4O3A INTERLOCK/PTT MASTER **LOCK X**

GENERAL DESCRIPTION

This device has two very important functionalists for SO2R, MS and some specific Multi Op station designs:

Interlock

LOCK X is taking care about interlocking two or three transmitters with simple button pushing. Each of the three transmitters can be interlocked with any other, or can be disabled from interlocking if not necessary.
Green LEDs are indicating which transmitters are in INTERLOCK, and red LEDs are blinking when one of the transmitters is active.

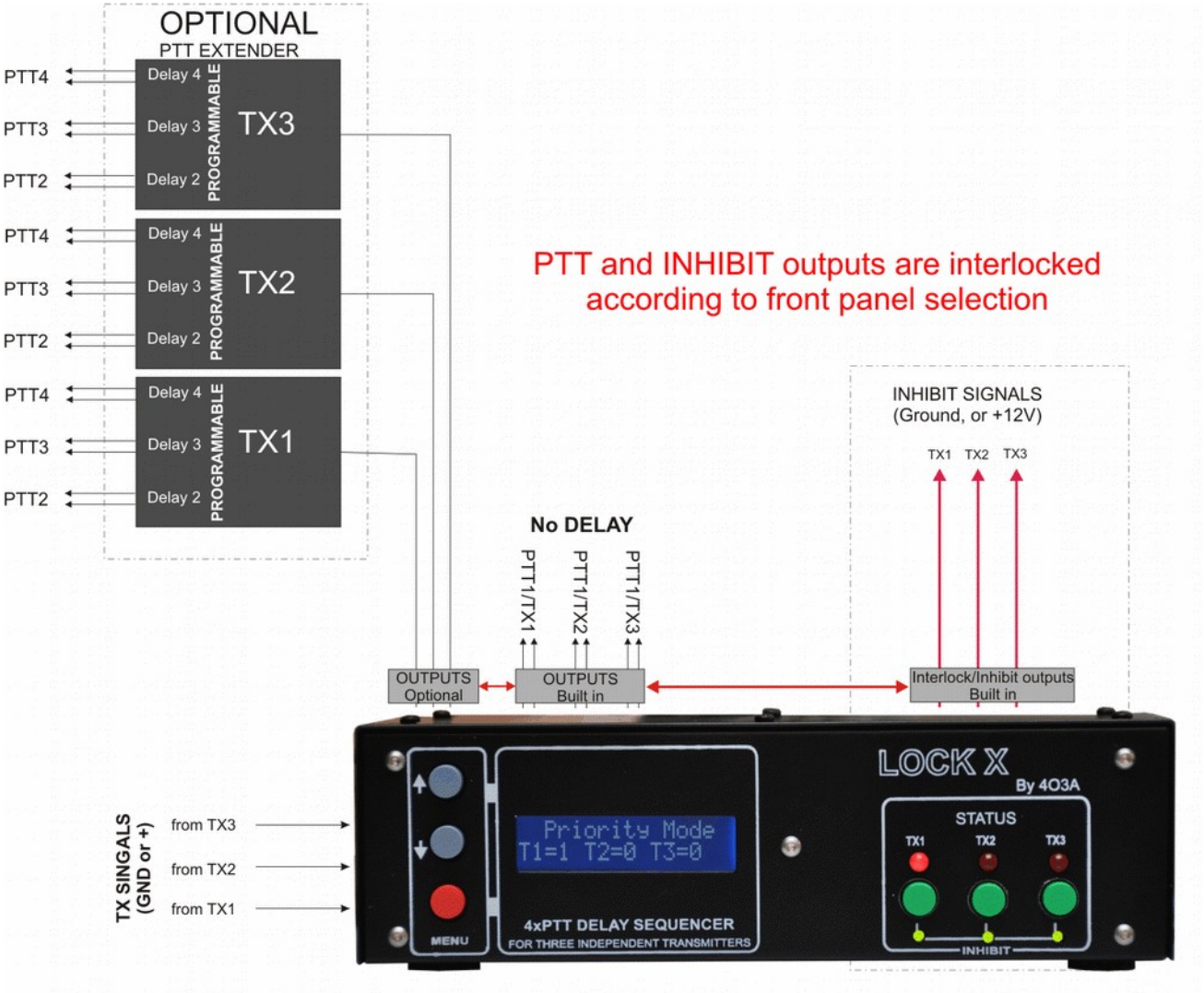
PTT Distribution

For each SO2R or Multi OP, EME station or serious VHF station PTT sequencer is extremely important. LOCK X has built in PIC microcontroller and provides four independent PTT outputs, easily programmable from front panel. Each delay can be set from Zero to 255ms.

LOCK X independently controls PTT DELAY for 3 transmitters with four programmable outputs for each transmitter.
PTT outputs are flexible, and with jumpers available on the rear panel, each output can be Ground or PLUS 12V, OPEN or Shortcut circuit. Thanks to this flexibility, LOCK X can be implemented in almost any existing station layout.

TX sense inputs	*GND or +5V, independently*
PTT OUTPUTS	*2x Zero delay built in (GND or +12V, jumpers)*
OPTIONAL PTT Extender	*Separate device, connected with DB9 cable with LOCK X. Has 3x programmable PTT outputs.* *Up to 3 PTT extenders can be connected, for 3 independent transmitters*
PTT outputs	*Each can be open or short, GND or +12V*
Power supply	*External, 12V*

Block schematic of LOCK X



LOCK X itself has built in Interlock system and two PTT outputs for each of the three (3) transmitters.

Interlock

You can interlock your transmitters on two different ways:

1. Using inhibit signals from LOCK X to inhibit transmission on your radio
   (*Those signals can be selected with jumpers on rear panel, to be GND or +12V, depending on what radio are you using*)
2. Using PTT outputs from LOCK X, as all those outputs are interlocked according to the front panel selection.

If you do not push INTERLOCK buttons on the front panel, then all transmitters are active independently. Only the selected transmitters are interlocked.
If you interlock any two or all three transmitters with just pressing the buttons(green LEDs are indicating status), then transmitters are interlocked and first one wins (default setting). Inhibit outputs from LOCK X are sending signals and inhibiting transmitters as well as disabling PTT lines for those transmitters.

Interlock PRIORITY

Sometimes you need INTERLOCKING between transmitters with different level of priority.
For example, you want to allow MULT station to have priority and to STOP any current transmission of other transmitters, as MULT is most important. With LOCK X you can set a level of priority with entering PRIORITY MODE (*Push ENTER and DOWN button at the same time*)and setting priority level of 1, 2 or 3 for every transmitter. The highest priority has transmitter with number 3, then 2 and lowest priority is level 1.
If you choose just one transmitter to have higher priority, then it will stop any transmissions of other transmitters and will take priority. Any transmitters with equal priority level will have normal Interlock scenario – First One Wins.
Thus you can make any scenario you like and have Interlocking in any possible combination.

EXAMPLE 1
TX1 – Priority 3 – STOPs transmission of TX2 and TX3
TX2 – Priority 2 - STOPs transmission of TX3
TX3 – Priority 1 – Transmits only when TX1 and TX2 are not transmitting

EXAMPLE 1
TX1 – Priority 3 – STOPs transmission of TX2 and TX3
TX2 – Priority 1 - Transmits only when TX1 is not transmitting. With TX3 is First One Wins
TX3 – Priority 1 – Transmits only when TX1 is not transmitting. With TX2 is First One Wins

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PTT EXTENDER

In LOCK X device you have built in two PTT outputs for each of the three transmitters.
If you want to have PTT distribution with more PTT outputs you can externally connect PTT extender for one, two or three transmitters, depending on your needs.
One PTT extender is needed per one transmitter.

PTT extender has three groups of PTT outputs (*two PTT outputs per group*) and each group can have delay which is programmable from front panel. Delay can be set in the range from 0ms to 255ms.
PTT signals can be chosen with jumpers on the rear panel to be GND or PLUS, OPEN or SHORTCUT. Actually you can make whatever combination you need.
PTT extender is placed behind radio, and is connected with cable to LOCK X.
With distributing PTT to all radios through LOCK X you have all in clean, easily controlled and easily programmable order. All becomes to be on one front panel, reliable, and PC independent.

Use of LOCK X

SO2R, MS, M2, MM layouts – flexible and easily programmable, INTERLOCKING and PTT distribution for proper switching of antennas, linear amplifiers, radios, preamplifiers, filters etc
Control two or three radios on the same band with user defined interlock priorities
VHF – proper distribution of antennas, linear amplifiers and preamplifiers. Easy control of two or three stations on the same band – blocking those who are not transmitting