



CI-V REFERENCE GUIDE

VHF/UHF DUAL BAND TRANSCEIVER

**ID-5200A**

**ID-5200E**

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# REMOTE CONTROL

## Remote control (CI-V) information

### ◇Connecting to a PC

The transceiver's operating frequency and mode can be remotely controlled using a PC.  
The Icom Communications Interface V (CI-V) controls the transceiver.  
There are 2 ways to connect to a PC.

- Through a USB cable

① Use a proper cable according to your PC's USB port and make the connection as short as possible.

The transceiver may not be recognized by the controller, depending on the USB cable length.

Type-A to Type-C: OPC-2480 (Purchase separately) or user supplied

Type-C to Type-C: User supplied

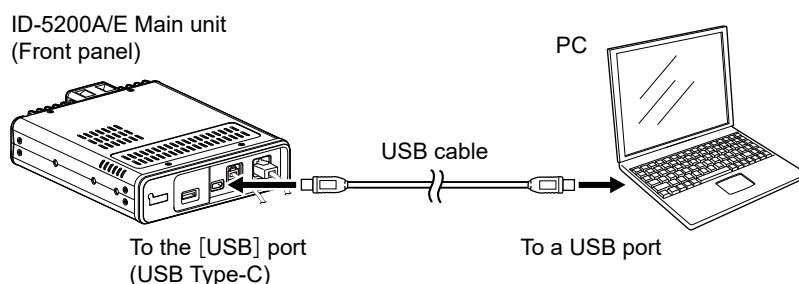
② Confirm your USB cable is usable for data transfer and not for charging only.

③ When connecting to a USB port on your PC with the USB driver installed, USB is named as "ID-5200 Serial Port."

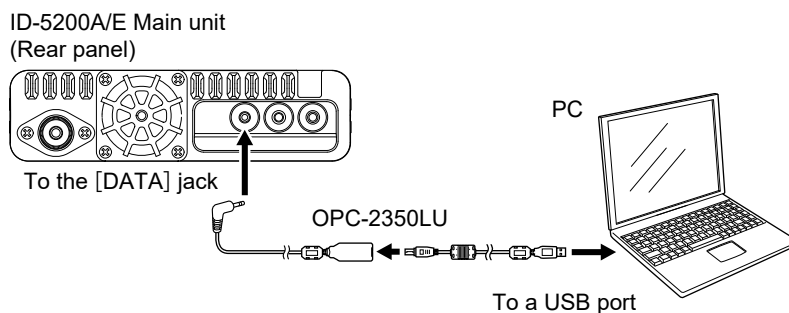
To use the USB cable between the transceiver and a PC, you must first install a USB driver.  
The latest USB driver and installation guide can be downloaded from the Icom website.

Carefully read the guide before installing the driver.

<https://www.icomjapan.com/support/>



- Through a data cable (OPC-2350LU (Purchase separately))



### Remote control (CI-V) information

#### ◇ CI-V data setting

To control the transceiver, first set the following items on the MENU screen.

① Refer to the Advanced manual for details on each menu item.

##### [MENU] > SET > Connectors > **CI-V**

Set its CI-V Address, CI-V Transceive\*<sup>1</sup>, CI-V DATA Baud Rate\*<sup>2</sup>, and CI-V USB Echo Back or CI-V DATA Echo Back\*<sup>3</sup> function.

\*<sup>1</sup> When “CI-V Transceive” is set to “ON,” the same change as your transceiver is automatically set on other connected transceivers or receivers, and vice versa.

\*<sup>2</sup> You need to select the baud rate in “CI-V DATA Baud Rate,” when you remotely control the transceiver through the [DATA] jack.

\*<sup>3</sup> Before connecting the USB cable or data cable to the PC, confirm the settings below.

- Through a USB cable  
Set “CI-V USB Echo Back” to “ON” or “OFF.”
- Through a data cable  
Set “CI-V DATA Echo Back” to “ON” or “OFF.”

##### [MENU] > SET > Connectors > **USB Connect**

Before connecting the USB cable to the PC, set “USB Connect” to “Serialport” (default).

##### [MENU] > SET > Connectors > Serialport Function > **DATA Function**

Before connecting the data cable to the PC, set “DATA Function” to “CI-V.”

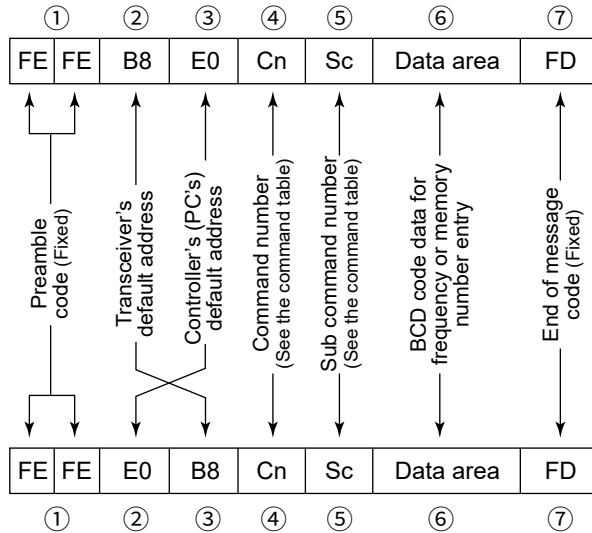
## REMOTE CONTROL

### Remote control (CI-V) information

#### ◇ Data format

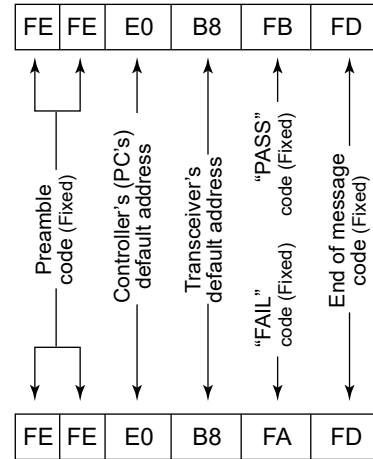
The CI-V system can be written using the following data formats. Data formats differ according to command numbers. A data area or sub command is added for some commands.

##### Controller (PC) to ID-5200A/E



##### ID-5200A/E to controller (PC)

##### “PASS” message to controller (PC)



##### “FAIL” message to controller (PC)

#### ◇ Command table

| Command | Sub | Data     | TM | Description                                                                                        |
|---------|-----|----------|----|----------------------------------------------------------------------------------------------------|
| 00      |     | See p. 6 | *4 | Send operating frequency for transceiver                                                           |
| 01      |     | See p. 6 | *4 | Send operating mode for transceiver (02=AM, 05=FM, 17=DV)                                          |
| 03      |     | See p. 6 | *4 | Read operating frequency                                                                           |
| 04      |     | See p. 6 |    | Read operating mode                                                                                |
| 05      |     | See p. 6 | *4 | Send operating frequency                                                                           |
| 06      |     | See p. 6 | *4 | Send operating mode                                                                                |
| 07      |     |          |    | Select the VFO mode                                                                                |
|         | D0  |          |    | Select the A band<br>Dualwatch: Set the MAIN band as the A band<br>Single watch: Select the A band |
|         | D1  |          |    | Select the B band<br>Dualwatch: Set the MAIN band as the B band<br>Single watch: Select the B band |
|         | D2  | 00/01    |    | Read MAIN band setting (00=A band, 01=B band)                                                      |
| 0C      |     | See p. 6 |    | Read offset frequency*1                                                                            |
| 0D      |     | See p. 6 | *4 | Set offset frequency                                                                               |
| 0F      |     | 00/11/12 |    | Read duplex setting (00=OFF, 11=DUP-, 12=DUP+)                                                     |
|         | 10  |          |    | Set Simplex                                                                                        |
|         | 11  |          | *4 | Set Duplex -                                                                                       |
|         | 12  |          | *4 | Set Duplex +                                                                                       |

| Command | Sub | Data          | TM | Description                                                                             |
|---------|-----|---------------|----|-----------------------------------------------------------------------------------------|
| 14*     | 01  | 00 00 ~ 02 55 |    | Send/read the audio level (00 00=Minimum ~ 01 28=Center ~ 02 55=Maximum)                |
|         | 03  | 00 00 ~ 02 55 | *4 | Send/read the squelch level (00 00=Minimum ~ 01 28=Center ~ 02 55=Maximum)              |
|         | 0A  | See p. 6      | *4 | Send/read the RF power setting                                                          |
|         | 0B  | See p. 6      |    | Send/read MIC gain                                                                      |
|         | 16  | See p. 6      |    | Send/read the VOX gain                                                                  |
| 15      | 01  | 00/01         |    | Read noise or S-meter squelch status (00=Close, 01=Open)                                |
|         | 02  | 00 00 ~ 02 55 | *4 | Read S-meter level (00 00=S0, 01 70=S9)                                                 |
|         | 05  | 00/01         |    | Read various squelch function's (including the tone squelch) status (00=Close, 01=Open) |
|         | 11  | 00 00 ~ 02 55 | *4 | Read the Po Meter Level (00 26=Low, 00 77=Mid, 02 55=High)                              |
| 16*     | 42  | 00/01         | *4 | Send/read the Repeater tone (00=OFF, 01=ON)                                             |
|         | 43  | 00 ~ 02       | *4 | Send/read the Tone squelch (00=OFF, 01=TSQL, 02=TSQL-R)                                 |
|         | 46  | 00/01         |    | Send/read the VOX function (00=OFF, 01=ON)                                              |
|         | 4B  | 00 ~ 02       | *4 | Send/read the DTCS function (00=OFF, 01=DTCS, 02=DTCS-R)                                |

\*(Asterisk) Send/read data

## REMOTE CONTROL

### Remote control (CI-V) information

#### ◇ Command table

| Command | Sub  | Data     | TM       | Description                                                                                                                                                                  |
|---------|------|----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16*     | 59   | 00       |          | Send/read SUB band OFF                                                                                                                                                       |
|         |      | 01       |          | Send/read SUB band ON                                                                                                                                                        |
|         | 5B   | 00 ~ 02  |          | Send/read the DSQL (Digital Call Sign squelch)/CSQL (Digital Code squelch) setting (DV mode only) (00=OFF, 01=DSQL, 02=CSQL)                                                 |
|         | 5C   | 00 ~ 02  |          | Send/read the GPS TX mode (00=OFF, 01=D-PRS, 02=NMEA)                                                                                                                        |
|         | 5D   | 00 ~ 09  | *4       | Send/read the Tone squelch function (00=OFF, 01=TONE, 02=TSQL, 03=DTCS, 04=TSQL-R, 05=DTCS-R, 06=DTCS (T), 07=TONE (T)/DTCS (R), 08=DTCS (T)/TSQL (R), 09=TONE (T)/TSQL (R)) |
| 18      | 00   |          |          | Turn OFF the transceiver                                                                                                                                                     |
|         | 01*2 |          |          | Turn ON the transceiver                                                                                                                                                      |
| 19      | 00   |          |          | Read the transceiver ID                                                                                                                                                      |
| 1A      | 00   | 00/01*5  |          | Set the KISS mode (00=OFF, 01=ON)                                                                                                                                            |
| 1B*     | 00   | See p. 6 | *4       | Send/read the Repeater tone frequency                                                                                                                                        |
|         | 01   | See p. 6 | *4       | Send/read the TSQL tone frequency                                                                                                                                            |
|         | 02   | See p. 7 | *4       | Send/read the DTCS code and polarity                                                                                                                                         |
|         | 07   | See p. 7 |          | Send/read the CSQL code (DV mode)                                                                                                                                            |
| 1C*     | 00   | 00/01    |          | Send/read the transceiver's status (00=RX, 01=TX)                                                                                                                            |
| 1F*     | 00   | See p. 7 |          | Send/read the My Call Sign setting                                                                                                                                           |
|         | 01   | See p. 7 |          | Send/read the DV TX Callsign setting                                                                                                                                         |
|         | 02   | See p. 8 |          | Send/read the DV TX Message setting                                                                                                                                          |
| 20      | 00   | 00*      | 00/01*3  | Send/read the Auto DV RX Call signs output (00=OFF, 01=ON)                                                                                                                   |
|         |      | 01       | See p. 8 | Output DV RX Call signs for transceive                                                                                                                                       |
|         |      | 02       | See p. 8 | Read Auto DV RX Call signs                                                                                                                                                   |
|         | 01   | 00*      | 00/01*3  | Send/read the Auto DV RX message output (00=OFF, 01=ON)                                                                                                                      |
|         |      | 01       | See p. 9 | Output DV RX message for transceive                                                                                                                                          |
|         |      | 02       | See p. 9 | Read Auto DV RX message                                                                                                                                                      |
|         | 02   | 00*      | 00/01*3  | Send/read the Auto DV RX status output (00=OFF, 01=ON)                                                                                                                       |
|         |      | 01       | See p. 9 | Output DV RX status for transceive                                                                                                                                           |
|         |      | 02       | See p. 9 | Read Auto DV RX status                                                                                                                                                       |
|         |      |          |          |                                                                                                                                                                              |

| Command | Sub | Data  | TM              | Description                                                                                   |
|---------|-----|-------|-----------------|-----------------------------------------------------------------------------------------------|
| 20      | 03  | 00*   | 00/01           | Send/read the Auto DV RX GPS/D-PRS data output (00=OFF, 01=ON)                                |
|         |     | 01    | See p. 9 and 11 | Output DV RX GPS/D-PRS data for transceive                                                    |
|         |     | 02    | See p. 9 and 11 | Read DV RX GPS/D-PRS data for transceive                                                      |
|         | 04  | 00*   | 00/01           | Send/read Auto DV RX GPS/D-PRS message output (00=OFF, 01=ON)                                 |
|         |     | 01    | See p. 12       | Output DV RX D-PRS message for transceive                                                     |
|         |     | 02    | See p. 12       | Read Auto DV RX D-PRS message status                                                          |
| 22      | 00  |       | See p. 12       | Set the DV TX data (Up to 30 byte)                                                            |
|         |     | 01    | 00/01           | Set the Auto DV RX data output (00=OFF, 01=ON)                                                |
|         | 01  |       | See p. 12       | Set the DV RX data for transceive (Up to 30 byte)                                             |
|         |     | 02*   | 00/01           | Send/read DV data TX setting (00=PTT, 01=Auto)                                                |
|         | 03* | 00/01 |                 | Send/read DV fast data setting (00=OFF, 01=ON)                                                |
|         | 04* | 00/01 |                 | Send/read GPS Data Speed setting (00=Slow, 01=Fast)                                           |
| 23      | 00  |       | See p. 12       | Set the DV TX Delay (PTT) setting (00=OFF, 01=1 sec. ~ 10=10 sec.)                            |
|         |     | 01*   | 00 ~ 03         | Read the position status                                                                      |
|         |     | 02*   | See p. 12       | Send/read the GPS Select setting (00=OFF, 01=Internal GPS, 02=External GPS (DATA), 03=Manual) |
|         | 02* |       | See p. 12       | Send/read the manually input position data                                                    |
| 24      | 00  | 00*   | 00/01           | Send/read TX output power setting (00=OFF, 01=ON)                                             |
|         |     | 01    | 00/01           | Set the TX output power for transceive (00=OFF, 01=ON)                                        |

\*(Asterisk) Send/read data

\*1 Less than 100 Hz is omitted.

\*2 When sending the power ON command (18 01) using the [DATA] jack, the command "FE" must be sent before the basic format.

The following is the approximate number of needed repetitions.

- 4800 bps: 230 "FE"s
- 9600 bps: 450 "FE"s
- 19200 bps: 900 "FE"s

Example: When operating with 4800 bps

|       |       |       |       |       |       |       |       |   |
|-------|-------|-------|-------|-------|-------|-------|-------|---|
|       |       | ①     |       | ②     | ③     | ④     | ⑤     | ⑦ |
| F   E | F   E | F   E | B   8 | E   0 | 1   8 | 0   1 | F   D |   |

×230

- ① Preamble code (Fixed)
- ② Transceiver's default address
- ③ Controller's default address
- ④ Command number
- ⑤ Sub command number
- ⑦ End of message code (Fixed)

\*3 Output setting is automatically set to OFF after turning OFF the transceiver.

\*4 Cannot be set in the Terminal mode (TM).

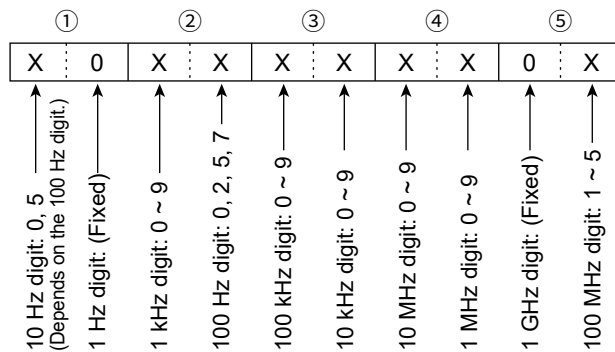
\*5 Can be set when the operating mode of the band selected in "Data Band" is FM or FM-N.

## Remote control (CI-V) information

### ◇ Command formats

#### • Operating frequency

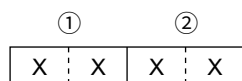
Command: 00, 03, 05



① When the 100 Hz digit is 2 or 7, the 10 Hz digit is fixed to 5 and is fixed to 0 otherwise.

#### • Operating mode

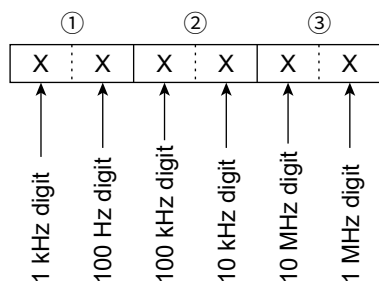
Command: 01, 04, 06



| Receive mode | ① Operating mode | ② Filter setting |
|--------------|------------------|------------------|
| AM           | 02               | 01               |
| AM-N         | 02               | 02               |
| FM           | 05               | 01               |
| FM-N         | 05               | 02               |
| DV           | 17               | 01               |

#### • Offset frequency setting

Command: 0C, 0D



#### • RF power setting

Command: 14 0A

| Low           | Mid           | High          |
|---------------|---------------|---------------|
| 00 00 ~ 00 84 | 00 85 ~ 01 70 | 01 71 ~ 02 55 |

#### • MIC gain setting

Command: 14 0B

| 1             | 2             | 3             | 4             |
|---------------|---------------|---------------|---------------|
| 00 00 ~ 00 63 | 00 64 ~ 01 27 | 01 28 ~ 01 91 | 01 92 ~ 02 55 |

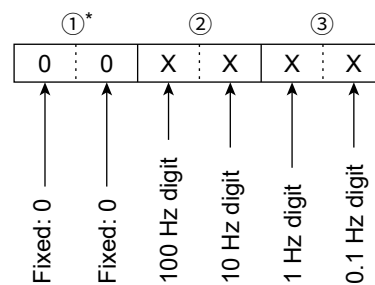
#### • VOX gain setting

Command: 14 16

| OFF           | 1             | 2             | 3             |
|---------------|---------------|---------------|---------------|
| 00 00 ~ 00 22 | 00 23 ~ 00 46 | 00 47 ~ 00 69 | 00 70 ~ 00 92 |
| 4             | 5             | 6             | 7             |
| 00 93 ~ 01 15 | 01 16 ~ 01 39 | 01 40 ~ 01 62 | 01 63 ~ 01 85 |
| 8             | 9             | 10            |               |
| 01 86 ~ 02 08 | 02 09 ~ 02 32 | 02 33 ~ 02 55 |               |

#### • Repeater tone/tone squelch frequency setting

Command: 1B 00, 1B 01



\*No input required when setting the frequency.

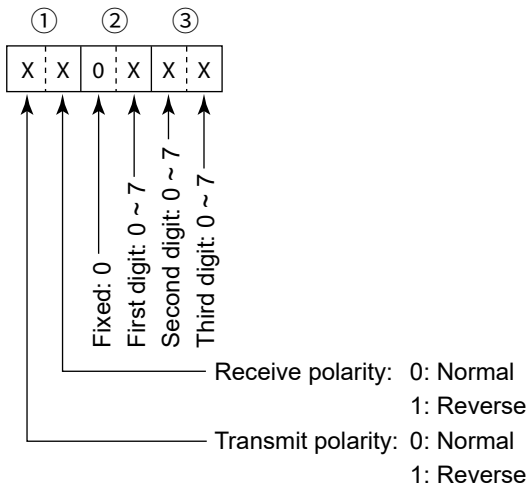
Refer to the Advanced manual for the tone frequency list.

Remote control (CI-V) information

◇ Command formats

• DTCS code and polarity setting

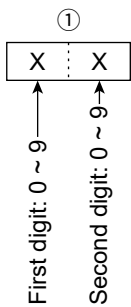
Command: 1B 02



Refer to the Advanced manual for the DTCS code list.

• Digital code squelch setting

Command: 1B 07

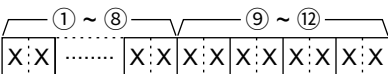


• DV MY call sign setting

Command: 1F 00

Set your own call sign and note of up to 12 characters.

See “Character’s code of the call sign.”



① ~ ⑧: Your own call sign setting (8 characters)

⑨ ~ ⑫: Note setting (4 characters)

① In Terminal mode, the settings for “My Call Sign (TM)” are sent or read.

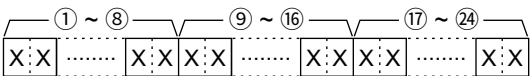
• DV TX call signs setting

(24 characters or 8 characters)

Command: 1F 01

Set “UR,” “R1,” and “R2” call signs of 8 characters (fixed), or only the “UR” call sign. See “Character’s code of the call sign.”

When setting “UR,” “R1,” and “R2” call signs

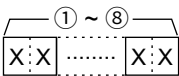


① ~ ⑧: UR (Destination) call sign setting (8 characters)

⑨ ~ ⑫: R1 (Access/Area repeater) call sign setting (8 characters)

⑬ ~ ⑯: R2 (Link/Gateway repeater) call sign setting (8 characters)

When setting only the “UR” call sign



① ~ ⑧: UR (Destination) call sign setting (8 characters)

Character’s code of the call sign

| Character | ASCII code |
|-----------|------------|
| 0 ~ 9     | 30 ~ 39    |
| A ~ Z     | 41 ~ 5A    |
| (Space)   | 20         |
| /         | 2F         |



## Remote control (CI-V) information

### ◇ Command formats

#### • DV TX message setting

Command: 1F 02

Set the transmit message of up to 20 characters.

See “Codes for character entries.”

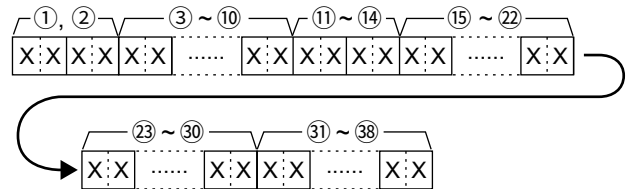
“FF” stops sending or reading messages.

#### Codes for character entries

| Character | ASCII code | Character | ASCII code |
|-----------|------------|-----------|------------|
| A ~ Z     | 41 ~ 5A    | a ~ z     | 61 ~ 7A    |
| 0 ~ 9     | 30 ~ 39    | Space     | 20         |
| !         | 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         |

#### • DV RX call sign data

Command: 20 00 01, 00 02



#### ①: Header flag data (First byte)

| Data            | Description                  |
|-----------------|------------------------------|
| bit7 (0: Fixed) | —                            |
| bit6 (0: Fixed) | —                            |
| bit5 (0: Fixed) | —                            |
| bit4 0/1        | 0=Voice, 1=Data              |
| bit3 0/1        | 0=Direct, 1=Through repeater |
| bit2 0/1        | 0=No Break-in, 1=Break-in    |
| bit1 0/1        | 0=Data, 1=Control            |
| bit0 0/1        | 0=Normal, 1=EMR              |

#### ②: Header flag data (Second byte)

| Data           | Description            |
|----------------|------------------------|
| bit2 bit1 bit0 |                        |
| 1 1 1          | Repeater control       |
| 1 1 0          | Send auto acknowledge  |
| 1 0 1          | (Not used)             |
| 1 0 0          | Request to re-transmit |
| 0 1 1          | Send acknowledge       |
| 0 1 0          | Receive no reply       |
| 0 0 1          | Repeater disabled      |
| 0 0 0          | NULL                   |

③ ~ ⑩: Call sign of the caller station  
(8 characters, fixed)

⑪ ~ ⑭: Note of the caller station  
(4 characters, fixed)

⑮ ~ ⑳: Call sign of the called station  
(8 characters, fixed)

㉓ ~ ㉙: Call sign of the access/area repeater (R1)  
(8 characters, fixed)

㉚ ~ ㉟: Call sign of the link/gateway repeater (R2)  
(8 characters, fixed)

See “Codes for character entries.”

①FF: When no call sign is received since the transceiver power was turned ON.

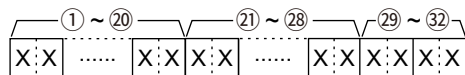
## REMOTE CONTROL

### Remote control (CI-V) information

#### ◇ Command formats

##### • DV RX message

Command: 20 01 01, 01 02



① ~ ②⑩: Message (20 characters)

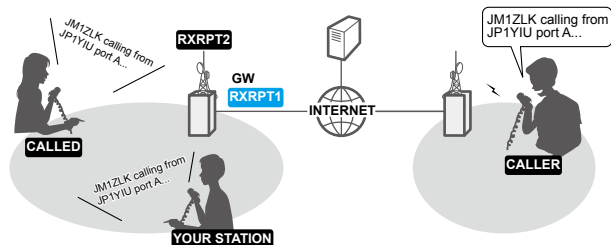
②⑪ ~ ②⑧: Call sign of the caller station (8 characters)

②⑨ ~ ③②: Note of the caller station (4 characters)

See "Codes for character entries." (p. 8)

①FF: When no call sign is received since the transceiver power was turned ON.

Example: When a Gateway call is received



CALLER: Caller's call sign

CALLED: Called station call sign

RXRPT1: Call sign of the repeater that was accessed by the caller station

① If it was a call through a gateway and the internet, this item displays the gateway call sign of the repeater you received the call from.

RXRPT2: Call sign of the repeater you received the call from

##### • DV RX Status setting

Command: 20 02 01, 02 02

| Data | Function  | Description                                                                                                          |
|------|-----------|----------------------------------------------------------------------------------------------------------------------|
| bit7 | 0 (Fixed) | —                                                                                                                    |
| bit6 | 0/1       | Receiving a voice call<br>While receiving a digital voice signal, select "1."<br>(Regardless of DSQ and CSQ setting) |
| bit5 | 0/1       | Last call finisher<br>When the last call was finished by you, select "1."                                            |
| bit4 | 0/1       | Receiving a signal<br>When the audio tone can be heard, select "1."                                                  |
| bit3 | 0/1       | Receiving a BK call<br>While receiving a BK call, select "1."                                                        |
| bit2 | 0/1       | Receiving a EMR call<br>While receiving a EMR call, select "1."                                                      |
| bit1 | 0/1       | Receiving a signal other than DV<br>When "DV" and "FM" are blinking, select "1."                                     |
| bit0 | 0/1       | Packet loss status<br>While displaying packet loss, "1" is returned.                                                 |

##### • GPS/D-PRS data

Command: 20 03 01 00, 01 01, 01 02, 01 03, 02 00, 02 01, 02 02, 02 03

##### Data number and description

| Data number | Description      |
|-------------|------------------|
| 00          | D-PRS — Position |
| 01          | D-PRS — Object   |
| 02          | D-PRS — Item     |
| 03          | D-PRS — Weather  |

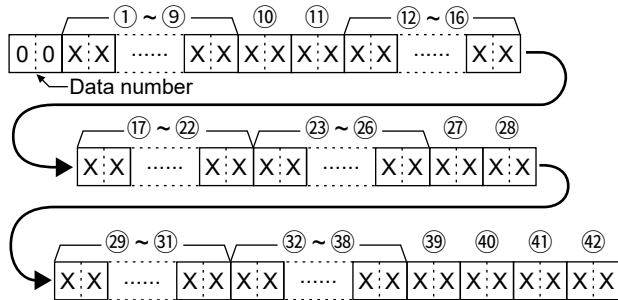
## Remote control (CI-V) information

### ◇ Command formats

- GPS/D-PRS data

#### Position

Command: 20 03 01 00, 02 00



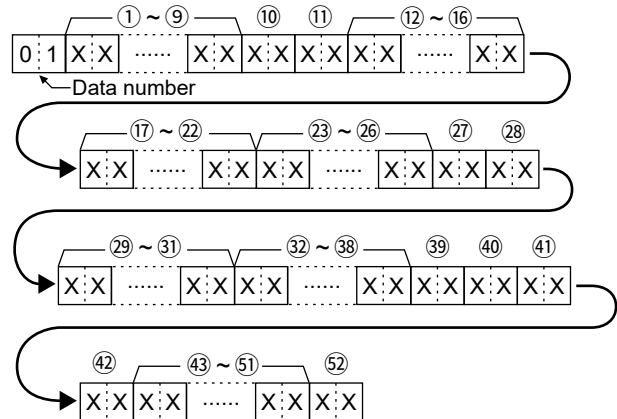
- ① ~ ⑨: Call sign/SSID  
(9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))  
⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))  
⑫ ~ ⑯: Latitude (dd°mm.mmm format)  
⑰ ~ ⑳: Longitude (ddd°mm.mmm format)  
㉓ ~ ㉖: Altitude (0.1 meter steps)  
㉗, ㉘: Course (1 degree steps)  
㉙ ~ ㉚: Speed (0.1 km/h steps)  
㉛ ~ ㉞: Date (UTC: YYYYMMDDhhmmss)  
(Y: Year, M: Month, D: Day,  
h: Hour, m: Minute, s: Second)  
㉟ ~ ㊲: See the table below.

|      | ㉟ Power | ㊰ Height  | ㊱ Gain | ㊲ Directivity  |
|------|---------|-----------|--------|----------------|
| Data | (W)     | (m/ft)    | (dB)   | (deg)          |
| 00   | 0       | 3/10      | 0      | Omni-direction |
| 01   | 1       | 6/20      | 1      | 45° NE         |
| 02   | 4       | 12/40     | 2      | 90° E          |
| 03   | 9       | 24/80     | 3      | 135° SE        |
| 04   | 16      | 49/160    | 4      | 180° S         |
| 05   | 25      | 98/320    | 5      | 225° SW        |
| 06   | 36      | 195/640   | 6      | 270° W         |
| 07   | 49      | 390/1280  | 7      | 315° NW        |
| 08   | 64      | 780/2560  | 8      | 360° N         |
| 09   | 81      | 1561/5120 | 9      | —              |

- ① The items that are not contained in the received data are filled with "FF."  
① FF: No signal has been received since the power was turned ON.

#### Object

Command: 20 03 01 01, 02 01



- ① ~ ⑨: Call sign/SSID  
(9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))  
⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))  
⑫ ~ ⑯: Latitude (dd°mm.mmm format)  
⑰ ~ ⑳: Longitude (ddd°mm.mmm format)  
㉓ ~ ㉖: Altitude (0.1 meter steps)  
㉗, ㉘: Course (1 degree steps)  
㉙ ~ ㉚: Speed (0.1 km/h steps)  
㉛ ~ ㉞: Date (UTC: YYYYMMDDhhmmss)  
(Y: Year, M: Month, D: Day,  
h: Hour, m: Minute, s: Second)  
㉟ ~ ㊲: See the table below.

|      | ㉟ Power | ㊰ Height  | ㊱ Gain | ㊲ Directivity  |
|------|---------|-----------|--------|----------------|
| Data | (W)     | (m/ft)    | (dB)   | (deg)          |
| 00   | 0       | 3/10      | 0      | Omni-direction |
| 01   | 1       | 6/20      | 1      | 45° NE         |
| 02   | 4       | 12/40     | 2      | 90° E          |
| 03   | 9       | 24/80     | 3      | 135° SE        |
| 04   | 16      | 49/160    | 4      | 180° S         |
| 05   | 25      | 98/320    | 5      | 225° SW        |
| 06   | 36      | 195/640   | 6      | 270° W         |
| 07   | 49      | 390/1280  | 7      | 315° NW        |
| 08   | 64      | 780/2560  | 8      | 360° N         |
| 09   | 81      | 1561/5120 | 9      | —              |

- ㉛ ~ ㉞: Name  
(9 ASCII characters (00h ~ EFh))  
㉟: Type (01= Live, 00= Killed)

- ① The items that are not contained in the received data are filled with "FF."  
① FF: No signal has been received since the power was turned ON.

## REMOTE CONTROL

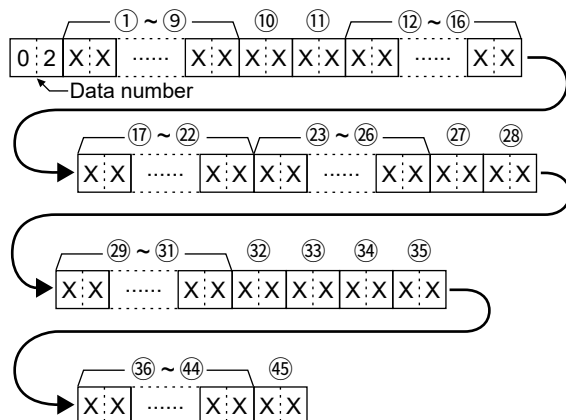
### Remote control (CI-V) information

#### ◇ Command formats

- GPS/D-PRS data

#### Item

Command: 20 03 01 02, 02 02



- ① ~ ⑨: Call sign/SSID  
(9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))  
 ⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))  
 ⑫ ~ ⑯: Latitude (dd°mm.mmm format)  
 ⑰ ~ ⑳: Longitude (ddd°mm.mmm format)  
 ㉓ ~ ㉖: Altitude (0.1 meter steps)  
 ㉗, ㉘: Course (1 degree steps)  
 ㉙ ~ ㉚: Speed (0.1 km/h steps)  
 ㉛ ~ ㉝: See the table below.

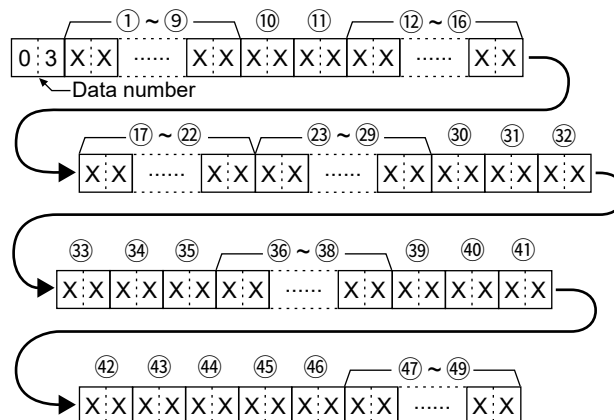
|      | ㉛ Power | ㉜ Height  | ㉝ Gain | ㉞ Directivity  |
|------|---------|-----------|--------|----------------|
| Data | (W)     | (m/ft)    | (dB)   | (deg)          |
| 00   | 0       | 3/10      | 0      | Omni-direction |
| 01   | 1       | 6/20      | 1      | 45° NE         |
| 02   | 4       | 12/40     | 2      | 90° E          |
| 03   | 9       | 24/80     | 3      | 135° SE        |
| 04   | 16      | 49/160    | 4      | 180° S         |
| 05   | 25      | 98/320    | 5      | 225° SW        |
| 06   | 36      | 195/640   | 6      | 270° W         |
| 07   | 49      | 390/1280  | 7      | 315° NW        |
| 08   | 64      | 780/2560  | 8      | 360° N         |
| 09   | 81      | 1561/5120 | 9      | —              |

- ㉞ ~ ㉟: Name  
(9 ASCII characters (00h ~ EFh))  
 ㊱: Type (01= Live, 00= Killed)

- ① The items that are not contained in the received data are filled with "FF."  
 ① FF: No signal has been received since the power was turned ON.

#### Weather

Command: 20 03 01 03, 02 03



- ① ~ ⑨: Call sign/SSID  
(9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))  
 ⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))  
 ⑫ ~ ⑯: Latitude (dd°mm.mmm format)  
 ⑰ ~ ⑳: Longitude (ddd°mm.mmm format)  
 ㉓ ~ ㉙: Date (UTC: YYYYMMDDhhmmss)  
(Y: Year, M: Month, D: Day, h: Hour, m: Minute, s: Second)  
 ㉚, ㉛: Wind direction (1 degree steps)  
 ㉜, ㉝: Wind speed (0.1 m/s steps)  
 ㉞, ㉟: Gust speed (0.1 m/s steps)  
 ㊱ ~ ㊲: Temperature (0.1°C steps)  
 ㊳: Temperature (00= + degree, 01= - degree)  
 ㊴, ㊵: Rainfall (0.1 mm steps)  
 ㊶, ㊷: Rainfall (24 hours) (0.1 mm steps)  
 ㊸, ㊹: Rainfall (Midnight) (0.1 mm steps)  
 ㊺, ㊻: Humidity (1% steps)  
 ㊼ ~ ㊾: Barometric pressure (0.1 hPa steps)

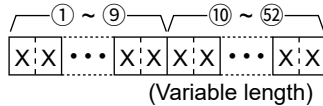
- ① The items that are not contained in the received data are filled with "FF."  
 ① FF: No signal has been received since the power was turned ON.

## Remote control (CI-V) information

### ◇ Command formats

#### • GPS/D-PRS message

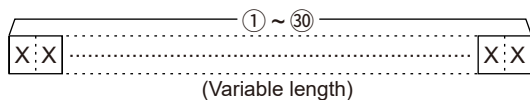
Command: 20 04 01, 04 02



- ① ~ ⑨: Call sign/SSID  
(9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))
- ⑩ ~ ⑫: Message  
(Up to 43 ASCII characters (00h ~ EFh))
- ⑬ FF: No signal has been received since the power was turned ON.

#### • DV TX data

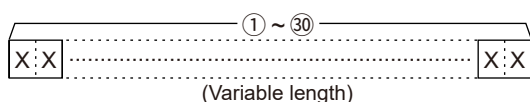
Command: 22 00



- ① ~ ⑫: TX data (Up to 30 Bytes)
- ⑬ "FA" to "FF" are entered after converted to "FF 0A" to "FF 0F" automatically. Up to 60 bytes of data can be entered in this case.

#### • DV RX data (transceive)

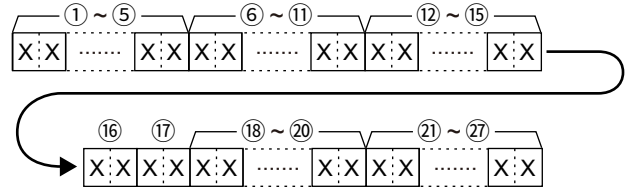
Command: 22 01 01



- ① ~ ⑫: RX data (Up to 30 Bytes)
- ⑬ "FA" to "FF" are entered after converted to "FF 0A" to "FF 0F" automatically. Up to 60 bytes of data can be entered in this case.

#### • MY position data

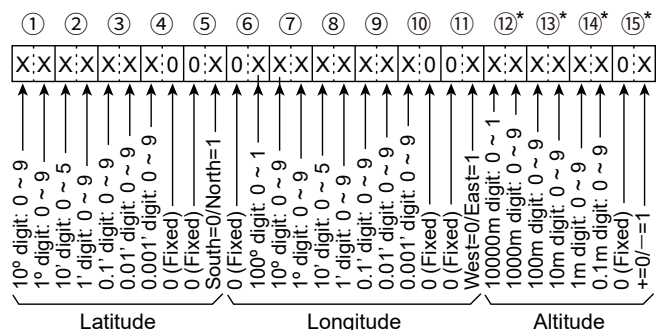
Command: 23 00



- ① ~ ⑫: Latitude (dd°mm.mmm format)
- ⑬ ~ ⑭: Longitude (ddd°mm.mmm format)
- ⑮ ~ ⑯: Altitude (0.1 meter steps)
- ⑰, ⑱: Course (1 degree steps)
- ⑲ ~ ⑳: Speed (0.1 km/h steps)
- ㉑ ~ ㉒: Date (UTC: YYYYMMDDhhmmss)  
(Y: Year, M: Month, D: Day,  
h: Hour, m: Minute, s: Second)

#### • Manually input position data

Command: 23 02



- ① ~ ⑫: Latitude (dd°mm.mmm format)
- ⑬ ~ ⑭: Longitude (ddd°mm.mmm format)
- ⑮ ~ ⑯: Altitude (0.1 meter steps)

\*About the Altitude data:

On read: If the received Altitude data is invalid, these bytes are filled with "FF."

On write: If you set no Altitude data, fill these bytes with "FF."

