 or 01	Connectors > Phones > L/R Mix (00=OFF, 01=ON)
		00 73	00 or 01	Connectors > ACC AF/IF Output > AF/SQL Output Select (00=MAIN, 01=SUB)
		00 74	00 or 01	Connectors > ACC AF/IF Output > Output Select (00=AF, 01=IF)
		00 75	00 or 01	Connectors > ACC AF/IF Output > AF/IF XFC Output (SPLIT ON) (00=MAIN, 01=SUB)
		00 76	00 00 ~ 02 55	Connectors > ACC AF/IF Output > AF Output Level (00 00=0% ~ 02 55=100%)
		00 77	00 or 01	Connectors > ACC AF/IF Output > AF SQL (00=OFF (Open), 01=ON)
		00 78	00 or 01	Connectors > ACC AF/IF Output > AF Beep/Speech... Output (00=OFF, 01=ON)
		00 79	00 00 ~ 02 55	Connectors > ACC AF/IF Output > ACC IF Output Level (00 00=0% ~ 02 55=100%)
		00 80	00 or 01	Connectors > USB AF/IF Output > Output Select (00=AF, 01=IF)
		00 81	00 or 01	Connectors > USB AF/IF Output > AF/IF XFC Output (SPLIT ON) (00=MAIN, 01=SUB)
		00 82	00 00 ~ 02 55	Connectors > USB AF/IF Output > AF Output Level (00 00=0%, 02 55=100%)
		00 83	00 or 01	Connectors > USB AF/IF Output > AF SQL (00=OFF (Open), 01=ON)
		00 84	00 or 01	Connectors > USB AF/IF Output > AF Beep/Speech... Output (00=OFF, 01=ON)
		00 85	00 00 ~ 02 55	Connectors > USB AF/IF Output > IF Output Level (00 00=0%, 02 55=100%)
		00 86	00 or 01	Connectors > LAN AF/IF Output > Output Select (00=AF, 01=IF)
		00 87	00 or 01	Connectors > LAN AF/IF Output > AF SQL (00=OFF (Open), 01=ON)
		00 88	00 00 ~ 02 55	Connectors > MOD Input > ACC MOD Level (00 00=0% ~ 02 55=100%)
		00 89	00 00 ~ 02 55	Connectors > MOD Input > USB MOD Level (00 00=0% ~ 02 55=100%)
		00 90	00 00 ~ 02 55	Connectors > MOD Input > LAN MOD Level (00 00=0% ~ 02 55=100%)
		00 91	00 ~ 05	Connectors > MOD Input > DATA OFF MOD (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB, 04=MIC,USB, 05=LAN)

◇ Command table

Cmd.	Sub cmd.		Data	Description
1A*	05	00 92	00 ~ 05	Connectors > MOD Input > DATA1 MOD (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB, 04=MIC,USB, 05=LAN)
		00 93	00 ~ 05	Connectors > MOD Input > DATA2 MOD (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB, 04=MIC,USB, 05=LAN)
		00 94	00 ~ 05	Connectors > MOD Input > DATA3 MOD (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB, 04=MIC,USB, 05=LAN)
		00 95	00 ~ 04	Connectors > USB SEND/Keying > USB SEND (00=OFF, 01=USB1(A) DTR, 02=USB1(A) RTS, 03=USB1(B) DTR, 04=USB1(B) RTS) (You cannot select the same setting for USB keying (CW) or USB keying (RTTY).)
		00 96	00 ~ 04	Connectors > USB SEND/Keying > USB Keying (CW) (00=OFF, 01=USB1(A) DTR, 02=USB1(A) RTS, 03=USB1(B) DTR, 04=USB1(B) RTS) (You cannot select the same setting for USB SEND.)
		00 97	00 ~ 04	Connectors > USB SEND/Keying > USB Keying (RTTY) (00=OFF, 01=USB1(A) DTR, 02=USB1(A) RTS, 03=USB1(B) DTR, 04=USB1(B) RTS) (You cannot select the same setting for USB SEND.)
		00 98	00 or 01	Connectors > External Keypad > VOICE (00=OFF, 01=ON)
		00 99	00 or 01	Connectors > External Keypad > KEYER (00=OFF, 01=ON)
		01 00	00 or 01	Connectors > External Keypad > RTTY (00=OFF, 01=ON)
		01 01	00 or 01	Connectors > External Keypad > PSK (00=OFF, 01=ON)
		01 02	00 or 01	Connectors > Keyboard/Mouse > Keyboard [F1] ~ [F8] (VOICE) (00=OFF, 01=ON)
		01 03	00 or 01	Connectors > Keyboard/Mouse > Keyboard [F1] ~ [F8] (KEYER) (00=OFF, 01=ON)
		01 04	00 ~ 10	Connectors > Keyboard/Mouse > Keyboard Type (00=English, 01=Japanese, 02=United Kingdom, 03=French, 04=French (Canadian), 05=German, 06=Portuguese, 07=Portuguese (Brazilian), 08=Spanish, 09=Spanish (Latin American), 10=Italian)
		01 05	00 10 ~ 01 00	Connectors > Keyboard/Mouse > Keyboard Repeat Delay (00 10=100 msec., 01 00=1000 msec. (in 50 msec. steps))
		01 06	00 ~ 31	Connectors > Keyboard/Mouse > Keyboard Repeat Rate (00=2.0 cps ~ 31=30.0 cps)
		01 07	00 ~ 02	Connectors > Keyboard/Mouse > Mouse Pointer Speed (00=Slow, 01=Mid, 02=Fast)
		01 08	00 or 01	Connectors > Keyboard/Mouse > Mouse Pointer Acceleration (00=OFF, 01=ON)
		01 09	00 or 01	Connectors > USB DIAL > USB DIAL Select (00=Sub only, 01=Main/Sub)
		01 10	00 ~ 02	Connectors > USB DIAL > USB DIAL Auto TS (00=OFF, 01=Low, 02=High)
		01 11	00 or 01	Connectors > USB DIAL > USB DIAL [TRANSMIT] Switch (00=Push to toggle, 01=Hold down to transmit)
		01 12	00 or 01	Connectors > CI-V > CI-V Transceive (00=OFF, 01=ON)
		01 13	00 00 ~ 02 23	Connectors > CI-V > CI-V USB/ LAN→REMOTE Transceive Address (00 00=00h ~ 02 23=DFh) (in Hexadecimal)
1A*	05	01 14	00 or 01	Connectors > CI-V > CI-V Output (for ANT) (00=OFF, 01=ON)
		01 *5 15	00 or 01	Connectors > CI-V > CI-V USB Port (00=Link to [REMOTE], 01=Unlink to [REMOTE])
		01 16	00 or 01	Connectors > CI-V > CI-V USB Echo Back (00=OFF, 01=ON)
		01 17	00 ~ 07	Connectors > External Meter > External Meter Output (MAIN) (00=Auto, 01=S (main), 02=Po, 03=SWR, 04=ALC, 05=COMP, 06=Vd, 07=Id)
		01 18	00 ~ 07	Connectors > External Meter > External Meter Output (SUB) (00=Auto, 01=S (sub), 02=Po, 03=SWR, 04=ALC, 05=COMP, 06=Vd, 07=Id)
		01 19	00 00 ~ 02 55	Connectors > External Meter > External Meter Level (MAIN) (00 00=0% ~ 02 55=100%)
		01 20	00 00 ~ 02 55	Connectors > External Meter > External Meter Level (SUB) (00 00=0% ~ 02 55=100%)
		01 21	00 ~ 03	Connectors > Decode Baud Rate (00=4800 bps, 01=9600 bps, 02=19200 bps, 03=38400 bps)
		01 22	00 or 01	Connectors > SEND Relay Type (00=Reed, 01=MOS-FET)
		01 23	00 ~ 02	Connectors > ACC BAND Voltage Output (00=MAIN, 01=SUB, 02=TX)
		01 24	00 or 01	Connectors > MIC Input DC Bias (00=OFF, 01=ON)
		01 25	00 or 01	Connectors > REF IN (00=IN, 01=OFF)
		01 26	00 or 01	Network > DHCP (valid after restart) (00=OFF, 01=ON)
		01 27	00 00 00 00 00 00 00 01 ~ 02 55 02 55 02 55 02 54	Network > IP Address (valid after restart) (00 00 00 00 00 00 00 01=0.0.0.1 ~ 02 55 02 55 02 55 02 54=255.255.255.254) (Valid when the DHCP (valid after restart) is set to OFF.)
		01 *5 28	00 00 00 00 00 00 00 01 ~ 02 55 02 55 02 55 02 54	Network > DHCP (valid after restart) Read the IP address set by the DHCP server (00 00 00 00 00 00 00 01=0.0.0.1 ~ 02 55 02 55 02 55 02 54=255.255.255.254) (When the DHCP setting (valid after restart) is set to OFF, the manually set IP address (static IP address) is returned.)
		01 29	01 ~ 30	Network > Subnet Mask (valid after restart) (01=128.0.0.0 (1 bit) ~ 30=255.255.255.252 (30 bit)) (Valid when the DHCP (valid after restart) setting is set to OFF.)
		01 30	00 00 00 00 00 00 00 01 ~ 02 55 02 55 02 55 02 54, FF	Network > Default Gateway (valid after restart) (00 00 00 00 00 00 00 01=0.0.0.1 ~ 02 55 02 55 02 55 02 54=255.255.255.254, FF=Blank) (Valid when the DHCP (valid after restart) setting is set to OFF.)
		01 31	00 00 00 00 00 00 00 01 ~ 02 55 02 55 02 55 02 54, FF	Network > Primary DNS Server (valid after restart) (00 00 00 00 00 00 00 01=0.0.0.1 ~ 02 55 02 55 02 55 02 54=255.255.255.254, FF=Blank) (Valid when the DHCP (valid after restart) setting is set to OFF.)
		01 32	00 00 00 00 00 00 00 01 ~ 02 55 02 55 02 55 02 54, FF	Network > 2nd DNS Server (valid after restart) (00 00 00 00 00 00 00 01=0.0.0.1 ~ 02 55 02 55 02 55 02 54=255.255.255.254, FF=Blank) (Valid when the DHCP (valid after restart) setting is set to OFF.)
		01 33	see p. 11	Network > Network Name (Up to 15 characters)
		01 34	00 or 01	Network > Network Control (valid after restart) (00=OFF, 01=ON)
		01 35	00 or 01	Network > Power OFF Setting (for Remote Control) (00=Shutdown only, 01=Standby/Shutdown)
		01 36	00 00 01 ~ 06 55 35	Network > Control Port (UDP) (valid after restart) (00 00 01=1 ~ 06 55 35=65535)

◇ Command table

Cmd.	Sub cmd.		Data	Description
1A*	05	01 37	00 00 01 ~ 06 55 35	Network > Serial Port (UDP) (valid after restart) (00 00 01=1 ~ 06 55 35=65535)
		01 38	00 00 01 ~ 06 55 35	Network > Audio Port (UDP) (valid after restart) (00 00 01=1 ~ 06 55 35=65535)
		01 39	00 or 01	Network > Internet Access Line (valid after restart) (00=FTTH (Fiber To The Home), 01=ADSL/CATV)
		01 40	see p. 11	Network > Network Radio Name (Up to 16 characters)
		01 41	00 00 ~ 02 55	Display > LCD Backlight (00 00=0% ~ 02 55=100%)
		01 42	00 00 ~ 02 55	Display > LED Bright (00 00=0% ~ 02 55=100%)
		01 43	00 or 01	Display > Display Type (00=A, 01=B)
		01 44	00 or 01	Display > Display Font (00=Basic, 01=Round)
		01 45	00 ~ 02	Display > Meter Response (Standard, Edgewise) (00=Slow, 01=Mid, 02=Fast)
		01 46	00 ~ 02	Display > Meter Type (Normal Screen) (00=Standard, 01=Edgewise, 02=Bar)
		01 47	00 or 01	Display > Meter Type (Expand Screen) (00=Edgewise, 01=Bar)
		01 48	00 or 01	Display > Meter Peak Hold (Bar) (00=OFF, 01=ON)
		01 49	00 or 01	Display > Memory Name (00=OFF, 01=ON)
		01 50	00 or 01	Display > APF-Width Popup (APF OFF→ON) (00=OFF, 01=ON)
		01 51	00 ~ 03	Display > Screen Saver (00=OFF, 01=15 minutes, 02=30 minutes, 03=60 minutes)
		01 52	00 or 01	Display > External Display (00=OFF, 01=ON)
		01 53	00 or 01	Display > External Display Resolution (00=800x480, 01=800x600)
		01 54	00 or 01	Display > Opening Message (00=OFF, 01=ON)
		01 55	see p. 11	Display > My Call (Up to 10 characters)
		01 56	00 or 01	Display > Power ON Check (00=OFF, 01=ON)
		01 57	00 or 01	Display > Display Language (00=English, 01=Japanese)
		01 58	20 00 01 01 ~ 20 99 12 31	Time Set > Date/Time > Date (20 00 01 01=2000/01/01 ~ 20 99 12 31 =2099/12/31)
		01 59	00 00 ~ 23 59	Time Set > Date/Time > Time (00 00=00:00 ~ 23 59=23:59)
		01 60	00 or 01	Time Set > Date/Time > NTP Function (00=OFF, 01=ON)
		01 61	see p. 11	Time Set > Date/Time > NTP Server Address
		01 62	see p. 13	Time Set > UTC Offset
		01 63	00 or 01	Time Set > CLOCK2 Function (00=OFF, 01=ON)
		01 64	see p. 13	Time Set > CLOCK2 UTC Offset
		01 65	see p. 11	Time Set > CLOCK2 Name (Up to 3 characters)
		01 66	00 or 01	SCOPE > Scope during Tx (CENTER TYPE) (00=OFF, 01=ON)
		01 67	00 ~ 02	SCOPE > Max Hold (00=OFF, 01=10s Hold , 02=ON)
		01 68	00 ~ 02	SCOPE > CENTER Type Display (00=Filter center, 01=Carrier point center, 02=Carrier point center (Abs. Freq.))
		01 69	00 or 01	SCOPE > Marker Position (Fix Type/ SCROLL Type) (00=Filter center, 01 Carrier point)
		01 70	00 ~ 03	SCOPE > Averaging (00=OFF, 01=2, 02=3, 03=4)
		01 71	00 or 01	SCOPE > Waveform Type (00=Fill, 01=Fill+Line)
		01 72	see p. 12	SCOPE > Waveform Color (Current)
		01 73	see p. 12	SCOPE > Waveform Color (Line)
		01 74	see p. 12	SCOPE > Waveform Color (Max Hold)

Cmd.	Sub cmd.		Data	Description
1A*	05	01 75	00 or 01	SCOPE > Waterfall Display (00=OFF, 01=ON)
		01 76	00 ~ 02	SCOPE > Waterfall Speed (00=Slow, 01=Mid, 02=Fast)
		01 77	00 ~ 02	SCOPE > Waterfall Size (Expand Screen) (00=Small, 01=Mid, 02=Large)
		01 78	00 ~ 09	SCOPE > Waterfall Peak Color Level (00=Grid 1 ~ 09=Grid 10)
		01 79	00 or 01	SCOPE > Waterfall Marker Auto-hide (00=OFF, 01=ON)
		01 80	00 or 01	SCOPE > Dual Scope Type (00=Over/Under, 01=Side by Side)
		01 81	00 or 01	SCOPE > Dual Scope Auto Select (00=OFF, 01=ON)
		01 82	see p. 12	SCOPE > Fixed Edges > 0.03 – 1.60 No.1
		01 83	see p. 12	SCOPE > Fixed Edges > 0.03 – 1.60 No.2
		01 84	see p. 12	SCOPE > Fixed Edges > 0.03 – 1.60 No.3
		01 85	see p. 12	SCOPE > Fixed Edges > 1.60 – 2.00 No.1
		01 86	see p. 12	SCOPE > Fixed Edges > 1.60 – 2.00 No.2
		01 87	see p. 12	SCOPE > Fixed Edges > 1.60 – 2.00 No.3
		01 88	see p. 12	SCOPE > Fixed Edges > 2.00 – 6.00 No.1
		01 89	see p. 12	SCOPE > Fixed Edges > 2.00 – 6.00 No.2
		01 90	see p. 12	SCOPE > Fixed Edges > 2.00 – 6.00 No.3
		01 91	see p. 12	SCOPE > Fixed Edges > 6.00 – 8.00 No.1
		01 92	see p. 12	SCOPE > Fixed Edges > 6.00 – 8.00 No.2
		01 93	see p. 12	SCOPE > Fixed Edges > 6.00 – 8.00 No.3
		01 94	see p. 12	SCOPE > Fixed Edges > 8.00 – 11.00 No.1
		01 95	see p. 12	SCOPE > Fixed Edges > 8.00 – 11.00 No.2
		01 96	see p. 12	SCOPE > Fixed Edges > 8.00 – 11.00 No.3
		01 97	see p. 12	SCOPE > Fixed Edges > 11.00 – 15.00 No.1
		01 98	see p. 12	SCOPE > Fixed Edges > 11.00 – 15.00 No.2
		01 99	see p. 12	SCOPE > Fixed Edges > 11.00 – 15.00 No.3
		02 00	see p. 12	SCOPE > Fixed Edges > 15.00 – 20.00 No.1
		02 01	see p. 12	SCOPE > Fixed Edges > 15.00 – 20.00 No.2
		02 02	see p. 12	SCOPE > Fixed Edges > 15.00 – 20.00 No.3
		02 03	see p. 12	SCOPE > Fixed Edges > 20.00 – 22.00 No.1
		02 04	see p. 12	SCOPE > Fixed Edges > 20.00 – 22.00 No.2
		02 05	see p. 12	SCOPE > Fixed Edges > 20.00 – 22.00 No.3
		02 06	see p. 12	SCOPE > Fixed Edges > 22.00 – 26.00 No.1
		02 07	see p. 12	SCOPE > Fixed Edges > 22.00 – 26.00 No.2
		02 08	see p. 12	SCOPE > Fixed Edges > 22.00 – 26.00 No.3
		02 09	see p. 12	SCOPE > Fixed Edges > 26.00 – 30.00 No.1
		02 10	see p. 12	SCOPE > Fixed Edges > 26.00 – 30.00 No.2
		02 11	see p. 12	SCOPE > Fixed Edges > 26.00 – 30.00 No.3
		02 12	see p. 12	SCOPE > Fixed Edges > 30.00 – 45.00 No.1
		02 13	see p. 12	SCOPE > Fixed Edges > 30.00 – 45.00 No.2
		02 14	see p. 12	SCOPE > Fixed Edges > 30.00 – 45.00 No.3
		02 15	see p. 12	SCOPE > Fixed Edges > 45.00 – 60.00 No.1
		02 16	see p. 12	SCOPE > Fixed Edges > 45.00 – 60.00 No.2
		02 17	see p. 12	SCOPE > Fixed Edges > 45.00 – 60.00 No.3
		02 18	00 or 01	AUDIO SCOPE SET > FFT Scope Waveform Type (00=Line, 01=Fill)
		02 19	see p. 12	AUDIO SCOPE SET > FFT Scope Waveform Color
		02 20	00 or 01	AUDIO SCOPE SET > FFT Scope Waterfall Display (00=OFF, 01=ON)
		02 21	see p. 12	AUDIO SCOPE SET > Oscilloscope Waveform Color
		02 22	00 ~ 04	KEYER 001 > Number Style (00=Normal, 01=190→ANO, 02=190→ANT, 03=90→NO, 04=90→NT)
		02 23	01 ~ 08	KEYER 001 > Count Up Trigger (01=M1 ~ 08=M8)
		02 24	00 01 ~ 99 99	KEYER 001 > Present Number (00 01=1 ~ 99 99=9999)
		02 25	00 00 ~ 02 55	CW-KEY SET > Side Tone Level (00 00=0% ~ 02 55=100%)
		02 26	00 or 01	CW-KEY SET > Side Tone Level Limit (00=OFF, 01=ON)
		02 27	01 ~ 60	CW-KEY SET > Keyer Repeat time (01=1 sec. ~ 60=60 sec.)
		02 28	28 ~ 45	CW-KEY SET > Dot/Dash Ratio (28=1:1:2.8 ~ 45=1:1:4.5; 0.1 steps)

◇ Command table

Cmd.	Sub cmd.			Data	Description
1A*	05	02	29	00 ~ 03	CW-KEY SET > Rise Time (00=2 msec., 01=4 msec., 02=6 msec., 03=8 msec.)
		02	30	00 or 01	CW-KEY SET > Paddle Polarity (00=Normal, 01=Reverse)
		02	31	00 ~ 02	CW-KEY SET > Key Type (00=Straight, 01=Bug, 02=Paddle)
		02	32	00 or 01	CW-KEY SET > MIC Up/Down Keyer (00=OFF, 01=ON)
		02	33	00 ~ 03	RTTY DECODE SET > FFT Scope Averaging (00=OFF, 01=2, 02=3, 03=4)
		02	34	see p. 12	RTTY DECODE SET > FFT Scope Waveform Color
		02	35	00 or 01	RTTY DECODE SET > Decode USOS (00=OFF, 01=ON)
		02	36	00 or 01	RTTY DECODE SET > Decode New Line Code (00=CR, LF, CR+LF, 01=CR+LF)
		02	37	00 ~ 02	RTTY DECODE SET > Diddle (00=OFF, 01=BLANK, 02=LTRS)
		02	38	00 or 01	RTTY DECODE SET > TX USOS (00=OFF, 01=ON)
		02	39	00 or 01	RTTY DECODE SET > Auto CR+LF by TX (00=OFF, 01=ON)
		02	40	00 or 01	RTTY DECODE SET > Time Stamp (00=OFF, 01=ON)
		02	41	00 or 01	RTTY DECODE SET > Time Stamp (Time) (00=Local, 01="CLOCK2 UTC Offset" setting)
		02	42	00 or 01	RTTY DECODE SET > Time Stamp (Frequency) (00=OFF, 01=ON)
		02	43	see p. 12	RTTY DECODE SET > Font Color (Receive)
		02	44	see p. 12	RTTY DECODE SET > Font Color (Transmit)
		02	45	see p. 12	RTTY DECODE SET > Font Color (Time Stamp)
		02	46	see p. 12	RTTY DECODE SET > Font Color (TX Buffer)
		02	47	00 or 01	RTTY DECODE LOG > Decode Log (00=OFF, 01=ON)
		02	48	00 or 01	RTTY DECODE LOG > Log Set > File Type (00=Text, 01=HTML)
		02	49	00 ~ 03	PSK DECODE SET > FFT Scope Averaging (00=OFF, 01=2, 02=3, 03=4)
		02	50	see p. 12	PSK DECODE SET > FFT Scope Waveform Color
		02	51	00 or 01	PSK DECODE SET > AFC Range (00=±8 Hz, 01=±15 Hz)
		02	52	00 or 01	PSK DECODE SET > Time Stamp (00=OFF, 01=ON)
		02	53	00 or 01	PSK DECODE SET > Time Stamp (Time) (00=Local, 01="CLOCK2 UTC Offset" setting)
		02	54	00 or 01	PSK DECODE SET > Time Stamp (Frequency) (00=OFF, 01=ON)
		02	55	see p. 12	PSK DECODE SET > Font Color (Receive)
		02	56	see p. 12	PSK DECODE SET > Font Color (Transmit)
		02	57	see p. 12	PSK DECODE SET > Font Color (Time Stamp)
		02	58	see p. 12	PSK DECODE SET > Font Color (TX Buffer)
		02	59	00 or 01	PSK DECODE LOG > Decode Log (00=OFF, 01=ON)
		02	60	00 or 01	PSK DECODE LOG > Log Set > File Type (00=Text, 01=HTML)
		02	61	00 or 01	SCAN SET > SCAN Speed (00=SLow, 01=Fast)
		02	62	00 or 01	SCAN SET > SCAN Resume (00=OFF, 01=ON)
		02	63	00 00 ~ 02 55	VOICE TX > TX LEVEL (00 00=0%, 02 55=100%)
		02	64	00 or 01	VOICE TX SET > Auto Monitor (00=OFF, 01=ON)
		02	65	01 ~ 15	VOICE TX SET > Repeat Time (01=1 sec. ~ 15=15 sec.)
		02	66	00 or 01	Recorder Set > REC Mode (00=TX&RX, 01=RX Only)
		02	67	00 or 01	Recorder Set > TX REC Audio (00=Direct, 01=Monitor)
		02	68	00 or 01	Recorder Set > RX REC Condition (00=Always, 01=Squelch Auto)
		02	69	00 or 01	Recorder Set > File Split (00=OFF, 01=ON)

Cmd.	Sub cmd.			Data	Description
1A*	05	02	70	00 or 01	Recorder Set > PTT Auto REC (00=OFF, 01=ON)
		02	71	00 ~ 03	Recorder Set > PRE-REC for PTT Auto REC (00=OFF, 01=5 sec., 02=10 sec., 03=15 sec.)
		02	72	00 ~ 03	Player Set > Skip Time (00=3 sec., 01=5 sec., 02=10 sec., 03=30 sec.)
		02	73	05 ~ 30	Instant Replay Set > REC Time (05=5 sec., ~ 30=30 sec.)
		02	74	03 ~ 10	Instant Replay Set > Play Time (03=3 sec., ~ 10=10 sec.)
		02	75	00 or 01	TYPE SET > RX-ANT Connectors (00=Connect a receive antenna, 01=Connect an external device)
		02	76	see p. 13	ANTENNA MEMORY (0.03 MHz ~ 1.60 MHz)
		02	77	see p. 13	ANTENNA MEMORY (1.60 MHz ~ 2.00 MHz)
		02	78	see p. 13	ANTENNA MEMORY (2.00 MHz ~ 6.00 MHz)
		02	79	see p. 13	ANTENNA MEMORY (6.00 MHz ~ 8.00 MHz)
		02	80	see p. 13	ANTENNA MEMORY (8.00 MHz ~ 11.00 MHz)
		02	81	see p. 13	ANTENNA MEMORY (11.00 MHz ~ 15.00 MHz)
		02	82	see p. 13	ANTENNA MEMORY (15.00 MHz ~ 20.00 MHz)
		02	83	see p. 13	ANTENNA MEMORY (20.00 MHz ~ 22.00 MHz)
		02	84	see p. 13	ANTENNA MEMORY (22.00 MHz ~ 26.00 MHz)
		02	85	see p. 13	ANTENNA MEMORY (26.00 MHz ~ 30.00 MHz)
		02	86	see p. 13	ANTENNA MEMORY (30.00 MHz ~ 45.00 MHz)
		02	87	see p. 13	ANTENNA MEMORY (45.00 MHz ~ 60.00 MHz)
		02	88	00 or 01	Temporary memory (TEMP-M) function (00=OFF, 01=ON)
		02	89	00 ~ 02	Send the Antenna selection mode ([ANT] SW) (00=OFF, 01=Manual, 02=Auto)
		02	90	00 ~ 09	NB depth (00=1 ~ 09=10)
		02	91	00 00 ~ 02 55	NB width (00 00=1 ~ 02 55=100)
		02	92	00 ~ 20	VOX delay (00=0.0 sec. ~ 20=2.0 sec.; 0.1 sec steps)
		02	93	00 ~ 03	VOX voice delay (00=OFF, 01=Short, 02=Mid, 03=Long)
		02	94	00 or 01	APF > TYPE (00=SHARP, 01=SOFT)
		02	95	00 ~ 06	APF > AF LEVEL (00=0 dB ~ 06=6 dB)
		02	96	see p. 12	Tone Control/TBW > TX > SSB-D TX passband width
		02	97	00 or 01	Connectors > USB SEND/Keying Inhibit Timer at USB connection (00=OFF, 01=ON)
		02	98	see p. 12	SCOPE > Fixed Edges > 0.03 – 1.60 No.4
		02	99	see p. 12	SCOPE > Fixed Edges > 1.60 – 2.00 No.4
		03	00	see p. 12	SCOPE > Fixed Edges > 2.00 – 6.00 No.4
		03	01	see p. 12	SCOPE > Fixed Edges > 6.00 – 8.00 No.4
		03	02	see p. 12	SCOPE > Fixed Edges > 8.00 – 11.00 No.4
		03	03	see p. 12	SCOPE > Fixed Edges > 11.00 – 15.00 No.4
		03	04	see p. 12	SCOPE > Fixed Edges > 15.00 – 20.00 No.4
		03	05	see p. 12	SCOPE > Fixed Edges > 20.00 – 22.00 No.4
		03	06	see p. 12	SCOPE > Fixed Edges > 22.00 – 26.00 No.4
		03	07	see p. 12	SCOPE > Fixed Edges > 26.00 – 30.00 No.4
		03	08	see p. 12	SCOPE > Fixed Edges > 30.00 – 45.00 No.4
		03	09	see p. 12	SCOPE > Fixed Edges > 45.00 – 60.00 No.4
		03	10	00 or 01	Send/read the IC-PW2 Dual Connection Mode setting (00=OFF, 01=ON)
	06			see p. 12	DATA mode with filter set
	07			00 or 01	NTP server access (00=Terminate, 01=Initiate)
	08*5			00 ~ 02	Read NTP server access result (00=Accessing, or have not accessed after Power ON, 01=Succeeded, 02=Failed)
	09 ㉙			00 or 01	AF Mute (00=OFF, 01=ON)
	0A ㉙			00 or 01	Read the OVF indicator status (00=OFF, 01=ON)
1B*	00			see p. 13	Repeater tone frequency
㉙	01			see p. 13	TSQL tone frequency

◇ Command table

Cmd.	Sub cmd.	Data	Description
1C	00*1	00 or 01	Transceiver's status (00=RX, 01=TX) *When “CI-V Output (for ANT)” (Command: 1C 04) is set to “ON,” automatically outputs when changed.
	01*1	00 ~ 02	Antenna tuner (00=OFF, 01=ON, 02=Tune)
	02*1	00 or 01	Transmit frequency monitor (XFC) (00=OFF, 01=ON)
	03	see p. 10	Read transmit frequency (When “CI-V Output (for ANT)” (Command: 1C 04) is set to “ON,” automatically outputs when changed.)
	04*1	00 or 01	CI-V Output (for ANT) (00=OFF, 01=ON)
1E	00		Read number of available TX frequency band
	01	see p. 10	Read TX band edge frequencies
	02		Read number of user-set TX frequency band
	03*	see p. 10	Send/read user-set TX band edge frequencies
21*	00	see p. 13	RIT frequency
	01	00 or 01	RIT setting (00=OFF, 01=ON)
	02	00 or 01	⊿TX setting (00=OFF, 01=ON)
25*		see p. 13	Send/read the main or sub band frequency
26*		see p. 13	Send/read the operating mode and filter setting (for both Main and Sub bands)
27*	00	see p. 14	Read the Scope waveform data • Only when “Scope ON/OFF status” (Command: 27 10) and “Scope data output” (Command: 27 11) are set to “ON,” outputs the waveform data to the controller.
	10	00 or 01	Scope ON/OFF status (00=OFF, 01=ON)
	11*7	00 or 01	Scope wave data output (00=OFF, 01=ON)
	12	00 or 01	Main or Sub scope setting (00=Main, 01=Sub)
	13	00 or 01	Single/Dual scope setting (00=Single, 01=Dual)
	14	see p. 14	Scope Center mode, Fixed mode, SCROLL-C mode, or SCROLL-F mode setting
	15	see p. 14	Span setting in the Center mode or SCROLL-C mode Scope
	16	see p. 14	Edge number setting in the Fixed mode or SCROLL-F mode Scope
	17	see p. 14	Scope hold function ON or OFF
	19	see p. 15	Scope Reference level setting
	1A	see p. 15	Sweep speed setting
	1B	00 or 01	SCOPE > Scope during Tx (CENTER TYPE) (00=OFF, 01=ON)
	1C	00 ~ 02	SCOPE > CENTER Type Display (00=Filter center, 01=Carrier point center, 02=Carrier point center (Abs. Freq.))
	1D	see p. 15	Scope VBW setting
	1E	see p. 15	Scope Fixed edge frequencies
	1F	see p. 15	Scope RBW setting
	20	00 or 01	Marker Position (FIX Type/SCROLL Type) setting (00=Filter Center, 01=Carrier Point)
28		00 ~ 08	Voice TX Memory (00=Stop, 01=T1 ~ 08=T8)
29		00 or 01 + Supported commends see p. 15	Regardless of active/inactive the Main or Sub band, you can directly specify the Main or Sub band, and send/read the supported command settings. (00=MAIN, 01=SUB)

*Send/read data
㉙ Command 29 supported.

*1 If the Antenna Type is set to “RX-I/O,” command “01 (RX ANT ON)” is invalid and “00 (RX ANT OFF)” is always returned.

*2 If the Antenna Type is set to “RX-ANT,” command “01 (ON)” is invalid and “00 (OFF)” is always returned.

*3 In the CW mode, if the [TRANSMIT] or an external TX switch is ON, or the Break-in function is ON, a message will be transmitted as CW code when you send it from your PC.

*4 When sending the power ON command (18 01), you need to repeatedly send “FE” before the standard format. The following is the approximate number of needed repetitions.
- 115200 bps: 150 “FE”s
- 57600 bps: 75 “FE”s
- 38400 bps: 50 “FE”s
- 19200 bps: 25 “FE”s
- 9600 bps: 13 “FE”s
- 4800 bps: 7 “FE”s

Example: When using 4800 bps

	Preamble				7610's address		Controller's address		Command		Sub command		Post amble	
F	**E**	F	E	F	E	9	8	E	0	1	8	0	1	F	D

×7

*5 Read only data
*6 To insert a counter, first clear the other channel's counter.
*7 When you use the [USB 1] port, you need to select “Unlink from [REMOTE]” in the “CI-V USB port” item, and you need to select “115200” in the “CI-V Baud Rate” item.

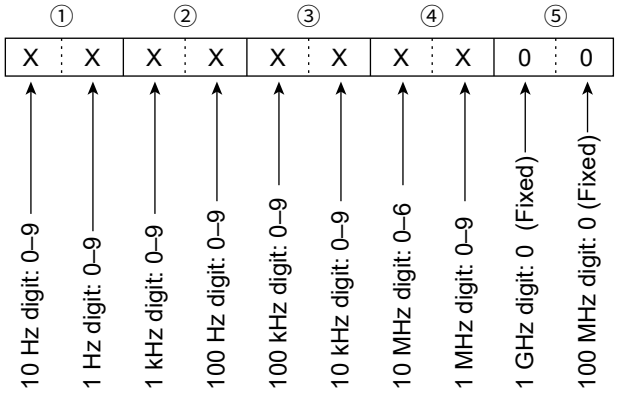
MENU » SET > Connectors > **CI-V**

You can use the [LAN] port, regardless of those settings. You cannot use the [REMOTE] terminal, regardless of those settings.

◇ Command formats

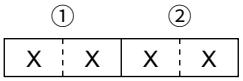
• Operating frequency

Command: 00, 03, 05, 1C 03



• Operating mode

Command: 01, 04, 06



①Receiving mode		②Filter setting
00:LSB	05:FM	01:FIL1
01:USB	07:CW-R	02:FIL2
02:AM	08:RTTY-R	03:FIL3
03:CW	12:PSK	—
04:RTTY	13:PSK-R	—

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

• Codes for CW message contents

Command: 17 Up to 30 characters

To send CW messages, use the following character codes.

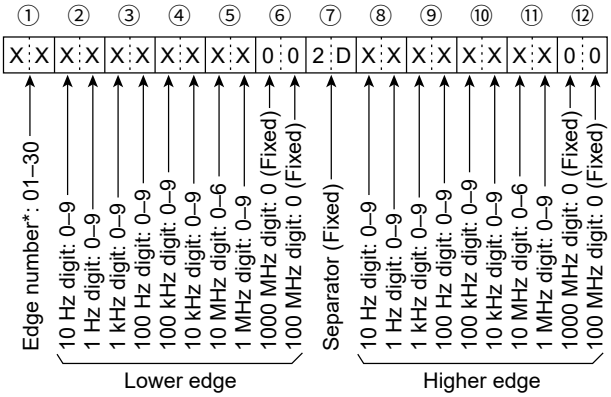
Character	ASCII code	Character	ASCII code
0–9	30–39	’	27
A–Z	41–5A	(	28
a–z	61–7A	)	29
/	2F	=	3D
?	3F	+	2B
.	2E	”	22
−	2D	@	40
,	2C	Space	20
:	3A		

ⓘ“FF” stops sending CW messages.

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

• Band edge frequency settings

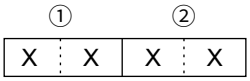
Command: 02*, 1E 01, 1E 03



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

• Band stacking register

Command: 1A 01



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

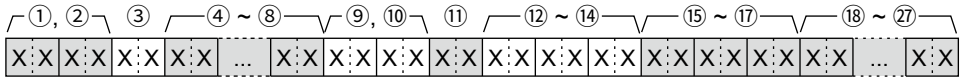
② Register codes

Code	Registered number
01	1 (latest)
02	2
03	3 (oldest)

For example, when sending/reading the oldest contents in the 21 MHz band, the code “07 03” is used.

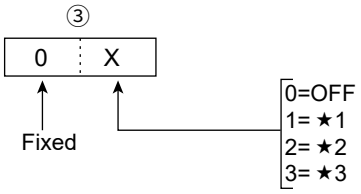
◇ Command formats

• Memory content
Command: 1A 00



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

③ Select memory setting

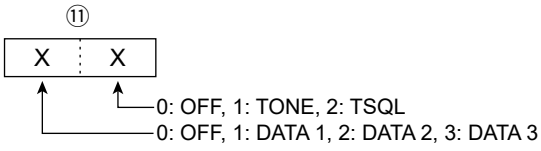


ⓘSet 0 for P1 and P2.

④ ~ ⑧ Operating frequency setting
See "• Operating frequency."

⑨, ⑩ Operating mode setting
See "• Operating mode."

⑪ Data mode and tone type settings



⑫ ~ ⑭ Repeater tone frequency setting
⑮ ~ ⑰ Tone squelch frequency setting
See "• Repeater tone/tone squelch settings."

⑱ ~ ㉗ Memory name settings
Up to 10 characters.
See "• Codes for character entries."

To clear the memory channel contents on 1A 00:
①, ②: Memory channel (00 01~00 99)
③: "FF"
④: None

• Codes for character entries
Command: 1A 00,
1A 05 01 33, 01 40, 01 55, 01 61,
01 65

- 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

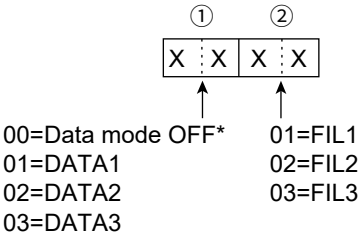
Character	ASCII code	Character	ASCII code
!	21	#	23
$	24	%	25
&	26	\	5C
?	3F	”	22
’	27	`	60
^	5E	+	2B
−	2D	✱	2A
/	2F	.	2E
,	2C	:	3A
;	3B	=	3D
<	3C	>	3E
(	28	)	29
[	5B	]	5D
{	7B	}	7D
|	7C	_	5F
~	7E	@	40

Cmd.	Sub cmd.			Set item/selectable characters
1A	00			Memory name*
	05	01	33	Network > Network Name (up to 15 characters) A to Z, 0 to 9, - _
		01	40	Network > Network Radio Name* (up to 16 characters) ⓘIllegal characters: \
		01	55	Display > My Call (up to 10 characters) A to Z, 0 to 9, (space), / @ - .
		01	61	Time Set > Date/Time > NTP Server Address A to Z, a to z, 0 to 9, - .
		01	65	Time Set > CLOCK2 Name* (up to 3 characters)

* Usable characters: A to Z, a to z, 0 to 9, (space), ! “ # $ % & ‘ ( ) * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | } ~

◇ Command formats

• Data mode with filter width settings
Command: 1A 06



*When 00 is set, also set 00 to ②

• IF filter width settings
Command: 1A 03

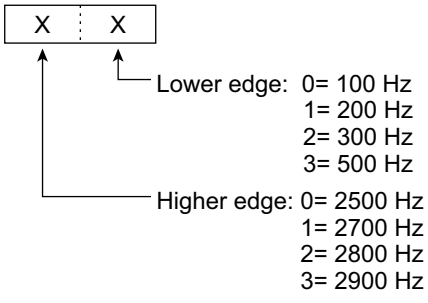
Mode	Data	Steps
SSB/CW/RTTY/PSK	00 ~ 09	50 ~ 500 Hz (50 Hz)
SSB/CW/PSK	10 ~ 40	600 Hz ~ 3.6 kHz (100 Hz)
RTTY	10 ~ 31	600 ~ 2.7 kHz (100 Hz)
AM	00 ~ 49	200 Hz ~ 10.0 kHz (200 Hz)

• AGC time constant settings
Command: 1A 04

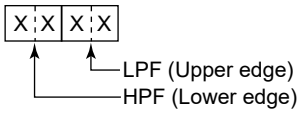
Data	AGC time constant (sec.)	
	SSB/CW/RTTY/PSK	AM
00	OFF	OFF
01	0.1	0.3
02	0.2	0.5
03	0.3	0.8
04	0.5	1.2
05	0.8	1.6
06	1.2	2.0
07	1.6	2.5
08	2.0	3.0
09	2.5	4.0
10	3.0	5.0
11	4.0	6.0
12	5.0	7.0
13	6.0	8.0

• SSB transmission passband width settings
Command: 1A 05 00 15, 00 16, 00 17

• SSB-DATA transmission passband width setting
Command: 1A 05 02 96



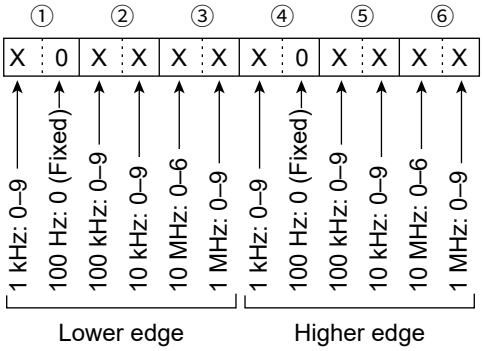
• RX HPF/LPF setting for each operating mode
Command: 1A 05 00 01, 00 04, 00 07,
00 10, 00 11, 00 12



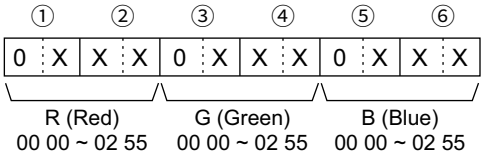
HPF		LPF	
00:	Through	05 ~ 24:	500~2400 Hz
01 ~ 20:	100 ~ 2000 Hz	25:	Through

*The value of the HPF should be smaller than the LPF.

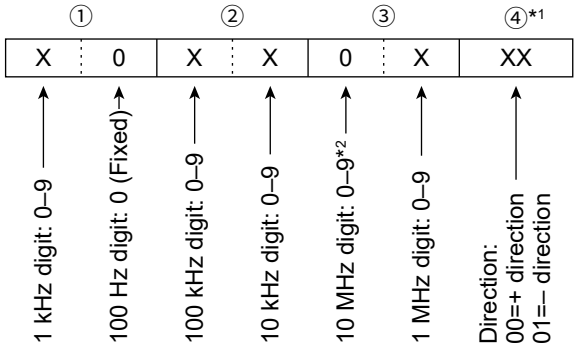
• Bandscope edge frequency settings
Command: 1A 05 01 82 ~ 02 17,
02 98 ~ 03 09



• Color settings
Command: 1A 05 01 72, 01 73, 01 74, 02 19,
02 21, 02 34, 02 43, 02 44,
02 45, 02 46, 02 50, 02 55,
02 56, 02 57, 02 58



• Offset frequency settings
Command: 1A 05 00 35, 00 36, 00 40



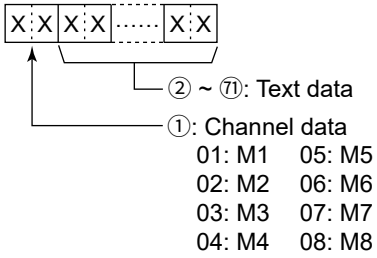
*1 No need to enter for transverter offset frequency setting.
*2 Transverter offset only. Fix to '0' for split offset setting.

◇ Command formats

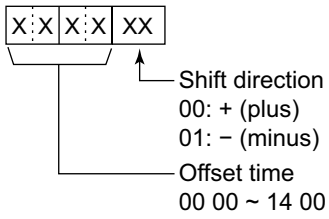
• Memory keyer character entries
Command: 1A 02
- Character codes

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 $\overline{BT}$, enter ^4254
*	2A	Inserts contest number (can be used for 1 channel only)

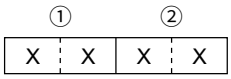
• Memory keyer content
Command: 1A 02



• UTC Offset setting
Command: 1A 05 01 62, 01 64

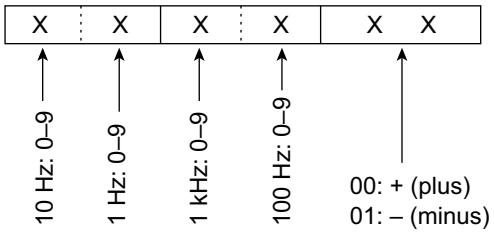


• Antenna memory settings
Command: 1A 05 02 76 ~ 02 87

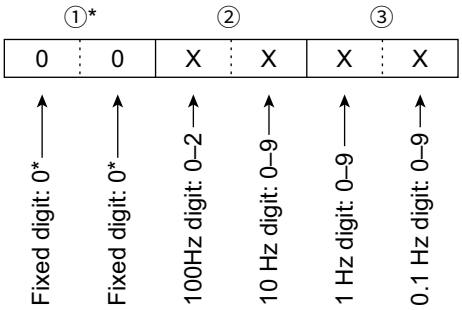


①ANT1/ANT2	②RX-ANT or RX-I/O
00:ANT 1	00:RX-ANT or RX-I/O OFF
01:ANT 2	00:RX-ANT or RX-I/O ON* *Depending on the selected antenna type.

• RIT frequency settings
Command: 21 00

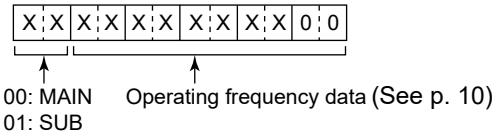


• Repeater tone/tone squelch frequency settings
Command: 1B 00, 1B 01

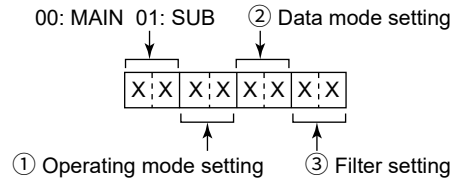


*Not necessary when setting a frequency.

• Main or Sub band's frequency settings
Command: 25



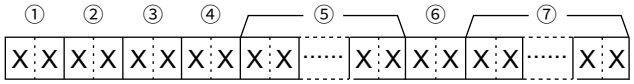
• Main or Sub band's operating mode and filter settings
Command: 26
Both data and filter settings can be skipped. In that case, "DATA OFF" and the default filter setting of the operating mode are automatically selected.



① Operating mode		② Data mode setting	③ Filter setting
00: LSB	05: FM	00: Data mode OFF	01: FIL1
01: USB	07: CW-R	01: Data mode 1 (D1)	02: FIL2
02: AM	08: RTTY-R	02: Data mode 2 (D2)	03: FIL3
03: CW	12: PSK	03: Data mode 3 (D3)	
04: RTTY	13: PSK-R		

◇ Command formats

• Scope waveform data
Command: 27 00
Outputs the waveform data to the controller



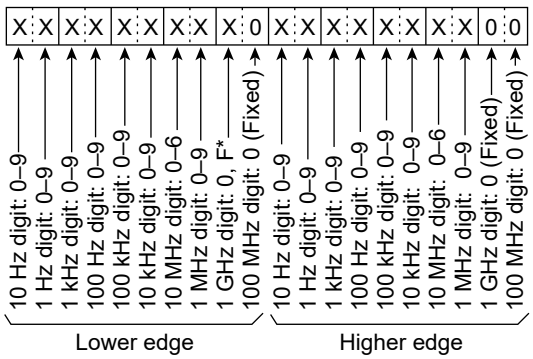
① Main or Sub scope data
• 00=Main scope, 01=Sub scope
② Order of division data (Current)
③ Division number (01 or 15)
When data is sent to the controller through the LAN port, all data is sent together. However, when the data is sent through the USB port, the data is divided by 15 and sent in sequential order.

	Division number	Data length	
LAN	01	704	
USB	15	1st data	15
		2nd or later data	53
		15th data	42

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) with 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 10 for Operating frequency data, and the Scope span settings to the right.
• In the Fixed, SCROLL-C, and SCROLL-F modes:
Lower edge and higher edge frequencies are sent.

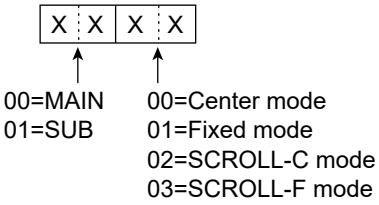


* “F” means that the Lower edge frequency is a negative value.

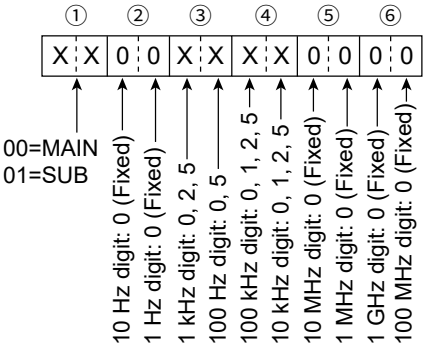
⑥ Out of range information
• 00 = In range
• 01 = Out of range
ⓘIf the scope data is out of range, the waveform data (⑦) is omitted.

⑦ Waveform data
The transceiver outputs the drawn waveform data. The data range or data length of the waveform data is judged by the controller. (The data range is basically the same as the display size of the scope on the controller.)
• Data range: 00 ~ C8 (0 ~ 200)
• Data length: 689

• Spectrum scope mode settings
Command: 27 14

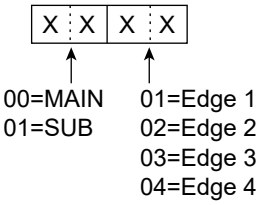


• Scope span settings
(in the Center mode and SCROLL-C mode Scope)
Command: 27 15

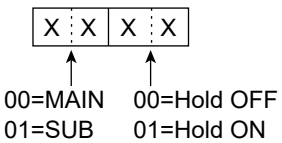


Span (kHz)	
2500	2.5
5000	5
10000	10
25000	25
50000	50
100000	100
250000	250
500000	500

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

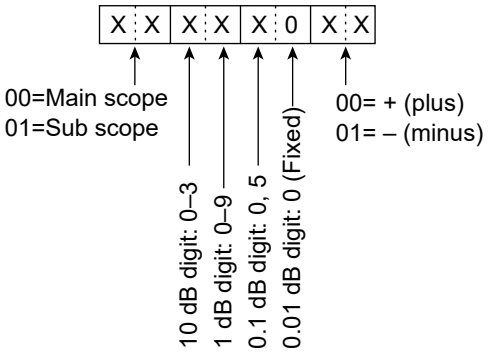


• Scope Hold settings
Command: 27 17



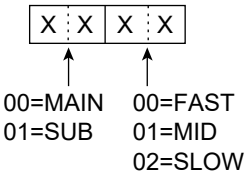
◇ Command formats

• Scope Reference level settings
Command: 27 19

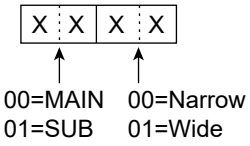


ⓘAdjustable range: –30.0 dB ~ +10.0 dB in 0.5 dB steps

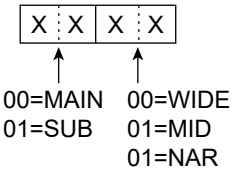
• Scope Sweep speed settings
Command: 27 1A



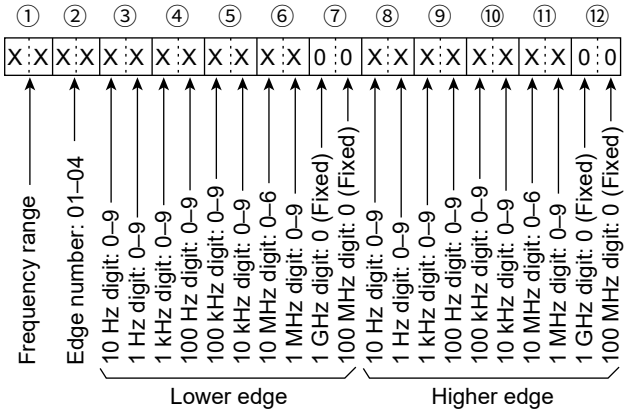
• Scope VBW (Video Band Width) settings
Command: 27 1D



• Scope RBW (Resolution Band Width) settings
Command: 27 1F



• Scope Fixed edge frequency settings
Command: 27 1E



ⓘEntry of less than 1 kHz digits is ignored.

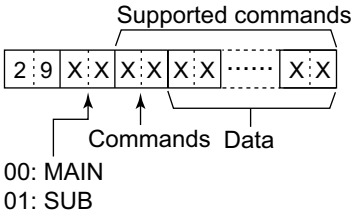
① Selectable Frequency ranges

Data	Frequency range (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

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

• Setting after directly specify the Main/Sub band
Command: 29

Specify the Main or Sub band before entering the supported commands.
When you receive the OK code (FB), or the NG code (FA), the Command 29 and Main/Sub specify (00 or 01) is omitted.



The supported commands are marked by "㉙" in the command table.

How the World Communicates



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