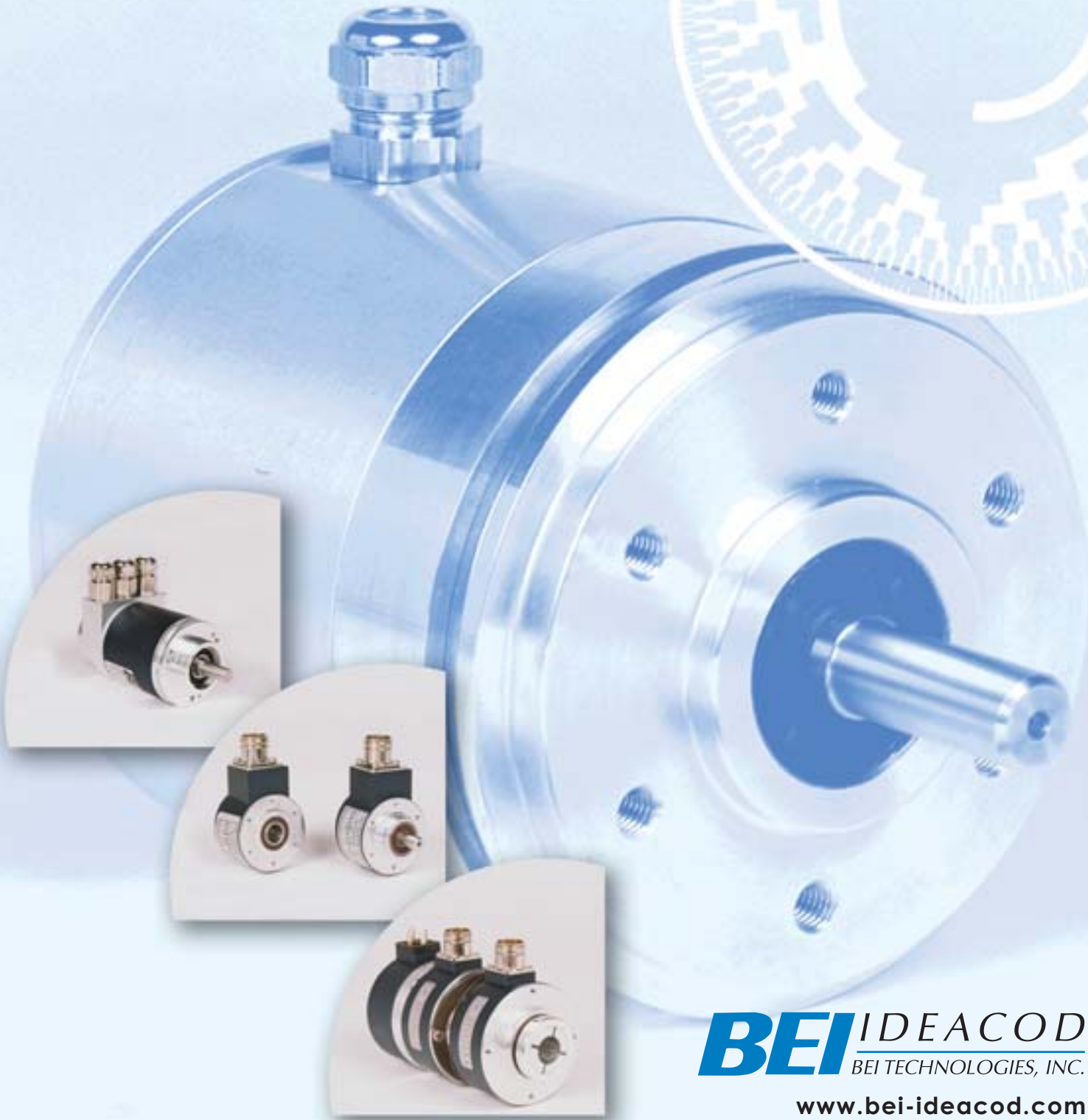




Incremental, Absolute and Analog Encoders

Selection Guide










BEI IDEACOD
BEI TECHNOLOGIES, INC.

www.bei-ideacod.com




INCREMENTAL ENCODERS, OPTOTACHOS and TACHO-ENCODERS

- | | | | | |
|--|---|--|---|--|
| COMPACTIS™
40mm <ul style="list-style-type: none"> • Compact encoder • For light duty applications • Encoder T°: -20° to +80°C • IP52 (through shaft) • IP54 (solid shaft) • Unbreakable disk | DIGISINE™
58mm <ul style="list-style-type: none"> • Standard universal encoder • Encoder T°: -30° to +100°C • IP65 (IP67 with flange) • Programmable resolution • Flexibility of use • Universal electronics | ROBUSTECH™
90mm <ul style="list-style-type: none"> • For extreme loads, shocks, vibrations • Encoder T°: -20° to +80°C (-40° to +100°C option) • IP65 through shaft • IP 66 / 67 solid shaft • Unbreakable disk • MAXCONTROL® self monitoring | MAXX™
200mm <ul style="list-style-type: none"> • Extreme mechanical resistance • Encoder T° -20° to +80°C, (water cooling flange option) • IP65 • Unbreakable disk • Duplex version available, (double electronic & optical system) | Tacho-encoder / Optotacho
90 & 200mm <ul style="list-style-type: none"> • For heavy industry • Optotacho : only analog output (proportional to the speed) • Tacho-encoder : analog and incremental signals • IP65, IP66 or IP67 • Unbreakable disk |
|--|---|--|---|--|

INCREMENTAL ENCODERS

INCREMENTAL	Shaft	Electronic	Resolution	Connection
 COMPACTIS™ 40mm GHM4	Solid 6 mm	4,5 – 5,5V supply, out:5V RS422 - TTL 11-30 V push-pull (HTL) 5-24V push-pull	2500 ppr max.	PVC cable – radial/axial DIN 5 to 8 pinouts – axial
 COMPACTIS™ 40mm GZT4 – GHT4	Through 6 mm	4,5 – 5,5V supply, out:5V RS422 – TTL 11-30 V push-pull (HTL) 5-24V push-pull	2500 ppr max.	PVC cable - radial
 DIGISINE™ 58mm DHM5	Solid 6 mm 10 mm	4,5 – 5,5V supply, out :5V RS422 - TTL 4,75-30V supply, out :5V RS422 - TTL 5-30V push-pull transistorized 10-30V push-pull 1V sine-cosine 1V peak to peak	80 000 ppr max. Option : programmable resolution	PVC cable – radial/axial PUR cable – radial/axial M23 12 pinouts – radial/axial M12 4 to 8 pinouts - radial/axial Solenoid valve 4 pinouts - radial/axial DIN 5 to 8 pinouts – radial
 DIGISINE™ 58mm DHO5	Through 6 à 14 mm	4,5 – 5,5V supply, out :5V RS422 - TTL 4,75-30V supply, out :5V RS422 - TTL 5-30V push-pull transistorized 10-30V push-pull 1V sine-cosine 1V peak to peak	80 000 ppr max. Option : programmable resolution	PVC cable - radial PUR cable – radial M23 12 pinouts – radial DIN 5 to 8 pinouts – radial
 ROBUSTECH™ 90mm GHM9 – DHM9	Solid 11 mm 12 mm	4,5 – 5,5V supply, out :5V RS422 - TTL 11-30V supply, out :5V RS422 - TTL 11-30 push-pull transistorized 11-30V push-pull 15-30V supply, out :regulated 12 V 11-30V push-pull, 150 mA/channel	10 000 ppr max. DHM9: max. 80 000 ppr programmable option	terminal box - radial/axial PVC cable – radial/axial PUR cable – radial/axial M23 12 pinouts – radial/axial
 ROBUSTECH™ 90mm GHU9	Through 10 à 30 mm	4,5 – 5,5V supply, out :5V RS422 - TTL 11-30V supply, out :5V RS422 - TTL 11-30 push-pull transistorized 11-30V push-pull 15-30V supply, out :regulated 12 V 11-30V push-pull, 150 mA/channel	10 000 ppr max.	terminal box - radial PVC cable - radial PUR cable – radial M23 12 pinouts - radial Electrovanne 4 broches - radiale
 MAXX™ 200mm GHML	Solid 14 mm	4,5 – 5,5V supply, out :5V RS422 - TTL 11-30V supply, out :5V RS422 - TTL 11-30 push-pull transistorized 11-30V push-pull 15-30V supply, out :regulated 12 V 11-30V push-pull, 150 mA/channel	10 000 ppr max.	PVC cable - radial PUR cable – radial M23 12 pinouts - radial

OPTOTACHOS AND TACHO-ENCODERS

OPTOTACHOS & TACHO-ENCODERS	Shaft	Supply	OPTOTACHO Electronic	TACHO-ENCODER Electronic		Speed	Resolution	Connection
			analog	analog	incremental			
 ROBUSTECH™ 90mm NHM9	Solid 11 mm 12 mm	5V 15-30V	0...20 mA	0...20 mA	5V RS422 - TTL 15-30V push-pull	6000 rpm max.	10000 ppr max.	M23 12 pinouts - radial PVC 2m cable - radial
 ROBUSTECH™ 90mm NHU9	Through 12 to 30 mm		4...20 mA -20mA ...+20mA 0...10Vdc -10Vdc...+10Vdc	4...20 mA -20mA ...+20mA 0...10Vdc -10Vdc...+10Vdc				
 MAXX™ 200mm NHML	Solid 14 mm							

ABSOLUTE SINGLE-TURN AND MULTI-TURN ENCODERS

POSI+™ Single-turn - 58mm	ROBUSTECH™ Single-turn - 90mm	MAXX™ Single-turn - 200mm	POSI+™ Multi-turn - 58mm	BLUE RANGE Multi-turn - 58mm	ROBUSTECH™ Multi-turn - 90mm
<ul style="list-style-type: none"> European standard Encoder T°: -20° to +90°C IP65 (IP67 with flange) 5-30V supply High resolution 	<ul style="list-style-type: none"> For extreme loads, shocks & vibrations Encoder T°C: -20° to +90°C IP65 (through shaft) IP 66 / 67 (solid shaft) 	<ul style="list-style-type: none"> Extreme mechanical resistance Encoder T°C: -20° to +90°C IP65 Duplex version, (double electronic & optical part) 	<ul style="list-style-type: none"> European standard Encoder T°: -20° to +85°C IP65 (IP67 with flange) Programming of the resolution, code, limit switch. 5-30V power supply Resolution: max. 13x16 bits 	<ul style="list-style-type: none"> European standard Encoder T°: -40° to +85°C IP65 (IP66) Profibus DP CANopen DeviceNet Available on stock 	<ul style="list-style-type: none"> For extreme loads, shocks, vibrations Encoder T°: -10° to +75°C IP65 (through shaft) IP 66 / 67 (solid shaft)



ABSOLUTE SINGLE-TURN ENCODERS

SINGLE-TURN	Shaft	Interfaces	Codes	Resolution	Radial connection
POSI+™ 58mm CHM5	Solid 6 mm 10 mm	Parallel : 5-30V push-pull driver SSI BISS	Binary Gray	Max. 20 bits (SSI) Max. 15 bits (parallel)	M23 12 pinouts PUR 2m cable PVC 2m cable M23 16 pinouts M23 17 pinouts
POSI+™ 58mm CHO5	Through 6 to 14 mm	Parallel : 5-30V push-pull driver SSI BISS	Binary Gray	Max. 20 bits (SSI) Max 15 bits (parallel)	M23 12 pinouts PUR 2m cable PVC 2m cable M23 16 pinouts M23 17 pinouts
ROBUSTECH™ 90mm CHM9	Solid 11 mm 12 mm	Parallel : 5V driver Parallel : 11-30V push-pull driver SSI CANopen DeviceNet	Binary Gray BCD Excess	Max. 13 bits (SSI) Max. 14 bits (parallel)	M23 12 pinouts PUR 2m cable PVC 2m cable M23 16 pinouts M23 17 pinouts
ROBUSTECH™ 90mm CHU9	Through 10 to 30 mm	Parallel : 5V driver Parallel : 11-30V push-pull driver SSI CANopen DeviceNet	Binary Gray Excess	Max. 13 bits (SSI) Max. 14 bits (parallel)	M23 12 pinouts PUR 2m cable PVC 2m cable M23 16 pinouts M23 17 pinouts
MAXX™ 200mm CHML	Solid 14 mm	Parallel : Driver 5V Parallel : Driver 11-30V push-pull SSI	Binary Gray BCD Excess	Max. 13 bits (SSI) Max. 14 bits (parallel)	M23 12 pinouts PUR 2m cable PVC 2m cable M23 16 pinouts M23 17 pinouts



ABSOLUTE MULTI-TURN ENCODERS




MULTI-TURN	Shaft	Interfaces	Codes	Resolution	Radial connection
POSI+™ 58mm PHM5	Solid 6 mm 10 mm	SSI	Gray Binary	13 bits max. x 16 bits max. programmable option	M23 12 pinouts PUR cable
POSI+™ 58mm PHO5	Through 6 to 14 mm	SSI	Gray Binary	13 bits max. x 16 bits max. programmable option	M23 12 pinouts PUR cable
BLUE RANGE 58mm MHM5	Solid 10 mm	Profibus DP CANopen DeviceNet	Binary	16 x 14 bits max. 13 x 12 bits standard	Terminal box with 3 cable gland
BLUE RANGE 58mm MHK5	Blind 6 to 15 mm	Profibus DP CANopen DeviceNet	Binary	16 x 14 bits max. 13 x 12 bits standard	Terminal box with 3 cable gland
ROBUSTECH™ 90mm SHM9	Solid 12 mm	SSI Profibus DP CANopen DeviceNet Parallel	Gray (SSI, //) Binary	13 bits max. x 16 bits max. programmable option (SSI, // : max. 25 bits)	Cable M23 12 pinouts (SSI) Cable + DB9 connector (CanOpen) Cable + MinC connector (Dnet) Cable + DB37 connector (parallel)
ROBUSTECH™ 90mm SHU9	Through 10 to 30 mm	SSI Profibus DP CANopen DeviceNet	Gray (SSI) Binary	13 bits max. x 16 bits max. programmable option (SSI : max. 25bits)	Cable M23 12 pinouts (SSI) Cable + DB9 connector (CanOpen) Cable + MinC connector (Dnet)
Deserialisation cable		Allows the connection of a SSI encoder on PLC parallel inputs The parallel outputs of the DB37 are push-pull			

ATEX CERTIFIED ENCODERS FOR HAZARDOUS ENVIRONMENT



INTRINSICALLY SAFE INCREMENTAL ENCODERS



EX II 1G/D, EEx ia IIC/B T4, Category 1, zone 0 (gas) and 20 (dusts)

INCREMENTAL	Shaft	Electronic	Resolution	Connection
 INTRATEX™ 58mm - IHM5	Solid 6mm, 10mm	. 5V RS422	80 000 ppr max.	. PVC cable - radial/axial . PUR cable - radial/axial . M23 12 pinouts - radial/axial
 INTRATEX™ 58mm - IHO5	Through 14mm	. 8-12 V push-pull	Option : programmable resolution	. PVC cable - radial . PUR cable - radial . M23 12 pinouts - radial
	Intrinsically safe barrier for 5V RS422 encoders with integrated 5V power supply for the encoder		Power supply of the barrier: 12 to 24Vdc	5V output Ref : 924-60004-002 Push-pull output Ref : 924-60004-003 NPN OC output Ref : 924-60004-004



EXPLOSION PROOF INCREMENTAL ENCODERS



II 2 G/D, EEx d IIC T6, Category 2, zone 1 (gas) and 21 (dusts)

INCREMENTAL	Shaft	Electronic	Resolution	Connection
 PULSATEX™ 116 mm - GAMX	Solid 12 mm	. 5 V RS422 . 11-30V supply, out : 5V RS422	10 000 ppr max.	. PVC cable - axial . PUR cable - axial
 PULSATEX™ 109mm - GAUX	Through 16-30 mm	. 11-30V push pull . transistorized 11-30V push-pull		. PVC cable - radial . PUR cable - radial



EXPLOSION PROOF ABSOLUTE SINGLE-TURN ENCODERS


II 2 G/D, EEx d IIC T6, Category 2, zone 1 (gas) and 21 (dusts)

SINGLE-TURN	Shaft	Electronic	Code	Resolution	Connection
 POSATEX™ 116mm - CAMX	Solid 12 mm	. Parallel : 11-30V NPN OC driver . Parallel : 11-30V push-pull driver	Gray Binary	13 bits max.	. PVC cable - axial . PUR cable - axial
 POSATEX™ 109mm - CAUX	Through 16-30 mm	. SSI . CANopen . DeviceNet	Gray - Binary Binary Binary	13 bits max.	. PVC cable - radial . PUR cable - radial



EXPLOSION PROOF ABSOLUTE MULTI-TURN ENCODERS


II 2 G/D, EEx d IIC T6, Category 2, zone 1 (gas) and 21 (dusts)

MULTI-TURN	Shaft	Electronic	Code	Resolution	Connection
 POSATEX™ 109mm - SAUX	Through 16-30 mm	. SSI	Gray Binary	13 x 16 bits max.	. PVC cable - radial . PUR cable - radial
		. CANopen	Binary	13 x 16 bits max.	. PVC cable - radial . PUR cable - radial
		. DeviceNet	Binary	13 x 16 bits max.	. PVC cable - radial . PUR cable - radial



EXPLOSION PROOF TACHO-ENCODERS and OPTOTACHOS

II 2 G/D, EEx d IIC T6, Category 2, zone 1 (gas) and 21 (dusts)

OPTOTACHOS & TACHO-ENCODERS	Shaft	Supply	OPTOTACHO Electronic	TACHO-ENCODER Electronic		Speed	Resolution	Connection
			analog	analog	incremental			
 VELATEX™ 116mm NAMX	Solid 12 mm	. 5V . 15-30V	. 0...20 mA . 4...20 mA . -20mA ...+20mA . 0...10Vdc . -10Vdc...+10Vdc	. 0...20 mA . 4...20 mA . -20mA ...+20mA . 0...10Vdc . -10Vdc...+10Vdc	. 5V RS422 . 15-30V push-pull	6000 rpm max.	10000 ppr max.	. PVC cable - axial . PUR cable - axial

SPECIAL SOLUTIONS FOR HEAVY DUTY APPLICATIONS

REDUNDANT SIGNALS APPLICATIONS


Signals redundancy solutions to ensure the continuous operation of the installation, provide commutation channels or different signals to several subsequent electronics.

DOUBLE OR TRIPLE MOUNTING

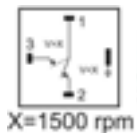
	58mm encoders duplex/triplex mounting Solid shaft version 6 to 14 mm		90mm encoders duplex/triplex mounting Solid shaft version 11 and 12 mm
	58mm encoders duplex/triplex mounting Through shaft version 6 to 14 mm		90mm encoders duplex/triplex mounting Through shaft version 12 to 30 mm

58mm encoders combination : incremental, absolute single-turn, absolute multi-turn



90mm encoders combination : incremental, absolute single-turn, absolute multi-turn, tacho-encoder, optotacho

DOUBLE INCREMENTAL ENCODER DOUBLE OPTICAL / ELECTRONIC PART	Shaft	Electronic	Resolution	Connection
 ROBUSTECH™ 90mm GHM9	Solid 11 mm 12 mm	. 5 V RS422 . 11-30V supply, out : 5V RS422 . 11-30V push-pull . transistorized 11-30 V push-pull	1024 max.	Double output M23 12 pinouts PVC cable PUR cable

OVERSPEED FUNCTION WITH CENTRIFUGAL SWITCH



- Sturdy assembly of encoder and mechanical overspeed switch
- Modular mounting
- Security overspeed system, works without power supply
- Radial commutation centrifugal switch without permanent contact
- Excellent repeatability
- Also available on single/multi turn absolute encoders











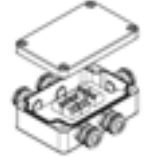

INCREMENTAL ENCODERS WITH MECHANICAL OVERSPEED	Shaft	Overspeed	Electronic	Resolution	Radial connection
 ROBUSTECH™ 90mm GHM9	Solid 11 mm 12 mm	800-3000 rpm	. 4,5 – 5,5V supply, out :5V RS422 - TTL . 11-30V supply, out :5V RS422 - TTL . 11-30 push-pull . transistorized 11-30V push-pull . 15-30V supply, out :regulated 12 V . 11-30V push-pull, 150 mA/channel	10 000ppr max.	M23 12 pinouts PVC cable PUR cable 4 pinouts solenoid valve connector for the overspeed
 ROBUSTECH™ 90mm GHU9	Blind Up to 20mm	800-3000 rpm	. 4,5 – 5,5V supply, out :5V RS422 - TTL . 11-30V supply, out :5V RS422 - TTL . 11-30 push-pull . transistorized 11-30V push-pull . 15-30V supply, out :regulated 12 V . 11-30V push-pull, 150 mA/channel	10 000ppr max.	M23 12 pinouts PVC cable PUR cable 4 pinouts solenoid valve connector for the overspeed

HIGH LOAD COUPLING DEVICE (for high radial and axial loads)

	With compatible DHM5 flange : ref. MPAL58		With compatible GHM9 flange : ref. MPAL 11/12
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DRAW WIRE	Length (mm)
 CD 050	1200
 CD 060	1 500
 CD 080	2 500
 CD 115	3500
 CD 150	5 000
 CD 230	8 000
 CD 1210	10 000
 CD 1210	12 000
 CD 1820	15 000
 CD 1820	20 000
 CD 1820	25 000
 CD 1820	30 000
 CD 1820	35 000

INTERFACES		
Incremental	Absolute	Analog
5V RS422 - TTL	SSI	0-10V
push-pull 5-30 V	Profibus	4-20 mA
5-30V power supply, output : 5V RS422 - TTL	CANopen	1-10 Kohms
transistorized push-pull 11-30V	DeviceNet	
	Parallel	

MOUNTING ACCESSORIES	CONNECTION ACCESSORIES
Mounting flange 	Solenoid valve type 4 pinouts 
Square flange 	DIN 5 to 8 pinouts 
Anti-rotation device 	M23 12, 16, 17 pinouts 
Couplings 	DB 9 
Reduction hubs 	DB 37 
	Junction box 
	Cables and extension cables 

ELECTRONIC ACCESSORIES

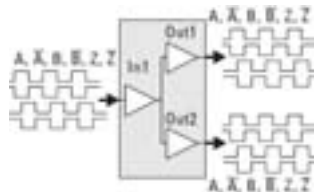
Wide range of electrical and electronic accessories :

- Numeric process indicators for incremental encoders
- Measure and display of angular positions
- Linear movement
- Positioning
- Cut length
- Rotation speed and linear speed
- Ratiometer (elongation)
- Conditioning et converters signals
- Multichannel amplification
- Converters D/A, etc....



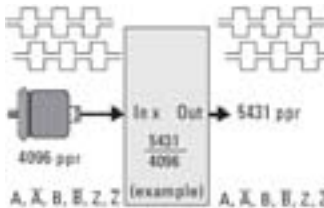
Multi-function indicators

- for all types of encoders (incremental, SSI, parallel, analog...)
- adjustable scaling factor
- analog output, relay...



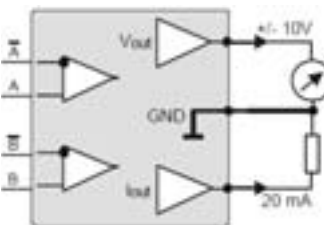
Changeover switch, distributor and splitter for encoder signals

- 5-30Vdc power supply
- input levels optional TTL/RS422 or HTL
- output levels individually adjustable to TTL/RS422 or HTL (10/30V)
- also available for SSI encoders



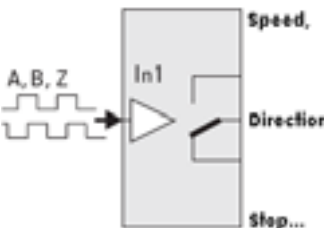
Universal level converter, frequency division/multiplication, direction detection...

- 18-30Vdc power supply
- universal impulse inputs TTL/RS422 or HTL
- programmable quadrature frequency divider for error free division of the inputs signals



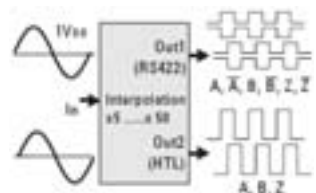
Signal converter frequency → analog/RS232

- 18 - 30Vdc power supply
- universal impulse input TTL/RS422 (A, A/, B, B/) or HTL (A/B or only A)
- wide input range : 1Hz to 500kHz
- bipolar output +/-10Vdc and 0-20mA or 4-20mA



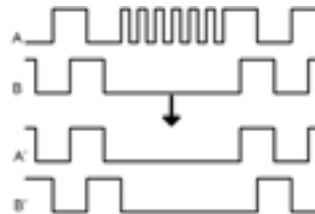
Monitor for speed, direction of rotation and standstill

- 115/230Vac or 18/30Vdc power supply
- impulse input A & B type TTL or HTL
- wide range of input frequency



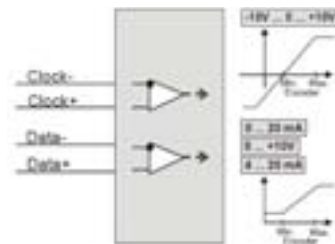
Sine/cosine interpolator for 1Vpp encoder

- 18 - 30Vdc power supply
- incremental signal channel RS422 and HTL level
- adjustable interpolation rate from X5 to x50



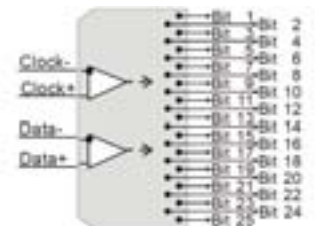
Anti-dither module

- 24Vdc power supply
- universal impulse input TTL/RS422 or HTL
- output level TTL/RS422 or HTL can be selected
- for start/stop or high vibrations application



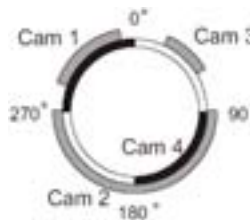
Converter SSI → analog

- 18-30Vdc power supply
- suitable for use with SSI encoders
- analog outputs proportional to the encoder position
- also available for incremental encoders



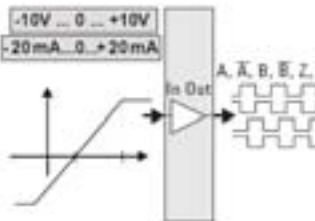
Deserialisation interface

- 18-30Vdc power supply
- SSI input
- Gray, binary, BCD output, HTL lor TTL level



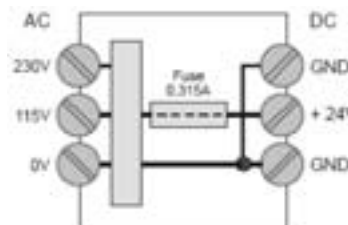
Cam controller

- 24Vdc power supply
- for incremental and absolute SSI encoders
- from 8 to 24 cams output



Signal converter analog → frequency/RS232

- 12-30Vdc power supply
- analog input -10...+10Vdc / 0/4-20mA
- frequency output HTL and RS422 up to 500kHz
- programmable 0 index



24Vdc power supply

- input : 115 / 230VAC +/- 15%, 7,5VA, 50-60 Hz
- output : 24VDC / 300mA (-15%)
- protection against short-circuits



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