

OFRO<sup>+detect</sup>

# 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<sup>+detect</sup>

# MOBILE RECONNAISSANCE

### TIME TO RETHINK

The tread-drive reconnaissance robot **OFRO<sup>+detect</sup>** 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<sup>+detect</sup>** – 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<sup>+detect</sup>** 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.

### TECHNICAL DATA

#### Physical Characteristics

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
Run time	12 hrs
Recharge time std charger	6 hrs

#### Mobility

Chain drive	two rubber treads
Chain/Wheel diameter	14.5 cm
Chain width	12 cm
Translate speed max.	4 km/h
Rotational speed max.	2000 degrees/sec

#### Motors

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

#### Sensors

Front Ultrasonic	1 2 forward @ 20° intervals
Position Encoders	270 ticks per mm 17,984 ticks per revolution
Infrared	Wide FOV (50° x 35°)
Video Camera	7-14µm; 320 x 240 pixels

CCD Camera	Wide FOV (25° x 35°) 640 x 480 pixels
DGPS	12-channel DGPS receiver; submeter differential accuracy, World-wide operation with Omnistar
Gas/Smoke Sensor	12 (optional)
Front Infrared Sensor	5

#### Electronics

##### Intelligent onboard microcontroller

Processor	Transmeta Crusor (800 MHz)
Comm port	12 buffered serial ports (with RS-232, RS-485, TTL options)
USB-Ports	2
Ethernet Controller	2
RAM	64-bit wide 3.3V DRAM – up to 256 Mbytes
Extend	PCI04 Standard
A/D-Board	16 bit A/D resolution, 4 analog in, 4 analog out,
Frame Grabber	FBAS and SVideo

#### Communication

WLAN	Secure Wireless-LAN using authentication after IEEE 802.1x / EAP with Key- Rollover, ACL, RADIUS and WEPI28 / WEPI52
GSM/GPRS/UMTS	Its a dual mode, dual band card, which means as well as operating on 3G networks it can roam onto GSM900 and GSM1800

#### Controls and Ports

Main Power	Robot power On/Off
Charge	System power/battery recharge
LCD display	Systems status and messages
Speaker	100-20 khz, 3.5 watt sinus

#### MULTI IMS

Ion Mobility Spectrometer for detection of chemical warfare agents.	
Nerve gases	0.01 to 0.1 mg/m <sup>3</sup>
Mustard gases	0.5 to 2.0 mg/m <sup>3</sup>
Blood gases (e.g. HCN)	20 to 50 mg/m <sup>3</sup>

#### 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

### FIELDS OF APPLICATION

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

### RANCHE OF APPLICATION

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



### CONTACT

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