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SYLEDIS is a distance measuring device which calculates the delay created by propagation of a signal, from a transmitter to a receiver and back, this delay being directly proportional to the distance travelled.

Incorporated in this value are the delays incurred while the signals travel through system components and is processed within the system. To eliminate these, a calibration procedure is performed to evaluate their magnitude and compensate for them in order to display and output exact range readings.

Within the SYLEDIS mobile the time measurement card is responsible for compensation of this delay. Located on the card are rotary switches which may be set to an equivalent delay. Alternatively, an equal distance may be entered into the onboard navigation computer which will be subtracted from the range read out of the unit. This latter method is utilised for a better monitoring of values used. These delays are considered constant for a calibrated signal.

The suggested calibration procedure is to choose a range of approximately 3-10 km, ie. short enough that the propagation velocity variations may be considered negligible. The systematic delays are calculated and compensated for accordingly.

After installation of base stations a mobile may be placed at a convenient base station and the in situ baselines measured. This method has the added benefit of confirming base station co-ordinates. Alternatively baselines may be crossed by the vessel to check distances.

For both cases any errors between calculated and observed distances may be categorised as a random error.