

TX136/500 v1.07 menu – F4GCB 08-2015

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Starting up				
PWR (short)	JUMA TX136 1.07a OH2NLT OH7SV	2" delay	----- PWR MIN CW20 STBY 136000	Display mode

Shutdown				
PWR (long)	Pwr OFF after 3s	3" push		Bye bye

Service mode starting up				
PWR (start long)	JUMA TX136 1.07a Service Mode	Stop push	Set Ref Osc Freq Osc 20000000 Hz	Service mode

Display mode					Serial protocol : TX136/500
DISPLAY (short)	----- PWR MIN CW20 STBY 136000 ↓ ----- SWR N/A CW20 STBY 136000 ↓ ----- 13.60 U CW20 STBY 136000 ↓ ----- I --.-A CW20 STBY 136000 ↓ Mode 15 T 23:05 WSPR STBY 136000 ↵	If TX	----- P 4.0 W CW20 TX 136000 ↓ ----- SWR 1.1 CW20 TX 136000 ↓ ----- 13.45 U CW20 TX 136000 ↓ ----- I 0.4A CW20 TX 136000 ↓ S 001:1 T 02:01 WSPR TX 136000 ↵	Output power display	Serial query : ? I P CR
				SWR display	Serial query : ? I S CR
				Supply voltage display	Serial query : ? I B CR
				Drain current display	Serial query : ? I D CR
				Timer display only for WSPR mode	Serial query : ? W T CR
DISPLAY (long)	Mode TX Mode = CW	Configuration mode			

Display mode (continued)				Serial protocol : TX136/500
RF PWR	----- PWR MIN CW20 STBY 136000		Set TX power to min level : 4 W	Serial query : ? P CR Serial set : = P 0 CR
	↓			
	----- PWR LOW CW20 STBY 136000		Set TX power to low level : 15 W	Serial query : ? P CR Serial set : = P 1 CR
	↓			
	----- PWR HI CW20 STBY 136000		Set TX power to high level : 35 W	Serial query : ? P CR Serial set : = P 2 CR
	↓			
	----- PWR MAX CW20 STBY 136000		Set TX power to max level : 60 W	Serial query : ? P CR Serial set : = P 3 CR
	↵			
FREQ+ / FREQ -	----- PWR MIN CW20 STBY 136000		Set frequency : step 1 Hz	Serial query : ? F CR Serial set : = F 1 3 6 0 0 0 CR
FREQ+ / FREQ - (hold)	----- PWR MIN CW20 STBY 136100	RF PWR	Set frequency : step 100 Hz	Serial query : ? F CR Serial set : = F 1 3 6 1 0 0 CR
OPER (short)	----- PWR MIN CW20 STBY 136000		Stand By : TX is not allowed.	Serial query : ? O CR Serial set : = O 0 CR
	↓			
	----- PWR MIN CW20 OPER 136000		Operation : TX ready to transmit.	Serial query : ? O CR Serial set : = O 1 CR
	↓			
	----- PWR MIN CW20 TUNE 136000		Tune : use a key to tune.	Serial query : ? O CR Serial set : = O 2 CR
	↵			
OPER (short)	----- PWR MIN CW20 SWR 136000		Stop the alarm display. SWR (see Configuration mode) , CURR (over current from PA) or MSG (see Beacon configuration mode).	

Display CW mode				Serial protocol : TX136/500
CW UP / DOWN	----- PWR MIN CW20 STBY 136000		CW speed Set : 1 to 50 wpm	Serial query : ? S CR Serial set : = S 2 0 CR [01 to 50]
KEYER	----- P 4.0W CW20 TX 136000		Run the CW with the keyer.	
Display CW Beacon mode				Serial protocol : TX136/500
PWR (short)	S@d 20 PWR MIN CW STBY 136000	CW UP / DOWN	CW speed Set : 1 to 50 wpm	Serial query : ? S CR Serial set : = S 2 0 CR [01 to 50]
	↓			
	TX x01 PWR MIN CW STBY 136000	CW UP / DOWN	CW frame availabled : ... : continuously, xxx : play 1 to 99	Serial query : ? Q CR Serial set : = Q 0 1 CR [00 to 99]
	↓			
	M@s [TES PWR MIN CW STBY 136000		CW beacon message scrolling display.	Serial query : ? M CR
	← or ↓ if TX			
	T P 4.0W CW TX 136000	TX	The transmitted character is displayed.	
	↵			
OPER (long)	S@d 20 PWR MIN CW OPER 136000		Run the CW beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
	T P 4.0W CW TX 136000		The message characters are displayed during the TX. After a message TX the beacon is transmitting again according the frame.	
	↓			
	S@d 20 PWR MIN CW OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
	↵			


Display QRSS mode				Serial protocol : TX136/500
PWR (short)	Dot 030 PWR MIN QRSS STBY 136000	CW UP / DOWN	QRSS dot time Set : 1 to 120 s	Serial query : ? D CR Serial set : = D 0 3 0 CR [0 0 1 to 1 2 0]
	↓			
	TX x01 PWR MIN QRSS STBY 136000	CW UP / DOWN	QRSS frame availabled : ... : continuously, xxx : play 1 to 99	Serial query : ? Q CR Serial set : = Q 0 1 CR [00 to 99]
	↓			
	Mse [TES PWR MIN QRSS STBY 136000		QRSS beacon message scrolling display.	Serial query : ? L CR
	↩ or ↓ if TX			
	QRSS T P 4.0W TX 136000	TX	The transmitted character is displayed.	
	↩			
OPER (long)	Dot 030 PWR MIN QRSS OPER 136000		Run the QRSS beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
	QRSS T P 4.0W TX 136000		The message characters are displayed during the TX. After a message TX the beacon is transmitting again according the frame.	
	↓			
	Dot 030 PWR MIN QRSS OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
	↩			

Display DFCW mode				Serial protocol : TX136/500
PWR (short)	Dot 030 PWR MIN DFCW STBY 136000	CW UP / DOWN	DFCW dot time Set : 1 to 120 s	Serial query : ? D CR Serial set : = D 0 3 0 CR [0 0 1 to 1 2 0]
	↓			
	Fsk 0.1 PWR MIN DFCW STBY 136000	CW UP / DOWN	DFCW dash shift Set : 0.1 to 5 Hz	Serial query : ? R CR Serial set : = R 1 0 CR [0 1 to 5 0]
	↓			
	TX x01 PWR MIN DFCW STBY 136000	CW UP / DOWN	DFCW frame availabled : ... : continuously, xXX : play 1 to 99	Serial query : ? Q CR Serial set : = Q 0 1 CR [0 0 to 9 9]
	↓			
OPER (long)	Mse CTES PWR MIN DFCW STBY 136000		DFCW beacon message scrolling display.	Serial query : ? L CR
	↵ or ↓ if TX			
	T P 4.0W DFCW TX 136000	TX	The transmitted character is displayed.	
	↵			
OPER (long)	Dot 030 PWR MIN DFCW OPER 136000		Run the DFCW beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
	T P 4.0W DFCW TX 136000		The message characters are displayed during the TX. After a message TX the beacon is transmitting again according the frame.	
	↓			
OPER (long)	Dot 030 PWR MIN DFCW OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
	↵			

Display JASON mode				Serial protocol : TX136/500
PWR (short)	Normal PWR MIN JSON STBY 136000	CW UP / DOWN	JASON speed available (characters/min) : Slow (0.3), Slow+ (0.6) , Normal (2.5), Normal+ (5), Fast (20), Fast+ (40). Unfortunately the TX136 DDS resolution is incompatible with slow speed. No tested with TX500.	Serial query : ? J S CR Serial set : = J S 2 CR [2 to 5]
	↓			
	TX ... PWR MIN JSON STBY 136000	CW UP / DOWN	JASON frame available : ... : continuously, xxx : play 1 to 99	Serial query : ? J F CR Serial set : = J F 0 0 CR [00 to 99]
	X			
	Mse [TES PWR MIN JSON STBY 136000		JASON beacon message scrolling display.	Serial query : ? L CR
	↩ or ↓ if TX			
OPER (long)	T P 4.0W JSON TX 136000	TX	The transmitted character is displayed.	
	↩			
	Normal PWR MIN JSON OPER 136000		Run the JASON beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
OPER (long)	T P 4.0W JSON TX 136000		The message characters are displayed during the TX. After a message TX the beacon is transmitting again according the frame.	
	↓			
	Normal PWR MIN JSON OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
OPER (long)	↩			

Display OPERA mode				Serial protocol : TX136/500
PWR (short)	Mode 2 PWR MIN OPRA STBY 136000	CW UP / DOWN	OPERA mode availabled : OPERA 2, 4, 8, 16, 32 and 65	Serial query : ? H S CR Serial set : = H S 0 CR [0 to 5]
	↓			
	TX 50% PWR MIN OPRA STBY 136000	CW UP / DOWN	OPERA frame availabled : x1 : one play, 100% : continuously, 50% : 1 timeslot out of 2, 33% : 1 timeslot out of 3, 25% : 1 timeslot out of 4, 20% : 1 timeslot out of 5.	Serial query : ? H F CR Serial set : = H F 2 CR [0 to 5]
	↓			
	Mse INOC PWR MIN OPRA STBY 136000		OPERA beacon message scrolling display.	Serial query : ? W C CR
	↩ or ↓ if TX			
	S 001:1 P 4.0W OPRA TX 136000	TX	The transmitted symbol is displayed.	
	↩			
OPER (long)	Mode 2 PWR MIN OPRA OPER 136000		Run the OPERA beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
	S 001:1 P 4.0W OPRA TX 136000	⇔	00:01:27 PWR MIN OPRA WAIT 136000	The symbol number (1 to 239) and the symbol value (0 to 1) are displayed during the TX. After a timeslot TX the beacon is waiting the next available timeslot.
	↓			
	Mode 2 PWR MIN OPRA OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
	↩			

Display WSPR mode				Serial protocol : TX136/500
PWR (short)	Mode 2 PWR MIN WSPR STBY 136000	CW UP / DOWN	WSPR mode available : WSPR-2 and WSPR-15	Serial query : ? W S CR Serial set : = W S 0 CR [0 to 1]
	↓			
	TX 25% PWR MIN WSPR STBY 136000	CW UP / DOWN	WSPR frame available : x1 : one play, 100% : continuously, 50% : 1 timeslot out of 2, 33% : 1 timeslot out of 3, 25% : 1 timeslot out of 4, 20% : 1 timeslot out of 5.	Serial query : ? W F CR Serial set : = W F 4 CR [0 to 5]
	↓			
	Mse [NOC PWR MIN WSPR STBY 136000		WSPR beacon message scrolling display.	Serial query [call] : ? W C CR Serial query [locator] : ? W L CR Serial query [power] : ? W P CR Serial query [loc GPS] : ? W R CR
	↩ or ↓ if TX			
	S 001:1 T 02:01 WSPR TX 136000	TX	The transmitted symbol is displayed.	
	↩			
OPER (long)	Mode 2 T 01:50 WSPR OPER 136000		Run the WSPR beacon with a long OPER button push.	Serial query : ? B CR Serial set : = B 1 CR [0 to 1]
	↓			
	00:00:10 T 01:53 WSPR WAIT 136000		The beacon is waiting the next timeslot.	
	↓			
	S 001:1 T 02:01 WSPR TX 136000	↔	00:03:14 T 03:55 WSPR WAIT 136000	The beacon transmits when the timeslot is enabled. The symbol number (1 to 162) and the symbol value (0 to 3) are displayed during the TX. After a timeslot TX the beacon is waiting again the next available timeslot.
	↓			
	Mode 2 T 02:02 WSPR OPER 136000		Stop the beacon.	Serial query : ? B CR Serial set : = B 0 CR [0 to 1]
	↩			

Configuration mode				Serial protocol : TX136/500
DISPLAY (short)	TX Mode Mode = CW	UP / DOWN	TX Mode availabled : CW, QRSS, DFCW, JASON, OPERA, WSPR.	Serial query : ? G CR Serial set : = G 0 CR [0 to 5]
	↓			
	WSPR Timer T 59:00	UP / DOWN	WSPR Timer Set minute timer with the help of beep 	Serial query : ? W T CR Serial set : = W T 3 5 4 0 CR [0 to 3559]
	OR			
	WSPR Timer T^23:17		WSPR Timer Set timer automaticaly with the GPS if connected and availabled	
	↓			
	Pre Amplifier Select = OFF	UP / DOWN	Pre Amplifier Set : OFF, 10dB, 20 dB	Serial query : ? A CR Serial set : = A 0 CR [0 to 2]
	↓			
	10MHz Converter Select = OFF	UP / DOWN	RX Converter : ON / OFF 10 MHz (TX136), 3.5 MHz (TX500)	Serial query : ? C CR Serial set : = C 0 CR [0 to 1]
	↓			
	CW Keyer Type Keyer = Iambic B	UP / DOWN	CW Keyer Type availabled : Dot priority, Iambic A, Iambic B, Straight, Beacon	Serial query : ? K CR Serial set : = K 2 CR [0 to 4]
	↓			
	CW Sidetone Tone = 700Hz	UP / DOWN	CW Sidetone Set : OFF, 250 to 2000 Hz, step 50 Hz	
	↓			

Configuration mode (continued)					Serial protocol : TX136/500
DISPLAY (short)	SWR Prot PWR MIN Limit = 30.0	RF PWR	SWR Prot PWR MIN Limit = 30.0	UP / DOWN	Max SWR acceptable for PWR MIN Set : 1 to 101, step 0.1
	↓		↓		
	SWR Prot PWR LOW Limit = 15.0		SWR Prot PWR LOW Limit = 15.0	UP / DOWN	Max SWR acceptable for PWR LOW Set : 1 to 101, step 0.1
	↓		↓		
	SWR Prot PWR HI Limit = 6.0		SWR Prot PWR HI Limit = 6.0	UP / DOWN	Max SWR acceptable for PWR HI Set : 1 to 101, step 0.1
	↓		↓		
	SWR Prot PWR MAX Limit = 3.0		SWR Prot PWR MAX Limit = 3.0	UP / DOWN	Max SWR acceptable for PWR MAX Set : 1 to 101, step 0.1
	↩		↩		
	Displ Brightness LCD BL = 100	UP / DOWN	Display Brightness		Set : 0 to 1100, step 50
	↓				
	Displ Contrast Contrast = 2000	UP / DOWN	Display Contrast		Set : 0 to 3500, step 50
	↓				
	Serial Protocol RS232 = Terminal	UP / DOWN	Serial Protocol availabled :		TX136/500, Terminal, GPS NMEA
	↓				
	Serial Speed Baud Rate=9600	UP / DOWN	Serial Speed		Set : 2400 to 115200 bauds
	↓				
	TX Control Select = Auto	UP / DOWN	TX Control		MOX or Auto
	↓				

Configuration mode (continued)				Serial protocol : TX136/500
DISPLAY (short)	SPARE I/O signal Select = OFF	UP / DOWN	SPARE I/O signal : ON / OFF	Serial query : ? X CR Serial set : = X 0 CR [0 to 1]
	↵			
DISPLAY (long)	----- PWR MIN CW20 STBY 136000	Display mode		All Config and Beacon parameters are saved in EEPROM.
PWR (short)	CW beacon TEST DE JUMA BEA	Beacon configuration mode		

Beacon configuration mode					Serial protocol : TX136/500
DISPLAY (short)	CW beacon TEST DE JUMA BEA	UP / DOWN	CW beacon text Move the cursor	The CW beacon text can have until 256 characters. Valid ASCII characters : 20h (space) to 5Fh (Z). More informations with CW Beacom programming page.	Serial query : ? M CR Serial set : = M T E S T D E J U M A B E A C O N C R Save in EEPROM Serial set : = E C R
	↓	FREQ+ / FREQ-	Modify the charater selected		
		OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	QRSS/DFCW/JASON TEST	UP / DOWN	QRSS/DFCW/JASON beacon text Move the cursor	The QRSS, DFCW & JASON beacon text can have until 16 characters. Valid ASCII characters : 20h (space) to 5Fh (Z).	Serial query : ? L CR Serial set : = L T E S T C R
	↓	FREQ+ / FREQ-	Modify the charater selected		
		OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	WSPR/OPERA call N0CAL ok	UP / DOWN	WSPR/OPERA call text Move the cursor	The WSPR & OPERA call must be a standard callsign with 6 characters max. Add-on prefix or suffix are not allowed. Valid characters : A-Z 0-9 If the WSPR & Opera call is not valid nok is displayed then during the eeprom save an MSG alarm is started and the default value is imposed.	Serial query : ? W C CR Serial set : = W C N 0 C A L CR
	↓	FREQ+ / FREQ-	Modify the charater selected		
		OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	WSPR locator JJ00 ok	UP / DOWN	WSPR locator text Move the cursor	The WSPR locator must be 4-character maidenhead grid. Valid characters : A-R 0-9 If the WSPR locator is not valid nok is displayed then during the eeprom save an MSG alarm is started and the default value is imposed.	Serial query : ? W L CR Serial set : = W L J J 0 0 CR
	↓	FREQ+ / FREQ-	Modify the charater selected		
		OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		

Configuration mode					Serial protocol : TX136/500
DISPLAY (short)	WSPR power 30 dBm PWR MAX	UP / DOWN	WSPR power Set : 0 to 60 dBm for PWR MAX Step according to WSPR protocol	The WSPR level will be automatically modified according the TX136/500 power and the WSPR protocol.	Serial query : ? W P CR Serial set : = W P 3 0 CR [0 0 to 6 0]
	↓				
	WSPR GPS locator Locator = OFF	UP / DOWN	WSPR GPS locator Set : OFF, ON	The WSPR locator can be replaced by the GPS locator if this last is valid.	Serial query : ? W G CR Serial set : = W G 0 CR [0 to 2]
	↩				
PWR (short)	TX Mode Mode = CW	Configuration mode			
DISPLAY (long)	----- PWR MIN CW20 STBY 136000	Display mode		All Config and Beacon parameters are saved in EEPROM.	

Service Mode			
DISPLAY (short)	Set Ref Osc Freq Osc 20000000 Hz	UP / DOWN	Set Reference Oscillator Frequency Default : 20 MHz (TX136), 6 MHz (TX500) Set : ± 1000 Hz step 10 Hz
	↓		
	SUPPLY 13.60 V Cal mult = 135	UP / DOWN	Supply Voltage Calibration Factor Default : 135 Set : 100 to 200
	↓		
	Beep len, 0=OFF Beep = 50 ms	UP / DOWN	Beep Time Default : 50 ms Set : 0 to 100 ms
	↓		
	Forward Power Cal mult = 20	UP / DOWN	Forward Power Calibration Factor Default : 20 Set : 0 to 100
	↓		
	Drain Current Cal mult = 4000	UP / DOWN	Drain Current Calibration Factor Default : 4000 Set : 3000 to 5000
	↓		
	CW break period 07 Units	UP / DOWN	CW break period Default : 7 Set : 5 to 10
	↓		
	WSPR timer Cal 10 Units	UP / DOWN	WSPR Timer Calibration Factor : if the timer puts back increase the value, else decrease the value. Default : 10 Set : 0 to 20
	↓		
	Push OPER long = Factory defaults	OPER (long)	Factory setup ok
	↩		
Display mode			
OPER (short)	Calibr. Saved	Display mode	

Serial command and query protocol

General :

JUMA TX136/TX500 serial protocol is JUMA TX136/TX500 native way to communicate with another system.

The JUMA TX136/TX500 serial 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).

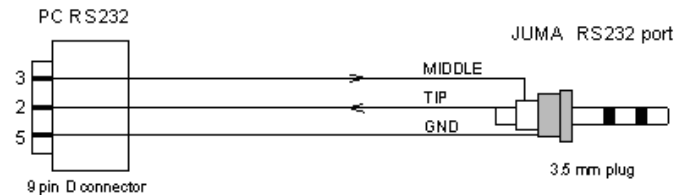
? mean query and = means set message. LF is added to the response messages. This makes it lot easier to test the commands with a terminal program.

Start	Message	Stop
?	Query Message	CR
=	Set message	CR

No action characters :

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

0x0A	Line feed
0x00	NUL



CW Beacon programming

1. Enter your message.	CW beacon TEST DE JUMA BEA	See	Beacon configuration mode
↓			
2. Select the speed.	Spd 20 PWR MIN CW STBY 136000	See	Display mode
↓			
3. Select the TX frame.	TX x01 PWR MIN CW STBY 136000	See	Display mode

Valid characters			Valid control characters (starting with back slash)
US ASCII a-z and A-Z	? -.-.- Question mark	: -.-.- Colon	\pn Power level, n = 0...3.
Numbers 0-9	@ -.-.- At sign	; -.-.- Semicolon	\fnnnnnn Frequency, nnnnnn in Hz.
<space> Space	" -.-.- Quotation mark	! -.-.- Start	\gn Mode, n = 0 to 2
, -.-.- Comma	' -.-.- Apostrophe	(-.-.- Parenthesis open "KN"	\snnn CW speed, nnn = 001...500
- -.-.- Hyphen/minus	\$ -.-.- Dollar sign	& -.-.- Wait "AS"	\dnnn QRSS and DFCW dot time, nnn = 001 to 120
. -.-.- Dot) -.-.- Parenthesis closed	# -.-.- End of message "AR"	\rnn DFCW dash shift, nn = 01 to 50
/ -.-.- Slash	+ -.-.- Plus	* -.-.- End of contact "SK"	\xn Spare open collector output. ON n=1, OFF n=0.
= -.-.- double dash			

The message can include also control characters which are controlling TX136/500 parameters during transmission. These parameters are CW mode (CW, QRSS, DFCW), CW speed (WPM), CW dot time (s), DFCW dash shift (DDS steps number), Output power (MIN, LOW, HI, MAX), the Transmitter frequency (Hz) and Spare open collector output. Because of that it is possible to use CW beacon mode to send long QRSS or DFCW message which starting with the control charater \g1 or \g2.

QRSS Beacon programming

1. Enter your message.	QRSS/DFCW/JASON TEST	See	Beacon configuration mode
↓			
2. Select the speed.	Dot 030 PWR MIN QRSS STBY 136000	See	Display mode
↓			
3. Select the TX frame.	TX x01 PWR MIN QRSS STBY 136000	See	Display mode

DFCW Beacon programming

1. Enter your message.	QRSS/DFCW/JASON TEST	See	Beacon configuration mode
↓			
2. Select the speed.	Dot 030 PWR MIN DFCW STBY 136000	See	Display mode
↓			
3. Select the dash shift.	Fsk 0.1 PWR MIN DFCW STBY 136000	See	Display mode
↓			
3. Select the TX frame.	TX x01 PWR MIN DFCW STBY 136000	See	Display mode


JASON Beacon programming

1. Enter your message.	QRSS/DFCW/JASON TEST	See	Beacon configuration mode
↓			
2. Select the speed.	Normal PWR MIN JSON STBY 136000	See	Display mode
↓			
3. Select the TX frame.	TX ... PWR MIN JSON STBY 136000	See	Display mode

OPERA Beacon programming

1. Enter your standard callsign.	WSPR/OPERA call N0CAL ok	See	Beacon configuration mode
↓			
2. Select the mode.	Mode 2 PWR MIN OPRA STBY 136000	See	Display mode
↓			
3. Select the TX frame.	TX x1 PWR MIN OPRA STBY 136000	See	Display mode

WSPR Beacon programming

1. Enter your standard callsign.		WSPR/OPERA call M0CAL ok	See	Beacon configuration mode	
↓					
2. Enter your 4-character main grid locator.		WSPR locator JJ00 ok	See	Beacon configuration mode	
↓					
3. Enter the dB level for the TX136/500 power max.		WSPR Power 30 dBm PWR MAX	See	Beacon configuration mode	
↓					
4. Select GPS locator option.		WSPR GPS locator Locator = OFF	See	Beacon configuration mode	
↓					
GPS used on JUMA RS232 port	5. select RS232 = GPS NMEA.	Serial Protocol RS232 = GPS NMEA	See	Configuration mode	The optional GPS receiver must provide a \$GPGGA NMEA sentence.
	5 bis. select Baud rate = 4800.	Serial Speed Baud Rate=4800	See	Configuration mode	Some GPS receivers can use a different baud rate from the NMEA standard.
	5 ter. Connect the GPS receiver to the JUMA TX136/500 RS232 port.	WSPR Timer T^23:17	See	Configuration mode	If the \$GPGGA NMEA sentence is read correctly then the ^ character is displayed with GPS timer value.
or					
GPS used on control module J1	5. Connect the GPS receiver to the JUMA control module J1 pin (UART2).	WSPR Timer T^23:17	See	Configuration mode	Automatic detection between 4800 and 9600 baud rate at the starting up. If the \$GPGGA NMEA sentence is read correctly then the ^ character is displayed with GPS timer value.
or					
No GPS	5. Set the minute timer.	 WSPR Timer T 59:00	See	Configuration mode	
↓					

WSPR Beacon programming (continued)

6. Select the mode.	Mode 2 PWR MIN WSPR STBY 136000	See	Display mode
↓			
7. Select the TX frame.	TX x1 PWR MIN WSPR STBY 136000	See	Display mode

