VIDEO MONITORING APPLICATION TO PRIMARY POWER STATIONS

The videomonitoring system that Enel Distribuzione has planned to realize is:

− cheap, because is integrated in existing equipment and the IP Network for plant’s remote control is used to transfer data and images toward Operational Center (OC)
− effective and efficient
− at low impact on the crew, because the alarms are reported on console used for the remote control and in field they can turn off the alarm system simple by own company badge

All sensors and devices are connected to a local terminal unit that elaborates and manages signals and images. The local unit records the images in continuous; the older ones are erased after a fixed time, or when the memory is next to be full.

In every substation is individuated one path to entry in to the substation; the events detected by the sensors installed along it don’t produce an alarm, but a silent warning. So the crew can entry in the substation and turn off the alarm system by badge.

After a preset time, or if the event is detected by a sensor out of the delayed path, an alarm is produced and sent to OC, with the images of the events (before and after).

The IP network is a low speed, but reliable, data network. Typically, for the video monitoring is reserved not more than 24 or 48 kb/s, then a good compression of the images is necessary.

The level of the compression is settable from remote; normally, a strong level of compression allows to transfer more quickly frames losing quality, while a good quality needs low level of compression and a slower transmission. For this reasons, the recording is a slow motion; the minimum frame ratio is 1 frame/sec.

Synthetic alarms are replied on local RTU for plant’s remote control and then reported on remote control consoles. So, under normal conditions, the Operator don’t need to check continuously the screen, but only in occasion of alarm to verify in real time the truthfulness of the same