

THE G3ZOI ARDF TRANSMITTER TIMERS type ATX & TRO

ATX TIMER (PIC16F84 or PIC16F628)

The ATX PIC timer is pin compatible for ON7YD transmitter designs. It provides keyed CW on 80m units. On 2m units, the keyed output drives a NE555 (or similar) for MCW.

The phono socket provides the only user port to the PIC in these transmitters, and is used for both synchronization and eeprom loading.

TRO TIMER (PIC16F628 only)

The TRO PIC timer also provides the audio tone for MCW (i.e. no NE555) and switches the ICS525 clock multiplier. A tactile button on the PCB is used for loading a callsign into eeprom

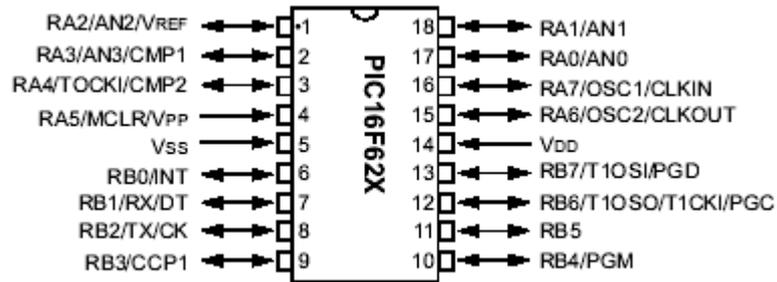
FUNCTION SUMMARY

- Sends either **MO+ E, I, S, H, or 5** for 1 minute or **MO** continuously at approximately 9wpm
- Transmit cycle time either 5 foxes in 5mins (standard) or 2 foxes in 2 mins (training).
- Delayed start from 30 mins up to 31 hours.
- User programmable call sign sent at the end-of-transmission.
- Transmits **MOx** once each cycle at 30wpm - 1 hour before the delayed start.

For the scout training version only –

- Selectable 30 secs or 1 minute transmit time
- Additional cycle times for 3-foxes and 4-foxes.
- Maximum delay time reduced to 3.5 hours.

PIN-OUTS



FUNCTION	ATX	TRO
Transmitter switching	RA0	RA2
CW Keying	RA1	-
Yellow LED switching	RA2	RA0
Synchronization (phono)	RA3 (also used for eeprom load)	RA1
eeprom load button	RA3 (RA4 if header provided)	RA4
Audio tone for MCW	-	RA3

STANDARD FORMAT - DIP SWITCH SETTINGS

- Long delay times (see note 1 below)
- Transmit period fixed at 1-minute
- 5-min or 2-min cycle time + continuous for MO

SWITCH NOTATION

1	on
0	off

SW 1 to 3

1	2	3	CALL	TX mode
0	0	0	M O e	#1 OF 5
1	0	0	M O i	#2 OF 5
0	1	0	M O s	#3 OF 5
1	1	0	M O h	#4 OF 5
0	0	1	M O 5	#5 OF 5
1	0	1	M O	Continuous
0	1	1	M O e	#1 OF 2
1	1	1	M O i	#2 OF 2

SW 4 to 8 (SW8=OFF) - delay of ½hr to 7½hrs

4	5	6	7	8
½ hr	1hr	2hr	4hr	OFF

Times are additive e.g. SW4 & SW 6 ON = 2½hrs

SW 4 to 8 (SW8=ON) - delay of 16hrs to 31 hrs

4	5	6	7	8
1 hr	2hr	4hr	8hr	16hrs

Times are additive e.g. SW4 & SW 8 ON = 17hrs

The above provides two practical windows of opportunity for synchronising,

- on the day of the event. (delay of ½hr to 7½hrs in ½hr increments)
- the day before. (delay of 16hrs to 31 hrs in 1hr increments)

*note-1: use of long delay times over 16hrs are only advisable if the timings crystals have been adjusted for accuracy on their fundamental frequency and all TXs matched for 'zero-beat' alignment.

SCOUT FORMAT - DIP SWITCH SETTINGS

n.b. this format is 'burnt' into the PIC as an alternative the standard format, switching between the two formats is not possible.

- Designed to cater for short or casual events, as appropriate for scouting etc. The standard IARU format is also available, but the maximum delay time is reduced to 3½ hrs.
- Transmit period 1-minute or 30-seconds
- 2, 3, 4 or 5 TXs in in a cycle + continuous for MO

SWITCH NOTATION

1	on
0	off

SW 1 to 4

1	2	3	4	CALL	TX mode
0	0	0	0	MOe	#1 OF 5
1	0	0	0	MOi	#2 OF 5
0	1	0	0	MOs	#3 OF 5
1	1	0	0	MOh	#4 OF 5
0	0	1	0	MO5	#5 OF 5
1	0	1	0	MO	Continuous
0	1	1	0	MOe	#1 OF 2
1	1	1	0	MOi	#1 OF 2
0	0	0	1	MOe	#1 OF 4
1	0	0	1	MOi	#2 OF 4
0	1	0	1	MOs	#3 OF 4
1	1	0	1	MOh	#4 OF 4
0	0	1	1	MO	On / off
1	0	1	1	MOe	#1 OF 3
0	1	1	1	MOi	#2 OF 3
1	1	1	1	MOs	#3 OF 3

SW 5 (transmit time)

0	1 min
1	30secs

SW 6 to 8 (delay time)

6	7	8
½hr	1hr	2hr

Times are additive e.g. SW6 & SW8 ON = 2½hr

STARTING THE TX MANUALLY

- Switch on.
- The TX will instantly transmit, regardless of the delay time and TX number.
- The TX will send the end-of-message callsign, to calculate its length. (this is the only time it is sent at the beginning of the transmit period)
- The TX will then continue to transmit for 1 minute (or 30 secs), repeating MO[x], then finishing with the callsign, then wait for the next on-cycle.
- The TX will come on again, depending on the cycle time set on the DIP switch. e.g. 4 minutes later if the cycle time is 5 minutes.

In an emergency situation, to reset a transmitter when all others are running
- Listen for the start of the transmitter slot, and just switch on!

SYNCHRONIZING FOR A DELAYED START.

- Set the DIP switch for the required delay time (zero to 31 hours)
- Install a shorting lead into the phono socket of each TX. All the leads are connected in parallel to a shorting switch (preferably a momentary type.)
- Close the shorting switch and keep depressed.
- Switch on the TXs
- Wait for all the yellow LEDs to light (approx. 3 seconds).
- Open the shorting switch to start the delay countdown. The yellow LED will flash on /off.

Please note: if the delay is set to **zero**, NONE of the yellow LEDs will flash. The transmit **cycle** is immediately active – but only TX-1 will start transmitting. TX-2 will start after 1minute, Tx-3,4 & 5 will start respectively after 2, 3 and 4 minutes etc.

PRE-EVENT WARNING TRANSMISSIONS

The foxes will transmit **MOx** only once each cycle, at 30wpm - 1 hour before the delayed start This gives the organizer an opportunity to check that all foxes are running and if necessary, plenty of time to repair a defective unit before the ARDF event start. The transmit time is designed to be short enough to prevent competitors cheating.

