TX136/500 v1.15 menu – F4GCB 04-2023

Starting up				
PWR (short)	TX136-500 1.15 OH2NLT OH7SV	2" delay	--------- PWR MIN CW20 STBY 136000	**Display mode**

Shutdown				
PWR (long)	Pwr OFF after 3s	3" push		**Bye bye** The user settings are saved in EEPROM.

Service mode starting up				
PWR (start long)	TX136-500 1.15 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	**If TX**	---------- P 4.0 W CW20 TX 136000	Output power display	Serial query : **?IP***CR*
	↓		↓		
	---------- SWR N/A CW20 STBY 136000		---------- SWR 1.1 CW20 TX 136000	SWR display	Serial query : **?IS***CR*
	↓		↓		
	---------- 13.60 V CW20 STBY 136000		---------- 13.45 V CW20 TX 136000	Supply voltage display	Serial query : **?IB***CR*
	↓		↓		
	---------- I --.-A CW20 STBY 136000		---------- I 0.4A CW20 TX 136000	Drain current display	Serial query : **?ID***CR*
	↓		↓		
	Mode 15 T 23:05 WSPR STBY 136000		S 001:1 T 02:01 WSPR TX 136000	Timer display only for WSPR, FST4W, JT9 and Script modes	Serial query : **?N***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 : **=P0***CR*
	↓			
	---------- PWR LOW CW20 STBY 136000		Set TX power to low level : **15 W**	Serial query : **?P***CR* Serial set : **=P1***CR*
	↓			
	---------- PWR HI CW20 STBY 136000		Set TX power to high level : **35 W**	Serial query : **?P***CR* Serial set : **=P2***CR*
	↓			
	---------- PWR MAX CW20 STBY 136000		Set TX power to max level : **60 W**	Serial query : **?P***CR* Serial set : **=P3***CR*
	↵			
FREQ+ / FREQ -	---------- PWR MIN CW20 STBY 136000		Set frequency : step 1 Hz	Serial query : **?F***CR* Serial set : **=F136000***CR*
FREQ+ / FREQ - (hold)	---------- PWR MIN CW20 STBY 136100	**RF PWR**	Set frequency : step 100 Hz	Serial query : **?F***CR* Serial set : **=F136100***CR*
OPER (short)	---------- PWR MIN CW20 STBY 136000		**Stand By** : TX is not allowed.	Serial query : **?O***CR* Serial set : **=O0***CR*
	↓			
	---------- PWR MIN CW20 OPER 136000		**Operation** : TX ready to transmit.	Serial query : **?O***CR* Serial set : **=O1***CR*
	↓			
	---------- PWR MIN CW20 TUNE 136000	**CW UP / DOWN**	**Tune** : use a key to tune or CW UP to start the tune and CW DOWN to stop it.	Serial query : **?O***CR* Serial set : **=O2***CR*
	↵			
OPER (short)	---------- PWR MIN CW20 SWR 136000		Stop the alarm display. SWR (see Configuration mode) , CURR (over current from PA), MSG (beacon text via serial set too long), CALL or LOC (see Beacon configuration mode), RLY (internal error : antenna relay off and PA power on), BAND (out of band with AFP interface).	

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 : **=S200***CR* **[10 to 500 by step 10]**
KEYER	|||------ P 4.0W CW20 TX 136000		Run the CW with the keyer.	

Display CW Beacon mode				Serial protocol : TX136/500
PWR (short)	Spd 20 PWR MIN CW STBY 136000	**CW UP / DOWN**	**CW speed** Set : 1 to 50 wpm	Serial query : **?S***CR* Serial set : **=S200***CR* **[10 to 500 step 10]**
	↓			
	TX x01 PWR MIN CW STBY 136000	**CW UP / DOWN**	**CW frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?Q***CR* Serial set : **=Q1***CR* **[0 to 5]**
	↓			
	Text [TE PWR MIN CW STBY 136000		CW beacon message scrolling display.	Serial query : **?E***CR*
	↵ or ↓ if TX			
	T P 4.0W CW TX 136000	**TX**	The transmitted character is displayed.	
	↵			
OPER (long)	Spd 20 PWR MIN CW OPER 136000		Run the CW beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	T P 4.0W CW TX 136000		00:00:20 PWR MIN CW WAIT 136000 The message characters are displayed during the TX. After a message TX the beacon is waiting the next available timeslot.	
	↵ or ↓ if manual stop			
	Spd 20 PWR MIN CW OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

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 : **=D30***CR* **[1 to 120]**
	↓			
	TX x01 PWR MIN QRSS STBY 136000	**CW UP / DOWN**	**QRSS frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?Q***CR* Serial set : **=Q1***CR* **[0 to 5]**
	↓			
	Text [TE PWR MIN QRSS STBY 136000		QRSS beacon message scrolling display. The scrolling display ends with '+ld' symbol if the CW identity is selected.	Serial query : **?H***CR*
	↵ or ↓ if TX			
	T P 4.0W QRSS 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, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	T P 4.0W QRSS TX 136000		00:00:20 PWR MIN QRSS WAIT 136000 — The message characters are displayed during the TX. After a message TX the beacon is waiting the next available timeslot.	
	↵ or ↓ if manual stop			
	Dot 030 PWR MIN QRSS OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

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 : **=D30***CR* **[1 to 120]**
	↓			
	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 : **=R10***CR* **[1 to 50]**
	↓			
	TX x01 PWR MIN DFCW STBY 136000	**CW UP / DOWN**	**DFCW frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?Q***CR* Serial set : **=Q1***CR* **[0 to 5]**
	↓			
	Text [TE PWR MIN DFCW STBY 136000		DFCW beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.	Serial query : **?H***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, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	T P 4.0W DFCW TX 136000		00:00:20 PWR MIN DFCW WAIT 136000 — The message characters are displayed during the TX. After a message TX the beacon is waiting the next available timeslot.	
	↵ or ↓ if manual stop			
	Dot 030 PWR MIN DFCW OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

Display JASON mode				Serial protocol : TX136/500
PWR (short)	Normal PWR MIN JSON STBY 136000	**CW UP / DOWN**	**JASON speed** availabled (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 : **?JS***CR* Serial set : **=JS2***CR* **[2 to 5]**
	↓			
	TX ... PWR MIN JSON STBY 136000	**CW UP / DOWN**	**JASON frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?JF***CR* Serial set : **=JF0***CR* **[0 to 5]**
	X			
	Text [TE PWR MIN JSON STBY 136000		JASON beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.	Serial query : **?H***CR*
	↵ or ↓ if TX			
	T P 4.0W JSON TX 136000	**TX**	The transmitted character is displayed.	
	↵			
OPER (long)	Normal PWR MIN JSON OPER 136000		Run the JASON beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	T P 4.0W JSON TX 136000		00:00:20 PWR MIN JSON WAIT 136000 — The message characters are displayed during the TX. After a message TX the beacon is waiting the next available timeslot.	
	↵ or ↓ if manual stop			
	Normal PWR MIN JSON OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

Display WSQ2 mode				Serial protocol : TX136/500
PWR (short)	TX x01 PWR MIN WSQ2 STBY 136000	**CW UP / DOWN**	**WSQ2 frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?QF***CR* Serial set : **=QF0***CR* **[0 to 5]**
	X			
	Text [TE PWR MIN WSQ2 STBY 136000		WSQ2 beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected. All characters are sent with lower-case to have a faster transmission.	Serial query : **?H***CR*
	↵ or ↓ if TX			
	T P 4.0W WSQ2 TX 136000	**TX**	The transmitted character is displayed.	
	↵			
OPER (long)	TX x01 PWR MIN WSQ2 OPER 136000		Run the WSQ2 beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	T P 4.0W WSQ2 TX 136000		00:00:20 PWR MIN WSQ2 WAIT 136000 — The message characters are displayed during the TX. After a message TX the beacon is waiting the next available timeslot.	
	↵ or ↓ if manual stop			
	TX x01 PWR MIN WSQ2 OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

Display OPERA mode				Serial protocol : TX136/500
PWR (short)	Spd 2 PWR MIN OPRA STBY 136000	**CW UP / DOWN**	**OPERA speed** availabled : OPERA 2, 4, 8, 16, 32 and 65	Serial query : **?OS***CR* Serial set : **=OS0***CR* **[0 to 5]**
	↓			
	TX 1⁄2 PWR MIN OPRA STBY 136000	**CW UP / DOWN**	**OPERA frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?OF***CR* Serial set : **=OF2***CR* **[0 to 5]**
	↓			
	Text [N0 PWR MIN OPRA STBY 136000		OPERA callsign scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.	Serial query : **?Z***CR*
	↵ or ↓ if TX			
	S 001:1 P 4.0W OPRA TX 136000	**TX**	The transmitted symbol is displayed.	
	↵			

OPER (long)	Spd 2 PWR MIN OPRA OPER 136000		Run the OPERA beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	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.	
	↵ or ↓ if manual stop			
	Spd 2 PWR MIN OPRA OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

Display WSPR mode					Serial protocol : TX136/500
PWR (short)	Spd 2 PWR MIN WSPR STBY 136000	**CW UP / DOWN**	**WSPR speed** availabled : WSPR-2 and WSPR-15		Serial query : **?WS***CR* Serial set : **=WS0***CR* **[0 or 1]**
	↓				
	TX 1/4 PWR MIN WSPR STBY 136000	**CW UP / DOWN**	**WSPR frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*		Serial query : **?WF***CR* Serial set : **=WF4***CR* **[0 to 5]**
	↓				
	Text [N0 PWR MIN WSPR STBY 136000		WSPR beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.		Serial query [call] : **?Z***CR* Serial query [locator] **: ?L***CR* Serial query [power] : **?WP***CR* Serial query [loc GPS] : **?W***CR*
	↵ or ↓ if TX				
	S 001:1 T 02:01 WSPR TX 136000	**TX**	The transmitted symbol is displayed.		
	↵				
OPER (long)	Spd 2 T 01:50 WSPR OPER 136000		Run the WSPR beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.		Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓				
	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	⇄	00:05:06 T 04:55 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.	
	↵ or ↓ if manual stop				
	Spd 2 T 02:32 WSPR OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.		Serial query : **?B***CR* Serial set : **=B0***CR*
	↵				

Display FST4W mode					Serial protocol : TX136/500
PWR (short)	Spd 120 PWR MIN FS4W STBY 136000	**CW UP / DOWN**	**FST4W speed** availabled : FST4W-120, FST4W-300, FST4W-900 and FST4W-1800		Serial query : **?WT***CR* Serial set : **=WT0***CR* **[0 or 3]**
	↓				
	TX 1/4 PWR MIN FS4W STBY 136000	**CW UP / DOWN**	**FST4W frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*		Serial query : **?WG***CR* Serial set : **=WG4***CR* **[0 to 5]**
	↓				
	Text [N0 PWR MIN FS4W STBY 136000		FST4W beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.		Serial query [call] : **?Z***CR* Serial query [locator] **: ?L***CR* Serial query [power] : **?WP***CR* Serial query [loc GPS] : **?W***CR*
	↵ or ↓ if TX				
	S 001:1 T 02:01 FS4W TX 136000	**TX**	The transmitted symbol is displayed.		
	↵				
OPER (long)	Spd 120 T 01:50 FS4W OPER 136000		Run the FST4W beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.		Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓				
	00:00:10 T 01:53 FS4W WAIT 136000		The beacon is waiting the next timeslot.		
	↓				
	S 001:1 T 02:01 FS4W TX 136000	⇄	00:05:06 T 04:55 FS4W WAIT 136000	The beacon transmits when the timeslot is enabled. The symbol number (1 to 160) 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.	
	↵ or ↓ if manual stop				
	Spd 120 T 02:32 FS4W OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.		Serial query : **?B***CR* Serial set : **=B0***CR*
	↵				

Display JT9 mode				Serial protocol : TX136/500
PWR (short)	Spd 1 PWR MIN JT9 STBY 136000	**CW UP / DOWN**	**JT9 speed** availabled : JT9-1, JT9-2, JT9-5, JT9-10 and JT9-30	Serial query : **?TS***CR* Serial set : **=TS0***CR* **[0 or 4]**
	↓			
	TX 1/2 PWR MIN JT9 STBY 136000	**CW UP / DOWN**	**JT9 frame** availabled : ***x1 :*** *one play,* ***1/1 :*** *continuously,* ***1/2 :*** *1 timeslot out of 2,* ***1/3*** *: 1 timeslot out of 3,* ***1/4*** *: 1 timeslot out of 4,* ***1/5*** *: 1 timeslot out of 5.*	Serial query : **?TF***CR* Serial set : **=TF2***CR* **[0 to 5]**
	↓			
	Text [N0 PWR MIN JT9 STBY 136000		JT9 beacon message scrolling display. The scrolling display ends with '+Id' symbol if the CW identity is selected.	Serial query [call] : **?Z***CR* Serial query [locator] **: ?L***CR* Serial query [loc GPS] : **?W***CR*
	↵ or ↓ if TX			
	S 01:1 T 02:01 JT9 TX 136000	**TX**	The transmitted symbol is displayed.	
	↵			
OPER (long)	Spd 1 T 01:50 JT9 OPER 136000		Run the JT9 beacon with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force beacon on*
	↓			
	00:00:10 T 01:53 JT9 WAIT 136000		The beacon is waiting the next timeslot.	
	↓			
	S 01:1 T 02:01 JT9 TX 136000	⇄	00:00:26 T 03:35 JT9 WAIT 136000 — The beacon transmits when the timeslot is enabled. The symbol number (1 to 85) and the symbol value (0 to 8) are displayed during the TX. After a timeslot TX the beacon is waiting again the next available timeslot.	
	↵ or ↓ if manual stop			
	Spd 1 T 02:32 JT9 OPER 136000		Stop the beacon with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*

Display SCRIPT mode				Serial protocol : TX136/500
PWR (short)	TX x1 PWR MIN SCRI STBY 136000	**CW UP / DOWN**	**Script frame** availabled : ***x1 :*** *one play,* ***Loop :*** *continuously*	Serial query : **?V***CR* Serial set : **=V0***CR* **[0 to 1]**
	↓			
	Script [PWR MIN SCRI STBY 136000		Script scrolling display. This display is available in the mode which is called by the script. During operation the last command executed is followed by the caracter < .	Serial query : **?U***CR*
	↵ or ↓ if TX			
	00:00:24 PWR MIN SCRI WAIT 136000	**TX**	Script delay time display if programmed.	
	↵			
OPER (long)	TX x1 PWR MIN SCRI OPER 136000		Run the script execution with a long OPER button push, a high level (MOX) or a low level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B1***CR* *CAUTION : force script on*
	↓			
	T P 4.0W DFCW TX s136000		The script execution starts and the character '**s**' is blinked before the frequency.	
	↵ or ↓ if manual stop			
	TX x1 PWR MIN SCRI OPER 136000		Stop the script execution with a long OPER button push, a low level (MOX) or a high level (RTS) on the PTT IN connector according to the TX control configuration.	Serial query : **?B***CR* Serial set : **=B0***CR*
	↵			

Display REMOTE mode			Serial protocol : TX136/500
JASON n PWR MIN REM STBY 136000	**CW UP / DOWN**	**External REMOTE** availabled : JASON (normal or fast) and WSQ2 softwares, AFP interface. This mode allows an external control of the TX136/500 with a view to perform QSO instead beacon.	Serial query : **?RS***CR* Serial set : **=RS0***CR* **[0 to 3]**

OPER (long)	JASON n PWR MIN REM OPER 136000		Run the TX by the external remote (software with a low level (RTS) on the PTT IN connector, AFP interface with VOX system).	See Remote by softwares with REMOTE mode
	↓			
	JASON n P 4.0W REM TX 136000		The DDS is driven by the external remote which uses the serial com to send the tones. Stop the TX by the external remote (software with a high level (RTS) on the PTT IN connector, AFP interface with VOX system). With AFP remote the tones are displayed during the TX.	See Remote by softwares with REMOTE mode
	↵ or ↓ if manual stop			
	JASON n PWR MIN REM STBY 136000		Force the PTT shutdown with a long OPER button push.	
	↵			

Display alarms			
OPER (short)	Spd 120 PWR MIN FS4W SWR 136000	**TX OFF**	**SWR alarm** : If the max SWR acceptable for the selected power is reached, a SWR alarm is started with TX stop. If GPS available, the “hhmm” alarm time is displayed.
	return to Stand By ↵		
	Spd 120 PWR MIN FS4W CURR 136000	**TX OFF**	**Current alarm** : If over current from PA board is detected , a CURRENT alarm is started with TX stop. If GPS available, the “hhmm” alarm time is displayed.
	return to Stand By ↵		
	Spd 2 PWR MIN JT9 MSG 136000		**Message alarm** : If a CW beacon text, a beacon text or a JUMA message is not valid (caracter or size), a MESSAGE alarm is started.
	return to Stand By ↵		
	Spd 120 PWR MIN FS4W CALL 136000		**Call alarm** : If a no valid call is keyed in despite the nok display, a CALL alarm is started and the default value is imposed.
	return to Stand By ↵		
	Spd 120 PWR MIN FS4W LOC 136000		**Locator alarm** : If a no valid locator is keyed in despite the nok display, a CALL alarm is started and the default value is imposed.
	return to Stand By ↵		
	Spd 120 PWR MIN FS4W RLY 136000	**TX OFF**	**Relay alarm** : If the antenna relay is not actived when PA power on, a RELAY alarm is started with TX stop. If GPS available, the “hhmm” alarm time is displayed.
	return to Stand By ↵		
	AFP PWR MIN REM BAND 136000	**TX OFF**	**Out of band alarm** : In REMOTE mode if the frequency set with the tone sent by the AFP interface exceed the band limit, a BAND alarm is started with TX stop.
	return to Stand By ↵		

Configuration mode					Serial protocol : TX136/500
DISPLAY (short)	TX Mode Mode = CW	UP / DOWN	**TX Mode** availabled : CW, QRSS, DFCW, JASON, WSQ2, OPERA, WSPR, FST4W, JT9, REMOTE, SCRIPT. After modification the standby state mode is forced.		Serial query : **?G***CR* Serial set : **=G0***CR* **[0 to 10]**
	↓				
	TX Band Band = 2200 m	UP / DOWN	**TX Band** availabled : 630 m , 2200 m. *This menu is displayed if the optional bi-band board is installed.*		Serial query : **?X***CR* Serial set : **=X0***CR* **[0 or 1]**
	↓				
	Synchro Timer T 59:00	UP / DOWN	**Synchronization Timer** Set minute timer with the help of beep Start at 59:00	**Available only with the WSPR, FST4W ,JT9 & SCRIPT modes.** This setting must be correct within about ± 1 s. The easier method is to use your computer with an Internet time service. It is also possible to use a timer set at xx:59:00 to power up the JUMA TX136/500. However GPS is the most userfriendly method ($GPGGA NMEA sentence) The accuracy of the internal timer can be adjusted with the Service mode.	Serial query : **?N***CR* Serial set : **=N3540***CR* **[0 to 3559]**
	OR				
	Synchro Timer T^14:23:17		**Synchronization Timer** Set timer automaticaly with the GPS if connected and availabled		
	↓				
	Pre Amplifier Select = OFF	UP / DOWN	**Pre Amplifier** Set : OFF, 10 dB, 20 dB		Serial query : **?A***CR* Serial set : **=A0***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 : **=C0***CR* **[0 or 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 : **=K2***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	UP / DOWN	**Max SWR acceptable for PWR LOW** Set : 1 to 101, step 0.1	
			↓			
			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	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** Auto (program), MOX (high level on PTT IN connector) or RTS (low level on PTT IN connector). Caution in RTS control : without signal on PTT IN the TX beacon is on !			Serial query : **?T***CR* Serial set : **=T0***CR* **[0 or 2]**
	↓					

Configuration mode (continued)				Serial protocol : TX136/500
DISPLAY (short)	SPARE I/0 signal Select = OFF	**UP / DOWN**	**SPARE I/0** signal : ON / OFF *This menu is not displayed if the optional bi-band board is installed.*	Serial query : **?X***CR* Serial set : **=X0***CR* **[0 or 1]**
	↵			
DISPLAY (long)	---------- PWR MIN CW20 STBY 136000	**Display mode**	CW Beacon text and/or Script are saved in EEPROM if modified.	

PWR (short)	CW beacon TEST DE JUMA BEA	**Beacon configuration mode**

Beacon configuration mode					Serial protocol : TX136/500
DISPLAY (short)	CW Beacon text TEST DE JUMA BEA	UP / DOWN	**CW beacon text** Move the cursor	The CW beacon text can have until 255 characters. Valid ASCII characters : 20h (space) to 5Fh (Z). The tags #C (callsign) and #L (locator) are available. More informations with CW Beacon programming page.	Serial query : **?E***CR* Serial set : **=ETEST DE JUMA BEACON***CR*
		FREQ+ / FREQ-	Modify the charater selected		
	↓	OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	Beacon text TEST	UP / DOWN	**Beacon text** Move the cursor	The beacon text can have until 16 characters and is used with the QRSS, DFCW, JASON and WSQ modes. The tags #C (callsign) and #L (locator) are available. Valid ASCII characters : 20h (space) to 5Fh (Z).	Serial query : **?H***CR* Serial set : **=HTEST***CR*
		FREQ+ / FREQ-	Modify the charater selected		
	↓	OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	Callsign N0CAL ok	UP / DOWN	**Callsign text** Move the cursor	The callsign can be a standard or a compound callsign with 10 characters max. add-on prefix or suffix are allowed. Valid characters : A-Z / 0-9 If the call is not valid, nok is displayed then during the eeprom save, a CALL alarm is started and the default value is imposed. The callsign can be used via the tag #C in the CW beacon, beacon and message texts.	Serial query : **?Z***CR* Serial set : **=ZN0CAL***CR*
		FREQ+ / FREQ-	Modify the charater selected		
	↓	OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	Locator JJ00AA ok	UP / DOWN	**Locator text** Move the cursor	The locator must be 6-character maidenhead grid. Valid characters : A-Z 0-9 If the locator is not valid nok is displayed then during the eeprom save, a LOC alarm is started and the default value is imposed. The locator can be used via the tag #L in the CW beacon, beacon and message texts.	Serial query : **?L***CR* Serial set : **=LJJ00***CR*
		FREQ+ / FREQ-	Modify the charater selected		
	↓	OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		
	GPS Locator Select = OFF	UP / DOWN	**GPS locator** Set : OFF, ON	The set locator can be replaced by the GPS locator if this last is valid.	Serial query : **?V***CR* Serial set : **=V0***CR* **[0 or 1]**
	↓				

Beacon configuration mode					Serial protocol : TX136/500
DISPLAY (short)	WSPR/FST4W Power 30 dBm PWR MAX	UP / DOWN	**WSPR / FST4W power** Set : 0 to 60 dBm for PWR MAX Step according to WSPR protocol	The WSPR /FST4W level will be automatically modified according the TX136/500 power and the WSPR protocol.	Serial query : **?WP***CR* Serial set : **=WP30***CR* **[0 to 60]**
	↓				
	CW Identity Select = OFF	UP / DOWN	**CW Identity** Set : OFF, 12 or 24 WPM	The CW identity is added at the end of the frame. Because the CW identity can use several times more bandwith than the selected mode, it must be used with caution.	Serial query : **?Y***CR* Serial set : **=Y0***CR* **[0 to 2]**
	↓				
	Script =G1=D3=B1=SD10	UP / DOWN	**Script** Move the cursor	The script can have until 127 characters and is a sequence of serial set codes and script commands to have a TX136/500 automation. In the script a tx beacon is run regardless of the tx beacon frame configuration. The script will have priority on a serial command if they are performed simultaneously, excepted the =B0 command.	Serial query : **?U***CR* Serial set : **=Uscript***CR*
	↵	FREQ+ / FREQ-	Modify the charater selected		
		OPER	Delete character at current cursor		
		RF PWR	Add character after cursor		

PWR (short)	TX Mode Mode = CW	**Configuration mode**	
DISPLAY (long)	--------- PWR MIN CW20 STBY 136000	**Display mode**	CW Beacon, Beacon and Script text are saved in EEPROM if modified.

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
	↓		
	Auto Power On Jumper Q4 = OFF	**UP / DOWN**	**Jumper Q4 state (Auto power on if power failure) :** OFF or ON If ON then the user settings are saved in EEPROM at each beacon running.
	↓		
	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**.

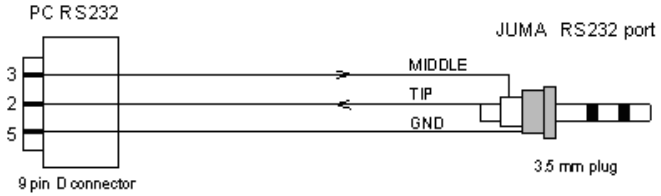
Note 1: RS232 serial port baud rate should be set to match with two communicating units. High values of Baud rates are recommended 38400bd and up. High transmission speed keeps transaction times short.

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



Caution : during TX the serial commands are diseabled except the command '=B0' (TX OFF) .
and in REMOTE mode all serials commands are diseabled in OPER and TX state modes.

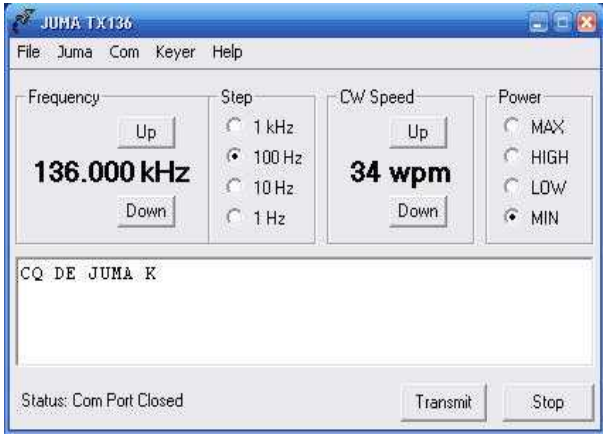
Serial protocol : TX136/500	Parameter
Serial query : **?A***CR* Serial set : **=Ax***CR* **[0 to 2]**	**Pre Amplifier** : **0** = OFF, **1** = 10 dB, **2** = 20 dB.
Serial query : **?B***CR* Serial set : **=Bx***CR* ***[0 to 1 or T]***	**TX ON** : **0** = stop the TX, **1** = run the beacon (caution : force beacon on), **1 to 99** = run the TX n times via the script, **T** = run the message transmission, used by JUMA software.
Serial query : **?C***CR* Serial set : **=Cx***CR* ***[0 or 1]***	**RX Converter** : **0** = OFF, **1** = ON 10 MHz (TX136), 3.5 MHz (TX500).
Serial query : **?D***CR* Serial set : **=Dxxx***CR* ***[1 to 120]***	**QRSS & DFCW dot time** : Set : 1 to 120 s.
Serial query : **?E***CR* Serial set : **=Etext***CR*	**CW beacon text** until 255 characters. Set and save in EEPROM. Valid ASCII characters : 20h (space) to 5Fh (Z). More informations with CW Beacon programming page.
Serial query : **?F***CR* Serial set : **=Fxxxxxx***CR*	**Frequency** : Set TX136 : 135700 to 137800, set TX500 : 472000 to 479000, step 1 Hz. If the bi-band board is installed, the frequency drive the band change.
Serial query : **?G***CR* Serial set : **=Gx***CR* **[0 to 10]**	**TX Mode** : **0** = CW, **1** = QRSS, **2** = DFCW, **3** = JASON, **4** = WSQ2, **5** = OPERA, **6** = WSPR, **7** = FST4W, **8** = JT9, **9** = REMOTE, **10** = SCRIPT.
Serial query : **?H***CR* Serial set : **=*Htext****CR*	**Beacon text** until 16 characters. Set and save in EEPROM. Valid ASCII characters : 20h (space) to 5Fh (Z).
Serial query : **?I***CR* or **?II***CR*	**System info** : Return **Firmware Version**.
Serial query : **?IB***CR*	**System info** : Return **Battery Voltage**, resolution 10 mV.
Serial query : **?ID***CR*	**System info** : Return **Current Drain**, resolution 0.1 A.
Serial query : **?IP***CR*	**System info** : Return **TX Power reading**, resolution 0.1 W.
Serial query : **?IS***CR*	**System info** : Return **SWR Meter reading**.
Serial query : **?JF***CR* Serial set : **=JFx***CR* ***[0 to 5]***	**JASON frame** :**0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?JS***CR* Serial set : **=JSx***CR* ***[2 to 5]***	**JASON speed** : **2** = Normal, **3** = Normal turbo, **4** = Fast, **5** = Fast turbo.
Serial query : **?K***CR* Serial set : **=Kx***CR* ***[0 to 4]***	**CW Keyer Type** : **0** = Dot priority, **1** = Iambic A, **2** = Iambic B, **3** = Straight, **4** = Beacon.
Serial query : **?L***CR* Serial set : **=*Llocator****CR*	**Locator** : Set 6-character maidenhead grid.
Serial set : **=Mtext***CR*	**Message text** until 160 characters. No save in EEPROM. Used by JUMA software. Valid ASCII characters : 20h (space) to 5Fh (Z).
Serial query : **?N***CR* Serial set : **=Nxxxx***CR* ***[1 to 3559]***	**Synchronization Timer** : Set : **1** to **3559** s

Serial protocol : TX136/500	Parameter
Serial query : **?O***CR* Serial set : **=Ox***CR* ***[0 to 2]***	**Operating mode** : **0** = Stand By, **1** = Operation, **2** = Tune.
Serial query : **?OF***CR* Serial set : **=OF2***CR* ***[0 to 5]***	**OPERA frame** : **0** = one play, **1** = continuously, **2** = 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?OS***CR* Serial set : **=OSx***CR* ***[0 to 5]***	**OPERA speed** : **0** = OPERA 2, **1** = OPERA 4, **2** = OPERA 8, **3** = OPERA 16, **4** = OPERA 32, **5** = OPERA 65.
Serial query : **?P***CR* Serial set : **=Px***CR* ***[0 to 3]***	**TX power** : **0** = 4 W, **1** = 15 W, **2** = 35 W, **3** = 60 W.
Serial query : **?Q***CR* Serial set : **=Qx***CR* ***[0 to 5]***	**CW, QRSS & DFCW frame** :**0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?QF***CR* Serial set : **=QFx***CR* ***[0 to 5]***	**WSQ frame** : **0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?R***CR* Serial set : **=Rxx***CR* ***[1 to 50]***	**DFCW dash shift** : Set : **1** = 0.1 to **50** = 5.0 Hz
Serial query : **?RS***CR* Serial set : **=RSx***CR* ***[0 or 3]***	**External REMOTE** : **0** = JASON (normal), **1** = JASON (fast), **2** = WSQ2, **3** = AFP.
Serial query : **?S***CR* Serial set : **=S200***CR* ***[10 to 500 step 10]***	**CW speed** : Set : **10** = 1 wpm to **500** = 50 wpm step 10 to keep capability with JUMA software.
Serial query : **?SF***CR* Serial set : **=SFx***CR* ***[0 to 1]***	**SCRIPT frame** : **0** ***:*** *one play,* ***1 :*** *continuously*.
Serial query : **?T***CR* Serial set : **=Tx***CR* ***[0 or 2]***	**TX Control** : **0** = Auto (program), **1** = MOX (high level on PTT IN connector), **2** = RTS (low level on PTT IN connector)
Serial query : **?TF***CR* Serial set : **=TFx***CR* ***[0 or 5]***	**JT9 frame** : **0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?TS***CR* Serial set : **=TSx***CR* ***[0 or 4]***	**JT9 speed** : **0** = JT9-1, **1** = JT9-2, **2** = JT9-5, **3** = JT9-10, **4** = JT9-30.
Serial query : **?U***CR* *Serial set :* ***=Utext****CR*	**SCRIPT text** until 127 characters. Set and save in EEPROM. Valid ASCII characters : 20h (space) to 5Fh (Z).
Serial query : **?V***CR* Serial set : **=V0***CR* ***[0 or 1]***	**GPS locator selection** : **0** = OFF, **1** = ON.
Serial query : **?W***CR*	**GPS locator value** : Return 'NO GPS' or Grid 6.
Serial query : **?WF***CR* Serial set : **=WFx***CR* ***[0 or 5]***	**WSPR frame** : **0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?WG***CR* Serial set : **=WGx***CR* ***[0 or 5]***	**FST4W frame** : **0 =** one play, **1 =** continuously, **2 =** 1 timeslot out of 2, **3** = 1 timeslot out of 3, **4** = 1 timeslot out of 4, **5** = 1 timeslot out of 5.
Serial query : **?WP***CR* Serial set : **=WPxx***CR* ***[0 to 60]***	**WSPR / FST4W power** : Set : **0** to **60** dBm for PWR MAX. Value set with a step according to WSPR protocol.
Serial query : **?WS***CR* Serial set : **=WSx***CR* ***[0 or 1]***	**WSPR speed** : **0** = WSPR-2, **1** = WSPR-15.

Serial protocol : TX136/500	Parameter
Serial query : **?WT***CR* Serial set : **=WTx***CR* ***[0 to 3]***	**FST4W speed** : **0** = FST4W-120, **1** = FST4W-300, **2** = FST4W-900, **3** = FST4W-1800.
Serial query : **?X***CR* Serial set : **=X0***CR* ***[0 or 1]***	**SPARE I/0** : If the TX136-500 bi-band board is installed : **0** = 136 **1** = 500 else **0** = OFF, **1** = ON
Serial query : **?Y***CR* Serial set : **=Y0***CR* ***[0 to 2]***	**CW Identity** : **0** = OFF, **1** = 12 wpm, **2** = 24 wpm.
Serial query : **?Z***CR* Serial set : ***=Zcall****CR*	**Callsign** : Set a standard or a compound callsign with 10 characters max.

JUMA TX136-500 software

Button	Serial protocol : TX136
Frequency Up step 1 KHz	**=F137000***CR*
Frequency Down step 1 KHz	**=F135000***CR*
Frequency Up step 100 Hz	**=F136100***CR*
Frequency Down step 100 Hz	**=F135900***CR*
Frequency Up step 10 Hz	**=F136010***CR*
Frequency Down step 10 Hz	**=F135990***CR*
Frequency Up step 1 Hz	**=F136001***CR*
Frequency Down step 1 Hz	**=F135999***CR*
CW speed Up	**=S350***CR*
CW speed Down	**=S330***CR*
Power Max	**=P3***CR*
Power High	**=P2***CR*
Power Low	**=P1***CR*
Power Min	**=P0***CR*
Transmit	**=MCQ DE JUMA K***CR***=BT***CR*
Stop	**=B0***CR*



The JUMA TX136-500 software can use to perform QSO with the CW, QRSS, DFCW, JASON, WSQ and JT9 modes.
The message text sent to the JUMA TRX isn't saved in EEPROM and doesn't replace the beacon text.
The tags #C (callsign) and #L (locator) are available. With the JT9 mode the message ia automaticaly truncated to 13 characters.

T P 4.0W CW TX m136000	During the TX the character '**m**' is blinked before the frequency.

CW Beacon programming

1. Select the CW mode.	TX Mode Mode = CW	*See*	**Configuration mode**
↓			
2. Enter your message.	CW beacon text TEST DE JUMA BEA	*See*	**Beacon configuration mode**
↓			
3. Select the speed.	Spd 20 PWR MIN CW STBY 136000	*See*	**Display mode**
↓			
4. Select the TX frame.	TX x1 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”	**\snn** CW speed, nn = 01...50
- -....- Hypen/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”	**\c** Play a carrier during a QRSS dot time
= -...- 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 play carrier in CW message.
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 or to create a ' NDB ' with a 20 s carrier followed by the call (example : «\G1\D020\C\G0 CALL »). The tags #C (callsign) and #L (locator) are available.

QRSS Beacon programming

1. Select the QRSS mode.	TX Mode Mode = QRSS	*See*	**Configuration mode**
↓			
2. Enter your message.	Beacon text TEST	*See*	**Beacon configuration mode**
↓			
3. Add or not a CW identity.	CW Identity Select = OFF	*See*	**Beacon configuration mode**
↓			
4. Select the speed.	Dot 030 PWR MIN QRSS STBY 136000	*See*	**Display mode**
↓			
5. Select the TX frame.	TX x1 PWR MIN QRSS STBY 136000	*See*	**Display mode**

DFCW Beacon programming

1. Select the DFCW mode.	TX Mode Mode = DFCW	*See*	**Configuration mode**
↓			
2. Enter your message.	Beacon text TEST	*See*	**Beacon configuration mode**
↓			
3. Add or not a CW identity.	CW Identity Select = OFF	*See*	**Beacon configuration mode**
↓			
4. Select the speed.	Dot 030 PWR MIN DFCW STBY 136000	*See*	**Display mode**
↓			
5. Select the dash shift.	Fsk 0.1 PWR MIN DFCW STBY 136000	*See*	**Display mode**
↓			
6. Select the TX frame.	TX x1 PWR MIN DFCW STBY 136000	*See*	**Display mode**

JASON Beacon programming

1. Select the JASON mode.	TX Mode Mode = JASON	*See*	**Configuration mode**
↓			
2. Enter your message.	Beacon text TEST	*See*	**Beacon configuration mode**
↓			
3. Add or not a CW identity.	CW Identity Select = 12 WPM	*See*	**Beacon configuration mode**
↓			
4. Select the JASON speed.	Normal PWR MIN JSON STBY 136000	*See*	**Display mode**
↓			
5. Select the TX frame.	TX 1/1 PWR MIN JSON STBY 136000	*See*	**Display mode**

WSQ2 Beacon programming

1. Select the WSQ2 mode.	TX Mode Mode = WSQ2	*See*	**Configuration mode**
↓			
2. Enter your message.	Beacon text TEST	*See*	**Beacon configuration mode**
↓			
3. Add or not a CW identity.	CW Identity Select = 12 WPM	*See*	**Beacon configuration mode**
↓			
5. Select the TX frame.	TX 1/1 PWR MIN WSQ2 STBY 136000	*See*	**Display mode**

OPERA Beacon programming

1. Select the OPERA mode.	TX Mode Mode = OPERA	*See*	**Configuration mode**	
↓				
2. Enter your standard callsign.	Callsign N0CAL ok	*See*	**Beacon configuration mode**	A compound callsign is automatically converted to a standard callsign according to the OPERA protocol.
↓				
3. Add or not a CW identity.	CW Identity Select = 12 WPM	*See*	**Beacon configuration mode**	
↓				
4. Select the OPERA speed.	Spd 2 PWR MIN OPRA STBY 136000	*See*	**Display mode**	
↓				
5. Select the TX frame.	TX x1 PWR MIN OPRA STBY 136000	*See*	**Display mode**	

WSPR Beacon programming

1. Select the WSPR mode.	TX Mode Mode = WSPR	*See*	**Configuration mode**	
↓				
2. Enter your callsign.	Callsign N0CAL ok	*See*	**Beacon configuration mode**	A compound callsign is automatically converted to a standard callsign according to the WSPR protocol.
↓				
3. Enter your 6-character main grid locator.	Locator JJ00AA ok	*See*	**Beacon configuration mode**	The locator is automatically converted to 4-character maidenhead grid according to the WSPR protocol.
↓				
4. Select GPS locator option.	GPS locator Select = OFF	*See*	**Beacon configuration mode**	
↓				
5. Enter the dB level for the TX136/500 power max.	WSPR power 30 dBm PWR MAX	*See*	**Beacon configuration mode**	
↓				
6. Add or not a CW identity.	CW Identity Select = 24 WPM	*See*	**Beacon configuration mode**	
↓				
GPS used on JUMA RS232 port	7. select RS232 = GPS NMEA.	Serial Protocol RS232 = GPS NMEA	*See*	**Configuration mode**	The optional GPS receiver must provide a $GPGGA NMEA sentence.
	7 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.
	7 ter. Connect the GPS receiver to the JUMA TX136/500 RS232 port.	Synchro Timer T^14:23:17	*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	7. Connect the GPS receiver to the JUMA control module J1 pin (UART2).	Synchro Timer T^14:23:17	*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				

WSPR Beacon programming (continued)

No GPS	7. Set the ynchronization timer.	Synchro Timer T 59:00	*See*	**Configuration mode**
↓				
8. Select the WSPR speed.		Spd 2 PWR MIN WSPR STBY 136000	*See*	**Display mode**
↓				
9. Select the TX frame.		TX x1 PWR MIN WSPR STBY 136000	*See*	**Display mode**

FST4W Beacon programming

1. Select the FST4W mode.		TX Mode Mode = FST4W	*See*	**Configuration mode**
↓				
2. Enter your callsign.		Callsign N0CAL ok	*See*	**Beacon configuration mode**
↓				
3. Enter your 6-character main grid locator.		Locator JJ00AA ok	*See*	**Beacon configuration mode**
↓				
4. Select GPS locator option.		GPS locator Select = OFF	*See*	**Beacon configuration mode**
↓				
5. Enter the dB level for the TX136/500 power max.		WSPR power 30 dBm PWR MAX	*See*	**Beacon configuration mode**
↓				
6. Add or not a CW identity.		CW Identity Select = 24 WPM	*See*	**Beacon configuration mode**
↓				

A compound callsign is automatically converted to a standard callsign according to the WSPR protocol.	
The locator is automatically converted to 4-character maidenhead grid according to the WSPR protocol.	

FST4W Beacon programming (continued)

GPS used on JUMA RS232 port	7. select RS232 = GPS NMEA.	Serial Protocol RS232 = GPS NMEA	*See*	**Configuration mode**	The optional GPS receiver must provide a $GPGGA NMEA sentence.
	7 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.
	7 ter. Connect the GPS receiver to the JUMA TX136/500 RS232 port.	Synchro Timer T^14:23:17	*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	7. Connect the GPS receiver to the JUMA control module J1 pin (UART2).	Synchro Timer T^14:23:17	*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	7. Set the synchronization timer.	Synchro Timer T 59:00	*See*	**Configuration mode**	
↓					
8. Select the FST4W speed.		Spd 120 PWR MIN FS4W STBY 136000	*See*	**Display mode**	
↓					
9. Select the TX frame.		TX x1 PWR MIN FS4W STBY 136000	*See*	**Display mode**	

JT9 Beacon programming

1. Select the JT9 mode.	TX Mode Mode = JT9	*See*	**Configuration mode**	
↓				
2. Enter your callsign.	Callsign N0CAL ok	*See*	**Beacon configuration mode**	The callsign and the locator are automatically merged to a plain text JT9 (13 characters max) with a callsign priority.
↓				

JT9 Beacon programming (continued)

3. Enter your 6-character main grid locator.			*See*	**Beacon configuration mode**	The callsign and the locator are automatically merged to a plain text JT9 (13 characters max) with a callsign priority.
↓					
4. Select GPS locator option.			*See*	**Beacon configuration mode**	
↓					
5. Add or not a CW identity.			*See*	**Beacon configuration mode**	
↓					
GPS used on JUMA RS232 port	6. select RS232 = GPS NMEA.		*See*	**Configuration mode**	The optional GPS receiver must provide a $GPGGA NMEA sentence.
	6 bis. select Baud rate = 4800.		*See*	**Configuration mode**	Some GPS receivers can use a different baud rate from the NMEA standard.
	6 ter. Connect the GPS receiver to the JUMA TX136/500 RS232 port.		*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	6. Connect the GPS receiver to the JUMA control module J1 pin (UART2).		*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	6. Set the synchronization timer.		*See*	**Configuration mode**	
↓					
7. Select the JT9 speed.			*See*	**Display mode**	
↓					
8. Select the TX frame.			*See*	**Display mode**	

Script programming

1. Select the script mode.	TX Mode Mode = SCRIPT	*See*	**Configuration mode**		
↓					
2. Enter the script until 127 characters.	Script =G0=S300	*See*	**Beacon configuration mode**	or faster with serial commands	Serial query : **?U***CR* Serial set : **=Uscript***CR*
↓					
3. Select the TX frame.	TX x1 PWR MIN SCRI STBY 136000	*See*	**Display mode**		

The script allows to have a TX136/500 automation by acting as a programming language.
The script is composed of both serial commands described on page 'Serial command and query protocol ' and specific commands described below .

Command : **=SDxxxx** ***[1 to 3600]***	**SCRIPT wait time in second** : Set **1** to **3600** s (1h). Introduce a wait time in second during a script execution.
Command : **=SHhhmm** ***[0 to 2359]***	**SCRIPT starting according to the GPS time** : Set **0** to **2359**. Introduce a wait time to start at the GPS time defined. The script waits until GPS available to determine the wait time. The two last numbers are always like a time minute.
Command : **=SL**	**SCRIPT loop beginning** : The script **l**oops after =SL command at the end of execution or after =SNx command.
Command : **=SNxxx** ***[1 to 999]***	**SCRIPT loop number** : Loop number (=SL … script n times ...=SNn).
Command : **=SS**	**SCRIPT TX shutdown** : Force the TX shutdown.
Command : **=STxx** ***[0 to 59]***	**SCRIPT wait time according to the beginning of the timeslot** : Set timeslot **0** to **59** minute. Introduce a wait time to start at the timeslot defined. Must be followed by the =Bx command.

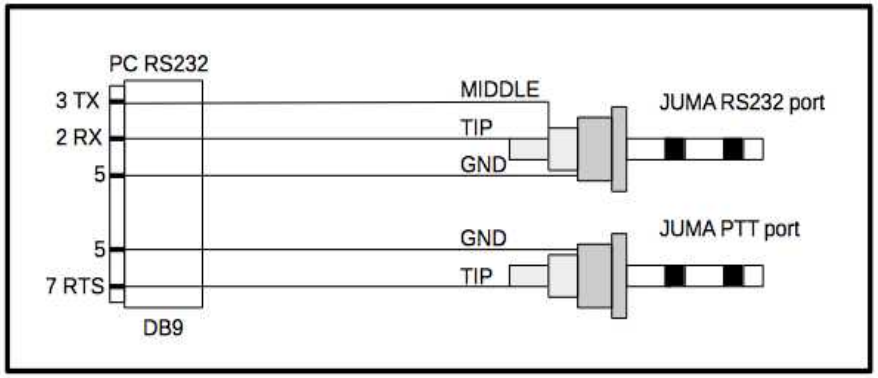
Script programming (examples)

FST4W-120 with increasing power cycle, 1 timeslot out of 2 :	=G7=WT0=WG2=SL=P0=B1=P1=B1=P2=B1=P3=B1
WSPR2 and FST4W-120 hopping, 1 timeslot out of 2, 2 TX by mode (with modes having the same speed the timeslots remain synchronized) :	=WS0=WF2=WT0=WG2=SL=G6=B2=G7=B2
FST4W with 120 and 300 speed hopping (with speed change the TX start with the next timeslot available) :	=G7=SL=WT0=B1=WT1=B1
FST4W-300 which starts at 23h00, 1 timeslot out of 2 with even/odd permutation each hour, shutdow at 05:00 :	=G7=WT1=WG2=SH2259=SL=ST0=B6=ST5=B6=SN3=SS

External remote with REMOTE mode

General :
JUMA TX136/TX500 can be remoted by another system. Some FSK softwares have an option to send the FSK tones on the serial com and activate the TX with the RTS signal. This feature allows to use these softwares to perform QSO.

Note 1: RS232 serial port baud rate should be set to match the JUMA TX136/500 and the software used.



JASON software from I2PHD

1. Select the REMOTE mode.	TX Mode Mode = REMOTE	*See*	**Configuration mode**
↓			
3. Select the 9600 Baud serial speed.	Serial Speed Baud Rate=9600	*See*	**Configuration mode**
↓			
4. Select the JASON software (normal or fast).	JASON n PWR MIN REM STBY 136000	*See*	**Display mode**
↓			
5. Set frequency 800Hz above RX frequency.	JASON n PWR MIN REM STBY 136200	*See*	**Display mode**
↓			
6. Select Operation.	JASON n PWR MIN REM OPER 136200	*See*	**Display mode**

JASON configuration :

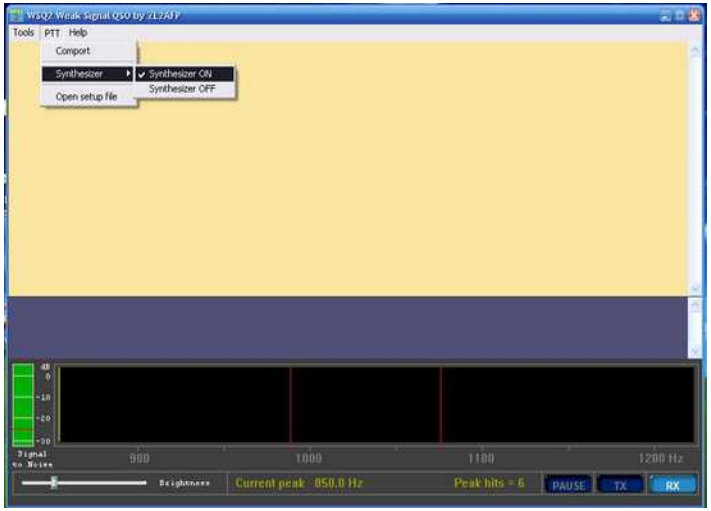
1 - Options >TX Port : select the com used, 9600,N,8,1 and Native Format.

2 - Options > Speed : select Normal or Fast.

3 - Options > select Rx USB and Tx USB.

WSQ2 software from ZL2AFP

1. Select the REMOTE mode.	TX Mode Mode = REMOTE	*See*	**Configuration mode**
↓			
3. Select the 9600 Baud serial speed.	Serial Speed Baud Rate=9600	*See*	**Configuration mode**
↓			
4. Select the WSQ2 software.	WSQ2 PWR MIN REM STBY 136000	*See*	**Display mode**
↓			
5. Set frequency 1000Hz above RX frequency.	WSQ2 PWR MIN REM STBY 136000	*See*	**Display mode**
↓			
6. Select Operation.	WSQ2 PWR MIN REM OPER 136000	*See*	**Display mode**



WSQ2 software configuration for first use :

– In the directory C:\Program Files\WSQRelease, rename the setup.txt file to setup.txt.old. Then paste the setup.txt file from TX136-500 v1.09.zip.

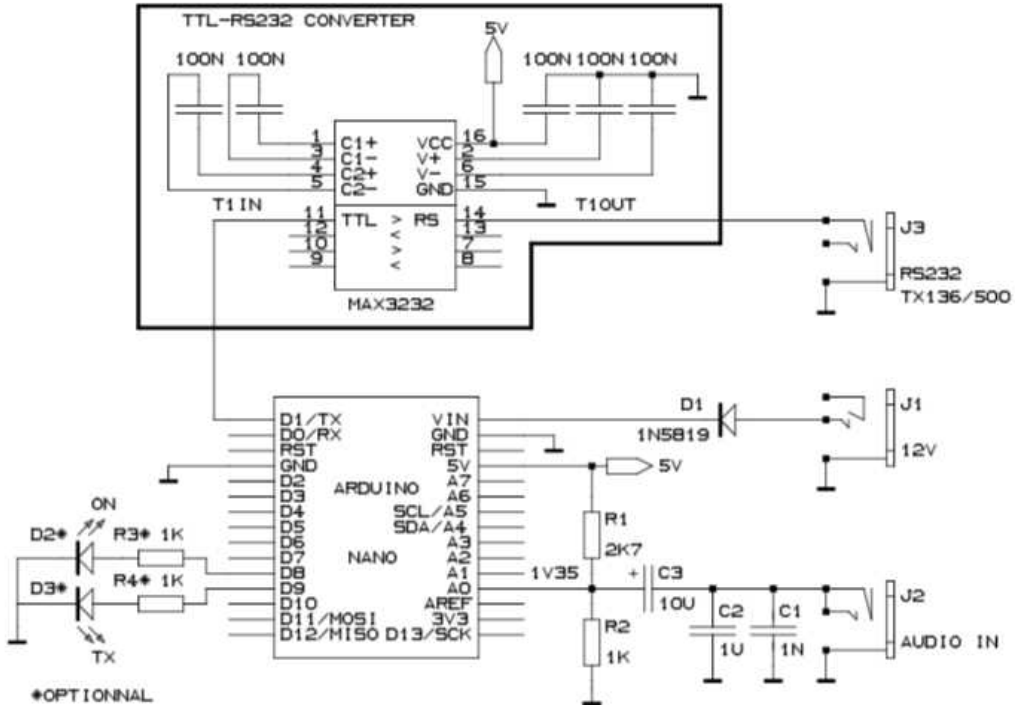
WSQ2 configuration :

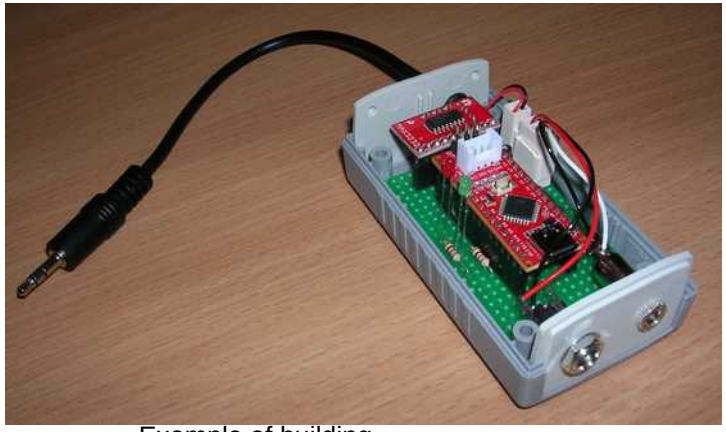
1 - PTT > Comport : select the com used.

2 - PTT > Synthesizer : select Synthesizer ON.

AFP interface derived from AG6NS

The AFP interface allows to remote the TX136/500 with a software which generates FSK tones like WSJT-X
and must be built by the OM with an Arduino nano board and a TTL-RS232 converter :





Example of building
Upload the Arduino nano with the sketch :
AFP_Interface_Rev1.00.ino
stored in the same ZIP folder than this manual.

This interface is derived from the QRPGuys AFP-FSK Digital Transceiver kit and its software is based on the excellent work of Kazu Terasaki AG6NS.
The principle of operation based on the description of Steve Weber KD1JV and Kazu Terasaki AG6NS is as follows :
The audio signal is applied to the Arduino analog comparator, which is biased near it's trigger point. Using one of the processor's time capture registers, the length of time that the comparator output remains high and low are separately timed in the interrupt routine.
In the main loop, the signal's frequency is calculated, then send to the TX136/500 serial port via the TTL-RS232 converter.
In the TX136/500 the tone frequency received from the AFP interface is simply added to the frequency set to drive the AD9833 DDS.

AFP Serial protocol : 115200 baud rate	Parameter
Serial set : **=Txxxxxxx***CR* **[200000 to 4000000]**	**TX ON with FSK** : Frequency in mHz: 200 Hz to 4000 Hz but limited to 2500 Hz in the TX136/500 software.
Serial set : **=R***CR*	**TX OFF**

Note of the sketch AFP_Interface_Rev1.00.ino :
The initial update frequency every 4 ms brings 2 problems :

- the data flow is too important and the TX136/500 serial port looses some datas
- because of a too high random uncertainty, very slow modes are not possible

Also the first updates frequency are made every 20 ms :

- enough time resolution for fast modes and the TX136/500 manage the data flow

If no tone frequency change (+- 0,1875 Hz) during 1500 ms then slow mode used (FST4-300 and more)

- updates frequency every 100 ms
- any more random uncertainty and more accurate measurement
- with a no noisy audio signal, the slowest mode FST4-1800 works, but it's really limit for the AFP resolution in addition TX136/500 DDS steps.

AFP interface derived from AG6NS (continued)

1. Select the REMOTE mode.	TX Mode Mode = REMOTE	*See*	**Configuration mode**
↓			
4. Select the AFP interface.	AFP PWR MIN REM STBY 136000	*See*	**Display mode**
↓			
6. Select Operation.	AFP PWR MIN REM OPER 136000	*See*	**Display mode**

During the TX, the tone added to the frequency set is displayed.	+1348.74 PWR MIN REM TX 136000