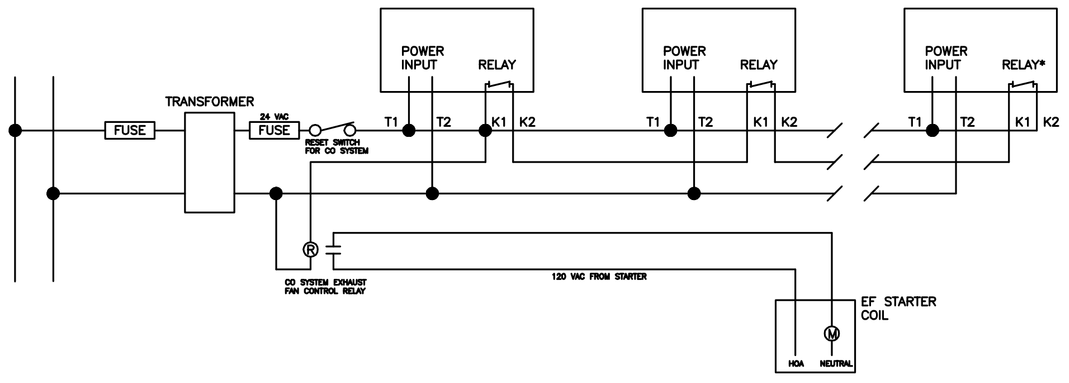
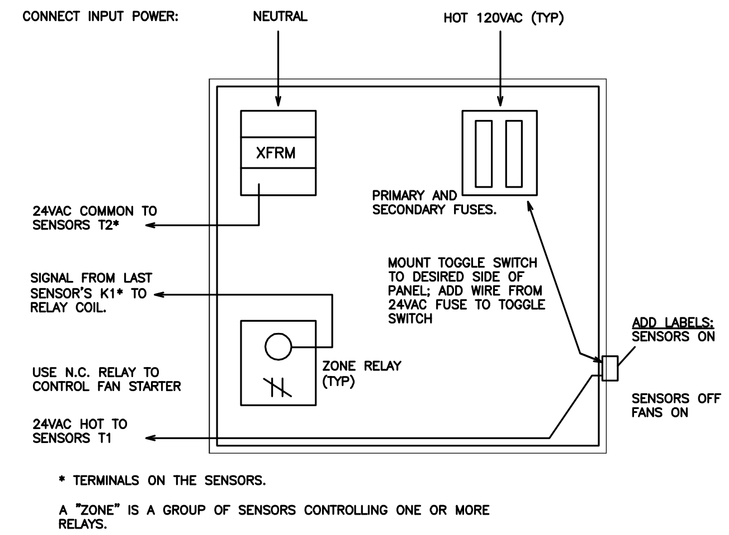
CARBON MONOXIDE SYSTEM & FAN CONTROLLER



*RELAY CONTACTS SHOWN IN CLOSED POSITION. UNTIL OPERATING IN A CO FREE ENVIRONMENT. WHEN CO IS DETECTED OR POWER FAILS, RELAY CONTACTS OPEN.



TYPICAL CO SYSTEM CONTROL PANEL WIRING CONNECTIONS

SECTION 15980

CARBON MONOXIDE DETECTING AND VENTILATION FAN CONTROL SYSTEM

PART 1 – GENERAL

1.1 GENERAL NOTES:

1.1.1 THE CARBON MONOXIDE DETECTING AND VENTILATION FAN CONTROL SYSTEM (C.O. SYSTEM) SHALL BE FURNISHED AND INSTALLED BY THE EQUIPMENT SUPPLIER TO PROVIDE A COMPLETE OPERATIONAL SYSTEM. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND NECESSARY INCIDENTALS.

ALL START-UP AND CHECKOUT LABOR AND MATERIALS SHALL BE PROVIDED.

1.1.2 THE C.O. SYSTEM SENSORS SHALL BE LOCATED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS AND SHALL BE POSITIONED AT LEAST 5 FEET ABOVE THE GARAGE FLOOR LEVEL.

PART 2 – PRODUCTS

2.1 C.O. SYSTEM SHALL BE A MICROPROCESSOR BASED MEASURING SYSTEM UTILIZING MOS (METAL OXIDE SEMICONDUCTOR) SOLID STATE REMOTE SENSOR(S) AS MANUFACTURED BY QUANTUM GROUP, INC. CONTACT: AC ENERGY SYSTEMS, INC. 760 436-2116.

2.1.1 EACH SENSOR SHALL BE FACTORY PRE-CALIBRATED .

2.1.2 EACH PANEL SHALL BE SELF-CONTAINED WITH THE MICROPROCESSOR, SOLID STATE SENSOR, RELAY(S), TRANSFORMER AND TERMINAL STRIPS.

2.1.3 UNIT SHALL BE DESIGNED FOR OPERATION ON 24VAC POWER AT 0.5 AMPS.

2.1.4 EACH UNIT SHALL BE CAPABLE OF INDEPENDENT OPERATION. NO CENTRAL PANEL SHALL BE REQUIRED UNLESS SPECIFICALLY NOTED HEREIN.

2.1.5 UNITS SHALL PROVIDE DRY RELAY CONTACTS TO ALLOW FOR INTER-CONNECTING OF MULTIPLE MONITORING POINTS IN THE CONTROL LOOP.

2.1.6 EACH UNIT IN THE SYSTEM SHALL HAVE PANEL LIGHTS TO INDICATE POWER ON, FAN ON, AND ALARM. AN 85-DB AUDIBLE ALARM SHALL BE MOUNTED AT EACH SENSOR LOCATION TO ALARM IF THAT SENSOR EXCEEDS ALARM LIMITS.

2.1.8 UNIT SHALL HAVE SELF-TEST DIAGNOSTICS AND SHALL SIGNAL A FAULT AT THE SENSOR LOCATION AND TURN ON FANS IF A MALFUNCTION IS DETECTED.

2.1.9 UNIT SHALL AUTOMATICALLY COMPENSATE FOR TEMPERATURE AND HUMIDITY OVER THE RANGE OF 32-125 F AND 10-90% RELATIVE HUMIDITY.

2.1.10 UNIT SHALL MONITOR AND ALARM IN ACCORDANCE WITH THE 1989 OSHA AIR CONTAMINANTS – PERMISSIBLE EXPOSURE LIMITS (TITLE 29 CODE OF FEDERAL REGULATIONS PART 1910.1000).

2.1.11 UNIT SHALL TURN FANS ON WHEN CO LEVEL EXCEEDS 25 PPM FOR APPROXIMATELY 3 MINUTES.

2.1.12 UNITS SHALL PREVENT SHORT CYCLING OF EXHAUST FANS BY HAVING A MINIMUM FAN ON TIME OF 2.5 MINUTES.

2.1.13 UNIT SHALL ALARM IF CO CONCENTRATION EXCEEDS 100 PPM FOR 15 MINUTES.

2.1.14 UNIT SHALL ALARM DIFFERENTLY IF CO CONCENTRATION EXCEEDS 25-PPM AVERAGE OVER PREVIOUS 8 HOURS.

2.1.15 ALARMS SHALL AUTOMATICALLY RESET WHEN CO CONCENTRATION LEVELS FALL BELOW THE ALARM LEVEL.

2.1.16 UNIT SHALL CONTROL A NORMALLY CLOSED (N.C.) 24VAC FAN CONTROL RELAY. FAN SHALL TURN ON IF UNIT LOSES POWER OR IF CONTROL LOOP IS BROKEN.

2.1.17 UNIT SENSOR ASSEMBLY SHALL HAVE A 2.5-YEAR OPERATING LIFETIME.

2.1.18 SENSOR ASSEMBLY SHALL BE FACTORY PRE-CALIBRATED AND SHALL BE A PLUG-IN MODULE NOT REQUIRING ANY SOLDERING, MECHANICAL FASTENING OR WIRING.

2.1.19 UNIT SHALL PROVIDE AN AUDIBLE SIGNAL 60 DAYS PRIOR TO EXPIRATION OF SENSOR LIFETIME. IF SENSOR IS NOT REPLACED IN A TIMELY MANNER, UNIT SHALL TURN FANS ON AND SIGNAL A FAULT CONDITION.

2.1.20 THE UNIT SHALL HAVE A FIVE-YEAR REPAIR OR REPLACE WARRANTY FROM DATE OF SHIPMENT FROM FACTORY.

PART 3 – EXECUTION

3.1 INSTALLATION:

3.1.1 EQUIPMENT SUPPLIER SHALL INSTALL ITEMS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

3.1.2 PROVIDE A COMPLETE OPERATIONAL SYSTEM. ALL WIRING, CONDUIT AND TERMINATIONS REQUIRED SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND AS NOTED BELOW.

3.1.3 CO SYSTEM TO CONTROL THE FAN CONTACTOR TO PROVIDE FAIL SAFE (FANS RUNNING) OPERATION IF CONTROL WIRES ARE BROKEN, SENSOR FAILS, OR POWER IS LOST TO CONTROLLER. ELECTRICAL CONTRACTOR TO PROVIDE FAN STARTER UNLESS OTHERWISE NOTED IN THIS SECTION.

AC ENERGY SYSTEMS, INC.

CO SYSTEM SPECIFICATION

THE CARBON MONOXIDE DETECTING AND VENTILATION FAN CONTROL SYSTEM (CO SYSTEM) INCLUDING, WIRING AND CONDUIT, SHALL BE FURNISHED AND INSTALLED BY THE AC ENERGY SYSTEMS, INC. TO PROVIDE A COMPLETE OPERATIONAL SYSTEM. ALL CONDUIT, WIRING AND TERMINATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. ALL WIRING TO BE IN CONDUIT. NO EXPOSED WIRING IS ALLOWED. STARTERS SHALL BE FURNISHED AND INSTALLED BY OTHERS.