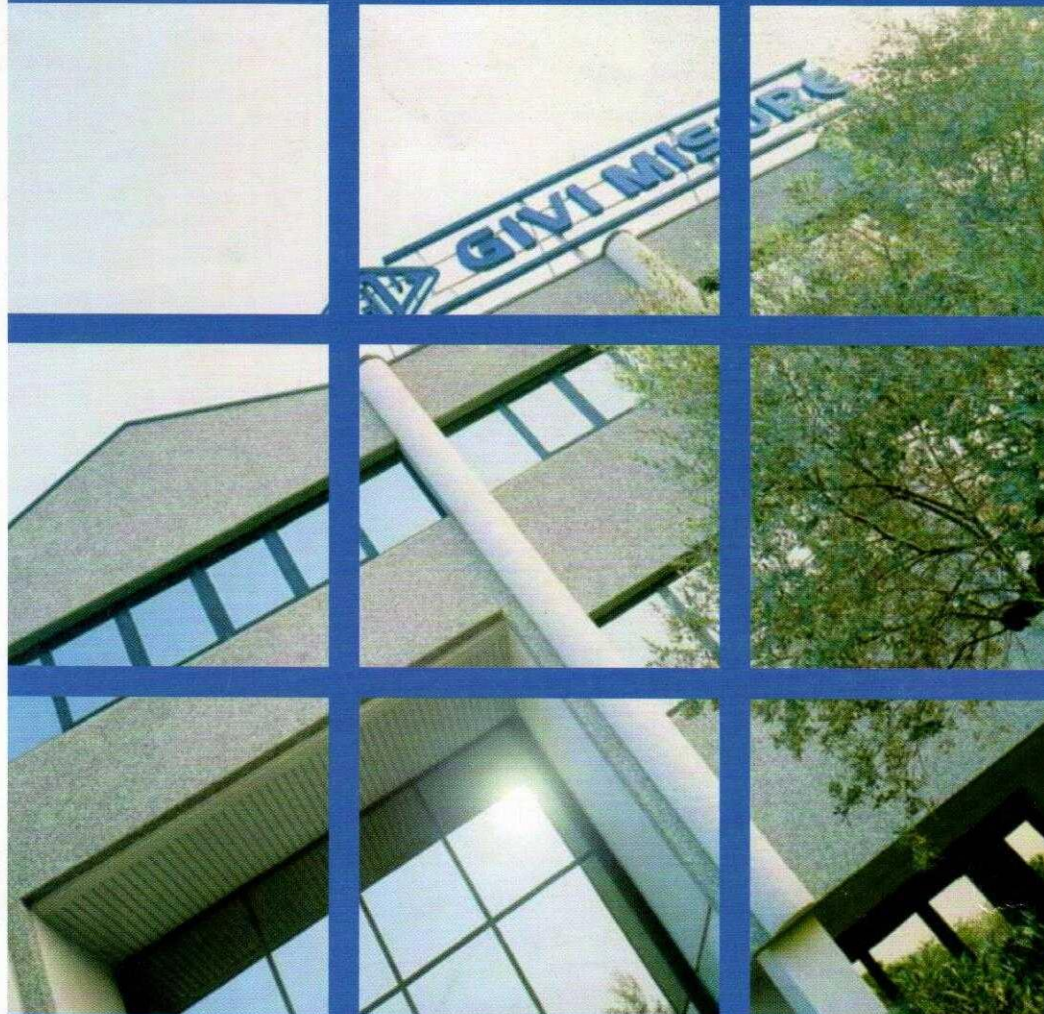




**GIVI MISURE PVT LTD**

MEASURING AND CONTROL SYSTEMS

**One Stop  
Solution  
for All  
Precision  
Measurements**



**OPTICAL SCALES**

**MAGNETIC SYSTEMS**

**ROTARY ENCODERS**

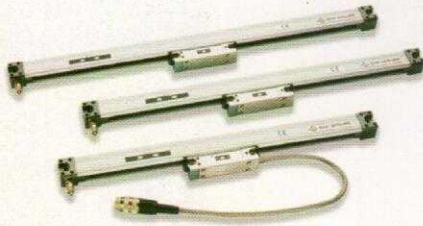
**DIGITAL READOUTS**

**POSITION CONTROLLERS**

QUALITY AND INNOVATION  
SINCE 1979

# INCREMENTAL OPTICAL SCALES FOR MACHINE TOOLS

MODEL : GVS 300



- Reduced size, to allow installation on small machine-tools or for applications with limited installation space wide cross-section. Dimensions 23x20mm.
- Possibility of registration which simplifies alignment and allows the use on rough surfaces (retrofitting and machines for which application was not foreseen).
- Protected against inversion of power supply polarity and short circuits on output ports.

MODEL : GVS 400



- Small overall dimensions. Rugged and heavy profile with a wide cross-section. Dimensions 39x23 mm.
- Armored connecting cable.
- sealing lips made of special elastomer resistant to wearing, for an excellent protection of the grating.

The Reader-heads of all steel scales are provided with ball bearings. The hybrid circuit inside the reader-head is calibrated with laser instruments. Steel scales are most [referred for measurements in machine tools and machineries as thermal expansion co-efficient of scales matches with machine elements.

## GVS 300 T05Z

Resolution	0.5 µm
Accuracy grade	±3 µm
Max. traversing speed	12 m/min
Operating Voltage	5 Vdc or 12 Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 53 standard IP 64 pressurized

## GVS 300 T1Z

Resolution	1 µm
Accuracy grade	±3 µm
Max. traversing speed	25 m/min
Operating Voltage	5 Vdc or 12 Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 53 standard IP 64 pressurized

## GVS 300 T5Z

Resolution	5 µm
Accuracy grade	±5 µm
Max. traversing speed	60m/min
Operating Voltage	5 Vdc or 12 Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 53 standard IP 64 pressurized

## GVS 300 T00Z

Resolution	10 µm
Accuracy grade	±5 µm
Max. traversing speed	80 m/min
Operating Voltage	5 Vdc or 12 Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 53 standard IP 64 pressurized

## GVS 400 T05Z

Resolution	0.5 µm
Accuracy grade	±3 µm
Max. traversing speed	12 m/min
Operating Voltage	5 Vdc or 12 Vdc or 24Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 400 T1Z

Resolution	1 µm
Accuracy grade	±3 µm
Max. traversing speed	25 m/min
Operating Voltage	5 Vdc or 12 Vdc or 24Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 400 T5Z

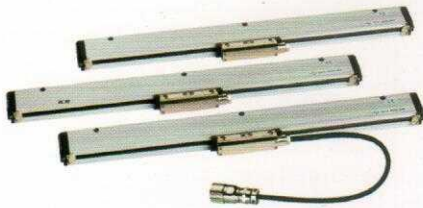
Resolution	5 µm
Accuracy grade	±5 µm
Max. traversing speed	80 m/min
Operating Voltage	5 Vdc or 12 Vdc or 24Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 400 T100Z

Resolution	10 µm
Accuracy grade	±5 µm
Max. traversing speed	80 m/min
Operating Voltage	5 Vdc or 12 Vdc or 24Vdc ±5%
Output signals	NPN / LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

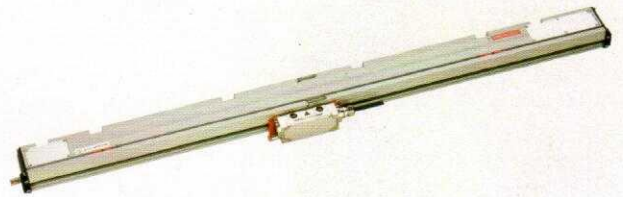
# INCREMENTAL OPTICAL SCALES FOR CNC APPLICATIONS

MODEL : GVS 600



- Optical scale with glass measuring support, particularly suitable for CNC machine tools.
- Non-extendible sealing lips, along the sliding side of the reader head, fixed at the lateral ends.
- Innovative device inside the scale for the disposal of liquids coming from inefficient filtering systems.
- The special sealing lips and the device for the liquids disposal provide an excellent protection of the grating from refrigerant liquids often used during machining.
- Metrological certificate provided with each scale.
- Power supply 5 Vdc +/- 5%

MODEL : GVS 900



- Modular optical scale with stainless steel grating, particularly suitable for long strokes (measuring length up to 30,040 mm with steps of 200 mm. Segments of different lengths).
- Rugged and heavy profile, in anodized aluminium.
- Coupling gaskets between the modules for a better fit of mechanical parts (in case of disassembly and reassembly).
- Reference indexes at coded distance, or at constant step (50 mm) or selectable.
- Sine-wave or TTL signal output.
- Power supply 5 Vdc +/- 5%

## GVS 600 T05

Resolution	0.5 µm
Grating pitch	20 µm
Accuracy grade	±3 µm standard ± 1 µm high-accuracy
Max. traversing speed	120 m/min
Measuring length	from 70 up to 3,240 mm
Reference indexes	coded distance / constant step / selectable
Output signals	LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 900 V40 Sine wave Output

Resolution	up to 0.1 µm
Grating pitch	40 µm
Accuracy grade	± 5 µm
Max. traversing speed	60 m/min
Reference indexes	coded distance / constant step / selectable
Output signals	sine wave 1 Vpp
Protection class	IP 54 standard IP 64 pressurized

## GVS 600 T1

Resolution	1 µm
Grating pitch	20 µm
Accuracy grade	±3 µm standard ± 1 µm high-accuracy
Max. traversing speed	120 m/min
Measuring length	from 70 up to 3,240 mm
Reference indexes	coded distance / constant step / selectable
Output signals	LINE DRIVER / PUSH - PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 900 TTL Output

Resolution	10 - 5 - 1 - 0.5 µm
Grating pitch	40 µm
Accuracy grade	± 5 µm
Max. traversing speed	60 m/min
Reference indexes	coded distance / constant step / selectable
Output signals	LINE DRIVER
Protection class	IP 54 standard IP 64 pressurized

## GVS 600 T5

Resolution	5 µm
Grating pitch	20 µm
Accuracy grade	±3 µm standard ± 1 µm high-accuracy
Max. traversing speed	120 m/min
Measuring length	from 70 up to 3,240 mm
Reference indexes	coded distance / constant step / selectable
Output signals	LINE DRIVER / PUSH PULL
Protection class	IP 54 standard IP 64 pressurized

## GVS 600 V Sine wave output

Resolution	up to 0.01 µm
Grating pitch	20 µm
Accuracy grade	±3 µm standard ± 1 µm high-accuracy
Max. traversing speed	120 m/min
Measuring length	from 70 up to 3,240 mm
Reference indexes	coded distance / constant step / selectable
Output signals	sine wave 1Vpp
Protection class	IP 54 standard IP 64 pressurized

## MECHANICAL AND ELECTRICAL CHARACTERISTICS

### MECHANICAL

- ❖ READER HEAD, consisting of tie rod and reading block, with fully protected place for electronic boards
- ❖ READING BLOCK sliding through ball bearings.
- ❖ Die-cast TIE ROD.
- ❖ Stainless steel GRATING placed in the aluminum profile.
- ❖ Elastomeric GASKETS which allow to reproduce the full protection in mechanical joints.
- ❖ Full possibility to disassemble and reassemble it.

### ELECTRICAL

- ❖ Reading device with an infra-red light emitter and receiving photodiodes.
- ❖ A and B output signals with phase displacement of 90° (electrical).
- ❖ Incremental reference indexes at coded distance, at constant step or selectable.
- ❖ Cable with minimum bending radius of 80 mm.
- ❖ Cable suitable to continuous movements can be requested, with a minimum bending radius of 80 mm.

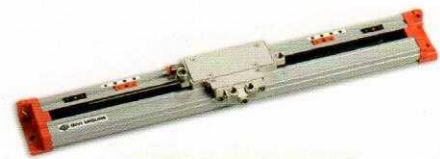
# INCREMENTAL OPTICAL & MAGNETIC SCALE FOR APPLICATIONS ON SYNCHRONIZED PRESS BRAKES

## OPTICAL INCREMENTAL SCALE GVS 202S



- Optical incremental scale. Particularly suitable for applications on synchronized press brakes.
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system.
- Reference indexes at coded distance or selectable every 10 mm along the entire measuring length, with Zero Magneto Set device.
- The adjustable cable output and the selectable zero references make the scale SYMMETRIC and applicable to both columns of the press brake.

## MAGNETIC INCREMENTAL SCALE GVS 215



- Magnetic incremental scale with pole pitch 2+2 mm. Particularly suitable on synchronized press brakes.
- Reader head guided by a self-aligned and self-cleaning sliding carriage with spring system.
- Selectable reference indexes every 10 mm along the entire measuring length, with Zero Magneto Set device.
- High accuracy and stability of signals even in case of high speed, strong accelerations and vibrations.

### GVS 202S

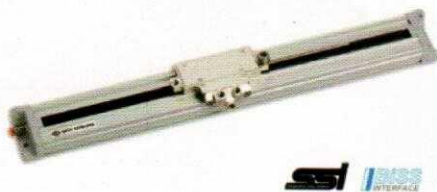
Resolution	T5 - T1 $\mu\text{m}$
Accuracy grade	$\pm 2.5 \mu\text{m}$ standard $\pm 1 \mu\text{m}$ high accuracy
Max. traversing speed	120 m/min
Measuring length	170, 220, 270, 320, ... mm
Reference indexes	coded distance / selectable
Output signals	LINE DRIVER / PUSH-PULL
Power Supply	5 Vdc $\pm 5\%$ or 10 + 28 Vdc $\pm 5\%$
Protection class	IP 54 standard IP 64 pressurized

### GVS 215

Resolution	T5 - T10 - T 25 $\mu\text{m}$
Pole pitch	2+2 mm
Accuracy grade	$\pm 15 \mu\text{m}$
Max. traversing speed	120 m/min
Measuring length	170, 220, 270, 320, ... mm
Reference indexes	selectable
Output signals	LINE DRIVER / PUSH-PULL
Power Supply	5 Vdc $\pm 5\%$ or 10 + 28 Vdc $\pm 5\%$
Protection class	IP 64 standard IP 67 pressurized

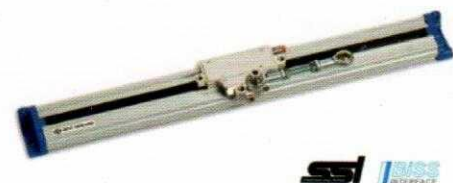
# ABSOLUTE OPTICAL & MAGNETIC SCALE FOR APPLICATIONS ON SYNCHRONIZED PRESS BRAKES

## ABSOLUTE OPTICAL SCALE GVS 206S



- Optical scale direct reading of the absolute position.
- High-speed SSI-BiSS C (unidirectional) serial interface.

## ABSOLUTE MAGNETIC SCALE GVS 219



- Magnetic scale with pole pitch 2+2 mm and direct reading of the absolute position.
- High-speed SSI-BiSS C (unidirectional) serial interface.

### GVS 206S Serial interface SSI-BISS

Resolution Line Driver	5 $\mu\text{m}$
Resolution absolute measure	1 $\mu\text{m}$ - 0.1 $\mu\text{m}$
Accuracy grade	$\pm 2.5 \mu\text{m}$ standard $\pm 1 \mu\text{m}$ high accuracy
Max. traversing speed	60 m/min
Measuring length	170, 220, 270, 320, ... mm
Power supply	5 Vdc $\pm 5\%$ or 10 + 28 Vdc $\pm 5\%$
Serial interface	SSI-BiSS C (unidirectional)
Protection class	IP 54 standard IP 64 pressurized

### GVS 219 Serial interface SSI-BISS

Resolution absolute measure	500 - 100 - 50 - 10 - 5 - 1 $\mu\text{m}$
Pole pitch	2+2 mm
Accuracy grade	$\pm 15 \mu\text{m}$
Max. traversing speed	60 m/min
Measuring length	170, 220, 270, 320, ... mm
	max. 30,000 mm in modular version
Power supply	5 + 28 Vdc $\pm 5\%$
Serial interface	SSI-BiSS C (unidirectional)
Protection class	IP 64 standard IP 67 pressurized

# MAGNETIC SYSTEMS

## MAGNETIC SCALES AND TRANSDUCER MP/MTS

MAGNETIC TRANSDUCER - MTS P/MTS M/MTS H



OTHER TYPES: MAGNETIC SYSTEM WITH OUTPUT OF 1V<sub>pp</sub> IS AVAILABLE RESOLUTION UPTO 0.1 μm

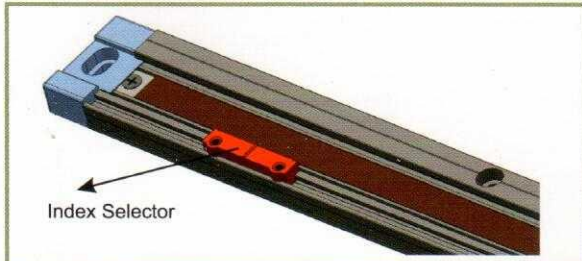
MAGNETIC SCALES - MP 100 / MP 200 / MP500

	MTS P	MTS M	MTS H
Pole Pitch	1+1mm	2+2mm	5+5mm
Resolutions	10 · 5 · 1 · 0.5 μm	25 · 10 · 5 · 1 μm	25 · 10 · 5 · 1 μm
Accuracy	±10 μm	±15 μm	±30 μm
MAX Frequency	300 kHz (upto 500kHz on request)		
MAX. Speed	0.6 m/s (res. 0.5 μm) 6 m/s (res. 10 μm)	1.2 m/s (res. 1 μm) 12 m/s (res. 10 μm)	1.2 m/s (res. 1 μm) 30m/s (res. 25 μm)
Power Supply	5 to 28Vdc ± 5%		
Current consumption without load	60 mA <sub>MAX</sub>		
Current consumption with load	140 mA <sub>MAX</sub> (with 5V & R = 120 Ω) 90 mA <sub>MAX</sub> (with 28V & R = 1.2KΩ)		
A,B and Io Output Signals	Line Driver / Push - Pull		
Repeatability	±1 Increment		
Vibration resistance (EN 60068-2-6)	300 m <sup>2</sup> (55 + 2,000 Hz)		
SHOCK RESISTANCE (EN 60068-2-27)	1,000 m/s <sup>2</sup> (11ms)		
PROTECTION (EN 60529)	IP 67		
Temperature	0 °C + 50 °C		
Storage temperature	-20°C + 80 °C		
Electrical Protection	Inversion of polarity and Short circuits		
Relative Humidity	100%		
Weight	40g		

Magnetic Tape Model Mp100 Pole pitch: 1+1mm / Mp200 Pole pitch: 2+2mm / Mp500 Pole pitch: 5+5mm / Width 10mm, Thickness 1.3mm

## MAGNETIC SCALE - GVS 100 WITH ALUMINUM EXTRUSION

The product is developed and manufactured at Givi Misura India



MAGNETIC SCALE - GVS 100

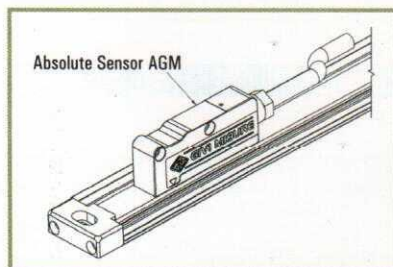
### MECHANICAL FEATURES

Width	33 mm
Thickness	10 mm
Maximum Length	50 mtr
Thermal Expansion	10.5 x 10 <sup>-6</sup> OC <sup>-1</sup> T ref. = 20 OC + 0.10C
Operating Temperature	0 °C + 70 °C
Storage Temperature	-20°C + 80 °C

### Incremental version :

Possibility to mount the magnetic band with pole pitches 2 + 2 or 5 + 5, to be read by MTS sensors. Reference can be selectable or constant pitch. For selectable, the magneto set reference can be set at any position very easily along the extrusion in order to get the reference at that point.

For resolution, accuracy and for other characteristics please refer MTS and MP data sheets.



ABSOLUTE VERSION

**Absolute version :** Magnetic band with pole pitch of 2 + 2, to be read by AGM sensor.

For resolution, accuracy and for other characteristics please refer MTS and MP data sheets.

### Mounting characteristics :

Lengths from 0 to 1000 mm will be supplied in a single piece with magnetic band glued to the extrusion and mounting possibilities at the end caps and also at the extrusion.

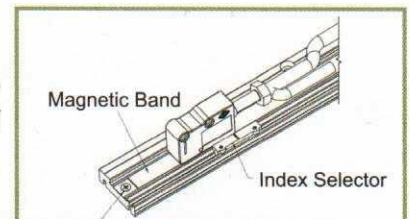
Lengths above 1000mm is called as modular version, the pieces will be supplied with segments above

1000 mm exceeding part to the desired length. The magnetic band is not glued instead it will be supplied in a roll form, where the tensioning mechanism will be present at one end and tension will be given as the last step of the installation and commissioning process.

- Scale Housing is anodized aluminium with cross section of 33 x 10 mm.
- End caps made of zamak mould: one end cap is designed to hold the tensioning mechanism in case the scale is a modular and other end cap on the fixed side.
- Stainless steel protection cover of the magnetic band to protect the band from external environment.

### Advantages of GVS 100

- Easy installation
- Protection to magnetic tape (band) against metal chips and external mech. objects (Long Life Span)
- Prevents peeling of magnetic tape/band.
- Modular version available upto any lengths maximum of 50mtr
- Error correction mechanism with unique design for lengths more than 1000mm.
- Tension mechanism for modular version which is one of its kind to avoid the adhesion of the tape/band to the Extrusion.



INCREMENTAL VERSION

# ROTARY ENCODERS

## INCREMENTAL ROTARY ENCODERS

EN 500 / EN 38



- Incremental rotary encoder, based on optical principle.
- Small overall dimensions for applications with limited installation space.
- Wide range of pulses per revolution up to 64,000 ppr.
- Bidirectional signals with zero references, TTL.
- Output by connector or cable, radial or axial position.
- Aluminium flange and body.
- High-protection ring.
- High accuracy and stability of signals.
- Output by connector or cable, radial or axial position
- High accuracy and stability of signals.

## ABSOLUTE ROTARY ENCODERS

AEN 500



- Compact-design absolute rotary encoder, based on optical principle.
- Singleturn resolution up to 17 Bit.
- Multiturn resolution up to 12 Bit
- High accuracy and stability of signals.
- Linearity  $\pm \frac{1}{2}$  LSB ( $\pm 1$  LSB for resolutions  $> 13$  Bit).
- Serial interface (SSI- BiSS, with or without 1 Vpp analog signal),
- Fieldbus (CANopen, Profibus, DeviceNet) or Parallel.
- Several flanges available.
- Aluminum flange and body.

Model	EN 500	EN 38
Pulses per revolution	5 to 64000 ppr	from 5 to 3600 ppr
Max. rotating speed	momentary 12000 rpm permanent 8000 rpm	momentary 8000 rpm permanent 6000 rpm
Max. load on shaft	100 N (radial) - 100 N (axial)	30 N (radial) - 30 N (axial)
Shaft (diameter A x length L) mm	$\phi 6 \times 10$ - $\phi 8 \times 20$ - $\phi 9.52 \times 20$ - $\phi 10 \times 20$ others on request	$\phi 6$ h7 - $\phi 8$ h7
Protection class	IP65 (standard) * IP67 (optional)	IP65 (standard) * IP67 (optional)
Operating temperature	0 + 70°C	0 + 70°C
Storage temperature	-20 + 80°C	-20 + 80°C
Humidity	20 + 90% (not condensed)	20 + 90% (not condensed)
Power supply	5 V $\pm$ 5% 5 + 28 V $\pm$ 5%	5 + 28V $\pm$ 10%
Max. consumption at	5V (with no load) 25 mA	5V - 40 mA
Max. output current (each channel)	30 mA	40 mA 70 mA
Max. frequency	300 kHz	120 kHz
Output	Push-Pull / Line Driver Open	Push-Pull / Line Driver Open
Standard length of cable	1 m	1 m
Electrical connections	see rel. table	see rel. table
Electrical protection	inversion of power supply polarity and short-circuits on output port	inversion of power supply polarity and short-circuits on output port
Weight	(according to model) 280 + 340 g	80 g

Model	AEN 500
Resolution	360 / 720 cpr 10-17 Bit Singleturn 12 Bit Multiturn
Max. rotating speed momentary	12000 rpm continuous 10000 rpm
Centering (mm)	$\phi 50$
Max. shaft load	40 N (axial) - 60 N (radial)
Shaft diameter (mm)	$\phi 6$ others on request
Operating temperature	0 °C + 70 °C others on request
Storage temperature	-25 °C + 85 °C
Vibration resistance	(EN 60068-2-6) 100 m/s <sup>2</sup> (10 + 2000 Hz)
Shock resistance	(EN 60068-2-27) 1000 m/s <sup>2</sup> (6 ms)
Protection class (EN 60529)	IP 64 standard IP 67 optional
Torque	0.01 Nm
Moment of inertia	3.8 x 10 <sup>-6</sup> kgm <sup>2</sup>
Power supply	10 + 30 V or 5 V $\pm$ 10%
Current consumption	100 mA (ST), 150 mA (MT), 250 mA (SP)
Protocol	BiSS, SSI (with or without SinCos 1 Vpp)
Output code	Binary, Gray
Electrical connections	see related table
Weight	260 g (ST), 310 g (MT)

# DIGITAL READOUTS

## TECHNICAL SPECIFICATIONS OF DRO SYSTEMS



VISION 518



VISION 700 N/L



VISION 900

Model	VISION 518 1 display - 1 input	VISION 700 N/L	VISION 900
Display	8 high-efficiency digits h = 13 mm	7 high-efficiency digits h = 17 mm	5.7" color, LED-backlit LCD TFT
Incremental encoder input signals	2 square waves with phase displacement of 90° ± 5° and zero reference 5 Vdc or 12 Vdc (TERMINAL BOARD) 250 mA MAX	2 square waves, phase displacement 90° ± 5° + synchronized index 05 Vdc	2 square waves with phase displacement of 90° ± 5° + synchronized index 5 Vdc Total encoder current consumption: 750 mA MAX
Maximum input frequency	250 kHz MAX	300 kHz	300 kHz
Power supply	230 Vac ± 10% - 50/60 Hz / 110 Vac ± 10% - 60 Hz / 24 Vac ± 10% - 50/60 Hz		
Current consumption	40 mA MAX (230 Vac) / 80 mA MAX (110 Vac) / 350 mAMAX (24 Vac)	50 mA MAX (230 Vac) / 100 mA MAX (110 Vac) / 450 mA MAX (24 Vac)	60 mA MAX (230 Vac) / 120 mA MAX (110 Vac) / 500 mA MAX (24 Vac)
Linear resolution	200 - 100 - 50 - 20 - 10 - 5 - 2 - 1 - 0.5 μm	200 - 100 - 50 - 20 - 10 - 5 - 2 - 1 - 0.5 μm	1000 - 500 - 200 - 100 - 50 - 20 - 10 - 5 - 2 - 1 - 0.5 - 0.2 - 0.1 μm
Angular resolution	1° - 0.5° - 0.2° - 0.1° - 0.05° - 0.02° - 0.01° - 0.005° - 0.002° - 0.001°		
Operating temperature	0 °C + 50 °C		
Storage temperature	-20 °C + 70 °C		
Weight	450 g	1kg	1120kg
Options	UR2 - RELAY OUTPUTS	RS-232	CAN interface for Rb900
Scale Zero Reference	S - SERIAL OUTPUT RS-232 SSI - ABSOLUTE (SSI) ENCODER INPUT		USB, Touch Probe, CAN bus and serial RS-232 interfaces
Memory	Zero ref. Input Signal	Zero ref. Input Signal	Zero ref. Input Signal
Dimensions	permanent for configuration and user settings (last data operating memory) Front Panel 92x45 mm. Depth: 140mm	SignalStatic Memory 48 h backup Front Panel 274x190 mm. Depth: 78mm	permanent for configuration and special functions Front Panel 271x187 mm. Depth: 120mm

## VI518 VERSION WITH OPTIONS (ABSOLUTE)

Model VI 518	
DISPLAY	8 high-efficiency digits h = 13 mm
SIGNAL INPUT	2 square waves out of phase 90° ± 5° and zero ref. 5 Vdc or 12 Vdc
POWER SUPPLY	230 Vac ± 10% - 50/60 Hz 30 mA 110 Vac ± 10% - 60 Hz 60 mA 24 Vac ± 10% - 50/60 Hz 300 m
A CLOCK FREQUENCY	125 / 250 / 500 kHz
Number of position bits	8-32 bit
Output code	Binary, Gray
Optional bits	Parity bit, Error bit



VI518 VERSION WITH OPTIONS (ABSOLUTE)

# BATTERY POWERED DIGITAL READOUT WITH MAGNETIC SENSOR



Model : VISION VI110L 1 display LCD - 1 input

- One-axis digital readout, with 6 ½ digit LCD display and negative sign.
- Fixing of magnetic sensor by existing threaded holes M4, or by M3 through screws.
- Power supply either via battery or external.
- Flexible cable max. length 4 m.
- Wide alignment tolerances.
- Several user-friendly functions available.
- Metal sensor body of small overall dimensions.
- Digital readout body of standard dimensions and front of bigger size, for mounting on panel with drilling template 92x66 mm, or adjustable for standard drilling template (92x44 mm).
- To be used with magnetic band MP200 or Mp100.

## MECHANICAL AND ELECTRICAL CHARACTERISTICS

Display	LCD 6 ½ digit h = 13 mm
Input signals	from magnetic sensor
Max. counting speed	4 m/sec
Power supply	3 V (2 AA batteries) - average current consumption 1mA external 1.5 + 5 V
Linear resolution	1 - 0.1 - 0.05 - 0.01 mm programmable
	0.01 - 0.001 - 1/16 - 1/32 - 1/64 inch programmable
Angular resolution	1 - 0.1 - 0.01 - 0.001° (0/1/2/3 decimals) programmable

## POSITION CONTROLLERS

### GENERAL FEATURES

- Compact designed Position Controller
- **Advanced** Technology with 16bit microcontroller, 256K flash & 8K RAM - fully programmable.
- Universal Module for all applications.
- Relay outputs in DI series



THESI 310



THESI 320

## COMPANY | PRODUCTION

## SUPPORT

Precision  
Instruments

0,0004  $\mu\text{m}$   
0,0003  $\mu\text{m}$   
0,0002  $\mu\text{m}$   
0,0001  $\mu\text{m}$

Keep in  
Touch!



SERVICE  
 WARRANTY

## GIVI MISURE PVT. LTD.

Plot No 488, VITC Export Bhavan KIADB COMPLEX,  
14th Cross, IV Phase Peenya Industrial Area,  
Bangalore - 560058.

Phone: 080-41272559 | 080-41171374

Cell: +91 99000 28661

GSTIN:29AABCG9052A1ZT

info@givimisureindia.com admin@givimisureindia.com

Website : [www.givimisureindia.com](http://www.givimisureindia.com)

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