



**Cert. No.**  
18-XPA050009-0

This H38 is a  
MSHA certified

explosion proof version of the field-proven H25 encoder series and also carries the NEMA Class 4X, 6 and 13 environmental ratings. This MSHA version of the H38 features a standard shaft seal, double bearing seals and a cast aluminum housing with a hard anodized, sealed finish. It is specifically designed for mine-related applications throughout the United States.

## Mechanical Specifications

- Bearings:** Class ABEC 7
- Bearing Protection:** Shaft seal and double bearing seals
- Shaft Loading:** 40 pounds axial, 20 pounds radial applied 1/4" from housing
- Bearing Life:** 2 X 10<sup>8</sup> revs (1300 hrs at 2500 RPM) at rated load; 1 X 10<sup>10</sup> revs (67,000 hrs at 2500 RPM) at 10% of rated load
- Starting Torque at 25° C:** 4.0 in-oz (max)
- Shaft Material:** 303 stainless steel
- Housing Material:** Cast aluminum, with hard anodized and sealed finish
- Weight:** 60 oz typical (approx 3.7 lbs)

## Electrical Specifications

The Model H38 can be provided with any IED encoder output

## Environmental Specifications

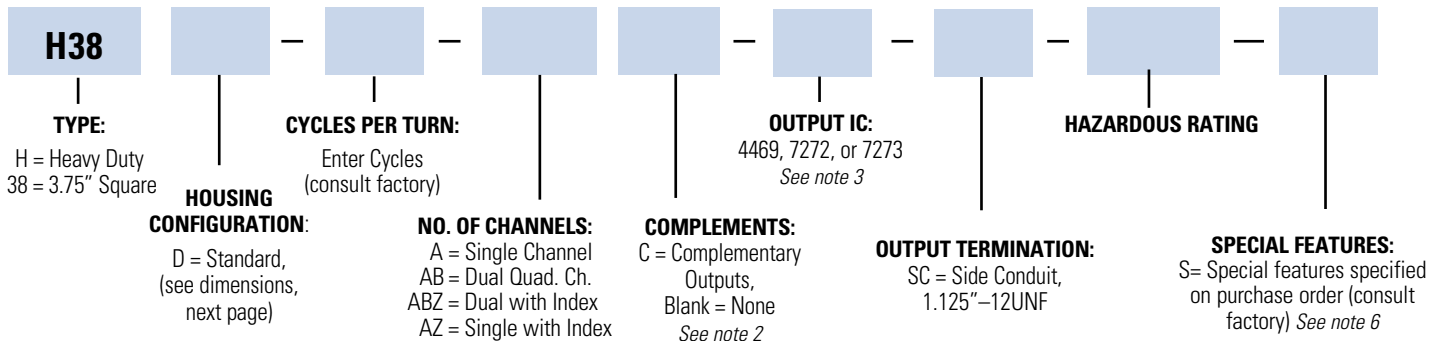
- Enclosure Rating:** NEMA 4 X, 6 & 13.
- Temperature:** Operating, 0° to 70° C; extended temperature testing available (-40° to +80° C); Storage; -40° to 90° C.
- Shock:** 50 g's at 11 msec
- Vibration:** 5 to 2000 Hz @ 20 g's
- Humidity:** 100% RH

## Output Termination

- Terminal Block:** Compression type, UL recognized, Terminal block accepts AWG 14 to AWG 22 standard wire, strip 1/4".
- Output Identification:** See Table 1

## H38 Explosion Proof Ordering Options FOR ASSISTANCE CALL 800-350-2727

Use this diagram, working from left to right to construct your model number (example:H38D-2000-ABZC-4469-SC-MSHA).

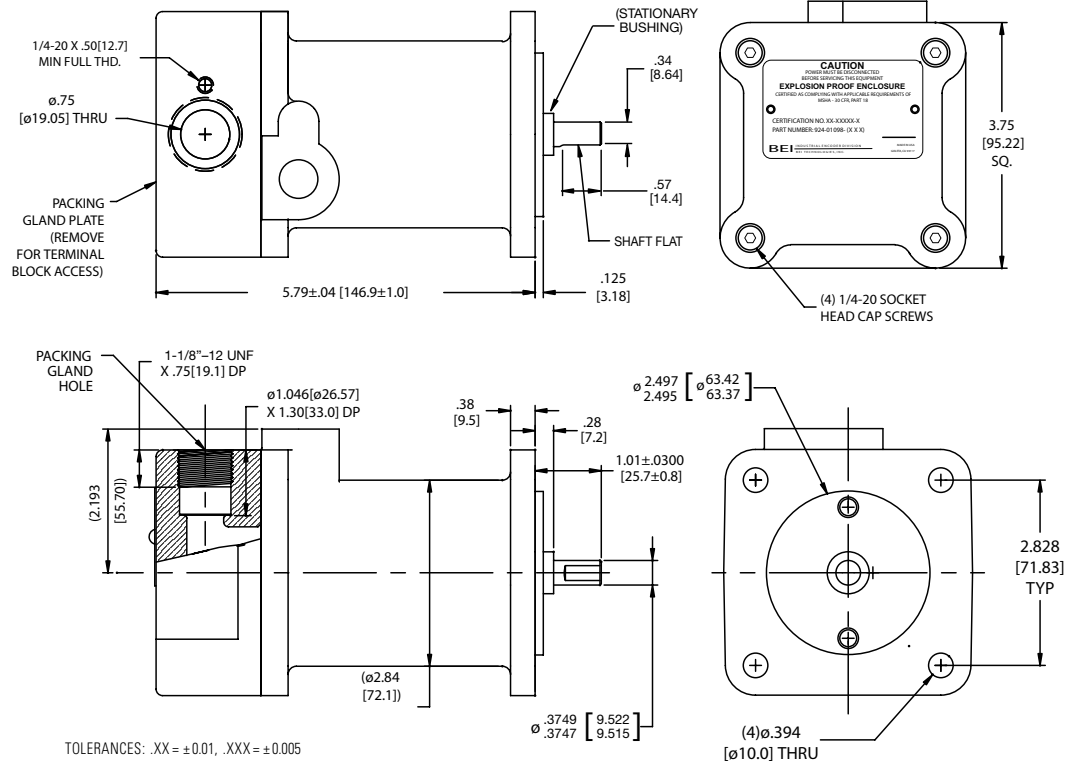


**Table 1**  
**Output Functions**

| TERM. PIN NO. | INCREMENTAL OUTPUT | 12 BIT GRAY CODE OUTPUT | SSI        |
|---------------|--------------------|-------------------------|------------|
| 1             | CASE GRND.         | G 11                    | CASE GRND. |
| 2             | 0V                 | G 10                    | 0V         |
| 3             | +V                 | G 9                     | +V         |
| 4             | A                  | G 8                     | DATA+      |
| 5             | B                  | G 7                     | CLK+       |
| 6             | Z                  | G 6                     | DIR        |
| 7             | $\bar{A}$          | G 5                     | DATA-      |
| 8             | $\bar{B}$          | G 4                     | CLK-       |
| 9             | $\bar{Z}$          | G 3                     | EN*        |
| 10            | SPARE              | G 2                     |            |
| 11            | SPARE              | G 1                     |            |
| 12            |                    | G 0                     |            |
| 14            |                    | +V                      |            |
| 15            |                    | 0V                      |            |
| 16            |                    | CASE GRND.              |            |
| 17            |                    | LATCH                   |            |
| 18            |                    | DIR                     |            |

\*EN = Output enable (tri-state, optional)

**IMPORTANT:** THIS ENCLOSURE MUST BE USED WITH MSHA APPROVED PACKING GLAND ASSEMBLY AS DEFINED ON MCI (Mining Controls Inc.) DRAWING C-26555.



TOLERANCES: .XX = ±0.01, .XXX = ±0.005

## Notes

- Non-standard index widths and multiple indices are available by special order. Consult factory.
- Complementary outputs are recommended for use with line driver type (source/sink) outputs. When used with differential receivers, this combination provides a high degree of noise immunity.

### 3. Output IC's

**7272** – Multi-voltage Line Driver: 100 mA source/sink. Input voltage 5 to 28 VDC standard (Note:  $V_{out} = V_{in}$ ). Available with voltage regulator for 5 to 28 VDC input/TTL output (called out as a special feature). This driver is TTL compatible when used with 5 volt supply or with a voltage regulator option. Supply lines are protected against overvoltage to 60 volts and reverse voltage. Outputs are short circuit protected for one minute. Supply current is 120 mA typical (plus load current).

**7273** – Open Collector: Current sink of 80 mA max. Current sourced by external pull-up resistor. Output can be pulled up to voltage other than supply voltage (30 V max). Input voltage 5 to 28 VDC standard. Supply current is 120 mA typical.

- Special: "S" at the end of the model number is used to define a variety of non-standard features such as flat on shaft lengths, special termination, extended temperature range or immersion testing special testing.
- Higher frequency up to 250K are available. Please consult with the factory.
- Extended temperature ratings are available in the following ranges: -40 to 70°C, -40 to 80°C, depending on the particular model. Extended temperature ranges can affect other performance factors — consult with factory.

### ENCODER INSTALLATION:

- IMPORTANT:** This enclosure must be used with MSHA-approved packing gland assembly as defined on MCI (Mining Controls Inc.) Drawing C-26555.
- WARNING:** Open all circuits prior to connection of this product to power and controller
- The installation must comply with NEC Class II circuits or with the regulations of the country of use.

- AWG 14 - 22 stranded wire stripped to .25" [6.3mm] is recommended
- Tightly close terminal block access cover prior to applying power
- For maximum bearing life, a flexible coupling is recommended between encoder shaft and driving shaft

### DURING USE:

- Keep terminal block access cover tightly secured during use
- DO NOT loosen two 5/16" set screws at opposite face

### MAINTENANCE AND SERVICE:

- There are no user serviceable parts inside. Encoder must be returned to factory for service.
- WARNING:** Open all circuits to this product prior to opening access cover to disconnect wires