

Series B14 Alarm System

A gas alarm system shall be supplied for monitoring the concentration of (specify gas type) in (specify location). The system shall consist of an enclosure containing individual alarm modules for (specify quantity) points of gas measurement. The gas alarm system shall be ATI Series B14 or approved equal. Each complete alarm system shall include a power supply of sufficient size to operate the number of alarm modules required.

Each B14 alarm module shall be connected to a gas transmitter located remote from the panel and provide a high intensity digital LED display of gas concentration, plus alarm indicator LED's for Caution, Warning, Alarm, and Trouble. Three programmable alarm setpoints shall be provided for warning personnel of differing levels of leakage. Gas leaks shall be indicated by flashing LED indicators on the alarm module. The concentration of the gas shall be displayed directly in engineering units. Three alarm relays shall be provided for external alarming functions. Each alarm relay shall be independently assignable either to the caution, warning, or alarm setpoint, and shall also be programmable for latching and/or fail-safe operation. Relays shall also be configurable for "Horn Mode" of operation. In this mode, an external horn wired to this relay can be silenced using the front panel A/R pushbutton. In addition, a separate Trouble alarm shall be provided on each module to indicate the loss of signal from the sensor/transmitter. Each receiver shall provide an isolated 4-20 mA output signal proportional to gas concentration, and shall also contain remote reset input terminals to allow alarm acknowledgment from a remote location.

An alarm reset and acknowledge (A/R) pushbutton on the front of each alarm module shall provide the operator interface. In the event of an alarm, the corresponding LED indicator will begin to flash. When the A/R button is pushed, the LED indicator will change from flash to steady on state. This indicates that the alarm has been acknowledged. If the alarm is defined as non-latching, the LED indicator will turn off when the gas concentration falls below the setpoint. If the alarm is defined as latching, the LED will remain on until the A/R button is pressed again to reset the relay and indicator LED. The front panel A/R button shall also allow the operator to put the alarm module into an "Inhibit Mode" of operation, where alarm relays do not function. Alarm modules shall automatically return to normal operation after 4 hours if not manually reset.

Alarm modules shall be powered from DC input voltages from 12-28 VDC. Internally, each module shall provide a 24 VDC power supply to drive external transmitters, with this supply voltage independent of module input voltage. Alarm modules shall be designed to mount to standard 7.5 x 35 mm DIN rail. All electrical connections shall be to pluggable terminal blocks, allowing replacement of an alarm module without disconnecting any input or output connections.

Two Point Toxic Gas Detection System

A two point gas detector shall be supplied for monitoring the concentration of ozone and carbon dioxide gas in _____ (specify location) _____. The system shall consist of a NEMA 4X alarm module, one chlorine gas sensor/transmitter, and one ammonia gas sensor/transmitter. The gas detection system shall be ATI Series B14 or approved equal.

The alarm module shall consist of a NEMA 4X enclosure containing two modular receivers, one for ozone and one for carbon dioxide, one power supply, and an audible horn. The enclosure shall contain a hinged window to allow access to controls without tools, and shall be suitable for wall or surface mounting.

Each receiver module shall provide a high intensity digital LED display of gas concentration, plus alarm indicator LED's for Caution, Warning, Alarm, and Trouble. Three programmable alarm setpoints shall be provided for warning personnel of differing levels of leakage. Gas leak alarms shall be indicated by flashing LED indicators on the alarm receiver and activation of the audible horn. The concentration of the gas shall be displayed directly in PPM or percent units. Three alarm relays shall be provided for external alarming functions. Each alarm relay shall be independently assignable to either the caution, warning, or high alarm setpoint, and shall also be programmable for latching and/or fail-safe operation. In addition, a separate Trouble alarm shall be provided on each receiver to indicate the loss of signal from the sensor/transmitter, or to alarm the loss of sensitivity of the gas sensor. Each receiver shall provide an isolated 4-20 mA output signal proportional to gas concentration, and shall also contain remote reset input terminals to allow alarm acknowledgment from a remote location.

A 2-wire sensor/transmitter shall provide the ozone measurement function for the system. One ozone sensor/transmitter (0-2 PPM) shall be supplied. A 4-wire infrared CO₂ sensor/transmitter shall be supplied for measuring the level of carbon monoxide. Both sensors shall be located approximately 3 feet off the floor of the areas in which they are located, and each shall be located near the most likely source of gas leakage

The power supply in the receiver module shall be a modular design providing DC power to up to two receiver modules. A third DC output shall be provided to float charge a standby battery system to provide battery backup to the entire detection system in the event of power failure. The power supply shall be capable of operation from any voltage from 85-250 volts, AC or DC, without adjustment, and shall also contain a power failure relay for remote power failure indication.

OPTIONAL: A battery backup module shall be supplied to provide standby power to the gas detector. The battery backup module shall be housed in a NEMA 4X enclosure and shall be suitable for operating the two channel detector for at least 8 hours in the event of power outage. Battery backup units shall contain protective circuitry to isolate the battery in the event that battery voltage drops to levels where battery damage might result.
