

Robotsonde

AUTOMATIC LAUNCHER FOR UNMANNED SOUNDINGS

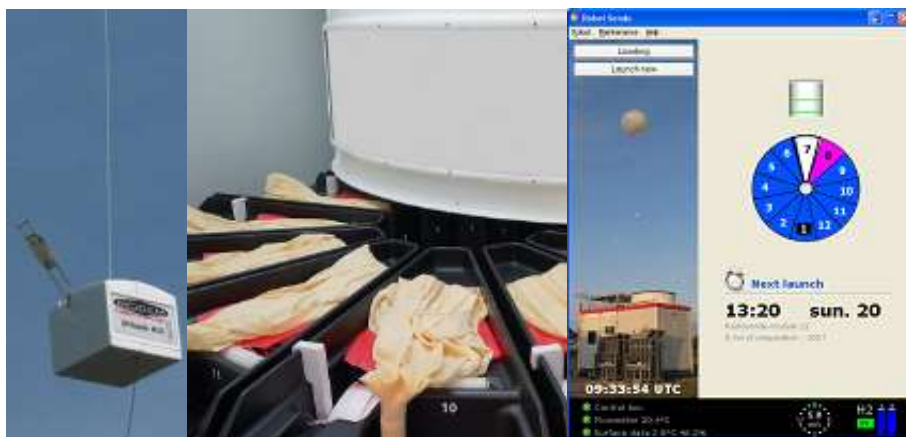
Beyond SR10 receiving system, MODEM has introduced a new concept of low cost automatic launcher for Upper-Air meteorological station.

This new product so called *Robotsonde* has been developed according to following purposes:

- Make operator task easier (easy maintenance and Low rate of failure)
- Reduce possibility of error and wrong handling during preparation/launch phase
- Increase percentage of successful soundings and available data on GTS
- Increase security of persons specially when hydrogen is used for inflating the balloon
- Facilitate staff management during out of normal working hours (Night or week-end) or remote location
- Affordable acquisition and maintenance costs allowing savings on global running cost



Robotsonde was built in a **robust 20' maritime container** and composed of following subsystems:



- **Double-door entrance** to protect from strong winds rains, drifting snow or sandstorm.
- **Operator rooms** with Electronic control unit and PC workstation...
- **Carrousel** with **12 individual removable containers** of balloon train
- **Launcher tube** for balloon release

Robotsonde

Automated functionalities

Primarily functions

- Radio scan: Before powering on the sonde, the system check frequency availability among a pre-defined list of frequencies
- Power on the radiosonde: Battery pack is powered on and transmitter is immediately setup on chosen frequency. Both actions are performed through an infrared link (No connector or physical link)
- GPS initialization: A GPS repeater provides GPS signals. The system monitors 3D initialization
- PTU Calibration check: The system load calibration data of the relevant radiosonde stored during the preparation phase and check coherence of PTU data
- Preparation time: RobotSonde performs all above actions in less than 1 minute.
- Balloon inflation: The system monitors a gas flow meter to inflate the balloon according to specified volume. **Compatible with helium or hydrogen** gas
- Balloon train release :Balloon is released at specified launch time
- Data acquisition: Data acquisition and storage during the flight
- Transmission of messages (TEMP, BUFR...)
- At the end of the sounding, the system will send formatted messages to the GTS

Secondary functions

- Re-launch of a new radiosonde: In case of incident before balloon release or failure during the flight, the procedure will restart for a new sounding
- Possible immediate launch: At any time, an immediate start of the launch procedure can be initiated by an operator (local or distance).
- Stock control of radiosondes on the carrousel :Priority is based on date of loading
- Control of Gas consumption: The system can monitor a couple of gas racks
- Log of events
- Daily report
- **Robotsonde** is fully compatible with already installed MODEM sounding systems

General information

Dimensions:

- Length: 6.00 m
- Width: 2.44 m
- Launch tube Diameter: 2.00 m
- Height during transport: 3.10 m
- Total height with launcher tube: 3.60 m

Gross weight with launcher tube: 3500 kg

Equipment

- Sliding lid
- Gas Flow meter
- Air conditioner and Heater
- Wall sockets
- Telephone socket
- Weather station for surface parameters
- Lightning beacon



Robotsonde can be operated locally but full potential is given by using complete remote control capabilities

