DR738 - DIRECT REPLACEMENT ENCODER FOR 444 TACH STYLE ENCODERS

The **DR738** is designed to provide a digital encoder signal format to replace traditional Tacho style feedback devices. The heavy duty bearings and mechanical assembly make the DR738 perfect for those applications requiring a rugged and dependable encoder. Typically replaces encoders from Hubner, Baumer, Tekel, etc.

COMMON APPLICATIONS

Motion Control Feedback, Conveyers, Elevator Controls, Machine Control, Food Processing, Process Control, Robotics, Material Handling, Textile Machines

Features:

- Standard REO 444 Style, 115 mm diameter flange
- Up to 30,000 CPR
- Two standard shaft sizes
- IP64 sealing available
- Extended life disk technology

MODEL DR738 ORDERING GUIDE

Blue type indicates price adder options.

DR738 — N — 51 — S — 1000 — R — HV — 1 — Y — 2 — E — X — N — CE

Model DR738
444 Tach

Housing Style
N Standard Housing

Shaft Size
51 11 mm keyway
52 12 mm keyway

Operating Temperature
S 0° to 70° C
H 0° to 100° C[1]

Cycles Per Revolution
1-30,000
See CPR Options for available resolutions.
Price adder for CPR >1270
1271-3000
3001-5000
5001-6000
6001-10,000
10,001-18,000
18,001-24,000
24,001-30,000

Number of Channels[2]
A Channel A
Channel A Leads B
Q Quadrature A & B
R Quadrature A & B with Index
Channel B Leads A
K Reverse Quadrature A & B
D Reverse Quadrature A & B with Index

Output Type
5 - 28V In/Out[3]
OC Open Collector
PU Pull-Up Resistor
PP Push-Pull
HV Line Driver[4]

8 - 28V In/5V Out[5, 6]
H5 Line Driver[4]
P5 Push-Pull

Maximum Frequency
1 Standard 100 kHz
2 200 kHz ≤ 3000 CPR
5 250 kHz, >3000 CPR
3 500 kHz, > 6000 CPR[7]
4 1 MHz, >10,000 CPR[7]

Mounting
Y 444 Tach

Seal
2 IP64

Connector Location
S Side
E End

Connector Type[8]
W 6-pin MS Style
Y 7-pin MS Style
X 10-pin MS Style
9D 9-pin D-subminiature
J 5-pin M12 (12 mm)
K 8-pin M12 (12 mm)
G Gland, 24" Cable[9]

Mating Connector
N No
Y Yes
6-pin MS Style
7-pin MS Style
10-pin MS Style
9-pin D-sub

Certification
N None
CE CE marked[10]

MODEL DR738 CPR

0001*	0002*	0004*	0005*	0006*	0007*	0008*	0010*	0011*	0012*	0014*
0020	0021*	0024*	0025*	0028*	0030*	0032*	0033*	0034*	0035*	0038*
0040*	0042*	0045*	0050*	0060	0064*	0100	0120	0125	0128*	0144*
0150*	0160*	0200	0240*	0250	0254*	0256*	0300	0333*	0360	0400
0500	0512	0600	0625*	0635	0665*	0720	0768*	0800	0889	1000
1024	1200	1201*[a]	1203*[a]	1204*[a]	1250[a]	1270[a]	1440	1500	1800	2000
2048	2400a	2500	2540[a]	2880[a]	3000[a]	3600[a]	4000[a]	4096[a]	5000[a]	6000[a]
7200[a]	7500[a]	9000[a]	10,000[a]	10,240[a]	12,000[a]	12,500[a]	14,400[a]	15,000[a]	18,000[a]	20,000[a]
20,480[a]	25,000[a]	30,000[a]								

** Contact Customer Service for High Temperature Option.*
[a] High Temperature Option (H) limited to 85° C maximum for these CPR options.

NOTES:
1. 0° to 85° C for certain resolutions, see CPR Options.
2. Contact Customer Service for index gating options.
3. 24 VDC max for high temperature option.
4. Line Driver not available with 5-pin M12 or 6-pin MS connector. Available with 7-pin MS connector only without Index Z.
5. Standard temperature, 60 to 3000 CPR only.
6. H5 and P5 outputs not available with CE option, or any End Mount MS Connector.
7. Standard cable lengths only. For details, please refer to Technical Bulletin TB-116: Noise and Signal Distortion Considerations at encoder.com.
8. For Mating Connectors, Cables, and Cordsets see Accessories at encoder.com.
9. For Non-Standard Cable Lengths add a forward slash (/) plus cable length expressed in feet. Example: SG/6 = 6 feet of cable.
10. Please refer to Technical Bulletin TB-100: When to Choose the CE Mark at encoder.com.

1-800-366-5412 | encoder.com | sales@encoder.com
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DR738 - DIRECT REPLACEMENT ENCODER FOR 444 TACH STYLE ENCODERS

MODEL DR738 SPECIFICATIONS

Electrical

Input Voltage ..... 4.75 to 28 VDC for temperatures up to 70° C
4.75 to 24 VDC for temperatures between 70° C to 100° C

Input Current ..... 100 mA max with no output load

Input Ripple ..... 100 mV peak-to-peak at 0 to 100 kHz

Output Format ..... Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See Waveform Diagrams below.

Output Types ..... Open Collector – 100 mA max per channel Pull-Up- 100 mA max per channel
Push-Pull – 20 mA max per channel
Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index ..... Occurs once per revolution. The index for units >3000 CPR is 90° gated to Outputs A and B. See Waveform Diagrams below.

Max Frequency ..... Up to 1 MHz

Noise Immunity ..... Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2

Symmetry ..... 1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output
6001 to 20,480 CPR: 180° (±36°) electrical

Quad Phasing ..... 1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output
6001 to 20,480 CPR: 90° (±36°) electrical

Min Edge Sep ..... 1 to 6000 CPR: 67.5° electrical at 100 kHz output
6001 to 20,480 CPR: 54° electrical
>20,480 CPR: 50° electrical

Rise Time ..... Less than 1 microsecond

Accuracy ..... Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 CPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 CPR only) within 0.005° mechanical. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

Mechanical

Max Shaft Speed ..... 6000 RPM. Higher shaft speeds may be achievable, contact Customer Service.

Shaft Size ..... 11 mm or 12 mm (both have keyways)

Shaft Material ..... 303 stainless steel

Shaft Rotation ..... Bi-directional

Radial Shaft Load ..... 27 lb max

Axial Shaft Load ..... 27 lb max

Starting Torque ..... 1.0 oz-in typical with IP64 seal

Moment of Inertia ..... 5.2 x 10^{-4} oz-in-sec^2

Max Acceleration ..... 1 x 10^5 rad/sec^2

Electrical Conn ..... 6-, 7-, or 10-pin MS Style, 5- or 8-pin M12 (12 mm), 9-pin D-subminiature, or gland with 24 inches of cable (foil and braid shield, 24 AWG conductors)

Housing ..... Black non-corrosive finish

Bearings ..... Precision ABEC ball bearings

Mounting ..... 444 Tach Style Flange

Weight ..... 22 oz typical

Environmental

Operating Temp ..... 0° to 70° C for standard models
0° to 100° C for high temperature option (0° to 85° C for certain resolutions, see CPR Options.)

Storage Temp ..... -25° to 85° C

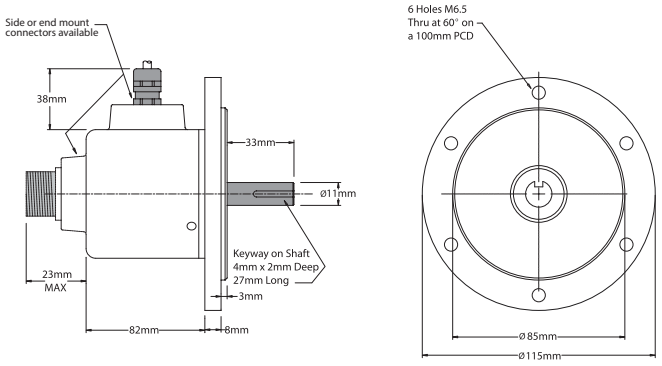
Humidity ..... 95% RH non-condensing

Vibration ..... 10 g @ 58 to 500 Hz

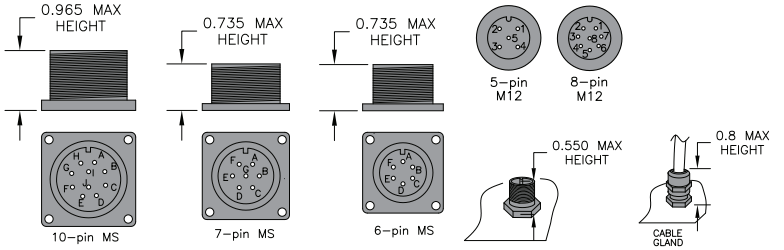
Shock ..... 50 g @ 11 p duration

Sealing IP64

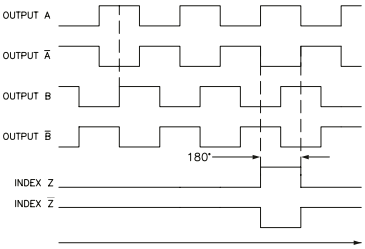
DR738 REO 444 Style 115 mm Diameter



CONNECTOR PIN-OUTS



DR738 Output Waveform



CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES

DR738 Wiring Table

Function	Gland Cable Wire Color	5-pin M12[2]	8-pin M12[2]	10-pin MS	7-pin MS HV,H5	7-pin MS PU, PP OC, P5	6-pin MS PU, PP OC, P5	9-pin D-sub	10-pin Bayo-net
Com	Black	3	7	F	F	F	A, F	9	F
+VDC	Red	1	2	D	D	D	B	1	D
A	White	4	1	A	A	A	D	2	A
A'	Brown	----	3	H	C	----	----	3	H
B	Blue	2	4	B	B	B	E	4	B
B'	Violet	----	5	I	E	----	----	5	J
Z	Orange	5	6	C	----	C	C	6	C
Z'	Yellow	----	8	J	----	----	----	7	K
Case	Green	----	----	G	G	G	----	8	G
Shield	Bare[1]	----	----	----	----	----	----	----	----

[1]CE Option: Cable shield (bare wire) is connected to internal case
[2]CE Option: Read Technical Bulletin TB111

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