

Protection of paintings with the Cx-16 Capacitive Sensor

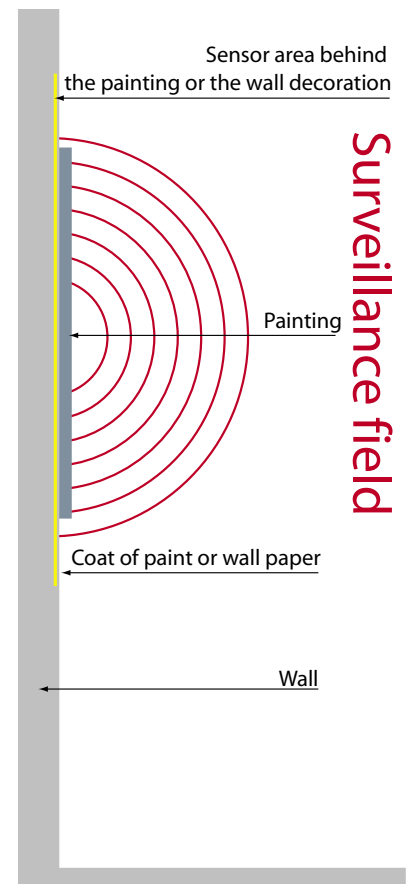
Surveillance principle:

The Cx-16 Capacitive Sensor detects unauthorized approach, touching or removal of paintings. Fabric with an embedded sensor mesh is invisibly located behind the painting or wall decoration (paint coat, wallpaper).

The wide effective area of the surveillance field around the painting is invisible. If a person enters the sensor field and trespasses beyond the adjustable trigger threshold a message is generated.

Technical features of the surveillance method:

- The fast-reacting sensor is always on the alert and signals precisely and reliably any approach to the picture before any possible attempt to touch the object.
- An optional video camera which automatically aims exactly at the respective object when alarm is sounded (e.g. in case of theft or vandalism).
- An optional paging system, with vibrating alarm and clear text message naming the picture involved, may be used to inform supervisory staff immediately about the exact location of an attack.
- Thanks to its reliable support to the staff the device offers considerable potential for cost reductions.
- The exhibition walls and rooms may be freely (re)arranged as there is no need for suspension cords with electrical contacts.



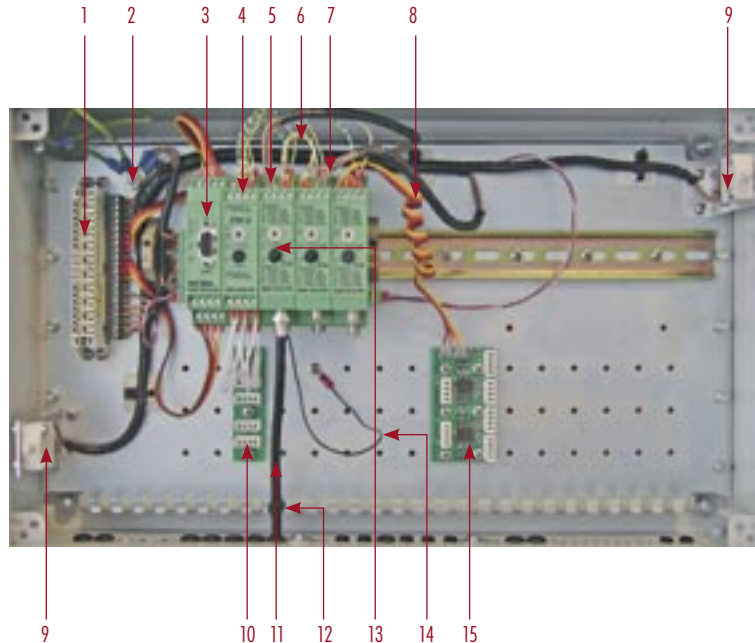
The Cx-16 Capacitive Sensor is equipped with two measuring channels, each of which may be connected to an 8-channel multiplexer. Thus 16 individually identifiable measuring circuits allocated to particular paintings are being monitored. The reaction time is 0.3 seconds. Each measuring circuit generates a pre-alert warning signal and an emergency alarm and in case of manipulations of the system additional signals for sabotage.

Three independent information channels:

- Separately identifiable messages are generated for each measuring circuit. The transfer of the messages from the Cx-16 Capacitive Sensor to the theft alarm unit is accomplished via a security network LSN / Transliner Ring-bus supplied by a leading manufacturer. In addition to that, the local alarm for each measuring circuit may be deactivated at the LSN-centre. As an alternative to the LSN, up to 32 galvanically decoupled DC lines for pre-alert and emergency alarm may be supplied.
- For each measuring circuit there is a galvanically decoupled outlet terminal for quick triggering of the local warning signals at the object's location. For that purpose the Cx-16 Capacitive Sensor is connected to a time module. The time module triggers the local sound signal for an adjustable period of time and keeps the local warning light signal activated until its acknowledgement by the supervising staff. The high reaction speed of the Cx-16 Capacitive Sensor in combination with the sound signal has a deterrent effect upon attempts to touch the painting.
- All Cx-16 Capacitive Sensors may be accessed via the RS422 communication network DLO which may be utilized to transfer messages and to perform adjustments.

Decentralized structure:

The small modules facilitate a decentralized arrangement. Thus the sensitive measurement signals may already be processed in the vicinity of the sensor area, which also helps to save installation costs since less coaxial cable is needed. The communication lines (LSN/Transliner-Ringbus and RS422) require just ordinary telephone cable. The fast-output terminals are predominantly used for generation of signals right at the object location. The distance between the Cx-16 Capacitive Sensor and the 8-channel multiplexer may be maximally 200 m and that between the channel filter and the sensor area should not exceed 10 m.



Cabinet for wall mounting
W= 500 mm , H= 300 mm, D=120 mm
Up to 224 sensor areas per equipment cabinet; the cabinets may be arranged in networks.

1 LSA-Plus connection block · 2 Point of attachment for potential equalization · 3 NEMA · 4 2-fold time module · 5 LSN input terminal
6 LSN connection · 7 LSN output terminal · 8 Connection to 16 line output driver · 9 Anti-tamper switch · 10 LSA-Plus for connection of audible / visual signal · 11 Coaxial connection lead to multiplexer · 12 Cable relief · 13 Cx-16 Capacitive Sensor · 14 Connection of the coaxial shielding to the potential equalization · 15 16-line output driver in DC circuit technology (alternative to LSN)

Characteristics of protection with Cx-16 Capacitive Sensors:

- The Cx-16 Capacitive Sensor is distinguished by its high long-time stability. A static trigger threshold may be set and used as a permanent message such as the one generated e.g. when a painting is being removed or in case of sabotage. For signalling a close approach to a painting the highly sensitive and self-extinguishing dynamic signal evaluation is used.
- Security with regard to spying: even deactivated measuring circuits are provided with the measuring signal so that they can not be spied out.
- In addition to capacity measuring the losses of the electrical surveillance field are measured enabling checks of the insulating properties of the sensor area.
- An immediate local audible alarm signal forestalls attempts to touch the painting
- Each alteration of the device set-up is reported via the LSN/Transliner-Ringbus and may thus be recorded.
- Three independent information channels.
- The generation of LSN/Transliner-Ringbus signals directly in the Cx-16 complies with the necessary security standard.
- Application filed for VdS-registration of class C/II (VdS – Verband der Sachversicherer – „Association of Property Insurers“).