

Stand - off Detector of Chemical warfare agents model DD-CWA-S (tripod verzion) / model DD-CWA-A (vehicle verzion)



DD-CWA is a laser-based, so-called „active“ stand-off CWA detector with the understanding that in addition to the active detectors there exist also so-called „passive“ detectors, which devices do not integrate a built-in source of optical radiation and for CWA detection they use the infrared radiation of the background.

Compared with these passive detectors the active ones have more advantages and functional features, in particular:

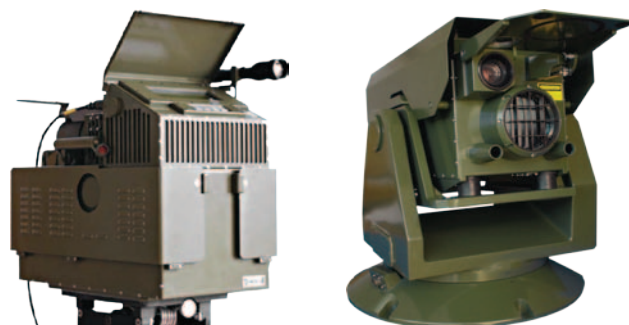
- the ability to make quantitative measurements;
- the ability to evaluate the concentration profiles; (using backscattering of laser radiation of the natural aerosols)
- much higher effective range, which results from physical properties of CWA cloud and from much smaller instantaneous field of view of active system;
- higher explicitness of measurements resulting from; significantly higher spectral resolution.

Compared with conventional methods, the stand-off detection of CWA brings more undisputed advantages to users, in particular:

- no need of getting into physical contact with CWA being detected,
- does not evaluate the local concentration but the mean concentration of a specific agent along the measuring path,
- long range,
- the catalogue of detectable agents can be supplemented on demand.

The device has the following typical functional features:

- high sensitivity,
- small dimensions,
- reliability even in extreme conditions,
- simple and easy operation,
- acceptable price.



Stand - off Detector of Chemical warfare agents

model DD-CWA-S (tripod verzion) / model DD-CWA-A (vehicle verzion)



Technical specifications:

Detectable agents:

- GA (Tabun), GB (Sarin), GD (Soman), VX, HD (Sulfur Mustard)

Detectable model stuffs (simulants):

- SF6 Methanol, Ethylene, Ammonia

Modes of operations:

- topographic DIAL (topo-DIAL)
- range-resolved DIAL (RR-DIAL)

Sensitivity:

(minimal detectable concentrations using topo-DIAL mode and 1500 m long measuring path)

- GA - 0.05 µg/l, HD - 0.5 µg/l, VX - 0.08 µg/l, GD - 0.1 µg/l, GB - 0.1 µg/l

Time of measurement:

- approx 2s for one agent
- 10s for all above stated agents

Max. length of measurement path:

- 5 000 m

Range:

- 4 500 m
(topo - DIAL, reflecting feature – building)

Range (RR - DIAL):

- 600 - 1500 m (depends on aerosol concentration)

Number of lasers in the system:

- 2 pcs, both tunable

Energy of laser pulse:

- 50 mJ (10P20)

Laser beam divergence:

- approx. 1,5 mRad

Receiver aperture:

- $\varphi = 105$ mm (version DD-CWA-S)
- $\varphi = 125$ mm (version DD-CWA-A)

Spectral range (line tuneability):

- 9,2-10,7µm (> 60 CO2 lines)

Dimensions:

- 485 mm x 260 mm x 395 mm
(version DD-CWA-S)
- 620 mm x 260 mm x 318 mm
(version DD-CWA-A)

Weight:

- 38 kg (excluding tripod and power source)
(version DD-CWA-S)
- 43 kg (excluding special platform)
(version DD-CWA-A)

