

Electronic Whistle ETD 100/350 with Power Amplifier MTK 250 incl. Trio-tone



Power Amplifier MTK 250
Ref. no. 25530130



TYFON ETD 100/350
Ref. no. 24530080

A Strong Signal Without Noise!?

Many who sail under the IMO Regulations COLREG 1972 know that these rules request very high sound pressure levels for efficient signalling, yet "...the sound pressure level of the vessel's own signal at the listening posts shall not exceed 110 dBA and so far as practicable should not exceed 100 dBA" (extract from IMO Regulations). The rules are demanding a strong signal on board but without noise!

A common way to solve this 'Paradox' of COLREG 1972 is to place a whistle very high above deck. But what if even the highest point is not high enough? A Whistle with Unsymmetrical Sound Distribution is the solution!!! The novelties in brief with the horn design are:

- Concentration of the total sound radiation towards the plane where it is needed - the horizontal plane. This means up to 10 dBA lower sound radiation downwards (and upwards).
- Appropriate sound spread in all horizontal directions with the strength related to the headline sound pressure level as prescribed by IMO.
- A sound spectrum specially created to give a high electro-acoustic efficiency and, as well, a rich "tone colour" and good properties for perception in noise.
- Twin unit electrodynamic special drivers of enclosed type, protected under cover of non-metallic material, glass-fibre reinforced polyester as the horn itself.

From the points above, it is easy to understand that some very important features have been gained with the new TYFON ETD 100/350. The new horn with its unique vertically extended front marks the innovation that makes a major problem reducible.

When a "combined system" of two whistles are used as described by IMO, a very effective and significant tone spectrum can be created. An airdriven TYFON for 260 or 440 Hz can be an excellent part of the appliances for the utmost total performance and reliability.

Power Amplifier MTK 250

The Power Amplifier MTK 250 is in principle a converter by means of which the direct current from a battery or DC generator is treated by an electronic oscillator to an alternating current of a frequency and wave form suitable to feed the horn. A quartz crystal keeps the frequency superstable, and the digital oscillator followed by a special amplifier gives an extremely high efficiency and reliability in the conversion process.

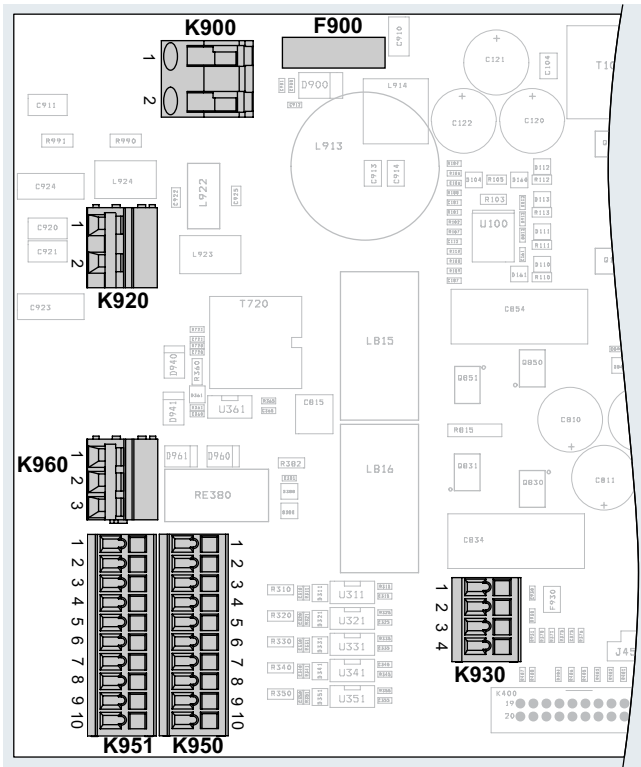
The MTK 250 amplifier has the following features:

- Generate momentary signals with a push-button or our series of signal controllers.
- Pre-programmed with following signal characters:
 - General Emergency Alarm
 - River signal
 - Open sea signal
 - Stay away signal
- Can be used as a PA-amplifier when a microphone is connected.

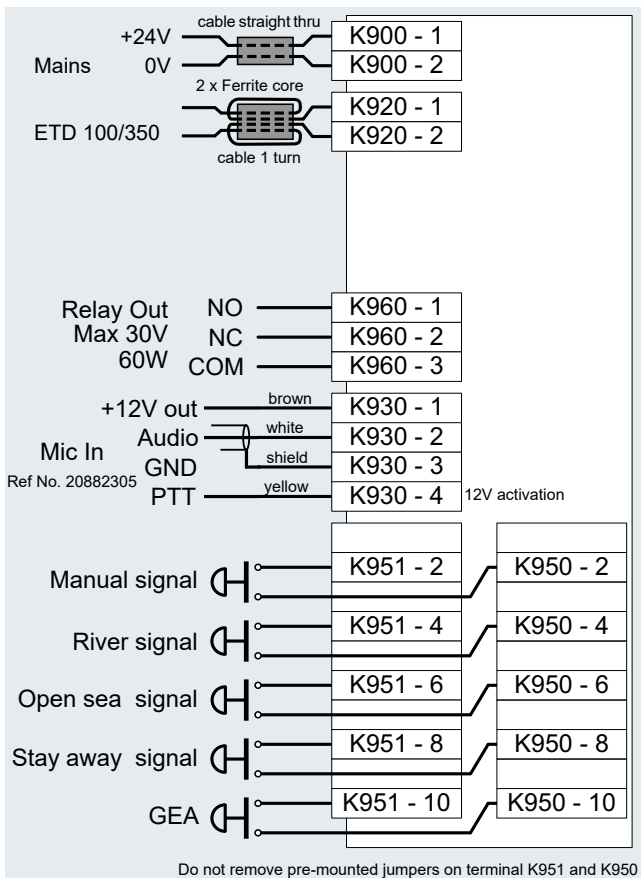
Technical data

Frequency (basic):	350 Hz
Sound Pressure Level (1m) Total:	132 dB
1/3 octave (IMO limit 130dB):	131 dB
Power consumption (signal):	250 W
Power consumption (standby)	5 W
Heating element:	25 W
Power source (nominal):	24V DC
	Min: 20V DC. Max: 27V DC
Operating ambient temp. (MTK 250):	0... + 50° C
Protection class:	IP2X
Weight (ETD 100/350):	8 kg
Weight (MTK 250):	3.1 kg
TYFON ETD 100/350 is equipped with a heating element controlled by a thermostat which switches on at a temperature below + 10° C.	

Power Amplifier type MTK 250



Position of terminal connections

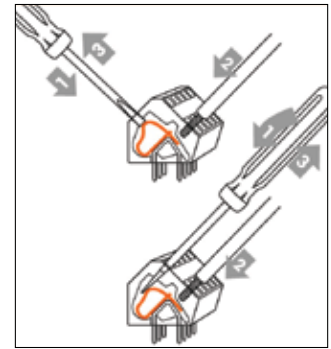


General terminal connections

Note!

All wire terminals use a so called spring clamp technique.

For all terminals except for the power (built in lever) use a flat screwdriver with max width of 3 mm.



Basic principle of spring clamp.

Mounting

The amplifier MTK 250 is to be mounted indoors.

An advantage with TYFON ETD 100/350 is, that the length of the cable between whistle and power amplifier is not critical. With a cable section of 2 x 4mm² a distance up to 30m, and with 2 x 2,5mm² up to 10m.

The MTK 250 enclosure has holes for cable penetrations on the long side.

Always snap mount the two enclosed ferrite cores on the mains supply cable and the cable to the ETD 100/350.

Note: Always use RF-shielded cables and always use the original enclosure.



Two equal clamp ferrites is included with the unit in a plastic bag inside the unit. See connections to left.

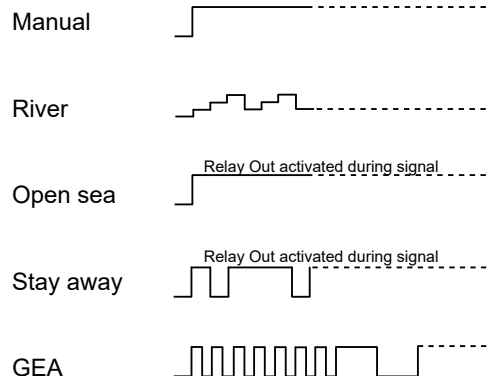


Pull the two mains cable straight through the clamp. Close the clamp (snap connection). Try to position the ferrite close to the connection terminal.



Pull the two cables going to the ETD 100/350 and make them going one turn through the clamp. Close the clamp (snap connection). Try to keep the ferrite close to the connection terminal.

Signal characters



Subject to alteration without notice.

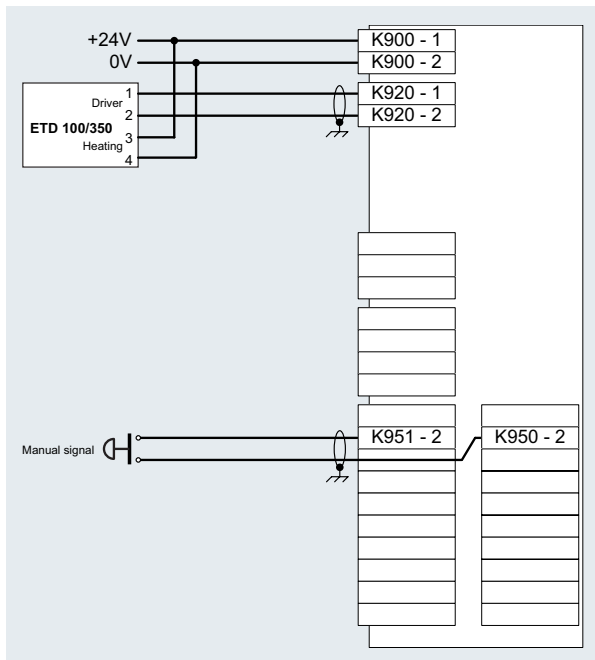
Power Amplifier type MTK 250

- Activation of inputs are of momentary action type and external switches should be potential-free.
- Microphone PTT signal is normally a built in function in the microphone
- Control signal cable min 0.5mm² , max 1.5mm². Always use shielded cables.

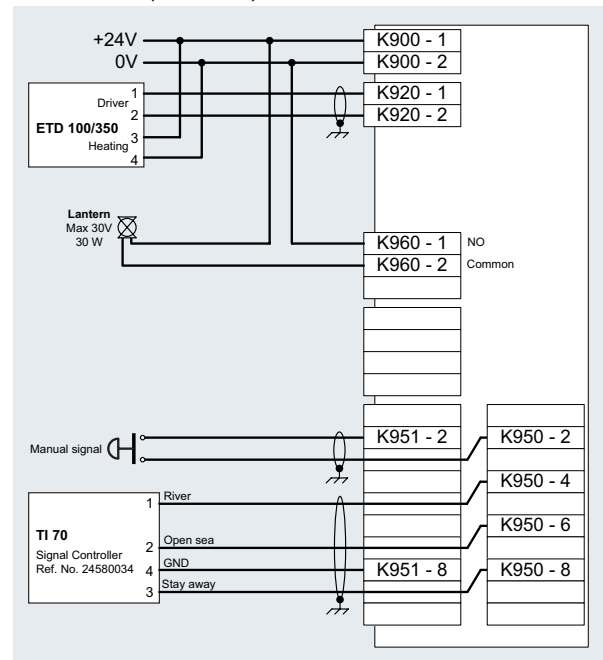
Signals and activations

- Manual** - Sounds as long as push button is activated, max 20 sec. Activate again for new 20 sec.
- River** - After activation, the sound will signal its character and then stop, max 20 sec. Activate again for new 20 sec.
- Open sea** - Sound as long as push button is activated, max 20 sec. Activate again for new 20 sec. Relay Out activated.
- Stay away** - After activation the sound will signal its character and stop, max 27 sec. Activate again for new 27 sec. Relay Out activated.
- GEA** - Activating and releasing the push button will start the GEA character (i.e. signal starts/stops on release). A new activation will stop the signal. This input has the highest priority of the inputs and must be stopped before activating any other signal.
- PTT (mic)** - Activating the PTT will stop any signal. If GEA is activated it will be restarted after PTT is de-activated. If clipping occur on the signal, try decreasing the volume on the microphone.

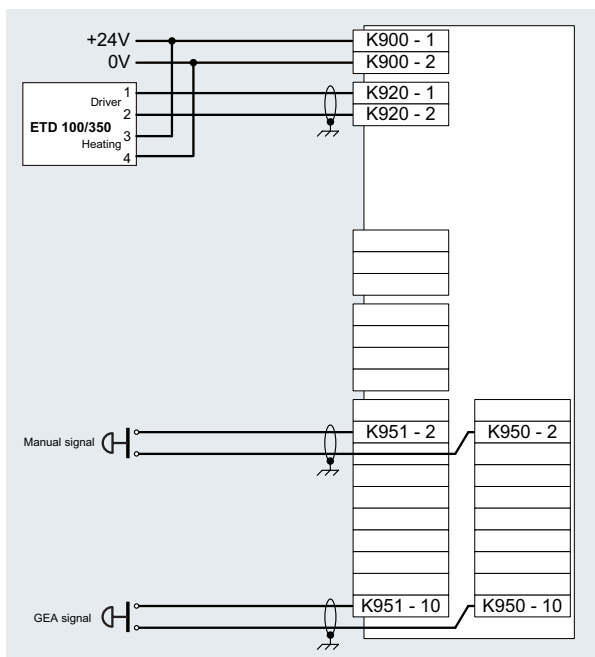
Typical wiring for MTK 250, ETD100/350 and manual push button



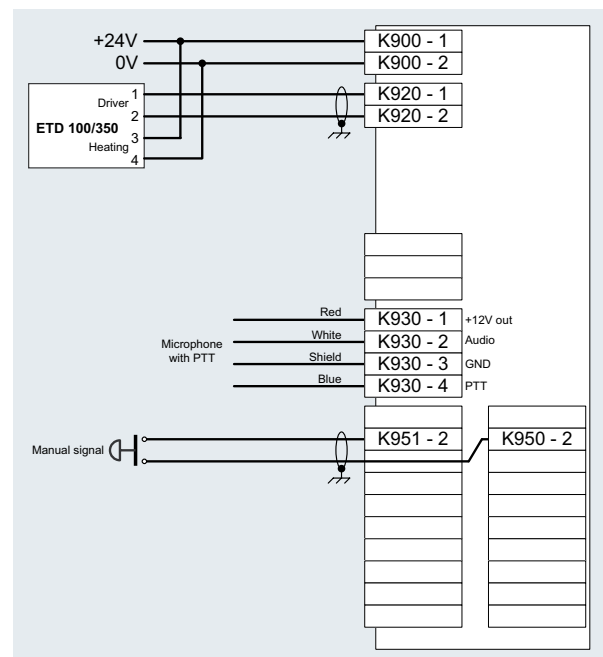
Typical wiring for MTK 250, ETD100/350, manual push button, TI70 (Trio-tone) and Lantern



Typical wiring for MTK 250, ETD100/350, manual push button and GEA push button

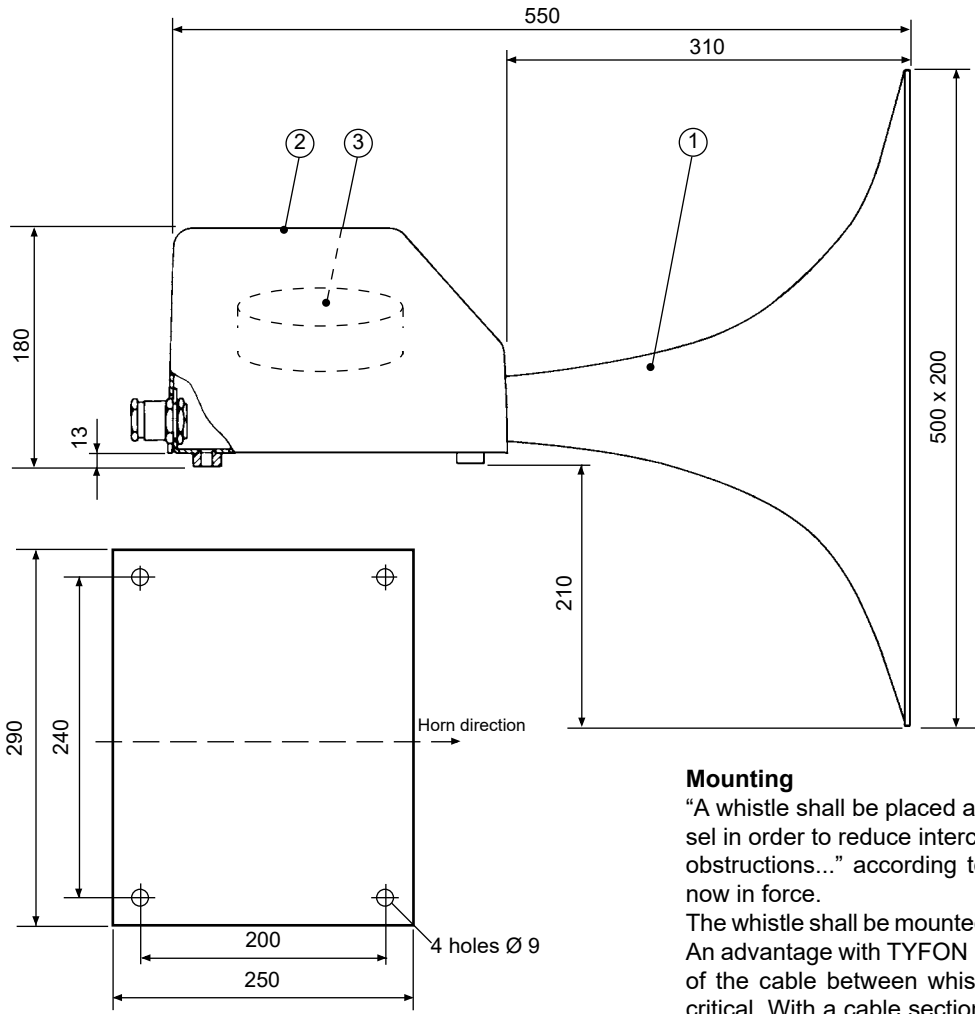


Typical wiring for MTK 250, ETD100/350, manual push button and Microphone



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Dimensions, spareparts etc



Mounting

“A whistle shall be placed as high as practicable on a vessel in order to reduce interception of the emitted sound by obstructions...” according to the international regulations now in force.

The whistle shall be mounted on a horizontal support plane. An advantage with TYFON ETD 100/350 is, that the length of the cable between whistle and power amplifier is not critical. With a cable section of 2 x 4mm² a distance up to 30m, and with 2 x 2,5mm² up to 10m.

Note: Always use RF-shielded cables and always use the original enclosure.

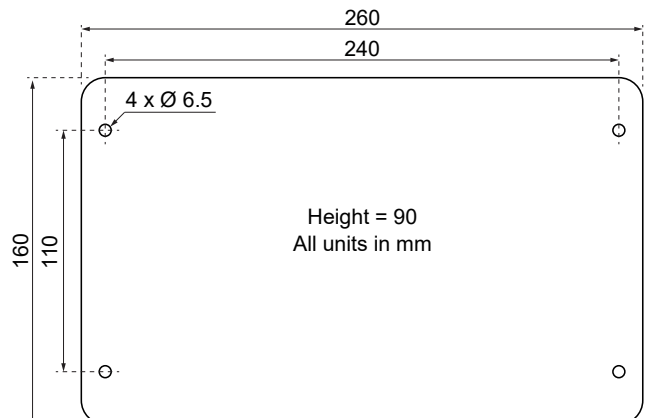
Units	Ref. no.	
TYFON ETD 100/350	24530080	
Power Amplifier MTK 250	25530130	
Pos	Parts	Ref. no.
1	Horn (Glass-fibre polyester)	21750090
2	Cover (Glass-fibre polyester)	21772330
3	Driver	20620030
	Heating element	20320031
	Thermostat	36181148
4	Fuse 20 A	20556110
	Microphone incl holder*	20882305
5	Complete PC-card	22430354

Spare parts can be obtained from Kockum Sonics or their agents. When ordering, give part name and reference no.
*Option.

Fault finding	
Red LED on circuit card is flashing when activating a signal	To weak 24V DC power supply
No signal comes from ETD 100/350	- Check the fuse pos 4 - Check the resistance to ETD 100/350. Should be approx 2 ohm excl. cable resistance. - Check that there are jumpers on K950 and K951



Cable inlet side



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