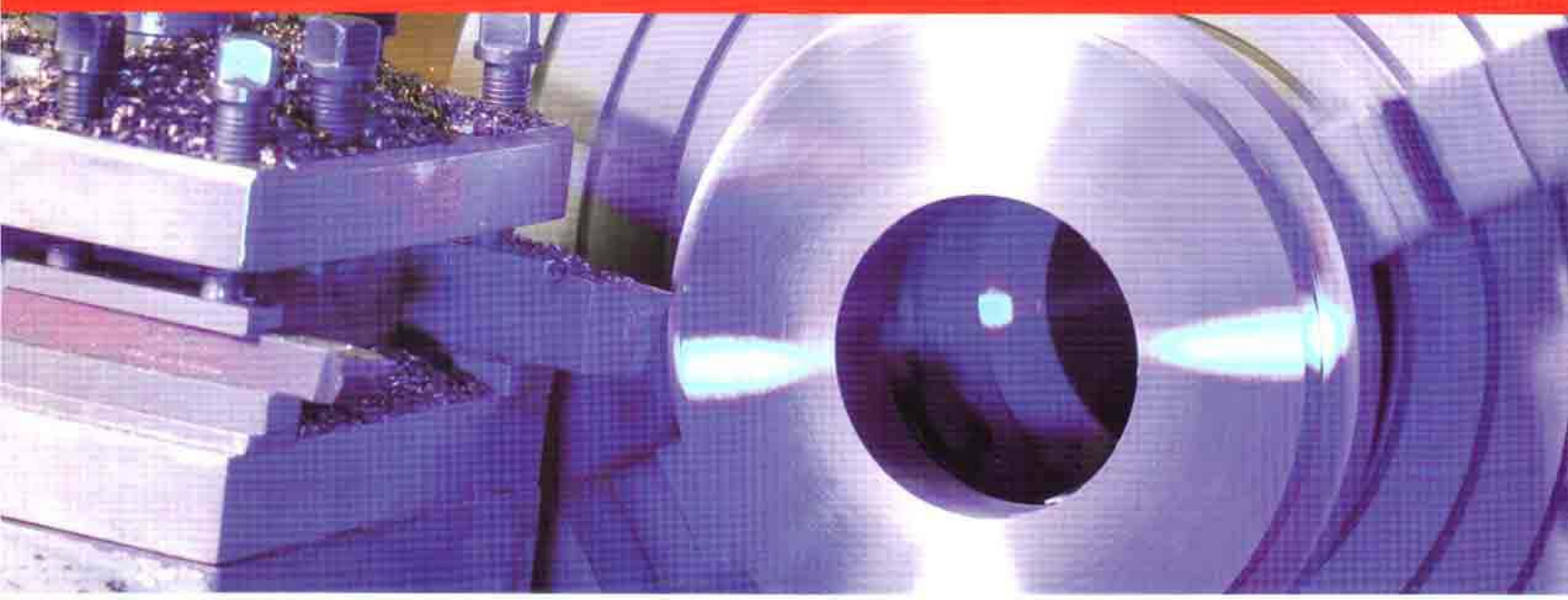
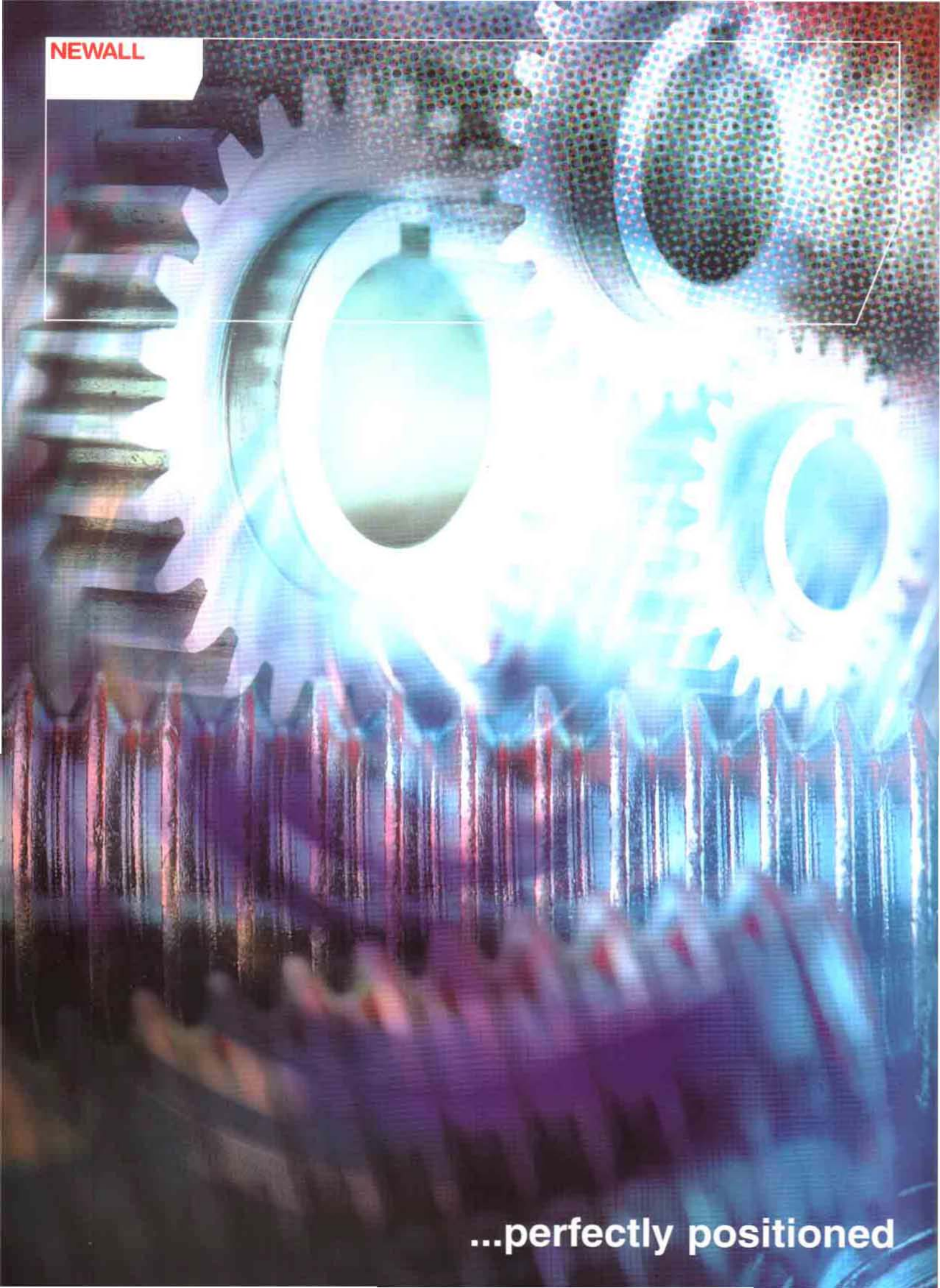
NEWALL



Digital Readout Systems

a company of Schneider Electric


NEWALL
...perfectly positioned

Company Profile

NEWALL

Newall was founded in Peterborough, England in 1968 and is now a division of CST (Custom Sensors & Technologies), a business unit of Schneider Electric. During this time, Newall has dedicated itself to providing the automation, machine tool and other machinery and production industries with leading edge technologies that increase productivity and machine tool efficiency. Newall is BS EN ISO 9001:2000 accredited.

Over the years Newall has grown to be a well respected leader in Digital Readout (DRO) and Linear Encoder technology. The Linear Encoder range is available with a variety of outputs some of which are proprietary for use with the Newall range of DROs. Other ranges available include Absolute, Incremental or Distance-Coded versions, all of which are IP67 (NEMA 6) rated, withstanding dust, dirt, oil and other harsh environmental conditions. Refer to the Linear Encoder brochure for more information on this range.

Digital Readout Systems

Newall's world renowned range of Digital Readout Systems (DROs) are specifically designed and dedicated to increasing machine productivity. Together with the Spherosyn™, Microsyn™ and DSG Linear Encoder and Scales, they have developed to become some of the most advanced and reliable market-leading DRO systems available today. Whether you are looking for single or multi-axis, lathe or mill specific, constant surface speed or advanced options, Newall will have the DRO package which is right for you and your organisation.

Research, development & service

Pushing the boundaries, Newall's research and development team continue to enhance product design and specification. This, together with a continuous program of introducing new technologies to its range, aims to meet the demands of ever increasing productivity and application evolution.

Newall has distribution and service outlets in over 63 countries, fully supported by trained sales and service personnel and subsidiary offices.

High accuracy Linear Encoder & Scales for Newall's Digital Readout Systems

The Newall Advantage

Newall's Linear Encoders and Scales offer consistent accuracy – even under the harshest shop conditions. Unlike traditional linear encoder and scales, Spherosyn™, Microsyn™ and DSG encoders embody a truly innovative design in which all of the electronic and measuring components are sealed and protected.

Maximise on the productivity of your machine

The encoders carry an IP67 (NEMA 6) environmental rating and continue to provide accurate and reliable readings even when submerged in water, oil and coolant. The scale requires no regular cleaning, saving you in maintenance costs alone. When used in conjunction with our digital readout systems, we are confident that you will reap the benefits of Newall's scale technology.

Encoder Benefits

- IP67 (NEMA 6)
- Withstands dust, swarf, oil and other environmental conditions
- No mechanical wear characteristics
- Requires no cleaning or maintenance
- High tolerance to shock and vibration
- High reliability (MTBF)

NEWALL ENCODERS PERFORM UNDER THE HARSHEST SHOP CONDITIONS

IP67 rating

Ingress Protection relates to sealing against the entry of solid and liquid objects. This classification system provides a convenient and reliable method of comparing relative levels of sealing between competing products.

IP67 rating indicates that the product is dust tight and protected against the effects of total water immersion up to 1m.

Robust stainless steel scales means no more broken or scratched glass

Newall's scales are constructed of stainless steel and carbon fibre therefore removing the prospect of broken or scratched glass. The scales do not require air purge as required by some glass scale installations.

No mechanical wear characteristics

Providing high reliability, thus minimising machine downtime.

Withstand dust, dirt, oil and other environmental conditions

A common complaint of glass scales is contamination. The problem increases over time due to wear and material fatigue of the flexing sealing lips, potentially causing machine breakdown. Glass scales should also be kept clear of water and oil. Newall's scales are made from stainless steel or carbon fibre and are IP67 rated meaning that they are dust tight and can withstand the effects of common shop floor hazards such as dust, dirt and oil.

Require no cleaning or maintenance – just fit and forget!

The Newall scales require no scheduled or reactive cleaning to replace worn or perished sealing lips. The design of the Newall scale ensures that minimum maintenance is required once the product has been installed.

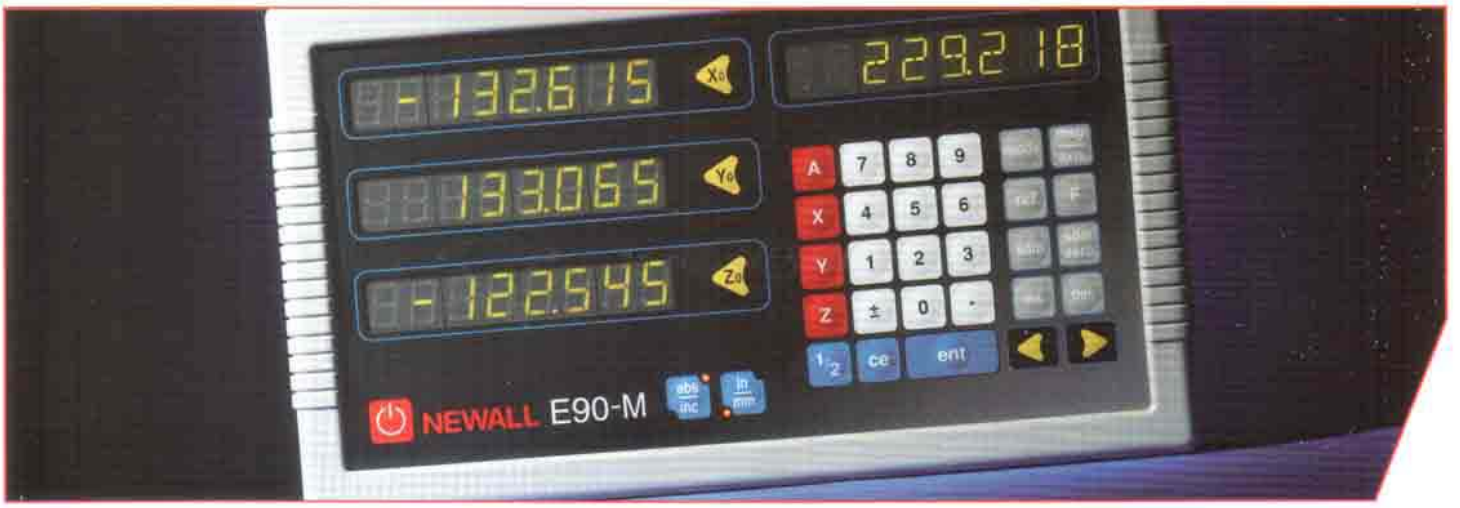
High tolerance to shock and vibration

Newall's encoders and scales have no limited mechanical life components such as bearings or springs and the electronic components are completely secured within the reader head ensuring a high level of tolerance to shock and vibration. This results in high reliability and minimising machine downtime from the encoder and scales.

High accuracy Linear Encoder & Scales for Newall's Digital Readout Systems

	Spherosyn™	Microsyn™ 10	Microsyn™ 5	DSG-TT/VM/VV
Environmental	IP67 (NEMA 6)			
Accuracy	+/- 10µm	+/- 10µm	+/- 5µm	+/- 10µm
	(+/- 0.0004 in.)	(+/- 0.0004 in.)	(+/- 0.0002 in.)	(+/- 0.0004 in.)
Repeatability	Within one resolution count	Within one resolution count	Within one resolution count	Within one resolution count
Display Resolution	5, 10, 20, 50µm	5, 10, 20, 50µm	1, 2, 5, 10µm	5, 10, 20, 50µm
	0.0002, 0.0004, 0.0008, 0.002in.	0.0002, 0.0004, 0.0008, 0.002in.	0.00004, 0.00008, 0.0002, 0.004in.	0.0002, 0.0004, 0.0008, 0.002in.
Scale Travels	50mm to 12040mm	50mm to 1000mm		50mm to 12040mm
	2in to 474in	2in to 39.4in		2in to 474in
Reader Head Dimensions	52 x 131 x 28mm	35 x 75 x 18mm		52 x 131 x 28mm
	(2.04 x 5.16 x 1.10in)	(1.38 x 2.95 x 0.70in)		(2.04 x 5.16 x 1.10in)
Scale Diameter - Material	15.25mm (0.601in)	6.5mm (0.257in)		15.25mm (0.601in)
	Stainless steel	Carbon fibre		Stainless steel
Overall Scale Length	Scale travel + 258mm (10.2in)	Scale travel + 178mm (7in)		Scale travel + 258mm (10.2in)
Overall Cable Length	3.5m Stainless steel armoured (1, 2, 3.5, 5, 10m extension cables available)			
Output	Proprietary to Newall			TT - TTL RS422 VM - 11µA VV - 1Vpp

The Spherosyn™ and Microsyn™ range of Linear Encoders are for exclusive use with Newall's range of Digital Readout Systems. The DSG-TT Linear Encoder can be used with DRO's featuring a standard TTL input, making Newall's scale technology available for retrofitting on most competitor DRO's, subject to connector/pin configuration compatibility. A comprehensive range of Linear Encoders with industrial standard outputs are also available. Please refer to the Linear Encoder brochure for full details.



Newall's E-Series Digital Readout Systems utilise an innovative and unique design. The DRO and the supporting electronics have been separated, allowing the Digital Sending Unit (DSU) to be mounted anywhere on the machine, thus minimising cable routing and installation time.

E90 Mill Digital Readout

The E90 has up to 3 linear axes and one rotary axis.

Linear Functions:

- Absolute/Incremental operation
- Inch/Metric converstion
- Zero approach warning
- Zero reset/data preset
- Data recall
- Data hold
- Radius/Diameter readings
- Centre find
- Home reference
- Linear error compensation
- Segmented error compensation
- Memory back-up
- Self diagnostics
- Encoder failure alert
- Switchable resolution by axis
- Sleep mode
- Language options (see opposite)
- Bolt hole circle (PCD)
- Arc contouring
- Programmable history
- Line hole
- Polar co-ordinates

Rotary Functions:

- TTL RS422 5V Rotary encoder input
- 4MHz Count rate (3,333RPM @ 18,000 line count)
- Selectable D.M.S (Degrees, Minutes, Seconds) or decimal degrees
- Resolutions to 0.00001 degrees
- Encoder or external reference capability
- Reference load capability (datum shift)
- Automatic rotary setup
- Angular error compensation
- Programmable encoder line count
- Absolute and incremental modes

DSU (Digital Sending Unit)

The encoders for the E90, along with the incoming power supply, are connected to the DSU. A standard 3m (118in) cable is then connected from the DSU to the back of the E90 display. Extended cable lengths are also available.

E70 Mill and Lathe Digital Readouts

The E70 has two versions, mill and lathe, and is available in 2 or 3-axes configurations with a host of standard features and optional auxiliary output capability.

Standard Features

- Absolute/Incremental operation
- Inch/Metric conversion
- Zero approach warning
- Zero reset/data preset
- Data recall/data hold
- Radius/Diameter readings
- Centre find
- Home reference
- Linear/Segmented error compensation
- Memory back up
- Self diagnostics
- Encoder failure alert
- Programmable memory
- Sleep mode
- Digifind

Language options include:

- English (standard)
- Turkish
- Czech
- Danish
- German
- Spanish
- Italian

Mill Features

- Bolt hole circle (PCD)
- Arc contouring
- Line holes
- Polar coordinates
- 199 Programmable memory positions

Lathe Features

- 99 Tool offsets
- Taper calculations
- Axis vectoring/summing (3-axes only)
- 99 Programmable memory positions

DSU (Digital Sending Unit)

The encoders for the E70, along with the incoming power supply, are connected to the DSU. A standard 3m (118in) cable is then connected from the DSU to the back of the E70 display. Extended cable lengths are also available.

C80 Digital Readout

The C80 is a powerful yet affordable DRO that sets the standard for performance, value and ease of use. Simple to use yet packed with features, the C80 includes a full complement of productivity enhancing features. The innovative design allows the operator to easily configure the unit for either mill or lathe specific features. In addition the C80 includes a feed rate display that allows for longer tool life and increased cutting tool performance.

The C80 is truly a remarkable DRO that offers unprecedented value.

The C80 is available in both 2 and 3-axes configurations.

Features

- Feed rate display[1/2]
- Bolt hole circle (PCD)
- Arc contouring[1]
- Programmable memory[1/2]
- Polar coordinates[1]
- Line hole calculator[1]
- 99 Tool offsets[2]
- Taper calculations[2]
- Axis vectoring/summing[2]
- Rugged die-cast housing

Note:

[1] Mill specific features

[2] Lathe specific features

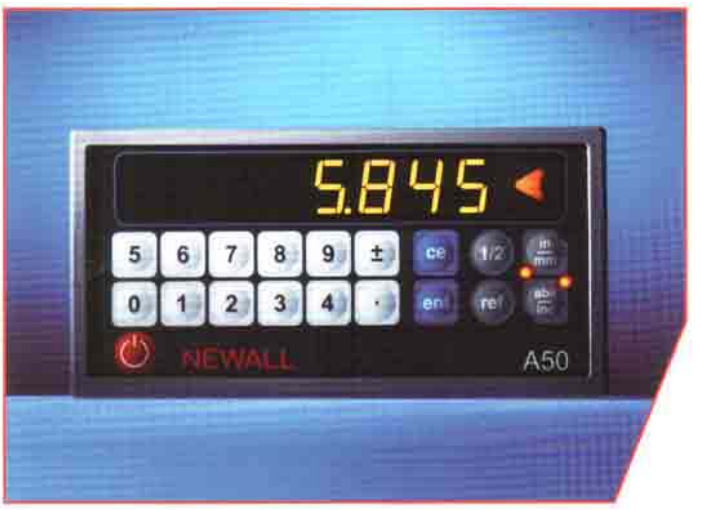
C80 CSS Digital Readout

Designed for the Lathe OEM requiring Constant Surface Speed (CSS), the C80 CSS provides the machine tool designer with all of the features for compliance with the latest European satefy standard. Available in 2 or 3-axes configurations, the OEM package includes the Interface Panel Hardware that is connected to the DRO through an RS232 cable ensuring ease of integration.

The C80 CSS conforms to EN 12840:2001 Safety of Machine Tools - manually controlled turning machines with or without automatic control.

CSS Features

- Constant surface speed
- Zero reset/data preset
- Segmented/Linear error compensation
- Radius/Diameter
- Zero approach
- Axis summing
- 99 Tool offsets
- Provides all of the features for compliance with the latest safety standards



B60 Digital Readout

Framed in a rugged die-cast housing, the B60 DRO is well suited for all types of general machining applications. The B60 is available in 2 or 3-axes configurations and includes a host of features.

Features

- Absolute/Incremental operation
- Inch/Metric conversion
- Zero approach warning
- Zero reset/data preset
- Data recall
- Data hold
- Radius/Diameter readings
- Centre find
- Home reference
- Linear error compensation
- Memory backup
- 99 Tool offsets[2]
- Bolt hole circle[1]
- Switchable resolutions by axis
- Sleep mode

Note:

[1] Mill specific features

[2] Lathe specific features

A50 Digital Readout

The A50 is a single axis DRO which can be used for a wide range of linear measurement applications. The rugged construction ensures optimum capability to withstand machine tool applications.

The A50 can be mounted as a stand alone unit or panel mounted.

Features

- Absolute/Incremental operation
- Inch/Metric conversion
- Segmented/Linear error compensation
- Switchable resolutions
- Radius/Diameter readings
- Zero reset/data preset
- Self diagnostics
- Centre find
- Home reference

Digital readout systems for use with Linear Encoders with a TTL RS422 output

This range of Newall's Digital Readouts are for use with Linear and Rotary (SA100 only) Encoders which have a TTL RS422 output. A range of Newall encoders are available (DSG-TT, SHG-TT, MHG-TT and MAG-TS) which offer this output with the same accuracy and precision you would expect from the Newall range. Please refer to the Linear Encoder brochure for further information.

Ideal for the retrofit market, these readouts can also be used with other manufacturer's linear & rotary encoders which have a TTL RS422 output.

Topaz Digital Readout

The Topaz Digital has been designed for users requiring 2 or 3-axes. The Topaz Digital has a clear, easy to read LED digital display and offers a host of features.

Features

- Resolution selection for each axis in 1µm, 2µm, 5µm, 10µm, 20µm, or 50µm
- 99 Pitch Circle Diameter (PCD)/bolt hole circle
- 99 Tool offsets
- Absolute/Incremental operation
- Zero reset/data preset
- Linear error compensation
- Inch/Metric conversion
- Radius/Diameter readings
- Digifind
- Centre find

SA100 & SA100-R Digital Readout

The SA100 is a single axis DRO which can be used for a wide variety of applications. It is available in Linear (SA100) and Rotary (SA100-R) versions and can be supplied as a stand alone unit or with a panel mounting kit.

Features

- Absolute/Incremental operation
- Inch/Metric conversion
- Reference
- Scaleable display
- Compact DIN size (144 x 72mm)
- Linear error compensation
- Zero reset
- Panel mount kit option (part no. DSAKIT)

Product Feature Analysis

	E90	E70 Lathe	E70 Mill	C80	B60	A50	Topaz Digital	SA100 Linear	SA100R Rotary
Application	Milling & Turning	Turning, Boring & Grinding	Turning, Boring & Grinding	Milling or Turning Boring & Grinding	Milling & Turning	General Machining Grinding & Metrology	Milling & Turning	General Applications	Rotary Measurements
No. of Axes Available	2 or 3 Linear 1 Rotary	2 or 3	2 or 3	2 or 3	2 or 3	1	2 or 3	1	1
Display Resolution									
Spherosyn	5µm, 10µm, 20µm, 50µm						SHG, MHG, MAG Scale Resolutions 0.1µm, 0.2µm, 0.5µm, 1µm, 2µm, 5µm, 10µm		0.0001 to 0.01 Decimal Degrees or Degrees, Minutes & Seconds
Microsyn 10	5µm, 10µm, 20µm, 50µm								
Microsyn 5	1µm, 2µm, 5µm 10µm, 20µm	1µm, 2µm, 5µm, 10µm							
DSG-TT	Not Applicable						5µm, 10µm, 20µm, 50µm		
Absolute/Incremental	•	•	•	•	•	•	•	•	•
Inch/Metric	•	•	•	•	•	•	•	•	
Radius/Diameter	•	•	•	•	•	•	•		
Centre Find	•	•	•	•	•	•	•		
Zero Reset	•	•	•	•	•	•	•	•	•
Sleep Mode	•	•	•	•	•	•	•		
Linear Error Comp	•	•	•	•	•	•	•	•	
Segmented Error Compensation	99 Segments	99 Segments	99 Segments	99 Segments		99 Segments			
Memory Backup	•	•	•	•	•	•	•	•	•
Data Preset	•	•	•	•	•	•	•		
Digifind	•	•	•	•	•	•	•		
Self Diagnostics	•	•	•	•	•	•	•		
PCD Routine	•		•	•	Mill		Mill		
Line Hole Routine	•		•	•					
Axis Vectoring	•	3 Axis Only		3 Axis Only					
Axis Summing	Mill & Lathe	3 Axis Only		3 Axis Only					
Taper Calculations	•	•		•					
Zero Approach Warning	•	•	•	•					
Polar Coordinates	•		•	•					
Arc Contouring	•		•	•					
Programmable Memory Positions	•	•	•	•					
Tool Offsets	•	•		•	Lathe		Lathe		
Encoder Failure Alert	•								
Auxiliary Output		•	•						
Language Options	•	•	•						
Rotary Encoder Input	RS422 5V								
Dimensions (mm)	170x295x30			265x180x50	140x240x80	71x142x71	140x240x80	71x142x71	
Weight (kg)	2.0	2.1		2.9	2.5	0.55	2.5	0.5	
Voltage	9 - 265	115 - 230							
Operating Temp.	0° - 45°C								
Storage Temp.	-20° - 60°C								

• Standard feature

NEWALL

Digital Readout Systems

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