EXCERPT

DCM-3 BUTTONS AND LED DESCRIPTIONS

MODELS 11-1_9
11-2_9
11-3_9
11-4_9

BECK®

INSTRUCTION MANUAL

CSA® C US   CE   EAC
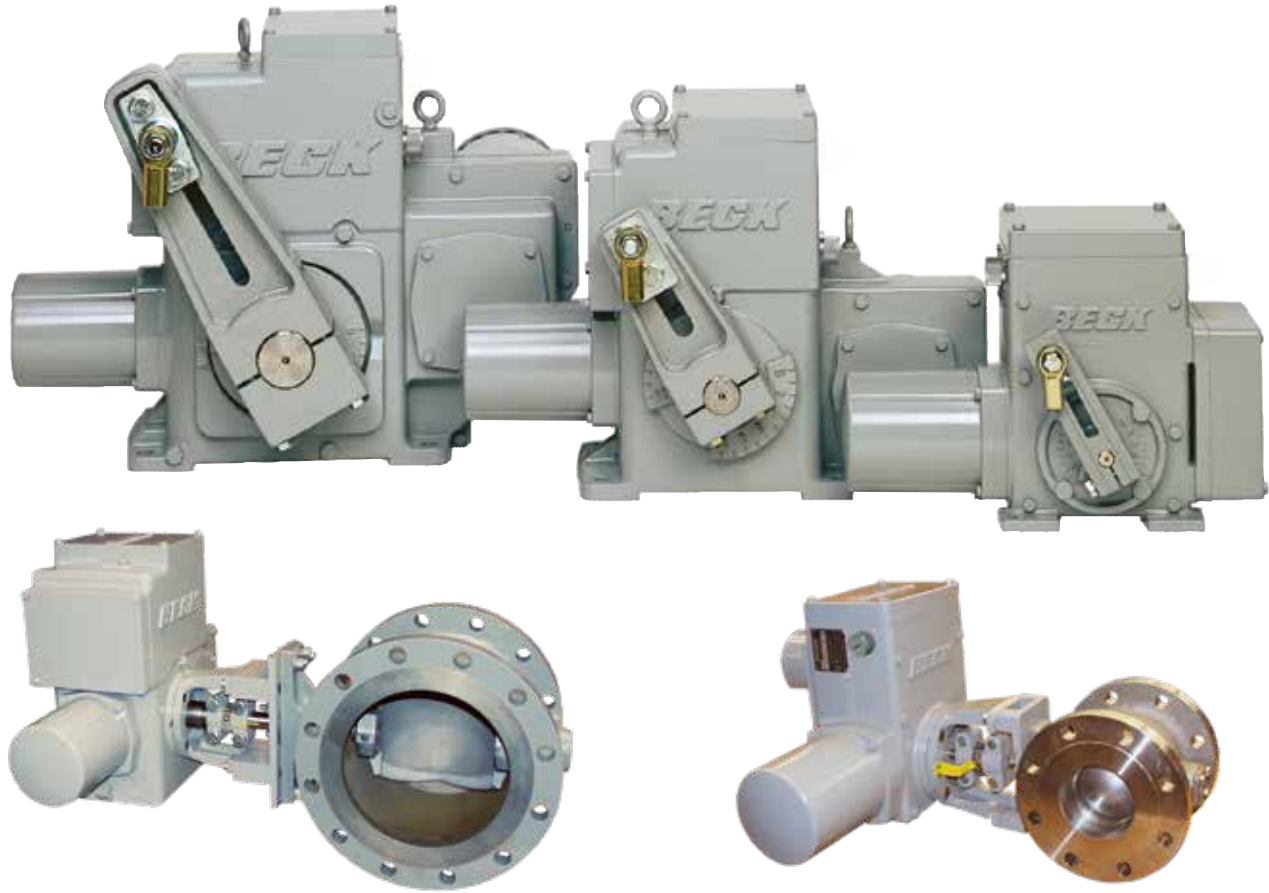
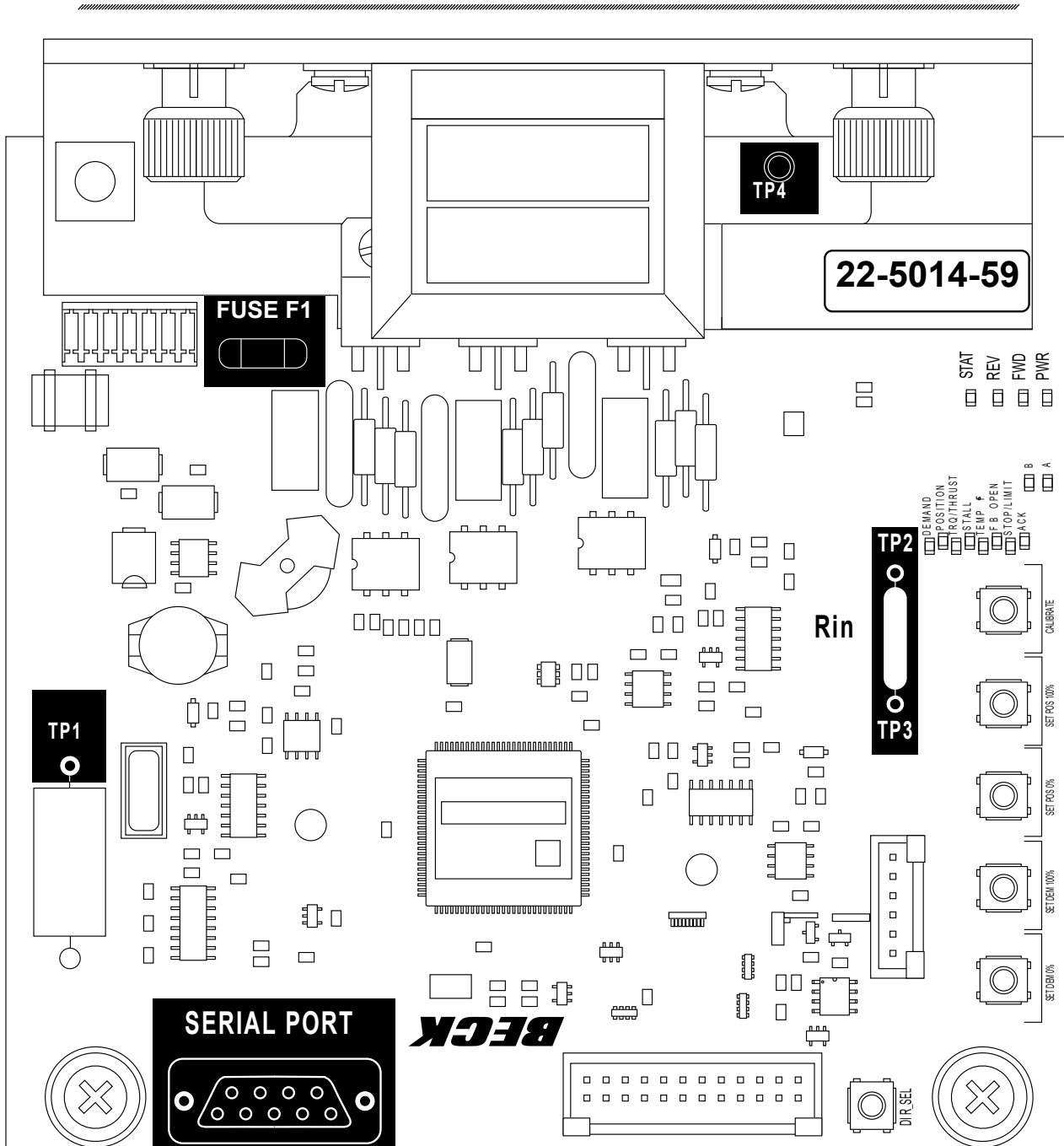## ELECTRIC ACTUATORS FOR INDUSTRIAL PROCESS CONTROL

DIGITAL CONTROL MODULE (DCM-3)

The DCM-3 is a micro-processor based circuit board assembly that serves as the actuator's control center.
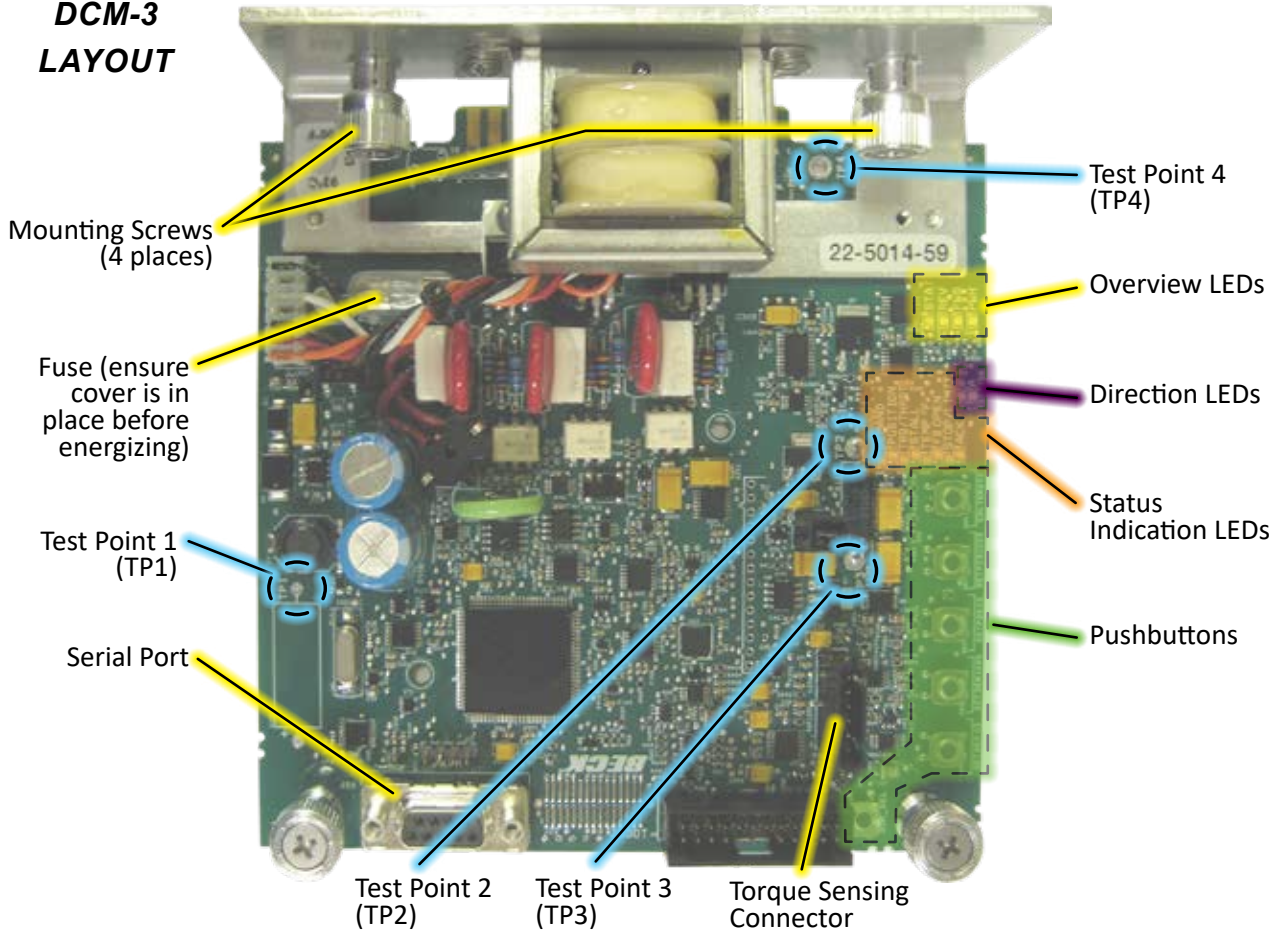
The main function of the DCM-3 is to position the actuator's output shaft. The DCM-3 compares the 4–20 mA Demand signal received at the actuator terminals AA(+) and BB (–) to the actuator position signal, generated from the Contactless Position Sensor (CPS-5). If a difference exists (called error) between the Demand and position signals, the DCM-3 activates triacs that operate the motor. The motor drives the gear train and positions the output shaft until the difference is eliminated.

The DCM-3 layout is illustrated below and shows the fuse and test point locations. The typical position signal voltage from the CPS-5 (measured from TP1(–) and TP4(+)) ranges from 1.0 V dc at the CCW end of output shaft travel, to 5.0 V dc at the CW end of output shaft travel. Test point voltage levels between TP2(+) and TP3(–) across the input resistor R11 should read between 1 V dc and 5 V dc proportional to the 4–20 mA Demand signal.

DCM-3 LAYOUT

- Mounting Screws (4 places)
- Fuse (ensure cover is in place before energizing)
- Test Point 1 (TP1)
- Serial Port
- Test Point 2 (TP2)
- Test Point 3 (TP3)
- Torque Sensing Connector
- Test Point 4 (TP4)
- Overview LEDs
- Direction LEDs
- Status Indication LEDs
- Pushbuttons

22-5014-59

OVERVIEW LEDs

Located on the DCM-3 board (pictured above), these LEDs indicate the basic, real-time state of the actuator. A description of each LED follows.

STAT

This red LED illuminates during a system alarm. Explanation of the specific alarm is available through the Fieldbus or Serial interface. See the Troubleshooting section for additional information.
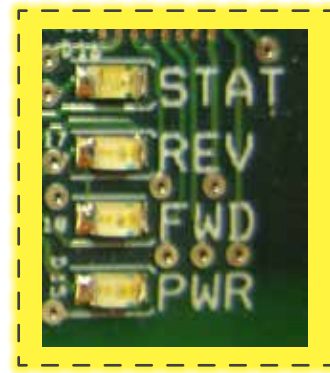
REV

This green LED illuminates when the actuator is receiving a Demand signal less than its position.

FWD

This green LED illuminates when the actuator is receiving a Demand signal greater than its position.

PWR

This green LED illuminates when power is applied to the actuator. This LED pulses from bright to dim indicating the DCM-3 is operational.
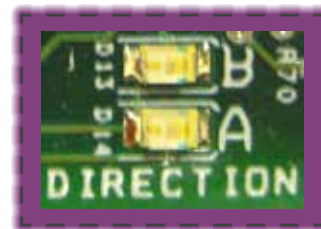

OVERVIEW LEDs

DIRECTION LEDs

These green LEDs indicate the direction of travel resulting from an increasing Demand signal.

DIRECTION LEDs

A = CCW   **B** = CW

DCM-3 LOCAL INTERFACE *Operation*_____

STATUS INDICATION LEDs

When the "STAT" LED is lit, the applicable red indication LED(s) will light to reveal the actuator condition(s). An alarm is also available at terminal E. When the condition is corrected, the status will automatically reset.

DEMAND
Loss of the Demand input signal.

POSITION
The Position signal to the DCM-3 is out of the calibrated range limits. The lower limit is –5% and the upper limit is 105% of the calibrated range. May also indicate a film potentiometer or internal wiring failure.

TRQ/THRST
This LED indicates that excessive torque is present (over 105% of the drive rating).

STALL
The drive is in a stall condition and stall protection has been activated.

TEMP °F.
Drive's internal temperature is outside of rating.
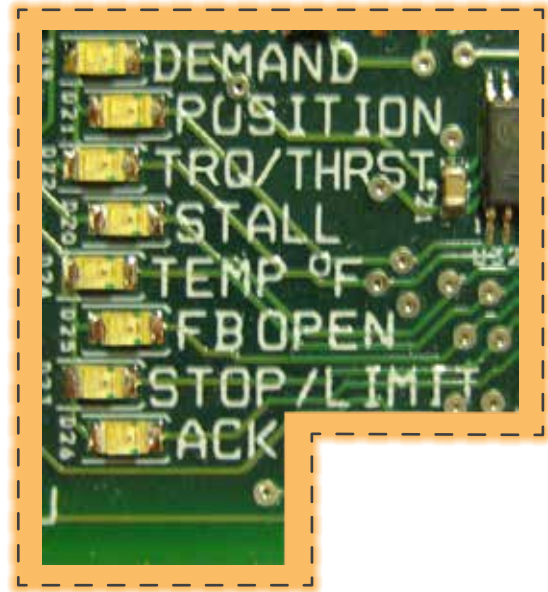
FB OPEN
External position Feedback signal is enabled, but not wired to an external load or the wiring has failed between the drive and the monitoring device.

STOP/LIMIT
Handswitch is in "STOP" position or the drive is at a limit and is not in balance.

ACK
Acknowledges when a calibration procedure has been completed.

STATUS INDICATION LEDs

PUSHBUTTON CONTROLS

The six pushbuttons (pictured below) on the DCM-3 customer interface panel are used for calibration. When pressing a pushbutton, pressure should be maintained until the "ACK" LED is lit; this confirms receipt of the pushbutton command. See the Configuration/Calibration section of this manual for further explanation of calibration procedures.

CALIBRATE
This button must be pressed and held simultaneously with another pushbutton to perform a calibration.

⚠	**CAUTION**
	Pressing the following buttons may change calibration and cause the drive to reposition.

SET POS 100%
Press to designate the current position of the output shaft as the 100% position for drive movement (this will correspond to a 100% Demand signal).

SET POS 0%
Press to designate the current position of the output shaft as the 0% position for drive movement (this will correspond to a 0% Demand signal).
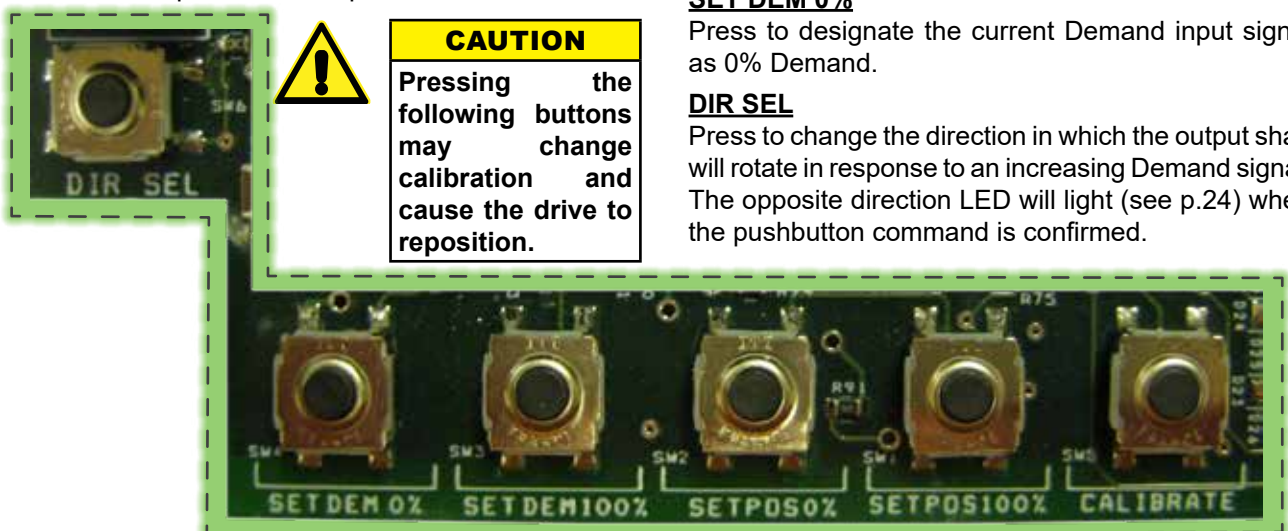
SET DEM 100%
Press to designate the current Demand input signal as 100% Demand.

SET DEM 0%
Press to designate the current Demand input signal as 0% Demand.

DIR SEL
Press to change the direction in which the output shaft will rotate in response to an increasing Demand signal. The opposite direction LED will light (see p.24) when the pushbutton command is confirmed.

PUSHBUTTON CONTROLS