PCR1000 Command List

GO	**2**	Transfers command status; result from processing the last (previous) command	**R**
G1	**2**	Sets transmission rate	**W**
G2	**2**	Checks communication protocol	**R**
G3	**2**	Sets communication mode	**W**
GD	**2**	Checks optional devices	**R**
GE	**2**	Checks destination country	**R**
HO	**2**	Transfers message	**W**
Hl	**2**	Controls power supply	**R/W**
H8	**2**	Instructs how to scan	**W**
H9	**2**	Notifies scanning status	**R**
I1	**2**	Checks status for busy	**R**
12	**2**	Notifies S meter level	**R**
I3	**2**	Notifies center meter level	**R**
I4	**2**	Notifies DTMF decode	**R**
J40	**2**	Sets volume level	**W**
J41	**2**	Sets squelch level	**W**
J43	**2**	Sets IF-SHIFT	**W**
J45	**2**	Sets AGC	**W**
J46	**2**	Sets noise blanker	**W**
J47	**2**	Sets RF Attenuator	**W**
J4B	**2**	Sets BFO shift	**W**
J50	**2**	Sets VSC	**W**
J51	**2**	Sets CTSS	**W**
J80	**2**	Sets DSP devices	**W**
J81	**2**	Turns DSP ON or OFF	**W**
J82	**2**	Sets DSP noise reducer	**W**
J83	**2**	Sets DSP auto notch filter	**W**
KO	**16**	Sets frequency, mode, and filter	**W**
ME000	**16**	Sets bandscope operation	**W**
NE1x0	**32**	Fetches waveform data from bandscope buffer ($ = 0 - F)	**R**
LE200	**2**	Outputs LC72706 control command	**W**
OE300	**48**	Outputs LC72706 received data	**R**

Provided by : **Coyote**

Protocol
ICOM® Application

Command G0

[System]
Transfers command status

Controller >> Receiver

G0 ? <CR><LF>
  (1) (2)   (5)

Receiver >> Controller

G0 00 <CR><LF>
  (3) (4)   (5)

     (1) Command
     (2) Inquiry
     (3) Response command
     (4) Processing result; 00 = OK, 01 = NG
     (5) EOM (not require in fast transfer mode)

Description

     Inquiry from controller in fast transfer mode (G0 ? command)
          In response to this command, the Receiver returns to the controller OK (00) or NG (01)
          resulting form processing of the last command message.
          If the command is processed successfully, 00 is returned. If not, 01 is returned.
          This command allows the controller to obtain the result from processing the last
          command.
     Auto transfer in interactive mode
          In interactive mode, the Receiver always returns to the controller OK (00) or NG (O1)
          resulting form processing of the last command message.
          If the command is processed successfully, 00 is returned. If not, Ol is returned.

Command G1

[System]
Sets transmission rate

Controller >> Receiver

G1 03 <CR><LF>
  (1) (2)   (5)

Receiver >> Controller

G0 00 <CR><LF>
  (3) (4)   (5)

(1) Command
(2) Transmission rate

00	1200 bps
01	2400 bps
02	4800 bps
03	9600 bps
04	19200 bps
05	38400 bps
Other	38400 bps

(3) Response command
(4) Processing result; 00 = OK, 01 = NG
(5) EOM (not required in fast transfer mode)

Description

    This command is used to change the baud rate.

Note

    If this command is processed successfully, the response message would be transmitted at the changed baud rate. But transients could prevent normal output of the response message. Alter changing the baud rate of the Receiver, change the baud rate of the controller too and then use the GO ? command or the like to check if the connection status is OK.

Command G2

[System]
Checks communication protocol

Controller >> Receiver

G2 ? <CR><LF>
_{(1) (2)}   ₍₅₎

Receiver >> Controller

G2 10 <CR><LF>
_{(3) (4)}   ₍₅₎

        (1) Command
        (2) Inquiry
        (3) Response command
        (4) Returned value: 10
        (5) EOM (not required in fast transfer mode)

Description

        This command returns a value indicating the current communication protocol version. This value will be useful to check for protocol compatibility in future. The IC-PCR1000 receiver returns a value of 10.

Command G3

[System]
Sets communication mode

Controller >> Receiver

G3 01 <CR><LF>
_{(1) (2)}   ₍₅₎

Receiver >> Controller (response message)

G0 00 <CR><LF>
_{(3) (4)}   ₍₅₎

        (1) Command
        (2) Communication mode

00	Diagnostic mode
01	Fast transfer mode
Other	Invalid (reserved)

        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
        This command is used to switch between interactive mode and fast transfer mode.

Command GD

[System]
Checks optional devices

Controller >> Receiver

GD ? <CR><LF>
(1) (2)   (5)

Receiver >> Controller

GD 01 <CR><LF>
(3) (4)   (5)

        (1) Command
        (2) Inquiry
        (3) Response command
(4) Status of installed devices, represented in two hex digits

Bit 0	1= UT-106 (DSP unit)
Bit 4	1= UT-107 (DARC unit)
Other	Fixed to 0

        (5) EOM (not required in fast transfer mode)

Description
        This command is used to check the status of installed devices.

Command GE

[System]
Checks destination country

Controller >> Receiver

GE ? <CR><LF>
(1) (2)   (5)

Receiver >> Controller

GE 01 <CR><LF>
(3) (4)   (5)

        (1) Command
        (2) Inquiry
        (3) Response command
(4) Destination country of product

08	JPN
01	USA
OA	EUR/AUS/CAN
OB	FGA
OC	DEN
Other	(Reserved)

        (5) EOM (not required in fast transfer mode)

Description
        This command is used to check the destination country of the product.

Command H0

[Operation notification]
Transfers message/software reset

Controller >> Receiver

<u>H0</u> <u>00</u> <u><CR><LF></u>
   (1) (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
   (3) (4)   (5)

(1) Command
(2) Message
Message to PCR1000

00	Reset
Other	(Reserved)

(3) Response command
(4) (Reserved) Returned value: always 00
(5) EOM (not required in fast transfer mode)

Description

This command provides software reset to the Receiver.

Note

This command is used for 1-byte message transfer (reserved for future use). The IC-PCR1000 receiver accept this command for software reset only.

Command H1

[Operation notification]
Controls power supply

a) Controlling the power supply:

Controller >> Receiver

<u>H1</u> <u>01</u> <u><CR><LF></u>
  (1) (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

(1) Command
(2) Power supply ON/OFF

00	Linear power OFF
Other	Linear power ON

(3) Response command
(4) (Reserved) Returned value: always 00
(5)EOM (not required in fast transfer mode)

b) Checking the current power status:

Controller >> Receiver

<u>H1</u> <u>?</u> <u><CR><LF></u>
  (1) (6)   (5)

Receiver >> Controller (response message)

<u>H1</u> <u>01</u> <u><CR><LF></u>
  (7) (8)   (5)

(6) Command
(7) Response command (in response to Hl ?)
(8) Current power status

00	Linear power OFF
01	Linear power ON

Description
    This command turns the linear power ON of OFF, or check the current power status.

Note
    The IC-PCR1000 receiver notifies the H000 status every second when the liner power is OFF.

Command H8

[Function notification]
Instructs how to scan

Controller >> Receiver

H8 85 <CR><LF>
(1) (2)   (5)

Receiver >> Controller

G0 00 <CR><LF>
(3) (4)   (5)

(1) Command
(2) Scan instruction, represented in two hex 8 bits each

Bit 7	Specifies the type of squelch of scanning:
	    1 = Level sense check
	    0 = Edge sense

Bit 6 . . Bit 0	Specifies the tune from receipt of this command to notification of the scan status. This waiting time is represented in [7-bit value X 2] ms. If 0 is specified, scanning is canceled

(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
    This command instructs how to scan and cancels scanning. It works in fast transfer mode, and is meaningless in effect in interactive mode.

Command H9

Notifies scan status

Controller >> Receiver

H9 ? <CR><LF>
 (1) (2)   (5)

Receiver >> Controller

H9 10 <CR><LF>
 (3) (4)   (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current scan status

00	Not in scan status
01	Ready to move to the next frequency
02	Waiting for squelch alter frequency is set
03	Reviewing squelch
04	Evaluating tone squelch
05	Evaluating VSC
10	Halt due to busy

(5) EOM (not required in fast transfer mode)

Description

This command is used in fast transfer mode only, and is meaningless in effect in interactive mode. It instructs how to scan and cancels scanning.

Command I0

[Status notification]
Checks status for busy

Controller >> Receiver

I0 ? <CR><LF>
(1)(2)   (5)

Receiver >> Controller

I0 01 <CR><LF>
(3) (4)   (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Busy status, represented in two hex digits

Bit 0	1 = Busy
Bit 1	1= AF open (CTCSS open)
Bit 2	1= VSC open
Bit 7	1 = RX error (note ready to receive)
Other	Fixed to 0

(5) EOM (not required in fast transfer mode)

Description

This command checks if the Receiver is busy.

Note

In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.

Command I1

[Status notification]
Notifies S meter level

Controller >> Receiver

<u>I1</u> <u>?</u> <u><CR><LF></u>
(1) (2)   (5)

Receiver >> Controller

<u>I0</u> <u>90</u> <u><CR><LF></u>
(3) (4)   (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current S meter reading (in 256 stages), represented in two hex digits

00	SO
30	S3
50	S5
70	S7
90	S9
B0	S9 + 20
D0	S9 + 40
F0	S9 + 60

(5) EOM (not required in fast transfer mode)

Description

This command checks the current S meter reading.

Note

In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status.
Therefore no inquiry is required in fast transfer mode.

Command I2

[Status notification]
Notifies center meter level

Controller >> Receiver

I2 ? <CR><LF>
(1) (2)　　　(5)

Receiver >> Controller

I2 FF <CR><LF>
(3) (4)　　　(5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current center meter reading (in 256 stages), represented in two hex digits

00	Left arrow (high frequency)
80	Center
FF	Right arrow (low frequency)

(5) EOM (not required in fast transfer mode)

Description

This command checks the current center meter reading.

Note

In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.

Command I3

[Status notification]
Notifies DTMF decode

Controller >> Receiver

I3 ? <CR><LF>
(1)(2)   (5)

Receiver >> Controller

I3 1F <CR><LF>
(3) (4)   (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current S meter reading (in 256 stages), represented in two hex digits

10	"0"	received
11	"1"	received
12	"2"	received
13	"3"	received
14	"4"	received
15	"5"	received
16	"6"	received
17	"7"	received
18	"8"	received
19	"9"	received
1A	"A"	received
1B	"B"	received
1C	"C"	received
1D	"D"	received
1E	"E"	received
1F	"F"	received
Other	Nothing received	

(5) EOM (not required in fast transfer mode)

Description

This command checks the current S meter reading.

Note

In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status.
Therefore no inquiry is required in fast transfer mode.

Command J40

[Function setting]
Sets volume level

Controller >> Receiver

J40 5F <CR><LF>
  (1) (2)   (5)

Receiver >> Controller

G0 00 <CR><LF>
  (3) (4)   (5)

        (1) Command
        (2) Volume level (in 256 stages; 00 means mute and FF max. volume)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
        This command is used to set the volume level.

Command J41

[Function setting]
Sets squelch level

Controller >> Receiver

J41 FF <CR><LF>
  (1)   (2)   (5)

Receiver >> Controller (response message)

G0 00 <CR><LF>
  (3) (4)   (5)

        (1) Command
        (2) Volume level (in 256 stages; 00 means mute and FF max. volume)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
        This command is used to set the squelch level.

Note
Squelch level and squelch operation at Receiver

Setting	Operation
00	Tone squelch clear and squelch open
O1- 3F	Squelch open
40 - 7F	Noise squelch
80 - FF	Noise squelch + S meter squelch Comparative S level = (squelch setting - 128) X 2

Command J43

[Function setting]
Sets IF-SHIFT

Controller >> Receiver

<u>J41</u> <u>FF</u> <u><CR><LF></u>
  (1)   (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

        (1) Command
        (2) IF-SHIFT position (in 256 stages, 80 = center)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
      This command is used to set the IF-SHIFT position.

Note
IF-SHIFT setting and Receiver operation

Setting	Operation
80	Center (0 Hz)
<80	Minus shift (in 10 Hz steps)
>80	Plus shift (in 10 Hz steps)

Command J45

[Function setting]
Sets AGC

Controller >> Receiver

<u>J45</u> <u>01</u> <u><CR><LF></u>
  (1)   (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

        (1) Command
        (2) AGC setting (00 = OFF, Other = ON)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
      This command is used to set the AGC.

Command J46

[Function setting]
Sets noise blanker

Controller >> Receiver

<u>J46</u> <u>01</u> <u><CR><LF></u>
  (1)   (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

      (1) Command
      (2) Noise blanker setting (00 = OFF, Other = ON)
      (3) Response command
      (4) Returned value: 00
      (5) EOM (not required in fast transfer mode)

Description
      This command is used to set the noise blanker.

Command J47

[Function setting]
Sets attenuator

Controller >> Receiver

<u>J47</u> <u>01</u> <u><CR><LF></u>
  (1)   (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

      (1) Command
      (2) Attenuator setting (00 = OFF, Other = ON)
      (3) Response command
      (4) Returned value: 00
      (5) EOM (not required in fast transfer mode)

Description
      This command is used to set the FR attenuator.

Command J4A

[Function setting]
Sets BFO shift

Controller >> Receiver

J4A 80 <CR><LF>
(1)   (2)   (5)

Receiver >> Controller (response message)

G0 00 <CR><LF>
(3) (4)   (5)

    (1) Command
    (2) BFO shift setting (in 256 stages, 80 = center)
    (3) Response command
    (4) Returned value: 00
    (5) EOM (not required in fast transfer mode)

Description
    This command is used to set the BFO shift of SSB and CW.

Note
BFO setting and Receiver operation

Setting	Operation
80	Center (0 Hz)
<80	Minus shift (in 10 Hz steps)
>80	Plus shift (in 10 Hz steps)

Command J50

[Function setting]
Sets VSC

Controller >> Receiver

J50 01 <CR><LF>
(1) (2)   (5)

Receiver >> Controller (response message)

G0 00 <CR><LF>
(3) (4)   (5)

    (1) Command
    (2) VSC setting (00 = OFF, Other = ON)
    (3) Response command
    (4) Returned value: 00
    (5) EOM (not required in fast transfer mode)

Description
    This command is used to set the VSC.

Command J51

[Function setting]
Sets CTCSS

Controller >> Receiver

<u>J51</u> <u>0A</u> <u><CR><LF></u>
  (1)   (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
  (3) (4)   (5)

(1) Command
(2) CTCSS setting (00 = OFF, O1H - 33H: CTCSS setting numbers)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
CTCSS setting and Receiver operation

00	OFF	10	107.2 Hz
01	67.0 Hz	11	110.9 Hz
02	69.3 Hz	12	114.8 Hz
03	71.0 Hz	13	118.8 Hz
04	71.9 Hz	14	123.0 Hz
05	74.4 Hz	15	127.3 Hz
06	77.0 Hz	16	131.8 Hz
07	79.7 Hz	17	136.5 Hz
08	82.5 Hz	18	141.3 Hz
09	85.4 Hz	19	146.2 Hz
OA	88.5 Hz	1A	151.4 Hz
OB	91.5 Hz	1B	156.7 Hz
OC	94.8 Hz	1C	159.8 Hz
OD	97.4 Hz	1D	162.2 Hz
OE	100.0 Hz	1E	165.5 Hz
OF	103.5 Hz	1F	167.9 Hz

Command J80

[Function setting]
Sets DSP devices

Controller >> Receiver

<u>J80</u> <u>01</u> <u><CR><LF></u>
(1) (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
(3) (4)   (5)

        (1) Command
        (2) DSP-ID setting (01= UT-106, Other = OFF)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
      This command is used to set the installation status of DSP (UT-106). The DSP-ID field is used to define IDs of
      compatible DSP devices. This command is always used to set information regarding DSP devices.

Note
      When DSP-ID is OFF, the Receiver finds that no DSP devices are installed.

Command J81

[Function setting]
Turns DSP ON or OFF

Controller >> Receiver

<u>J81</u> <u>01</u> <u><CR><LF></u>
(1) (2)   (5)

Receiver >> Controller (response message)

<u>G0</u> <u>00</u> <u><CR><LF></u>
(3) (4)   (5)

        (1) Command
        (2) DSP ON/OFF setting (00 = OFF, 01 = ON)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
      This command is used to turn DSP ON or OFF. If no DSP-ID is defined in the DSP-ID field of command J80,
      the UT-106 DSP unit is not recognized even if installed.

Command J82

[Function setting]
Sets DSP noise reducer

Controller >> Receiver

J82 04 <CR><LF>
 (1) (2)   (5)

Receiver >> Controller (response message)

G0 00 <CR><LF>
 (3) (4)   (5)

        (1) Command
        (2) DSP noise reducer setting (00 = OFF, 01H - 10H = level)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
        This command is used to turn the DSP noise reducer ON or OFF and set its level. If no DSP-ID is defined in the DSP-ID field of command J80, the UT-106 DSP unit is not recognized even if installed.

Command J83

[Function setting]
Sets DSP auto notch

Controller >> Receiver

J82 04 <CR><LF>
 (1) (2)   (5)

Receiver >> Controller (response message)

G0 00 <CR><LF>
 (3) (4)   (5)

        (1) Command
        (2) Auto notch ON/OFF setting (00 = OFF, Other = ON)
        (3) Response command
        (4) Returned value: 00
        (5) EOM (not required in fast transfer mode)

Description
        This command is used to turn the DSP noise reducer ON or OFF. If no DSP-ID is defined in the DSP-ID field of command J80, the UT-106 DSP unit is not recognized even if installed.

Command KO

[Function setting]
Sets frequency, mode and filter

Controller >> Receiver

K0 0145000000 05 02 00 <CR><LF>
 (1)   (2)   (3) (4) (5)   (8)

Receiver >> Controller

G0 00 <CR><LF>
 (6) (7)   (8)

(1) Command
(2) Frequency setting (in 10-digit BCD; Min. 1 HZ; 145.0 MHz for the above example)
(3) Mode setting

00	LSB
01	USB
02	AM
03	CW
04	(Reserved)
05	FM
06	WFM

(4) Filter setting (bandwidth)

00	2.8 kHz
01	6 kHz
02	15 kHz
03	50 kHz
04	230 kHz

(5) Specified value: 00 (reserved)
(6) Response command
(7) Returned value: 01 when setting is invalid, 00 when setting are valid
(8) EOM (not required in fast transfer mode)

Description
    This command is used to set the frequency, mode and filer (bandwidth).
    Reception inhibit frequencies are not acceptable.

Command ME000

[Function setting]
Sets bandscope operation

Controller >> Receiver

<u>ME000</u> <u>01</u> <u>AO</u> <u>05</u> <u>00</u> <u>00001000</u> <u><CR><LF></u>
    (1)   (2)   (3)   (4) (5)   (6)   (9)

Receiver >> Controller

<u>G0</u> <u>00</u> <u><CR><LF></u>
 (7) (8)   (9)

        (1) Command
        (2) ID (specified value: O1; specifying other values causes the succeeding data to be ignored)
        (3) Sweep width (No. of steps; max. 254. Subtract -1 from an odd number)
        (4) Sweep rate per step (x 1 ms, max. 255 ms. 0 ms cannot be specified)
        (5) Sweep operation (00 = stop, O1 = start, other = reserved)
        (6) Frequency changed per step (0 Hz - 99999999 Hz)
        (7) Response command
        (8) Returned value: 00
        (9) EOM (not required in fast transfer mode)

Description

    This command is used to se the bandscope operation. These are no limits in step frequency. But the range outside the receiving frequency (6) 1 MHz is not subject to sweeping. The Receiver sweeping bandwidth in practical use ranges from the receiving frequency + 200 kHz to - 200 kHz, due to its linear characteristics.

Note

    The bandscope does not work with SSB/CW.
    To stop (zero) Scope Lo, use the following command:
    ME000 0100000000000000 <CR><LF>

Command NE1x0

[Bandscope]
Fetches waveform data from bandscope buffer

Controller >> Receiver

NE100 ? <CR><LF>
  (1)   (2)   (5)

Receiver >> Controller

NE100 00 00 .----.-00 00 <CR><LF>
  (3)   (4)   (5)

(1) Command

Command and data sampling point

NE100	Waveform data at points -128 thru -113
NE110	Waveform data at points -112 thru -97
NE120	Waveform data at points -96 thru -81
NE130	Waveform data at points -80 thru -65
NE140	Waveform data at points -64 thru -49
NE150	Waveform data at points -48 thru -33
NE160	Waveform data at points -32 thru -17
NE170	Waveform data at points -16 thru -1
NE180	Waveform data at points 0 thru +15
NE190	Waveform data at points +16 thru +31
NE1A0	Waveform data at points +32 thru +47
NE1B0	Waveform data at points +48 thru +63
NE1C0	Waveform data at points +64 thru +79
NE1D0	Waveform data at points +80 thru +95
NE1E0	Waveform data at points +96 thru +111
NE1F0	Waveform data at points +112 thru +127

(2) Inquiry
(3) Response command (according to data sampling point)
(4) Waveform data at each sampling point (in 256 stages) X 16 (points)
(5) EOM (not required in fast transfer mode)

Description

This command obtains waveform data sampled at specified 16 points on the bandscope, by making direct reference to the bandscope buffer.

Note

In fast transfer mode, inquiry is not required because changed waveform data is automatically fetched from the bandscope buffer in sequence.