



SEC

ROBOWATCH

DEFENCE

OFRO⁺detect

MOBILE RECONNAISSANCE

The importance of immediately operational mobile gas detection systems is steadily increasing – not only in regard to danger by terrorist attacks with toxic substances, but also in chemical factories or traffic accidents involving the transport of hazardous substances. In most cases, humans still have to assume the difficult and risky task of estimating the hazard on site and within the briefest possible time. It is not unusual that they risk their own lives.





OFRO^{+detect}

MOBILE RECONNAISSANCE

TIME TO RETHINK

The tread-drive reconnaissance robot **OFRO^{+detect}** is based on the basic model of the mobile security robot **OFRO**. The system is equipped with tried and tested gas-measuring technology and detects all current tactical gases as well as toxic industrial gases.

Independent of weather, **OFRO^{+detect}** – by means of its integrated thermal camera system, which rotates 360 degrees – reliably recognises human heat sources. Just like the **OFRO**, the robot transmits data continuously using the radio standards GPRS, UMTS and WLAN.

OFRO^{+detect} not only transmits type and concentration of the detected gas, but also simultaneously delivers video recordings of the location of the accident to the control unit. The control unit can also be mobile if control is effected by tablet-PC. The flexible employment of the mobile reconnaissance robot guarantees the fast deployment of well-aimed measures to protect humans and assets in emergency situations.

RANCHE OF APPLICATION

- Early recognition of fires
- Measuring leaks
- Process control
- NBC reconnaissance
- Detection of persons

TECHNICAL DATA

Dimensions

Length	112 cm
Width	70 cm
Height	140 cm
Weight	65 kg
Payload	40 kg
Climbing Ability	45°
Operating Temperature	-20 °C to +60 °C

Construction

Top case	5,0 mm GFK
Bottom case	6,0 mm in GFK
Assembly fabricated	high-grade Aluminium

Power

Battery	Lithium Ion Cell
Capacity	60 Ah or 120 Ah
Run Time	8 hrs or 12 hrs
Charging time	6 hrs

Mobility

Chain drive	two rubber treads
Chain/Wheel diameter	14.5 cm
Chain width	12 cm
Translate speed max.	4 km/h

Motors

Power	500 W
Voltage	24 V DC
Force	28 Nm
Encoder	HP HEDS-5540 A11, r = 500 cpr

Sensors

Front Ultrasonic	1
Position Encoders	270 ticks per mm; 17984 ticks per revolution
Thermal Camera	Wide FOV (50° x 35°) 7-14µm; 320 x 240 pixels
CCD Camera	Wide FOV (25° x 35°) 640 x 480 pixel
DGPS	12-channel DGPS receiver; Omnistar-Worldwide operation
Front Infrared Sensor	5

CONTACT

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FIELDS OF APPLICATION

- Real estate (open depots, large storage areas, outdoor storage, military premises, tank farms)
- Interim storage
- Parking spaces of aeroplanes
- Large events

Intelligent onboard microcontroller

Processor	Transmeta Crusor (800 MHz)
Comm port	12 buffered serial ports (with RS-232, RS-485, TTL options)
A/D-Board	16 bit A/D resolution, 4 analog in, 4 analog out
Frame Grabber	FBAS and SVideo

Communication

WLAN	Secure Wireless-LAN, authentication after IEEE 802.1x / EAP with Key-Rollover, ACL, RADIUS and WEP128 / WEP152
GSM/GPRS/UMTS	dual mode, dual band card, which means 3G networks (GSM900 and GSM1800)

Controls and Ports

Main Power	Robot power On/Off
Charge	System power/battery recharge
LC-Display	Systems status and messages
Speaker	100-20 khz, 3,5 watt sinus

Dräger MULTI IMS

Ion Mobility Spectrometer for detection of chemical warfare agents and toxic gases (TICs):	
Nerve gases	0.01 to 0.1 mg/m ³
Mustard gases	0.5 to 2.0 mg/m ³
Blood gases (e. g. HCN)	20 to 50 mg/m ³
Operating Temperature	-30 °C to +55 °C
EMI, EMP, EMC	MIL-STD-461 E (Military standard)
Vibration, Shock, Density	MIL-STD-810 E (Military standard)

Ray-Sensor (N)

Gamma sensitivity 95.0 pulses per minute at Co-60-radiation = 1µSv/h in energy band of ambient radiation

Ray Types

(α + β + γ) (alpha)	from 4 MeV
β (beta)	from 0.2 MeV
γ (gamma)	from 0.02 MeV

