

General Description

Komoline has developed INSAT based Distress Alert Transmitter (DAT) with technical know-how from Space Applications Centre (SAC), Ahmedabad. The requirement for a satellite based Alert Transmitter was given by the Indian Coast Guards, for use in fishing boats going deep into sea. In case of emergency, the fishing boat transmits a short message containing its position and type of emergency to a central location through satellite for rescue operation.

INSAT based Distress Alert Transmitter is used to transmit emergency conditions and position location to a central HUB station via UHF transponder of INSAT for rescue operation. It can be easily installed in boats or other vehicles. In case of emergency, user just needs to switch on the DAT unit. User is required to select a message (e.g. fire in boat / boat sinking / medical help / other emergency) by pressing the corresponding switch provided on the system. The DAT combines the message with position of the boat obtained through GPS, and transmits the same to a central HUB station. The DAT repeats the message every minute for first five minutes and then every five minutes till it is switched off manually or until the battery life gets over.

The DAT has a battery life of 24 to 48 hours after activation. It is fitted to the fishing boat and on activation, gives the boat's co-ordinates with the global positioning system (GPS) to the Coast Guard Maritime Rescue Co-ordination Centre, at Chennai. All distress alerts will be picked up by INSAT 3D / INSAT 3A satellite and relayed to the reception center at the Maritime Rescue Co-ordination Centre. Situations like medical emergency, fire on board, sinking or capture of boats can be reported to authorities on shore for immediate action. The transmitter operates through a DRT transponder and can send continuous alerts for 24 hours once every five minutes on an average, while staff at the rescue centers track the boat as it appears on a GIS map on their computer screens. Each transmitter, with an omni-directional antenna, has a lithium battery life of 24 to 48 hours after activation and will give the identification number and GPS position of the boat to the Coast Guard.

The transmitter is meant for emergency message communication for fishermen / Sailing Vessels going deep into sea.



KDAT-02

Salient Features

- Transmits emergency message on manual activation
- UHF band (402.75 MHz) transmission
- In-built Global Positioning System (GPS) to transmit position and time information
- Low cost
- Continuous transmission on activation of message for 24 hours at 5 minutes interval
- Available with suitable mounting options for Boats / Sailing Vessels
- Message transmission in the form of Vehicle ID, Vehicle location, type of emergency and time information
- In-built High Intensity Navigation LED Flasher
- Sealed Waterproof package
- Operable in saline environment
- Light weight
- Operating temperature from -10° to 50°C
- Transmission Protocol; Once activated, transmits in random mode, every one minute for five minutes and then once every five minutes
- Quadrifilar antenna, having hemispherical coverage, suitable for operation from fishing boat
- Reception from INSAT 3D / INSAT 3A through 2.4 m antenna on extended C-band
- Displays time of activation, Boat ID and Type of emergency and position of boat (in terms of Lat and Long) along with Audio Alarm at receiver end; Also displays locations on map (GIS)

Specifications of - KDAT-02 - Distress Alert Transmitter

Parameter	Conditions	Min	Typical	Max	Units
Transmitter Specifications					
Output Frequency Band		402.65		402.85	MHz
Frequency Step Size			500		Hz
Modulation	BPSK				
Output Power	5 W (37 dBm \pm 1 dB)				
Output Power Stability	Within 1.5 dB over Frequency Band				
Harmonic Level			> 35		dBc
Spurious			> 55		dBc
Phase Noise (1 KHz Offset)			55		dBc
Carrier Suspension			25		dBc
Amplitude Imbalance				0.2	dB
Phase Inaccuracy				0.2	hPa
Data Rate			600		BPS
Transmission Format	ISRO Burst Format				
Phase Ambiguity Resolution	Differential Encoding				
Error Correction	R-S Encoder				
Frequency Stability Over Temperature			> 1		ppm
Frequency Stability (Long Term)			> 1		ppm/yr
Frequency Offset from Center			> 10		Hz
SS Phase Noise	100 Hz		< -60		dBc
	1 KHz & above		< -70		dBc
Mechanical Specifications					
Dimensions		242 (h) x 245 (w) x 245 (d)			mm
Weight			1.5		Kg
GPS Specifications					
Input Frequency			1575.42		MHz
Noise Figure				1.5	dB
Data Rate			4800		baud
Level	RS232				
Transmission Format					
CR	192 bits (All '1)				
BTR	64 bits (Alternate '1' & '0')				
UW	64 bits (90 bit message and 65 bit redundant)				
Message Length	155 bits (90 bit message and 65 bit redundant)				
Antenna	Quadrifilar				
LED Flasher					
Intensity	luminous flux 70 lm				
Color	Red				
Environmental					
Prime Power	7.2 V Lithium Battery				
Enclosure	Waterproof, Poly-Carbonate, Floatable				
Operating Temperature		-10		+50	°C
Rainfall			110		mm/hr
Wind			100		km/hr
Package	Marine Environment				