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A collection of four different models of FSI encoders is shown in a light gray, semi-transparent style. They vary in size and design, with some having larger output shafts and others having more compact housings. The encoders are arranged in a cluster, with one in the foreground and three behind it.

ORDERING GUIDE

Encoders & Accessories

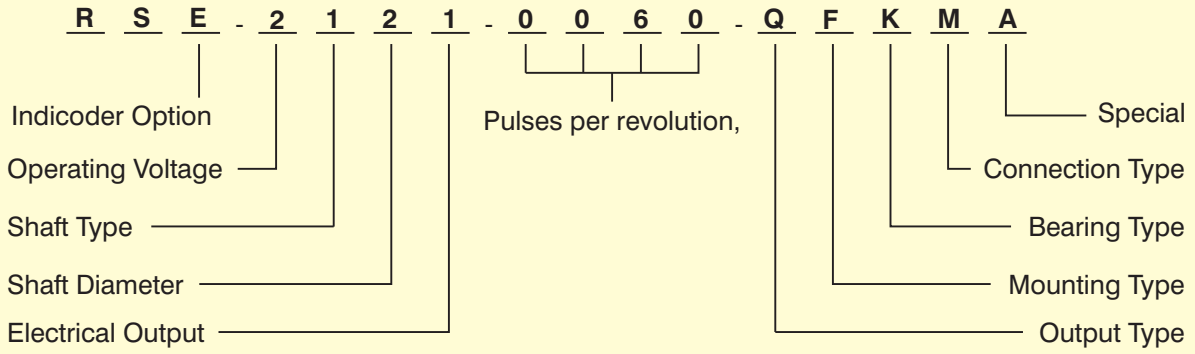
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Example



	ESE	RSE	HDE
Family			
ES "ESE" Family (ESE & ESI Prefix)	●	N/A	N/A
RS "RSE" Family (RSE & RSI Prefix)	N/A	●	N/A
HD "HDE" Family (HDE & HDI Prefix)	N/A	N/A	●
Indicoder Option			
E Without Indicoder option	n/c	n/c	n/c
I With Indicoder option	●	●	●
Operating Voltage			
1 5 VDC	●	●	●
2 12 - 28 VDC	n/c	n/c	n/c
3 Special	N/A	Quote	Quote
4 12 - 28 VDC (Supply), 5 VDC (Output)	N/A	●	●
5 4.5 - 14 VDC	N/A	●	●
6 6 - 24 VDC	N/A	●	●
7 9 - 15 VDC	N/A	●	●
8 5 - 28 VDC	●	●	●
Shaft Type			
1 Single ended	n/c	n/c	n/c
2 Double ended	●	●	●
Shaft Diameter			
1 1/4"	N/A	n/c	N/A
2 3/8"	n/c	n/c	n/c
3 5/16"	●	●	●
6 Slotted shaft for screw jacks	N/A	●	●
7 1/2" sleeve on 3/8" single ended shaft	N/A	●	●
8 5/8" sleeve on 3/8" single ended shaft	N/A	●	●
9 3/4" sleeve on 3/8" single ended shaft	N/A	●	●
Previous "4" is included with B-3 option, specify #3			
Previous "5" is included with B-4 option, specify #2			
"●" = Contact FSI for Price.			
NOTE: BOLD TYPE DENOTES COMMON SELECTIONS. Certain options & choices may be incompatible or affect specs.			

Standard Line Counts (PPR)

1	2	3	4	5	6	8	10	12	15	16	18	20	22	25	28	30	32
36	38	39	40	48	50	60	64	66	72	80	92	94	96	98	99	100	102
120	125	127	130	144	150	156	170	180	186	200	216	222	228	240	250	254	256
260	300	314	336	360	375	400	500	508	512	600	625	720	745	750	762	800	900
927	1000	1024	1200	1250	1270	1400	1500	1800	2000	2048	2250	2400	2500				

		ESE	RSE	HDE
Electrical Output				
1	Standard (NPN with pull up resistor)	n/c	n/c	n/c
2	Open Collector NPN	n/c	n/c	n/c
3	PNP with pull down resistor	N/A	n/c	n/c
4	Open Collector PNP	N/A	n/c	n/c
5	8830 TTL differential line driver (5 VDC)*	N/A	S:● Q:●	S:● Q:●
6	88C30 CMOS diff. line driver (5-15 VDC Max)*⊕	N/A	S:● Q:●	S:● Q:●
7	7272 CMOS diff. line driver (12-30 VDC Max)*⊕	N/A	S:● Q:●	S:● Q:●
*Note:	Differential line driver for index pulse	N/A	●	●
8	Red Lion pin-out, standard NPN,4 conductor	●	●	●
9	Red Lion pin-out, open collector NPN, 4 cond.	●	●	●
D	2.2 K ohm P/U, no SR	N/A	n/c	n/c
E	1.5 K ohm P/U, no SR	N/A	n/c	n/c
F	Open collector, no SR	N/A	n/c	n/c
G	Red Lion pin-out & out, 1.5K ohm P/U, no SR	N/A	n/c	n/c
H	Red Lion pin-out & out, op. collector, no SR	N/A	n/c	n/c
J	RS-644 differential line driver (LVDS)	N/A	S:● Q:●	S:● Q:●
⊕Note:	Output voltage is approx. the same as supply voltage			
Pulses Per Revolution (PPR)				
	Over 600 ppr in a Q,D,B, or G Output Type	●	●	●
	1000 ppr or over in an S Output Type	●	●	●
	1000 ppr or over in an Q,D,B or G Output Type	●	●	●
	2000 ppr or over in a Q,D,B or G Output Type	●	●	●
	Special non-standard discs (ppr)	N/A	Quote	Quote
	Other standard ppr's	n/c	n/c	n/c
Output Type				
S	Single Channel	n/c	n/c	n/c
Q	Quadrature	●	●	●
P	Positive going Index Pulse *	N/A	+●	+●
N	Negative going Index Pulse *	S:● Q:●	S:● Q:●	S:● Q:●
Note:	With P and N outputs, also specify S,Q,D,B,G			
D	Count / Direction	N/A	●	●
B	Up / Down Count	N/A	●	●
G	Anti-Jitter, Single Channel Output	N/A	●	●
*Note:	Synonyms: Index Pulse, Reference Pulse, Marker Pulse, or Z Channel			

		ESE	RSE	HDE
Mounting Type				
F	Base flange: w/blind holes front, back & bottom	n/c	n/c	n/c
H	Blind holes: front, back & bottom	n/c	n/c	n/c
Y or B-3	5 PY front flange ⊕ (requires 5/16" shaft)	N/A	●	●
B-1	Sealed Back Plate Cover ⊕	N/A	●	●
B-2	Face Mount Flange ⊕	N/A	●	●
B-4	Series 25 Encoder Mount ⊕ (requires 3/8" shaft)	●	●	●
⊕Note: Used in conjunction with F or H option.				
Bearing Type (Chrome Steel)				
V or None	Precision ABEC 3, film seal, oil lube	Standard	Standard	n/c
T	Precision ABEC 3, Teflon® seal, oil lube	N/A	●	n/c
K	Precision ABEC 3, Teflon® seal, grease lube Previous "W" replaced by "T"	N/A	●	n/c
Connection Style				
C	Water tight plastic connector "C-2" Style	●	●	●
D	FSI DB-9 Style Connector	n/c	n/c	n/c
G	M12 Connector "Euro" Style	●	●	●
M	Military Style Connector MS Series	●	●	●
R-3	3' Built-in Cable, No Connector	n/c	n/c	n/c
R-15	15' Built-in Cable, No Connector	●	●	●
R-X	Custom length Built-in Cable, No Connector	N/A	● per ft.	● per ft.
7	Seven pin MS connector	N/A	●	●
9	Eight position screw terminal strip connector	N/A	●	●
Special Options				
A	High speed 36 kHz (below 1000 ppr)	N/A	S:● Q:●	S:● Q:●
	High speed 36 kHz (1000 ppr + above)	N/A	S:● Q:●	S:● Q:●
E	Enhanced temp. range -35° C to +75° C	N/A	●	●
I	Delete 220Ω (no short circuit protection)	N/A	●	●
J	Replace 220Ω with 100Ω	N/A	●	●
L	Low power (Q to 600 ppr, S to 1200 ppr)	N/A	●	●
	Low power (Q over 600 ppr)	N/A	●	●
2-xxx	Electronic 2X line count (xxx=ms.)	N/A	Quote	Quote

Mating Connectors and Cables

C-1	6 pin MS Series plug, clamp and boot - unassembled	●
C-1F4-15	C-1 plug and 15 ft. of cable, 4 wire - assembled	●
C-1F4-xx	C-1 plug and "xx" ft. of cable - 4 wire assembled	●+*
C-1F6-xx	C-1 plug and "xx" ft. of cable, 6 wire - assembled	●+*
C-1R-xx	C-1 plug / Red Lion pin-out & "xx" ft. cable - assembled	●+*
C-2	C-2 Mating connector	●
C2F-15	C-2 (4pin) and 15 feet of cable - assembled	●
C-2F-xx	C-2 (4 pin) and "xx" feet of cable - assembled	●+*
C-3	7 pin MS Series plug, clamp, and boot - unassembled	●
C-3F-xx	C-3 and "xx" ft. of cable - assembled	●+*
C-4	6 pin MS right angle plug, clamp, & boot - unassembled	●
C-4F4-xx	C-4 and "xx" ft. of cable, 4 wire - assembled	●+*
C-4F6-xx	C-4 and "xx" ft. of cable, 6 wire - assembled	●+*
C-5	10 pin mating plug - unassembled	●
C-5F-xx	C-5 and "xx" ft. of cable - assembled	●+*
C-8	8 pin "C" style mating connector	●
C-8-xx	8 pin "C" style connector with xx ft. of cable	●+*
D-1-15	FSI DB-9 Connector with 15' cable	●
D-1	FSI DB-9 Connector only (soldering skill required)	●
D-1-xx	D-1 Connector and "xx" ft. of cable	●+*
M12-5	5 pin M12 style connector	●
M12-5-4-xx	5 pin M12 style connector and "xx" feet of 4-wire cable - assembled	●+*
M12-5-5-xx	5 pin M12 style connector and "xx" feet of 5-wire cable - assembled	●+*
M12-8	8 pin M12 style connector	●
M12-8-xx	8 pin M12 style connector and "xx" feet of cable - assembled	●+*

Flexicouplings

F-1	1/4" bore flexicoupling	●
F-2	3/8" bore flexicoupling	●
F-3	5/16" bore flexicoupling	●
F-4	General flexicoupling: fits 1/4", 3/8" & 5/16" shafts Use when shafts are not the same size.	●
F-5	1/4" Motor pilot to 1/4", 5/16", or 3/8" bore flexicoupling	●
F-6	3/8" Motor pilot to 1/4", 5/16", or 3/8" bore flexicoupling	●
	F1-F4 Flexicoupling, 1.50" length, 1.00" dia. F5-F6 Motor pilots, 1.25" length, 1.00" dia	
	CEC...Custom encoder couplings 3mm - 40mm in 1mm and 1/16" increments.	●

Mounts

MB-1	Chariot Mounting System	●
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Measuring Wheels (12" Circumference with Scale)

WH-1-A	Measuring wheel / black tire - 83A durometer	●
WH-1-B	Measuring wheel / non-marking tire - 83A durometer	●
WH-1-C	Measuring wheel / non-marking tire - 92A durometer	●
WH-1-D	Measuring wheel / non-marking tire - 70A durometer	●
	All wheels have a 3/8" bore.	
RT-A	Replacement Tire Tread for WH-1-A	●
RT-B	Replacement Tire Tread for WH-1-B	●
RT-C	Replacement Tire Tread for WH-1-C	●

Mating Connector & Cable Selection Examples for ESE, RSE & HDE Encoders

Encoder Connection Style & Code	Encoder Configuration	Connectors with Cables	Connectors
Military / MS ("M")	Single Channel with differential output or index pulse (but not both) Quadrature-with no differential outputs, and no index pulse	C-1F4-xx, C-4F4-xx	C-1, C-4
Military / MS ("M")	Single Channel-with both differential output and index pulse Quadrature-with differential outputs or index pulse (but not both)	C-1F6-xx, C-4F6-xx,	C-1, C-4
Military / MS ("M")	RSE, HDE Quadrature-with both differential outputs and index pulse	C-5F-xx	C-5
Watertight Plastic ("C")	Single Channel Encoders with differential output or index pulse (but not both) RSE, HDE Quadrature-with no differential outputs, and no index pulse	C-2F-xx	C-2
FSIDB-9 ("D")	Single Channel with differential output or index pulse (but not both) Quadrature-with no differential outputs, and no index pulse	D-1F-15 D-1F-xx	D-1
M12 ("E")	Single channel and quadrature, no differential outputs or index pulse Single channel and quadrature, with index pulse. No differential outputs	M12-5-4-xx M12-5-5-xx	M12-5
M12 ("E")	All encoders with differential output	M12-8-xx	M12-8

Tuff-Coder Series Encoders

"The Toughest Encoder ever made" Calculate price of equivalent RSE encoder with standard shaft and mounting, and add ●. Consult Tuff-Coder Brochure for ordering information.

Defender Series Encoders

Calculate price of equivalent RSE encoder with standard shaft and mounting, and add ●. Consult Defender Brochure for ordering information.

Encoder Testing & Repair Services

Standard testing: ●

Adder for thermal and stress testing: ●

Single stage repairs (repair is authorized prior to inspection)

Output type	RSE, RSI, ESE, ESI	HDE, HDI
S	●	●
Q, D, B, G	●	●

Two stage repairs (repair is authorized after inspection)

Output type	RSE, RSI, ESE, ESI	HDE, HDI
S	● + ●	● + ●
Q, D, B, G	● + ●	● + ●

There is no charge if the encoder is deemed to be un-repairable

Counters & Rate Controllers

Quasar Counters

Options

QUA-1122-1111-00
QUA-XXXX-XXXX-00

Quadrature input capability, 2 outputs, and power supply for encoder
Counters with fewer options are available for quantity purchase



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