# KENWOOD

# TS-790A/790E

## EXTERNAL CONTROL INSTRUCTION MANUAL

KENWOOD CORPORATION

# CONTENTS

# 1. SPECIFICATIONS

■ **Interface**

Communication method... Serial interface, fullduplex
Transfer rate .................. 4800 BPS (bits per second)
Synchronization .............. Start-stop (Asynchronous)
Bit construction .............. 1 start bit, 8 character bits, 2
                         stop bits
Parity ............................ None
Signal format ................. TTL level

■ **Terminal Connections**

| Pin No. | Signal Name | | I/O |
|---------|-------------|----------------|--------|
| 1 | GND | Signal ground | |
| 2 | TXD | Transmit data | Output |
| 3 | RXD | Receive data | Input |
| 4 | CTS | Transmit enable | Input |
| 5 | RTS | Receive enable | Output |
| 6 | NC | No connection | |

GND: This is the signal ground terminal.

TXD: The transmit data is the serial data from the transceiver to the computer. The output utilizes negative logic.

RXD: The receive data is the serial data from the computer to the transceiver. The input utilizes negative logic.

CTS: This signal is supplied from the computer, and is used to inhibit transmit data from the transceiver when the computer is not ready to receive. The input utilizes positive logic. (Transmit data is stopped by a logic low.)

RTS: This signal is applied to the computer, and is used to inhibit transmit data from the computer when the transceiver is not ready to receive it. The output utilizes positive logic. (Inhibit is requested when the level is low.)

**Connector pin configuration**



(Viewed from the rear)
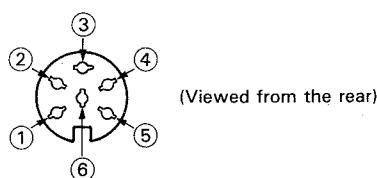
# 2. OPERATION

**Caution:** ————————————————————
Turn the POWER switch OFF before making connections.

## 2-1. PRECAUTIONS FOR COMPUTER-CONNECTED OPERATION

When connecting the transceiver with a computer, check the following points.

1. Are the connections correct ?
   The transceiver output should be connected to the computer input and the transceiver input to the computer output.
   **Example:**
   Transceiver's transmission data — Computer's
                                  receive data
   Transceiver's RTS — Computer's CTS
2. Is the computer's transmission rate 4800 BPS (bits per second)?
3. Is the computer's bit configuration correct?
   1 start bit, 8 character bits, 2 stop bits, no parity.

## 2-2. CONTROL OPERATION

Most computers handle data in the form of "bits", and "bytes". A bit is the smallest piece of information that the computer can handle. A byte is composed of 8 bits. This is the most convenient form for most computer data. This data may be sent in the form of either serial or parallel data strings. The parallel mode is faster, but more complicated, while the serial form is slower it requires less complicated equipment, and therefore is less expensive.

Serial transmission of data occurs over a single line using time-division methods. This use of a single line also offers the advantage of reducing the number of errors due to line noise.

For control of the transceiver via the computer only three lines are theoretically required: transmit data ($\overline{TXD}$), receive data ($\overline{RXD}$), and ground (GND). From a practical standpoint it is also necessary to incorporate some means of controlling when this data transfer will occur. We don't want the computer and transceiver sending information at the same time! This is controlled by the RTS and the CTS lines.

The IF-232C is used in conjunction to provide voltage conversion. RS-232C deals in voltages above and below TTL levels, and must be converted to prevent damage to the transceiver. This interface/conversion is handled by the IF-232C.

The actual command sequence would be similar to those described below:

For example, the radio is placed into the transmit mode whenever the character string "TX" is sent from the computer. The character string "TX" is called a command. It tells the transceiver to do something. There are 33 different commands available for control of the transceiver. These commands may be incorporated into a computer program written in BASIC or any other high level language such as PASCAL, etc. Programming methods vary from computer to computer so please refer to the instruction manuals included with your terminal program, and computer.

## 2-3. COMMANDS

The illustration below demonstrates that a command is composed of two alphabetical characters, various parameters, and the terminator to signal the end of the command.

**Example:**

FA 00144000000 ; ........... Command to set VFO A to
↑    ↑      ↑            144 MHz.
Command Parameters Terminator

### 2-3-1. Command Description

A command may consist of either lower or upper case alphabetical characters.

### 2-3-2. Parameter Description
**(Refer to the parameter list.)**

Parameters are used to specify specific information necessary to implement the desired command. The exact number of parameters necessary for each command is predetermined. If a particular parameter is not applicable to the transceiver you are controlling the parameter digits should be filled using any character except the terminator ";".

For example the MC (Memory channel selector) command uses two parameters, 1 column to specify the memory bank number, and 2 columns to specify the memory channel number. To specify CH9 of memory bank number 1, the command would be:

"MC109;" .............. The memory bank number is not necessary when programming the TS-790 so the command could be as given above "MC109" or as:

"MC_09;" .............. In this case a blank has been used to fill the parameter block for the memory bank number.

The following are examples of bad commands:

"MC09;" ................. No memory bank specification (not enough parameters)

"MC19;" ................. Not enough digits in the memory channel parameter, i.e. CH9 should be given as "09".

"MC_1_09_;" ......... Unnecessary characters between parameters.

"MC1009" .............. No terminator

### 2-3-3. Terminator

To signal the end of a command it is necessary to use a special character. The character that has been selected for use is the semicolon ";". This special character must appear as the last character in a particular command string.

### 2-3-4. Types of Commands

```
                          ┌── Set command
                          │   (To set a particular
          ┌── Input command ──┤   condition)
          │   (Input to the trans-
Commands ─┤   ceiver)      └── Read command
          │                    (Reads an answer)
          │
          └── Output command ──── Answer command
              (From the transceiver)   (To transmit a con-
                                        dition)
```
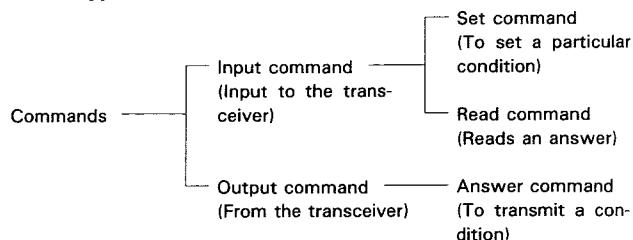
Commands can be classified as shown in the chart above. For example, with the FA (Frequency of VFO A) command.

• To set the frequency at 144 MHz, the command sent from the computer to the transceiver is:
"FA00144000000;" ................(Set command)

• To read the frequency of VFO A, the command sent from the computer to the transceiver is:
"FA;" .....................................(Read command)

• When the read command, above, has been sent, the command returned to the computer is:
"FA00144000000;" ............(Answer command)

### 2-3-5. Error Messages

In addition to the answer command, the transceiver will send one of the following error messages:

| | |
|---|---|
| ?; | ○ When the command syntax is incorrect.<br>○ When the command was not executed due to the current status of the transceiver, even though the command syntax was correct.<br>**Note:**<br>Occasionally this message may not appear due to microprocessor transients in the transceiver. |
| E; | When a communication error occurs, such as an overrun error or framing error occurs during serial data transmissions. |
| O; | When the receive data is sent but processing cannot be completed. |

## 2-3-6. How to read the command tables

Corresponds to the format No. in the parameter list. For the parameter formats, refer to the parameter list.

Indicates the parameters function.

Corresponds to the parameter of the command format.

The number of the command columns is shown.

Usage of command, details of functions, and cautions are described.

| Parameter | Format | Parameter function |
|---|---|---|
| P1 | 1 | AI ON/OFF |

Name

Command

Applicable models for the command

Function of the command

The format of the command is shown. When oblique lines are drawn in the 1st and 2nd columns there is no set command.

The format of the command for reading the sets condition is shown. When oblique lines are drawn in the 1st and 2nd columns, there is no read command.

The format of the command output from the transceiver is shown. When oblique lines are drawn in the 1st and 2nd columns, there is no answer command.

**AI** AUTO INFORMATION

| Applicable models | TS-790A/790E |
|---|---|

AUTO INFORMATION ON/OFF setting

**Function**

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| A | I | P1 | ; | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| I | F | | For parameters, refer to "IF" command | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**

(1) The "Auto Information" function checks the condition of the set once approximately every 1.5 seconds and when a change is detected automatically sends the IF command.

(2) The check time is longer than 1.5 seconds during scanning or TUNING dial rotation.

5

## 2-3-7. Parameter list

| Format No. | Name | Number of columns | Format |
|---|---|---|---|
| 1 | SW | 1 | 0 = OFF    1 = ON |
| 2 | MODE | 1 | 1 = LSB    4 = FM<br>2 = USB    7 = CWN<br>3 = CW |
| 3 | FUNCTION | 1 | 0 = VFO A    2 = MEMORY<br>1 = VFO B    3 = CALL |
| 4 | FREQUENCY | 11 | Represented in Hz, using 11 columns.<br>Example:<br>00144000000 is 144 MHz<br>10 GHz  1 MHz  1 kHz  1 Hz |
| 5 | RIT FREQUENCY | 5 | The first column is " + " or " – ", and the remaining four columns indicate the frequency in Hz.<br>Example:<br>+ 5320 is + 5.32 kHz |
| 6 | STEP FREQUENCY | 5 | Represented in Hz, using 5 columns. |
| 7 | MEMORY CHANNEL | 2 | Represented in two columns.<br>Example: 02 is CH2 |
| 8 | – | – | |
| 9 | MEMORY CHANNEL SPLIT SPECIFI-CATION | 1 | 0 = Receive  1 = Transmit |
| 10 | MEMORY LOCKOUT | 1 | 0 = Not locked out<br>1 = Locked out |
| 11 | TX/RX | 1 | 0 = Receive  1 = Transmit |
| 12 | – | – | |
| 13 | OFFSET | 1 | 0 = SIMPLEX    2 = –<br>1 = + |
| 14 | TONE FREQUENCY | 2 | Represented using two columns, from 01 to 38. |
| 15 | – | – | |
| 16 | MODEL NO. | 3 | Three column number specifying each set. |
| 17 | – | – | |
| 18 | – | – | |
| 19 | – | – | |
| 20 | BUSY Indicator | 1 | 0 = OFF    1 = ON |
| 21 | DESTINATION CODE | 1 | 0 = MAIN    1 = SUB |
| 22 | S METER (SUB) | 4 | 0000 (MIN) ↔ 0015 (MAX) |

## 2-3-8. Command Use Precautions

1. The control characters (00 to 1FH) when included in receive data are ignored.
2. Program execution may be delayed during rapid encoder rotation.
3. Receive data is not processed when directly entering the frequency from the keyboard.
4. To enter the transmitter frequency for split frequency operations using the MW command, enter any number from 1 thru 7 as the mode and either a "0" or a "1" to indicate the memory channel lockout statue.

## 2-3-9. Command List

| Command | Function | Page |
|---|---|---|
| AI | AUTO INFORMATION | 7 |
| BY | BUSY | 7 |
| CN | CTCSS No. | 8 |
| CT | CTCSS | 8 |
| DC | DESTINATION CODE | 9 |
| DN/UP | DOWN/UP | 9 |
| FA/FB | FREQUENCY VFO A/FREQUENCY VFO B | 10 |
| FN | FUNCTION | 10 |
| ID | ID | 11 |
| IF | INFORMATION | 11 |
| LK | LOCK | 12 |
| LT | AUTO LOCK TUNE | 12 |
| MC | MEMORY CHANNEL | 13 |
| MD | MODE | 13 |
| MR | MEMORY READ | 14 |
| MT | MUTE | 14 |
| MW | MEMORY WRITE | 15 |
| OS | OFFSET | 15 |
| RC | RIT CLEAR | 16 |
| RD/RU | RIT DOWN/RIT UP | 16 |
| RT | RIT | 17 |
| RX/TX | RX/TX | 17 |
| SC | SCAN | 18 |
| SM | S METER (SUB) | 18 |
| SP | SPLIT | 19 |
| ST | STEP | 19 |
| TN | TONE NUMBER | 20 |
| TO | TONE | 20 |
| VR | VOICE RECALL | 21 |

## **AI** AUTO INFORMATION

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| **Function** AUTO INFORMATION ON/OFF setting | | | P1 | 1 | AI ON/OFF |

**Input commands**

**Set command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | I | P1 | ; | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Read command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

**Answer command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | F | For parameters, refer to "IF" command | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**

(1) The "Auto Information" function checks the condition of the set once approximately every 1.5 seconds and when a change is detected automatically sends the IF command.
(2) The check time is longer than 1.5 seconds during scanning or TUNING dial rotation.

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## **BY** BUSY

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| **Function** BUSY signal readout | | | P1 | 20 | BUSY indicator ON/OFF |

**Input commands**

**Set command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Read command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | Y | ; | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

**Answer command**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | Y | P1 | ; | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**

## CN  CTCSS No.

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function**: CTCSS number selection and readout | | P1 | | CTCSS tone frequency |

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | N | P | 1 | ; | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | N | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | N | P | 1 | ; | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| No. | Hz | No. | Hz |
|---|---|---|---|
| 01 | 67.0 | 21 | 136.5 |
| 02 | 71.9 | 22 | 141.3 |
| 03 | 74.4 | 23 | 146.2 |
| 04 | 77.0 | 24 | 151.4 |
| 05 | 79.7 | 25 | 156.7 |
| 06 | 82.5 | 26 | 162.2 |
| 07 | 85.4 | 27 | 167.9 |
| 08 | 88.5 | 28 | 173.8 |
| 09 | 91.5 | 29 | 179.9 |
| 10 | 94.8 | 30 | 186.2 |
| 12 | 100.0 | 31 | 192.8 |
| 13 | 103.5 | 32 | 203.5 |
| 14 | 107.2 | 33 | 210.7 |
| 15 | 110.9 | 34 | 218.1 |
| 16 | 114.8 | 35 | 225.7 |
| 17 | 118.8 | 36 | 233.6 |
| 18 | 123.0 | 37 | 241.8 |
| 19 | 127.3 | 38 | 250.3 |
| 20 | 131.8 | | |

**Description**: Please note that the 97.4 Hz Tone does not function for decode purposes.

## CT  CTCSS

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function**: CTCSS ON/OFF selection and readout | | P1 | 1 | CTCSS ON/OFF |

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | T | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Description**:

## DC DESTINATION CODE

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| **Function** | DESTINATION CODE selection and readout | | P1 | 21 | DESTINATION CODE |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | C | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | C | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | C | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description**

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## DN UP DOWN/UP

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| **Function** | Same function as microphone UP/DOWN switch | | | | |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN / UP | ; | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description**

## FA  FB  FREQUENCY VFO A/FREQUENCY VFO B

| | Parameter | Format | Parameter function |
|---|---|---|---|
| **Applicable models** TS-790A/790E | P1 | 4 | FREQUENCY |

**Function:** VFO A and VFO B frequency selection and readout

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FA/FB | | | | | | P1 | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ; | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FA/FB | | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FA/FB | | | | | | P1 | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description:**

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## FN  FUNCTION

| | Parameter | Format | Parameter function |
|---|---|---|---|
| **Applicable models** TS-790A/790E | P1 | 3 | FUNCTION |

**Function:** VFO A and VFO B MEMORY CALL setting

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | N | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description:**

## ID | ID

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** | Model No. readout for transceiver recogniztion. | P1 | 16 | MODEL No.<br>TS-790 : 007 |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | D | ; | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | D | | P1 | | | ; | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**


## IF | INFORMATION

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** | Display of transceivers current condition | P1 | 4 | DISPLAY FREQUENCY |
| | | P2 | 6 | STEP FREQUENCY |
| | | P3 | 5 | RIT FREQUENCY |
| | | P4 | 1 | RIT ON/OFF |
| | | P5 | — | |
| | | P6 | — | |
| | | P7 | 7 | MEMORY CHANNEL |
| | | P8 | 11 | TX/RX |
| | | P9 | 2 | MODE |
| | | P10 | 3 | FUNCTION |
| | | P11 | 1 | SCAN ON/OFF |
| | | P12 | 1 | SPLIT ON/OFF |
| | | P13 | 1 | TONE ON/OFF |
| | | P14 | 14 | TONE FREQUENCY |
| | | P15 | 13 | OFFSET |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | F | ; | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | F | | | | | P1 | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | P2 | | | | | P3 | | | P4 | ⎵ | ⎵ |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| P7 | | P8 | P9 | P10 | P11 | P12 | P13 | P14 | | P15 | ; | |

**Description**

## LK | LOCK

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| | | | P1 | 1 | LOCK ON/OFF |

**Function:** LOCK ON/OFF setting and display

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | K | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | K | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | K | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description:**

---

## LT | AUTO LOCK TUNE

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| | | | P1 | 1 | ALT ON/OFF |

**Function:** AUTO LOCK TUNE ON/OFF selection and readout

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description:**

## MC   MEMORY CHANNEL

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** — Memory channel setting | | P1 | — | |
| | | P2 | 7 | MEMORY CHANNEL |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | C | ␣ | P2 | | ; | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21. | 22 | 23 | 24 | 25 | 26 |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**

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## MD   MODE

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** — Mode setting | | P1 | 2 | MODE |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | D | P1 | ; | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |

**Description**

## MR  MEMORY READ

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** — Memory display | | P1 | 9 | SPLIT SPECIFI-CATION |
| | | P2 | – | – |
| | | P3 | 7 | MEMORY CHANNEL |
| | | P4 | 4 | FREQUENCY |
| | | P5 | 2 | MODE |
| | | P6 | 10 | MEMORY LOCKOUT |
| | | P7 | 1 | TONE ON/OFF |
| | | P8 | 14 | TONE FREQUENCY |
| | | P9 | 13 | OFFSET |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | R | P1 | ␣ | P3 | | ; | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | R | P1 | ␣ | P3 | | | P4 | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P5 | P6 | P7 | P8 | | P9 | | ; | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description**

All parameters are set to OFF when the memory channel is vacant.

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## MT  MUTE

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| **Function** — MUTE ON/OFF selection and readout | | P1 | 1 | MUTE ON/OFF |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | T | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Description**

## MW  MEMORY WRITE

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| Function | Memory entry | | P1 | 9 | SPLIT SPECIFICATION |
| Input commands | Set command | M W P1 ␣ P3 ... P4 (cols 1–13) / P5 P6 P7 P8 P9 ; (cols 14–26) | P2 | — | — |
| | | | P3 | 7 | MEMORY CHANNEL |
| | | | P4 | 4 | FREQUENCY |
| | Read command | (cols 1–26) | P5 | 2 | MODE |
| | | | P6 | 10 | MEMORY LOCKOUT |
| | | | P7 | 1 | TONE ON/OFF |
| Output commands | Answer command | (cols 1–39) | P8 | 14 | TONE FREQUENCY |
| | | | P9 | 13 | OFFSET |

**Description**

(1) The MW command is valid when all parameters have be correctly entered.

(2) When all effective frequency columns are "0", the memory is set to an open channel.

(3) When the split channel is open, the transceiver will be set for the same transmit and receive frequencies, i.e. simplex.

---

## OS  OFFSET

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| Function | OFFSET setting | | P1 | 13 | OFFSET |
| Input commands | Set command | O S P1 ; (cols 1–26) | | | |
| | Read command | (cols 1–26) | | | |
| Output commands | Answer command | (cols 1–39) | | | |
| Description | | | | | |

15

## RC | RIT CLEAR

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|

| Function | RIT frequency clearance |
|---|---|

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | C | ; | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| | | | | | | | | | | | | |

**Description:** When using these commands the center frequency point on the RIT control may not coincide with the center point printed on the front panel. The center point will coincide with the position of the RIT control before these commands were initiated.

---

## RD | RU | RIT DOWN/UP

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|

| Function | RIT frequency UP/DOWN |
|---|---|

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RD / RU | ; | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | | | | | | | | | | |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| | | | | | | | | | | | | |

**Description:** When using these commands the center frequency point on the RIT control may not coincide with the center point printed on the front panel. The center point will coincide with the position of the RIT control before these commands were initiated.

## RT  RIT

| Applicable models | TS-790A/790E | | | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|---|---|
| Function | RIT ON/OFF setting | | | | P1 | 1 | RIT ON/OFF |

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description:

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## RX  TX  RX/TX

| Applicable models | TS-790A/790E | | | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|---|---|
| Function | RX: For receive operation<br>TX: For transmit operation | | | | | | |

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RX/TX | | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description:

## SC — SCAN

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| Function | Scan ON/OFF setting | | P1 | 1 | SCAN ON/OFF |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | C | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description

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## SM — S-METER (SUB)

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|
| Function | S-Meter signal output (SUB) | | P1 | 22 | S-Meter signal output (SUB) |

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | M | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | M | P | 1 | | | ; | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description

## SP | SPLIT

| Applicable models | TS-790A/790E | | | | | | | | | | | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Function | SPLIT ON/OFF setting | | P1 | 1 | SPLIT ON/OFF |
|---|---|---|---|---|---|

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | P | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description

---

## ST | STEP

| Applicable models | TS-790A/790E | | | | | | | | | | | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Function | STEP ON/OFF setting | | P1 | 1 | STEP ON/OFF |
|---|---|---|---|---|---|

**Input commands**

Set command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | T | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Read command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

Answer command

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Description

## TN TONE NUMBER

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| | | P1 | 14 | TONE FREQUENCY |

**Function:** Sub-tone frequency setting

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T | N | P1 | | ; | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| No. | Hz | No. | Hz |
|---|---|---|---|
| 01 | 67.0 | 20 | 131.8 |
| 02 | 71.9 | 21 | 136.5 |
| 03 | 74.4 | 22 | 141.3 |
| 04 | 77.0 | 23 | 146.2 |
| 05 | 79.7 | 24 | 151.4 |
| 06 | 82.5 | 25 | 156.7 |
| 07 | 85.4 | 26 | 162.2 |
| 08 | 88.5 | 27 | 167.9 |
| 09 | 91.5 | 28 | 173.8 |
| 10 | 94.8 | 29 | 179.9 |
| 11 | 97.4 | 30 | 186.2 |
| 12 | 100.0 | 31 | 192.8 |
| 13 | 103.5 | 32 | 203.5 |
| 14 | 107.2 | 33 | 210.7 |
| 15 | 110.9 | 34 | 218.1 |
| 16 | 114.8 | 35 | 225.7 |
| 17 | 118.8 | 36 | 233.6 |
| 18 | 123.0 | 37 | 241.8 |
| 19 | 127.3 | 38 | 250.3 |

**Description:**

## TO TONE

| Applicable models | TS-790A/790E | Parameter | Format | Parameter function |
|---|---|---|---|---|
| | | P1 | 1 | TONE ON/OFF |

**Function:** TONE ON/OFF setting

**Input commands**

Set command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T | O | P1 | ; | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Read command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Output commands**

Answer command:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Description:**

## VR VOICE RECALL

| Applicable models | TS-790A/790E | | Parameter | Format | Parameter function |
|---|---|---|---|---|---|

**Function:** Generation of synthesized voice.

**Input commands**
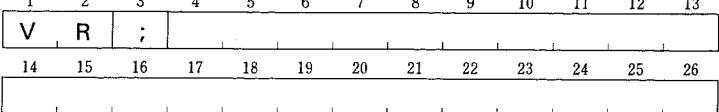
*Set command*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | R | ; | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

*Read command*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

**Output commands**

*Answer command*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
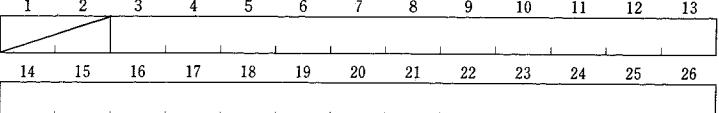
**Description:** Requires the use of the optional VS-2 Voice Synthesizer.

**MEMO:**

**MEMO:**

# KENWOOD