

Installation, Operation and Maintenance Instructions



N12-ODM
120 OVERDEFLECTION
MONITOR
STYLE NO 9906481

ERIEZ MAGNETICS HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.
WORLD AUTHORITY IN SEPARATION TECHNOLOGIES

Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez N12-ODM/120 Overdeflection Monitor, Style 9906481.

Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez at 814-835-6000 for assistance.



CAUTION

**Safety labels must be affixed to this product.
Should the safety label(s) be damaged, dislodged
or removed, contact Eriez for replacement.**

Description

The Eriez Model N12 ODM/120 Style 9906481 Overdeflection Monitor is a transducer feedback system designed for vibratory feeder monitoring. The system consists of a small silicon accelerometer transducer mounted directly to the vibratory feeder tray which senses the tray deflection. A small AC signal is developed based on the vibratory tray deflection and is coupled directly to the comparator.

The comparator has a manually adjusted set point which determines the voltage level at which the internal relay will change state. The internal relay consists of two form "c" contacts (rated 2.0 amps @ 250VAC) which can be wired into the user motor starter or VFC controller to shut down the feeder in the event of an over or under deflection condition. The contacts can also be used to energize an alarm system.

The comparator outputs can be adjusted for minimum and maximum vibration or "g" levels. The amplitude range is set between 0.5f and 10g. This allows this system to function in both the zero speed and over-deflection modes.

Operation

1. The monitor must be wired to a 120 VAC, 60Hz supply.
2. The cable from the tray transducer to the comparator comes standard in a 10 meter wire with four conductors plus a shield.
3. The on/off toggle switch on the front cover is used to disconnect power to the monitor.
4. The set-point adjustment is used to set up the deflection level trip point. Typically, the set point is set a little above the maximum deflection level for normal system operation. A time delay is provided to provide a set point over-ride until the feeder is running. This is to avoid nuisance tripping during start-up.
5. In the event of an over or under deflection condition, the internal relay will change state and shut down or alarm depending on how the relay contacts are wired into the user system. This is not a latching monitor, so when the over or under condition is corrected, the relay contacts will automatically change back to their original state. For safety, these contacts should be wired into the user VFC or motor starter circuit such that a manual reset will have to be performed before the system can re-start.

Ratings

Supply Voltage: 120 AC
Supply Amps: 0.25

Signal Range: 0.5–10g
Relay Rating: 2.0 Amp @ 250 VAC

Spare or Replacement Parts

Item	Required	Description	Part Number
1	1	Comparator	433875
2	1	Sensor electro-mechanical feeder	464239
4	1	Fuse FRN-1/2	187654
5	1	Schematic Diagram	9906613

Installation

The deflection monitor is housed in a Nema 12 enclosure, suitable for indoor use, providing a degree of protection against dust, dirt, dripping water for environments in which the ambient temperature does not exceed 100°F. The unit must be wired to a 120 VAC, 15 amp (min.) 1 Ph, 60 Hz supply to operate.

Refer to drawing 2N-9906613 for mounting and wiring details.

Connections

TERMINALS

Terminals 1 and 2	=	120 VAC Supply
Terminals 3 thru 5	=	Form "C" relay contacts (isolated) for user connection (min. deflection)
Terminals 6 thru 8	=	Form "C" relay contacts (isolated) for user connection (max. deflection)
Brown Wire	=	Comparator terminal #1
Orange Wire	=	Comparator terminal #2
Red Wire	=	Comparator terminal #3
Black Wire	=	Comparator terminal #4
Shield	=	Ground connection to the ground lug

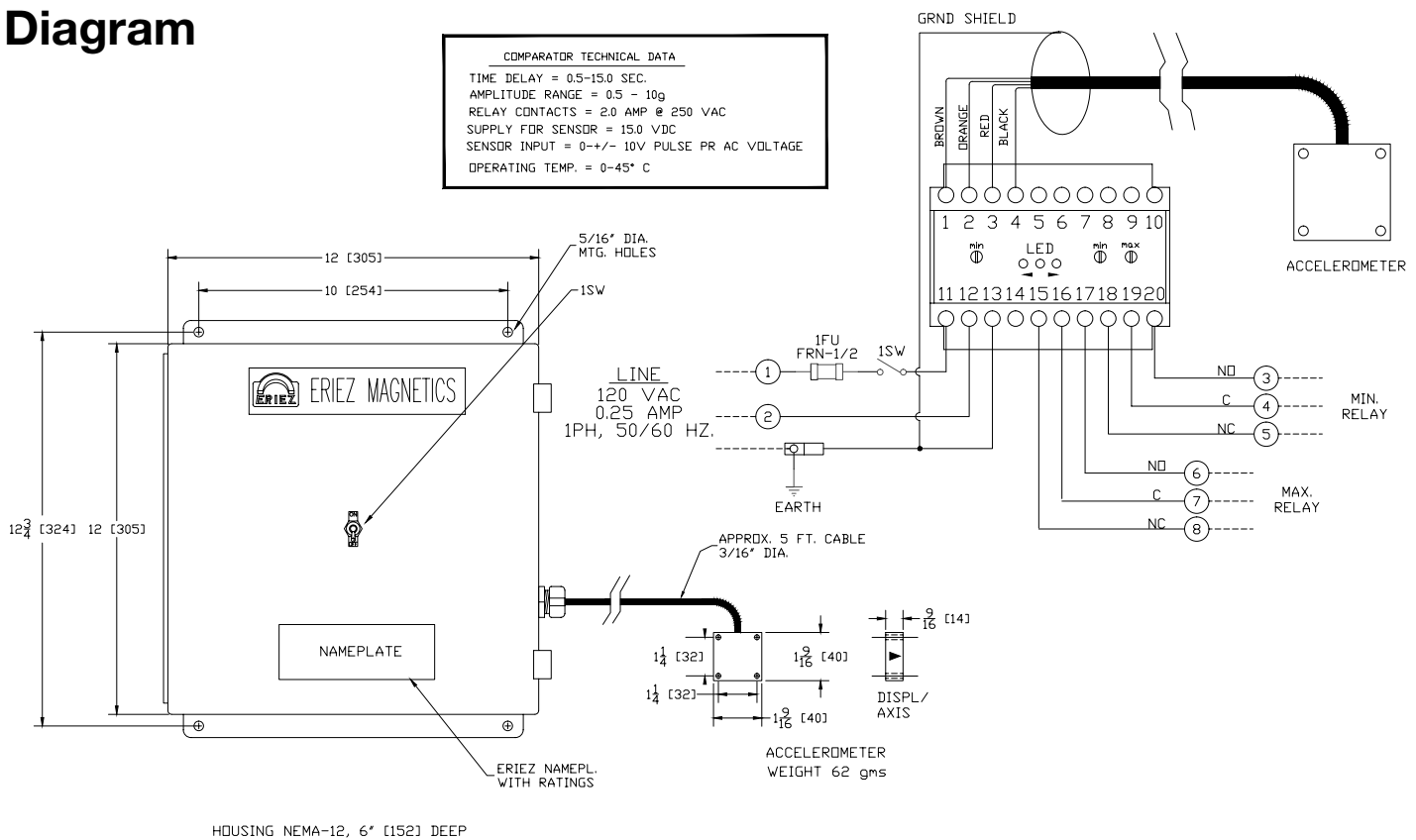
Calibration

1. Set the max. trimmer fully counter-clockwise.
2. Set the min. trimmer fully clockwise. (Min. LED on when feeder is started.)
3. Increase the vibration to the max. or over-deflection level. The green LED should remain on.
4. Turn the max. trimmer clockwise very slowly until the red max. LED lights, then back the max. counter-clockwise just a little. The red LED should remain on.
5. Decrease the vibration slightly - the red max. LED should go out and the green LED should light.
6. Decrease the vibration to the min. level (slightly before the level at which the feeder starts bouncing). Turn the min. trimmer counter-clockwise. The green LED should go out and the red min. LED should light.
7. Increase the vibration up to the maximum level to check the setpoint. Re-adjust as necessary to fine tune the settings.
8. Turn time delay trimmer fully counter-clockwise, then turn clockwise approx. 1/8 turn.
9. The monitor should be calibrated at this point.

Service Hints

SYMPTOM	POSSIBLE CAUSE	REMEDY
Monitor not powered up	<ul style="list-style-type: none"> 120 VAC not supplied to the monitor input. Blown line fuse. Toggle switch not on. 	<ul style="list-style-type: none"> Apply 120 VAC line voltage to terminals TB1-1 and TB102. If the fuse is blown, check for possible shorts or ground faults before replacing. Make sure the toggle switch on the front cover is on. Initially, the cover of the monitor should be opened to check for the green operating LED on the top of the transmitter to be lit.
Output relay not changing state during over-deflection	<ul style="list-style-type: none"> Transducer signal not getting to the transmitter signal input. Transmitter set-point out of adjustment. Internal power supply problem 	<ul style="list-style-type: none"> Check the input signal to the transmitter by measuring between comparator terminals 1 and 2 with an AC vom. The signal should measure in millivolts. The DC power supply can be tested by measuring between comparator terminals 1 and 3 for negative 12 VDC and 1 and 4 for positive 12 volt DC. The set-point adjustment may be set at the wrong maximum deflection level. This can be checked by setting the vibratory feeder at maximum deflection and turning the set-point adjust trimmer counter-clockwise until the relay trips. The red LED should light up. Once this point is reached, the adjustment should be turned approximately 1/8 turn clockwise.

Diagram



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