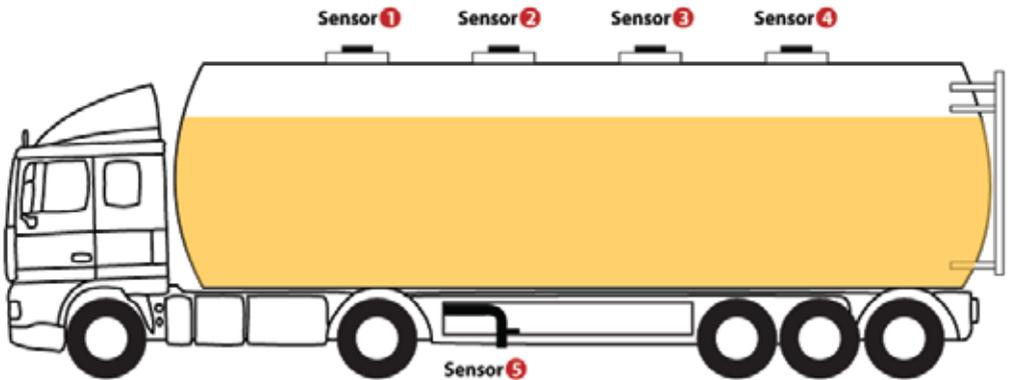




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HATCH SENSOR



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HATCH SENSOR WORKING PRINCIPLES



WORKING PRINCIPLES

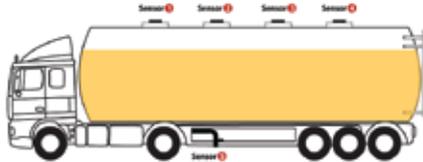
1. The basic working principle of the hatch sensor are base on the mechanical movement sensor that we integrated onto the gadget we install at the man-hole.
2. With the help of the unique mechanical design which is welded onto the body of the tanker, the sensor are force to be lifted before the man-hole can be opened.
3. Whenever the sensor are tilted, it will send out an 433MHz band Signal to the receiver at the GPS tracking unit and the same information will be transmitted through GPRS to our server for history recording.
4. Basically the sensor unit are power internally through a D Cell Primary Lithium cells which is capable of operating up to 2year (the life of the battery depend on the frequency of the transmission of data).
5. The sensor and battery are fully seal with IP66 casing and suitable for harsh environment.
6. For the discharge valve, the same hatch sensor are used to detect any opening of the discharge valve. However, the mechanical design at the discharge valve slightly differ.
7. By having both the man-holes and discharge valve installed with the hatch sensor, any of the opening activity will be clearly recorded into our fleet monitoring system with exact time and location of the incident.



SPECIFICATION

1. Sensor operating with average 0.25mA at 3.6V.
2. Wireless communication with 433Mhz frequency
3. Sensor ID can be set
4. Sensor close state reporting interval 3minutes
5. Sensor open state reporting interval 1.5minutes
6. Estimated battery lifespan 1-2 years. Higher rate of opening and closing will reduce the battery life.
7. Battery Model - Lithium Primary Cells ER34615 D size
8. Operating Temperature range 0 - 70 degC
9. Intrinsically seal with external IP66 Box model TIBOX (TJ-PG-0811-15), size 80x110x60mm.

HATCH SENSOR SPECIFICATION



No	Start Date	End Date	Description	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Alarm 1	Sensor Output	Address	Flags
1	14/12/2012 11:03:18 AM	14/12/2012 11:46:12 AM	10:45:51	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
2	14/12/2012 10:46:58 AM	14/12/2012 10:47:12 AM	10:09:38	OPEN / High	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
3	14/12/2012 10:48:44 AM	14/12/2012 10:48:44 AM	10:09:38	OPEN / High	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
4	14/12/2012 10:49:02 AM	14/12/2012 10:49:09 AM	10:09:38	OPEN / High	CLOSE / High	CLOSE / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
5	14/12/2012 10:50:28 AM	14/12/2012 11:03:58 AM	10:09:38	OPEN / High	OPEN / High	CLOSE / High	DEFAULT / Default	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
6	14/12/2012 11:04:40 AM	14/12/2012 11:04:42 AM	10:09:38	CLOSE / High	OPEN / High	CLOSE / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
7	14/12/2012 11:04:58 AM	14/12/2012 11:05:02 AM	10:09:38	OPEN / High	OPEN / High	CLOSE / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
8	14/12/2012 11:05:15 AM	14/12/2012 11:05:18 AM	10:09:38	OPEN / High	OPEN / High	OPEN / High	CLOSE / High	CLOSE / High	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋
9	14/12/2012 11:05:30 AM	14/12/2012 11:05:32 AM	10:09:38	DEFAULT / Default	OPEN / High	OPEN / High	CLOSE / High	DEFAULT / Default	OPEN	GT18L Singapore, Singapore, Singapore	🌐 📶 🔋



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