

INSTALLATION :

You will want to install the AERIAL in a wide-open space, cable placed downward, index forward to the bow. We may suggest several possibilities:

- *On a rear balcony*, thanks to a radio/GPS aerial support*. Cut the threaded part, drill a 5mm hole in the axis, fit the aerial with a 4.5 mm Parker stainless steel screw *.
- *On the pataras*, with a squared deck and two green-house cables*; good compromise, easy to perform, and providing open range to the aerial.
- *On a flat deck, or on the roof-top*. This may prove even easier to install (depending on vessel specifications), but is likely to alter detection functions to a certain extent.
- *On the cross-tree*—bearing in mind of course that some reflections or a slight “dead-angle” created by the mast may have an impact on localization performances—but altogether a very satisfactory compromise, if you consider ‘stake in place’ efficiency.
- On the other hand, we do not recommend *top of the mast* fitting, which would widen the span of ‘useless’ detection from 10 to 15 miles. Nor is it advisable to locate the device *inside the boat*—unless the hull be made of material ‘transparent’ to radar hyperfrequency waves (wooden hull, stratified plastic with carbon...).

* may be provided as accessories

In every case, it should be noted that lack of proper height of the aerial above the water-level as well as sea-conditions, including instances when the aerial might be ‘masked’, may alter the distance of detection and localization.

The CABLE may be shortened—please mind the colour marks!

The INSIDE BOX is very easy to install: once the front plate has been removed downward, link the aerial as indicated, and connect the 12 volt power supply (protection by external fuse—0.5 – 1 A).

An optional TRANSFER OF ALARM RELAY adapted to extra equipment (e.g. a siren) may be provided on request.

ALL PARTS OF THE EQUIPMENT GUARANTEED TWO YEARS

CONNECTING

| | | | | | | | | |
|--------|------|-------|------|-----|------|-------|-------|-----|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 1 | 2 | 3 | 4 | 12A | VS | OV | OV | 12V |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Yellow | Pink | Green | Grey | Red | Blue | Brown | Black | Red |
| | | | | | | ↓ | | ↓ |
| | | | | | | White | | |



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Mer-Veille

RADAR DETECTOR V.2007

SPECIFICATIONS / INSTALLATION / USE

Would-be users are kindly invited to read this form attentively in order to achieve a thoroughly fool-proof assembly of the system, and make the most of it. The basic principle at work is very simple: as soon as a boat / ship emitting radar signals is detected by the MER-VEILLE, the device analyses the signal, activates an audio-alarm and lights up one or several LEDS indicating in which sector to look for the vessel.

The 2007 **MER-VEILLE** model which you just purchased is further provided with three very convenient functions: alarm-clock, monitoring of the alarms, and NMEA output. A fourth *Local Radar* function may be added on request.

The device consists of :

- An AERIAL, composed of a cylindric, slightly conical-shaped case (80 mm high on an 80 mm diameter base) fitted to a 6 mm section cable, and 8 drivers;
- An INSIDE CASE repeater (120*95*35 mm) to be installed on board.



MER-VEILLE “listens” to permanently operating hyperfrequency waves. As soon as a radar is identified by the analysis of the signals caught (radar “signature”), an alarm is activated.

The aerial to widened band covers two marine radar bands: X band (9 GHz) and S band (3 GHz), horizontal polarization. It is specially adapted to detection and localization functions on a 9 GHz band width. The decline in 3 GHz is compensated by extra performance of the radars.



FUNCTIONING :

The inside box contains :

A 3 positions switch :

0 = Stop, MER-VEILLE is off.

1/2 = **Functioning with discreet alarm.** The sound alarm is only activated by the passage of a radar beam, for a short time. This position is to be used when a radar has already been detected, and the crew all know about it. With a little bit of practice, listening to the variations of the sound alarm on top will enable you to gather a fairly reliable evaluation of the situation: radar getting closer or receding away, discrimination between several radars, etc...

1 = **ACTIVE WATCH.** In this position, **MER-VEILLE** activates a “long” alarm signal to make sure all members of the crew have been warned (and fully awakened..).

A reception SENSOR :

This button determines the receptiveness of the device, in order to appreciate the distance of detection (up to 10 miles). The latter depending on the power of the radar beam that has been localized, this may imply a little bit of guesswork, but it is never inferior to 1 mile.

« ACK », a multifunction button :

1/ Acknowledgment of the alarms (brief touch on the button)

As soon as the parameters of the detected radar have been stored in the memory, the corresponding sound alarm is suspended, the LEDS lights being still activated. If the radar gets closer, or if another radar enters the field of detection, the sound alarm will be resumed. The memory may store up to 4 different radars. They are automatically erased as soon as the corresponding vessel gets beyond the field of detection. The green LED keeps on sparkling as long as a radar is retained in memory, switch being positioned in 1 / 2.

2/ Alarm clock (long pressure on the button)

The system switches to *MODE PROG. ALARM CLOCK.*

The green light is on and steady. The red light indicates temporization values by multiples of 10'. Thus, a brief touch will add up 10' to the temporization (up to 60). When temporization reaches 20'', the alarm-clock regulation mode deactivates automatically.

The green LED indicates that the alarm-clock regulation mode is activated by means of a long sequence, followed by *n* short flashes representing how much time is left to run (*n* = 10'). In that way, even when lying on his berth, the sailor can see whether the alarm-clock is on, and how much time is left.

Once the programmed time is completed, a permanent sound of the buzzer takes over to solicit another manipulation: a long pressure on the button will launch the alarm-clock automatically for an identical period of time; a brief touch will bring the function to an end. Needless to say, the alarm-clock function is not meant to replace the radar detection

RECOMMENDED PROCEDURE :

In free waters, or when members of the crew are no longer operational, place **MER-VEILLE** on position **1**, stating nominal receptiveness.

As soon as the crew have all been informed by a continuous sound alarm, switch on to position **1 / 2** in order to make the sound bearable, and adjust receptivity according to the situation. The **ACKnowledgment function** may then be operated if you wish to suspend the sound alarm.

In normal navigation circumstances, the crew being operational, experience has shown that position **1 / 2** is indeed very helpful, in order to make up for odd goings-on (such as careless ‘opticals’, or sailors failing to keep a close watch through falling asleep or having a good time on board...)

MER-VEILLE has a consumption of about 18 mA in watching mode, we advise you to use it permanently:

PUT IT ON, AND FORGET ABOUT IT!

LOCALIZATION OF THE SOURCE :

Four LEDS enable you to localize the detected radar source. Each corresponds to a sector of the horizon. The LEDS arrangement scheme allows you to estimate the position and evolution of the radar.

Accordingly, a suitable receptiveness level having been chosen, the passage from 1 to 2, then 3 LEDS will indicate that a boat is approaching. Please note that an overestimated level of receptiveness might “blind” the system: in that case, the 4 LEDS get lit; it is necessary to readjust. In any case, the system will prove helpful, but “classical” watching remains the rule.

In the centre of the red LEDS, there is a **multifunction green indicator:**

--slow flashing: detector in dormant mode, position 1.

--fast flashing: detector in dormant mode, position 1 / 2.

--steady ON: current alarm, particularly adapted to night vision of the location, or passage delayed in Alarm-clock program mode.

--twinkling, if ACKnowledgment function is ON (radar in memory).

--long + *n* flashes, if CLOCK ON (*n**10 minutes)

NMEA output

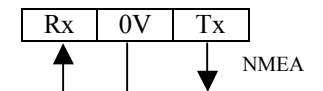
Internal connecting. Compatible RS232 COM PC, bauds 9600,

Protocol owner of the type : \$PCEM, Trad, N1, N2, N3, N4, *CS, CR, LF.

Trad = Period pulse radar $n \times \frac{1}{2} \mu s$ (4 characters)

Nx = Number pulse by sector (3 characters, maxi 255)

The message is emitted on each radar detection.



Local Radar

Option including additional equipment: internal connector and an extra aerial to be placed under the ‘radome’ of the radar. The radar pulses are acquired and treated by the MER-VEILLE device to avoid alarm when your own radar works (depending on radar types: please contact ‘CIEL et MARINE’)