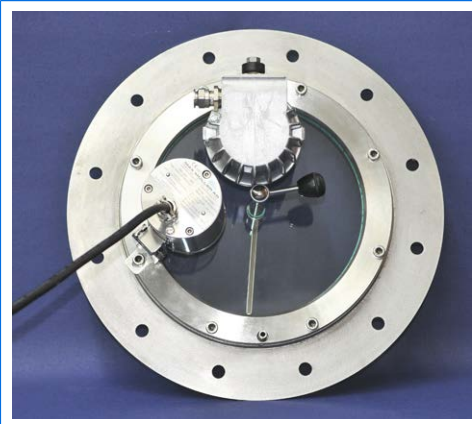
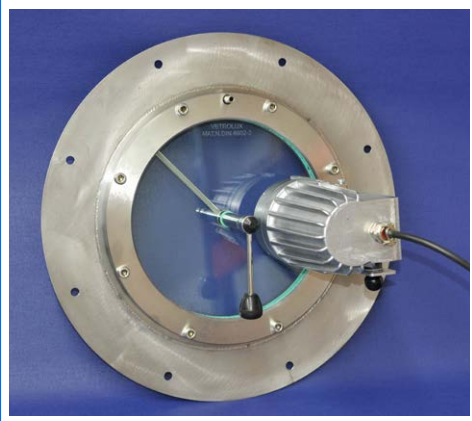




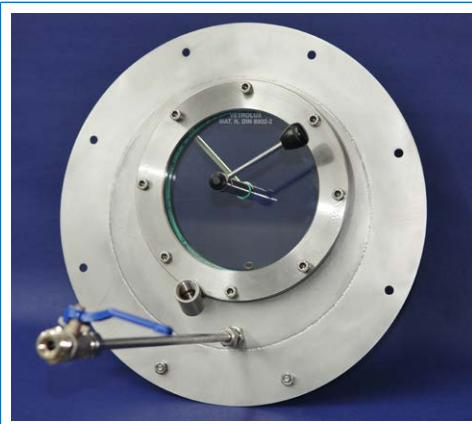
# System solutions and components for the surveillance of processes in biogas plants



VETROLUX® sightglass similar to DIN 28120, PN 0, with adapter piece to be bolted directly to the wall of fermenters, window wiper, spraying device, CHEMLUX® light fitting and VIDEOLUX camera system for hazardous areas



VETROLUX® sightglass similar to DIN 28120, PN 0, with adapter piece to be bolted directly to the wall of fermenters, centrally operated window wiper, spraying device and CHEMLUX® light fitting for hazardous areas, type FHEL 50 dHV, 50 W, 230 V, Ex d IIC T3 Gb, Ex II 2 G + D, with integrated timer type "V"



VETROLUX® sightglass similar to DIN 28120, PN 0, with adapter piece to be bolted directly to the wall of fermenters, centrally operated window wiper, spraying device and inlet for a foam sensor

Explosion protection and gas-tightness are primary, regulatory prescriptions in biogas plants. Remote monitoring with cameras for the use in hazardous areas increases the plant safety in addition. For all these applications you can count on the longstanding expertise and wealth of experience of MAX MÜLLER AG. We have been member in the professional association "Biogas e.V." for a long time and manufacture explosion proof equipment for more than 50 years. Our system solutions with explosion proof cameras and sightglass light fittings, complemented by sightglasses, wipers (with or without electrical motor or pneumatic drive for use in hazardous areas) and spraying devices have proven successful for years even under hardest conditions of service. The photos in this leaflet show some examples.

We are looking forward to competently advise you on your specific case of application. Please do not hesitate to contact us. More detailed information regarding the individual components may also be found on [www.maxmuellerag.com](http://www.maxmuellerag.com).

A **complete system solution** usually consists of a

- 1 Sightglass
- 2 Wiper (with or without electrical motor or pneumatic drive for use in hazardous areas)
- 3 Spraying device
- 4 Sightglass light fitting for use in hazardous areas
- 5 VIDEOLUX camera for use in hazardous areas.

All components may also be ordered individually or in customised versions.

Our complete system solution offers the the possibility to fully monitor the formation of biogas from a control center or from remote distance via video server on a PC or worldwide on the Internet. You can record different stages of the process, run "target-performance" comparisons, store the recorded data or transmit it. Even alarms may be set off on mobile phones of plant employees.

The essential technical data of the components are as follows:

- 1 **VETROLUX® sightglasses ('bull's eyes' / portholes)**
  - From steel or stainless steel
  - For nominal pressures of PN 0 and PN 2,5
  - With welded tubes or with adapter pieces for mounting into different fermenter walls (in concrete, stainless steel or glasslined), depending on application
  - Glass discs from sodium silicate or borosilicate glass, depending on case of application
  - To be combined with wipers, spraying devices, sightglass light fittings, camera systems and inlets for foam or pressure detectors
- 2 **VETROLUX® wipers**
  - Available with simple or double wiper blade
  - Available for manual manipulation by handling arm, T handle or knob or with electrical motor or pneumatic drive for use in hazardous areas
- 3 **VETROLUX® spraying devices**
  - With or without shut-off devices
- 4 **CHEMLUX® sightglass light fittings for use in hazardous areas**
  - Diverse types **with wattages of up to 100 W**
  - ATEX equipment protection level (EPL): Gb (zones 1 and 2) and Db (zones 21 and 22)
  - Ex II 2 G + D, Ex d or d e IIC T3 to T6 Gb, depending on type
  - Ex t IIIC T195°C to T80°C Db IP67
  - Halogen or LED versions
  - Available with ample accessories such as integrated timers, timers for remote operation, different terminal voltages and fixation systems etc.



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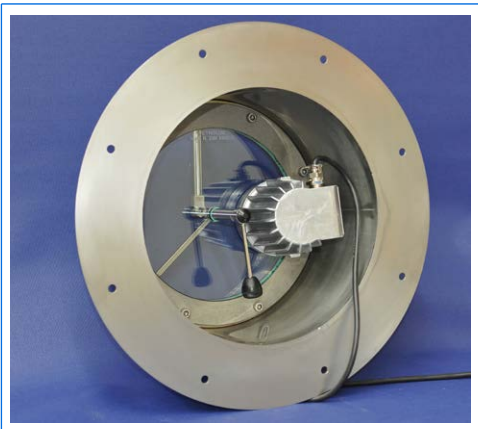
Your innovative and reliable partner for biogas plants!  
Perfect, thoroughly engineered solutions from one hand!  
Always an interesting, technically advanced idea ahead!



# System solutions and components for the surveillance of processes in biogas plants



VETROLUX® sightglass similar to DIN 28120, DN 200, PN 0, with welded tube for wall mounting, centrally mounted wiper, spraying device and CHEMLUX® light fitting for hazardous areas, type FKEL 50 dH, 50 W, 24 V, Ex d IIC T3 Gb, Ex II 2 G + D



VETROLUX® sightglass similar to DIN 28120, DN 200, PN 0, with adapter piece for fixation outside of fermenters in concrete construction, centrally mounted wiper, spraying device and CHEMLUX® light fitting for hazardous areas, type FKEL 50 dH, 50 W, 24 V, Ex d IIC T3 Gb, Ex II 2 G + D



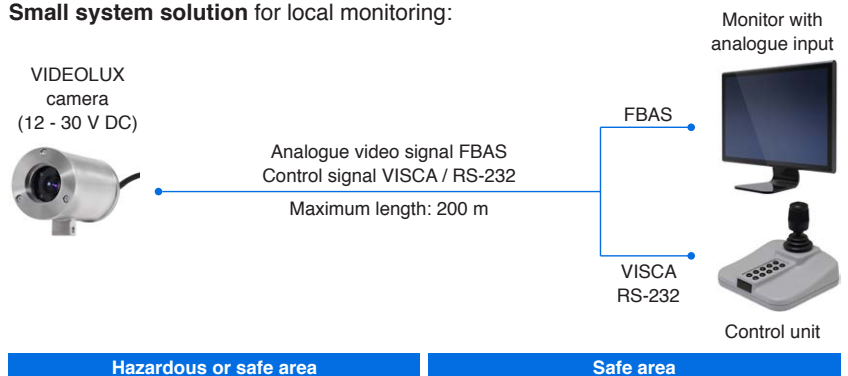
Explosion proof video camera VIDEOLUX, in stainless steel version, type miniZoom, Ex d II B (C), Ex II 2 G + D

All dimensions in mm. Subject to changes without preliminary notice.

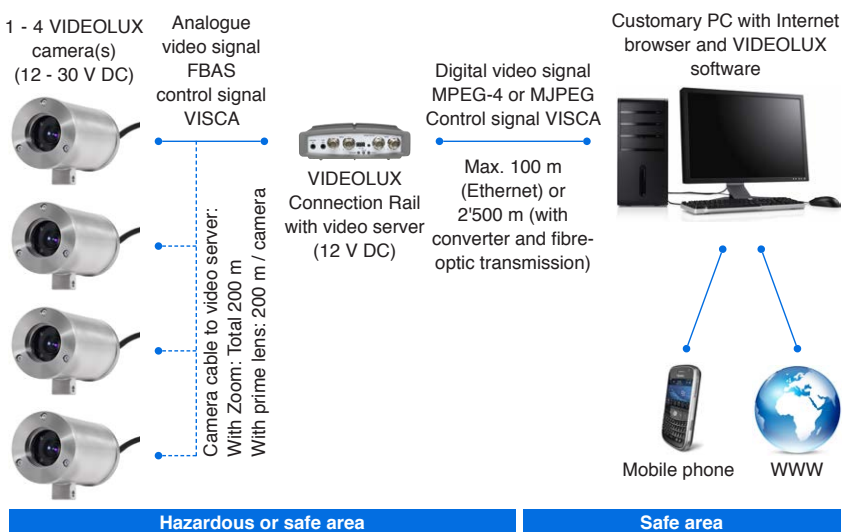
## 5 VIDEOLUX camera systems for use in hazardous areas

- Smallest camera for hazardous areas currently available in its class
- Camera housing in stainless steel or corrosion resistant cast aluminium alloy
- Colour camera with state-of-the-art (Super) HAD CCD sensor
- Lens with 10 times optical zoom, adjustable (and additional digital zoom up to 12 times) or manually adjustable lens
- Horizontal angle of vision of 74,2° to 4,6°, focal length of 3,8 to 51 mm
- Minimal lighting of object starting at 0,0004 Lux
- Admitted for ambient temperatures from - 20°C to + 50°C
- Protection mode: IP 67
- Admitted for zones 1 and 2 (Ex II 2G) and 21 and 22 (Ex II 2D)
- Ex classification (gas): Ex d IIB T6 (standard), Ex d IIC T6 (on request)
- Control signal, video signal and supply in **one** shielded cable
- Different fixation systems, optional sun roof and anti-dazzle shield, cables etc.
- VIDEOLUX Connection Rail for hazardous and safe areas for image display and camera control via video server and PC
- VIDEOLUX software for the following functions: Focal length, zoom, integrated heating for ambient temperatures up to - 20°C, preset settings as well as storage and comparison of images

### Small system solution for local monitoring:



### Big system solution for global monitoring:



# MAX MÜLLER AG

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