

SECTION 1 TECHNICAL SEQUENCE OF OPERATION AND FIELD WIRING REQUIREMENTS

Electronic Gate Monitor (EGM) Description:

The Western-Cullen-Hayes, Inc. Model 3597 Gate Mechanism incorporates an Electronic Gate Monitor (EGM) System that protects against damage to the gate mechanism when common failure conditions occur.

The EGM operates by sensing voltage. If conditions exist that enables the dc mechanism motor to generate electricity, the EGM will sense the generated voltage which is greater than the normal dc power supply. When this over voltage condition occurs, the EGM de-energizes the two internal relays. A second circuit exists that accumulates voltage during normal, pumping and gate obstruction conditions. When the accumulated voltage reaches a certain threshold, the EGM de-energizes the two relays and connects the braking circuit.

Nominal 12 vdc is supplied to the EGM by connecting the red (positive) wire lead to terminal 2A located on the mechanism circuit controller. A black (negative) wire is connected to terminal 4 on the cam switch "C". When power is present, a red LED indicator on the EGM illuminates.

When conditions are normal, the EGM relays are energized and a green LED indicator on the EGM illuminates. When a failure has occurred to cause the EGM to de-energize the relays, the green LED goes dark.

There are three 1/4" studs on the EGM that are for connecting the main control relay outputs to the motor and the shorting resistor. The relay provides one set of Form C contacts (SPDT). Terminal common connects to motor terminal B, normally open connects to the cam switch and normally closed connects to the shorting resistor. During normal operation the voltage path is through the normally open contacts of the relay. During a fault event, the relay de-energizes and connects motor terminal A to the shorting resistor and back to motor terminal B which completes the dynamic braking circuits.

A second SPDT relay is provided within the EGM to annunciate that a fault condition has occurred and the EGM has operated. Three terminal connections are provided for customer connection to this feature. (ANC, ANO, ACOM).

The orange wire lead is connected to motor terminal A. The yellow lead is connected to terminal 12 on the cam switch and then connected to motor terminal B. The two voltage monitoring systems within the EGM are fed from these wires.

The blue wire lead is connected to terminal 2B on the mechanism circuit controller. This wire provides the path of voltage to reset the EGM after a fault has occurred. The reset signal is sent to the EGM each time a gate clear command is received from the control case. A fault condition can also be reset by the push-button located on the EGM.