# JUMA TX136/TX500 serial command and query protocol

OH2NLT (update F4GCB)
Protocol for firmware version 1.06a / 2014.10.08

General

JUMA TX136/TX500 serial protocol is JUMA TX136/TX500 native way to communicate with another system. The JUMA TX136/TX500serial command and the query protocol is activated from the TX136/TX500 config page. Set **RS232 = TX136/500**.

Note 1.
RS232 serial port baud rate should be set to match with two communicating units. High values of Baud rates are recommended 38400bd and up. High transmission speed keeps transaction times short.

Description of the JUMA TX136/TX500 protocol

Start and end delimiters. Messages always start with a question mark (?) or equal sign (=). Message always terminated with CR (carriage return character). ? mean query and = means set message. LF is added to the response messages. This makes it lot easier to test the commands with a terminal program.

| Start | Message | Stop |
|---|---|---|
| ? | Query Message | CR |
| = | Set message | CR |

Messages may be only one character long (command character only) or command and parameters. See command descriptions bellow.

| Command Character | Parameter |
|---|---|
| F | Frequency |
| O | Operating mode |
| T | PTT status |
| K | Keyer type |
| G | Mode |
| S | CW speed |
| D | QRSS & DFCW dot time |
| R | DFCW dash shift |
| P | TX Power level |
| X | Spare I/O state |
| A | Pre amplifier state |
| C | Frequency converter state |
| M | CW Beacon Message |
| E | Save CW beacon msg to the EPROM |
| B | CW & WSPR Beacon control |
| W | WSPR parameters |
| I | System Info |

## Frequency [F]

TX frequency resolution is 1Hz.

F Query

| ? | F | CR |
|---|---|----|

TX136/TX500 response (example)

| = | F | 4 | 7 | 2 | 0 | 0 | 0 | CR | LF |
|---|---|---|---|---|---|---|---|----|----|

F Set

| = | F | 1 | 3 | 6 | 5 | 0 | 0 | CR | LF |
|---|---|---|---|---|---|---|---|----|----|

All 6-digits must be set.

## Operating mode [O]

O Query

| ? | O | CR |
|---|---|----|

TX136/TX500 response (example)

| = | O | 1 | CR | LF |
|---|---|---|----|----|

O Set

| = | O | 0 | CR |
|---|---|---|----|

| Number | Operating Mode |
|--------|----------------|
| 0 | STANDBY |
| 1 | OPERATE |
| 2 | TUNE |

## PTT status [T]

PTT status is query only command.

T Query

| ? | T | CR |
|---|---|----|

TX136/TX500 response (example)

| = | T | 1 | CR | LF |
|---|---|---|----|----|

| Number | PTT |
|--------|-----|
| 0 | Off |
| 1 | On |

## Keyer type [K]

K Query

| ? | K | CR |
|---|---|----|

TX136/TX500 response (example)

| = | K | 2 | CR | LF |

K Set

| = | K | 0 | CR |

| Number | Keyer |
|---|---|
| 0 | Dot priority |
| 1 | Iambic A |
| 2 | Iambic B |
| 3 | Straight |
| 4 | Beacon |

## Mode [G]

G Query

| ? | G | CR |

TX136/TX500 response (example)

| = | G | 2 | CR | LF |

G Set

| = | G | 0 | CR |

| Number | Mode |
|---|---|
| 0 | CW |
| 1 | QRSS |
| 2 | DFCW |
| 3 | WSPR-2 |
| 4 | WSPR-15 |

## CW speed [S]

S Query

| ? | S | CR |

TX136/TX500 response (example)

| = | S | 1 | 5 | 0 | CR | LF |

S Set

| = | S | 1 | 5 | 0 | CR |

CW speed resolution is 0.1 wpm. All 3 digits must be entered. 200 = 20.0 wpm, 005 = 0.5wpm. Acceptable range is from 0.1 wpm to 50.0 wpm.

## QRSS & DFCW dot time [D]

D Query

| ? | D | CR |

TX136/TX500 response (example)

| = | D | 1 | 2 | 0 | CR | LF |

D Set

| = | D | 0 | 6 | 0 | CR |

CW dot time resolution is 1 s. All 3 digits must be entered. 120 = 120 s, 003 = 3 s. Acceptable range is from 1 s to 120 s.

**DFCW dash shift [R]**

R Query

| ? | R | CR |

TX136/TX500 response (example)

| = | R | 1 | 0 | CR | LF |

R Set

| = | R | 0 | 2 | CR |

CW dash shift time resolution is 0.1 Hz. All 2 digits must be entered. 10 = 1.0 Hz, 02 = 0.2 Hz. Acceptable range is from 0.1 Hz to 5.0 Hz.

**TX power level [P]**

P Query

| ? | P | CR |

TX136/TX500 response (example)

| = | P | 2 | CR | LF |

P Set

| = | P | 0 | CR |

| Number | Power level |
|--------|-------------|
| 0 | MIN |
| 1 | LOW |
| 2 | HI |
| 3 | MAX |

**Spare I/O state [X]**

X Query

| ? | X | CR |

TX136/TX500 response (example)

| = | X | 0 | CR | LF |

X Set

| = | X | 1 | CR |

| Number | Spare I/O state |
|--------|-----------------|
| 0 | OFF |
| 1 | ON |

## Pre Amplifier state [A]

A Query

| ? | A | CR |

TX136/TX500 response (example)

| = | A | 0 | CR | LF |

A Set

| = | A | 1 | CR |

| Number | Pre Amplifier state |
|--------|---------------------|
| 0 | OFF |
| 1 | 10 dB |
| 3 | 20 dB |

## Frequency converter state [C]

C Query

| ? | C | CR |

TX136/TX500 response (example)

| = | C | 0 | CR | LF |

C Set

| = | C | 1 | CR |

| Number | Frequency converter state |
|--------|---------------------------|
| 0 | OFF |
| 1 | ON |

## Beacon message [M]

M Query

| ? | M | CR |

TX136/TX500 response (example)

| = | M | vvv vvv de JUMA Beacon # | CR | LF |

M Set

| = | M | \P1vvv \P2 vvv \P3vvv de OH2NLT 500kHz Beacon # | CR |

Beacon message can be 238 characters long. See Beacon instructions for special control character actions. M command does not store message into the EPROM. Use E command for EPROM write. Enable for CW, QRSS and DFCW modes.

## Store beacon message to the EPROM memory [E]

E Set

| = | E | CR |

E is a set only command.

## Beacon control [B]

B Query

| ? | B | CR |

TX136/TX500 response (example)

| = | B | 0 | CR | LF |

B Set

| = | B | C | CR |

| Parameter | Beacon |
|---|---|
| 0 | Beacon Off |
| 1...9 | Beacon On for n times |
| C | Beacon On continously |

## WSPR parameters  [W]

W Query

| ? | W | Sub command | CR |

W Set

| = | W | Sub command | CR |

| Sub command | Action |
|---|---|
| F | Frame |
| C | Callsign |
| G | Locator |
| P | Power level |

### *WSPR frame*

WF Query

| ? | W | F | CR |

TX136/TX500 response (example)

| = | W | F | 0 | CR | LF |

WF Set

| = | W | F | 2 | CR |

| Number | TX sequences * |
|--------|----------------|
| 0 | One play |
| 1 | Continously play : 100% |
| 2 | TX 1 timeslot / 2 : 50% |
| 3 | TX 1 timeslot / 3 : 33% |
| 4 | TX 1 timeslot / 4 : 25% |

* Start at the next timeslot after running

### *WSPR callsign*

WC Set

| ? | W | C | CR |
|---|---|---|----|

TX136/TX500 response (example)

| = | W | C | K1JT | CR | LF |
|---|---|---|------|----|----|

WC Set

| = | W | C | F4GCB | CR |
|---|---|---|-------|----|

6 characters max. Standard callsign. No prefixe or suffixe.

### *WSPR grid*

WG Query

| ? | W | G | CR |
|---|---|---|----|

TX136/TX500 response (example)

| = | W | G | F | N | 2 | 0 | CR | LF |
|---|---|---|---|---|---|---|----|----|

WG Set

| = | W | G | I | N | 7 | 8 | CR |
|---|---|---|---|---|---|---|----|

4-character mainhead grid locator must be entered.

### *WSPR power level in dBm for max power*

WP Query

| ? | W | P | CR |
|---|---|---|----|

TX136/TX500 response (example)

| = | W | P | 3 | 0 | CR | LF |
|---|---|---|---|---|----|----|

WP Set

| = | W | P | 1 | 7 | CR |
|---|---|---|---|---|----|

Acceptable range is from 0 to 60 dBm. All 2 digits must be entered.
The power level is automatically modified according standard WSPR levels and TX136/500 power.

**System info [I]**

System info is a query only command.

I Query

| ? | I | CR |

or

| ? | I | Sub command | CR |


| Sub command | Action |
|---|---|
| none | System info |
| I | System info |
| P | Power meter reading |
| S | SWR meter reading |
| B | Battery voltage |
| D | Drain current |

System Info
II Query

| ? | I | I | CR |

TX136/TX500 response (example)

| = | I | I | JUMA-TX500, SW v1.06a, DATE 08.10.2014 | CR | LF |

TX Power, resolution 0.1W. Example 527 = 52.7W.
IP Query

| ? | I | P | CR |

TX136/TX500 response (example)

| = | I | P | 5 | 2 | 7 | CR | LF |

SWR meter reading. Example 100 = 1.00
IS Query

| ? | I | S | CR |

TX136/TX500 response (example)

| = | I | S | 1 | 0 | 0 | CR | LF |

Battery voltage, resolution 10mV. Example 1350 = 13.50V.
IB Query

| ? | I | B | CR |

TX136/TX500 response (example)

| = | I | B | 1 | 3 | 5 | 0 | CR | LF |

Drain current, resolution 0.1A. Example 12 = 1.2A.
ID Query

| ? | I | D | CR |

TX136/TX500 response (example)

| = | I | D | 1 | 2 | CR | LF |

**No action characters**

For input format flexibility, certain characters are defined as no action characters.

| | |
|---|---|
| 0x0A | Line feed |
| 0x00 | NUL |