

### Special Capabilities For Unique Situations

Although we have many standard encoders, our real strength has always been our willingness and ability to provide solutions to special customer problems, whether it involves modifying an existing design or starting with a clean piece of paper. We enjoy a well-deserved reputation as a responsive and responsible business partner, and we look forward to adding your name to our long list of satisfied customers.

### Warranty

Gurley Precision Instruments offers a limited warranty against defects in material and workmanship for a period of one year from the date of shipment.

### Accessories

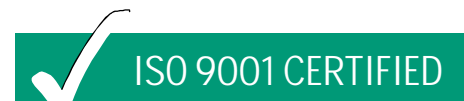
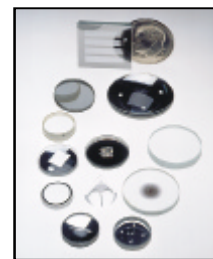
For your convenience, Gurley offers a variety of encoder accessories such as cable assemblies, shaft couplings, mounting cleats, and counter/displays. Please consult factory for more information.

### A Few Words About Resolution

The term "cycles/rev" refers to quadrature output. By utilizing well-known techniques for quadrature decoding, the user can readily obtain four times as many counts, or measuring steps, per revolution as the number of cycles. For more information, please visit our technical article archive online at [www.gurley.com](http://www.gurley.com)

### Other GPI Engineering Design Products

In addition to our encoder capabilities, Gurley produces precision optics, Optographics and machined parts. Visit [www.gurley.com](http://www.gurley.com), e-mail to [info@gurley.com](mailto:info@gurley.com), or call (800) 759-1844 for information.



# STANDARD ENCODER PRODUCT LINE

## Gurley Precision Instruments

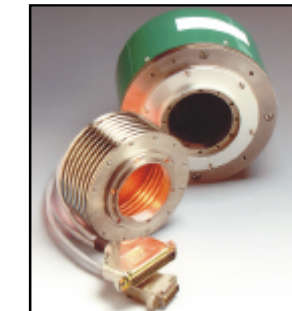
Gurley has been a major designer and manufacturer of precise measuring instruments since 1845, and a leading supplier of optical encoders since the early 1950's. We have a full line of standard products, most of which are shown in this catalog. However, we do add products regularly, so please call (800) 759-1844 or visit [www.gurley.com](http://www.gurley.com) if you do not see what you are looking for.

In the product descriptions that follow, all incremental encoders are available with an index (once per rev) signal that is fully functional up to the maximum frequency response. Many of the maximum resolutions listed are after 4X quadrature evaluation in the user's electronics. For complete specifications, please refer to the technical datasheet or call for free application assistance.

### Rotary Encoders



Enclosed Incremental



Enclosed Absolute



Modular Incremental & Absolute

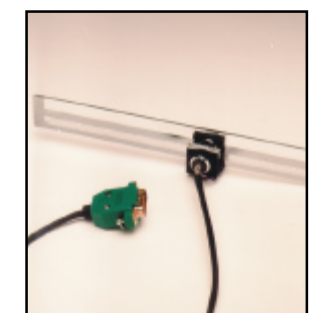
### Linear Encoders



Enclosed Incremental



Enclosed Absolute



Modular Incremental & Absolute

Experience Flexibility Commitment





R119



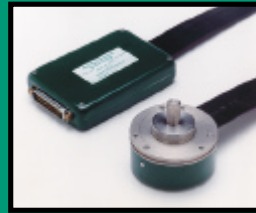
9x20



8x35H



9710



A25S



V860H



7700

## ROTARY INCREMENTAL ENCODERS

Series	Dia.	Max. Resolution*	Notes
R119	19mm	65,536	High resolution in a small package
R120	20mm	65,536	
M122	22mm	512	Non-contact magnetic
9x11	1.1"	144,000	Two accuracy grades
R135	35mm	144,000	Solid or blind hollow-shaft versions available
R137	37mm	144,000	
9x20	2.0"	144,000	Several mounting options
R258	58mm	Call	Robust. High accuracy
R260	60mm	Call	Dual-shaft encoder
9x25	2.5"	200,000	Three accuracy grades
9x35	3.5"	900,000	Two accuracy grades
9x35H	3.5"	900,000	Precise hollow-shaft
8x60	6.0"	3,600,000	Metrology grade
9710	< 23"	80x linecount	Modular encoder

\* Maximum resolution in counts/rev is after 4X quadrature decode in user's electronics

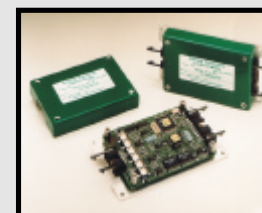
## ROTARY ABSOLUTE ENCODERS

Series	Dia.	Max. Resolution	Notes
M122	22mm	9 bits	Serial or parallel output
A23S	58mm	25 bits (12 + 13/turn)	Single and multi-turn
A25S	2.5"	17 bits	Fully accurate to 600 rpm

Coming soon! GPI is currently developing a new series of rotary absolute encoders from 12 to 22 bits, and in sizes 37mm to 6". Please visit our web site at [www.gurley.com](http://www.gurley.com) or call the factory at (800) 759-1844 for more information

## ROTARY VIRTUAL ABSOLUTE® ENCODERS

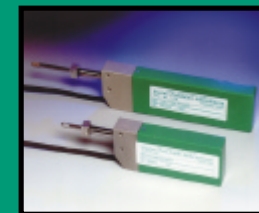
Series	Dia.	Max. Resolution	Notes
Vx20	2.0"	19 bits	Solid or blind hollow shaft
Vx35H	3.5"	20 bits	Hollow shaft
V860H	6"	20 bit hollow shaft	1 MHz max data update rate
7700	up to 2"	12 bits	Modular kit encoder
9710VA	up to 23"	22 bits	Modular encoder



Virtual Absolute® (VA) is a unique encoder technology that combines the opto-mechanical simplicity of an incremental encoder with the system reliability and interfacing ease of an absolute encoder. Gurley VA encoders use our external patented decoding electronics (photo). For more information please visit [www.virtualabsolute.com](http://www.virtualabsolute.com)



LE Linears



P20 & P40



VI 18



9710VA



ISC3N



Hr2



HDT

## LINEAR INCREMENTAL ENCODERS

Series	Max. Length	Max. Resolution*	Notes
LE18	1.2 m	0.1 μm	Internal ASIC
LE20	1.5 m	0.1 μm	Internal ASIC
LE25	3.2 m	0.1 μm	Internal ASIC
LE35	3.2 m	0.1 μm	Internal ASIC
P20	20 mm	0.1 μm	Plunger-type
P40	40 mm	0.5 μm	Plunger-type
R&P	unlimited	0.25 μm	Rack & pinion type
9717	3.2 m (125")	0.5 μm	Modular encoder

\* Maximum resolution is after 4X quadrature decode in user's electronics

Gurley's LE series enclosed incremental encoders are designed for long life in medium to high-performance applications. Digital (quadrature square waves) and analog (11 μA or 1 V) outputs options available. Speeds up to 1m/s (40 in/s) at 1 μm resolution. Please visit [www.gpi-linears.com](http://www.gpi-linears.com) for more information or call (800) 759-1844.

## LINEAR VIRTUAL ABSOLUTE® ENCODERS

Series	Max. Length	Max. Resolution*	Notes
VL18	1 m	1.0 μm	Three accuracy grades
9710VA	10"	0.25 μm	Modular encoder

## ENCODER ACCESSORIES

Item	Description / Notes	For Use With
ISC3N	PC interface card for up to three encoders	Quad output
ASC3N	PC interface card for A25S absolute encoder	A25S encoder
HR2A	High resolution interpolator (1-20x)	911, 835S & H
HR2B&C	High resolution interpolator (from 1 to 25x)	9710, 9717
HDT	Heavy duty enclosure	925
Couplings	Three sizes to choose from	Shaft encoders
DILA/RA	Display units for rotary and linear encoders	



The Models SCA, SCD and SCE are flexible-diaphragm, zero-backlash shaft couplings that are designed to accurately transmit system motion to an encoder while protecting the encoder's bearings from overloads. The SCD attaches to each shaft with an M2 set screw and is for smaller instrument-grade encoders with shaft diameters of 4 mm max. The SCA and SCE have clamp-style shaft attachment and are recommended for most industrial encoders.

As part of our continuing product improvement program, these specifications are subject to change without notice.