MAGNESCALE

high performance counter for milling machines and lathes

Series LH70, LH71

Key-Features:

- Counter for milling machines and lathes
- Display resolution switching
- Input signal: A/B quadrature
- Machine error compensation
- Models with 1, 2, or 3 axis
- Reset, Preset, Restart
- Data storage
- Scaling function (only LH71)
- Detecting reference point of measuring unit
- Program function

Content:

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TECHNICAL DATA MAGNESCALE

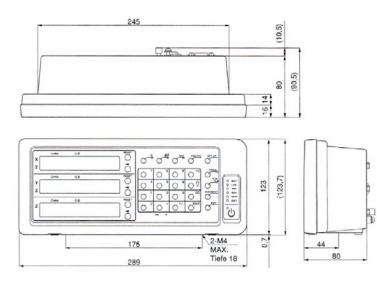|	
Display	7 digits and minus display, color amber
Connectable measuring units	Series GB-ER, SJ300, SJ700A, reading head PL20C, DK digital gauge series (with cable CE29)
Measuring unit input resolution	Standard: 0.1 μm, 0.5 μm, 1 μm, 5 μm, 10 μm, 1 s, 10 s, 1 min, 10 min Expanded: 100 μm, 50 μm, 25 μm, 20 μm, 2 μm, 0.05 μm, 1 degree
Input signal	A/B quadrature signal, Z signal, TTL (according to RS422)
Min. input phase difference	100 ns
Quantization error	±1 count
Alarm display	yes
Preset	It is possible to store / call 3 kind of numbers
Data storage	The value displayed before the power was turned off and setting values are stored
Linear error compensation	A fixed compensation is applied to the measuring unit's count value. Compensation amount: ±600 μm/m (expanded: ±1000)
Power supply	12 DCV, rating 0,75 A max. 1 A / 100 - 240 VAC ±10% (when using AC adapter, which is sold separately)
Power consumption	max. 32 VA (connected at AC power supply)
Working temperature	0...+40 °C
Storage temperature	-20...+60 °C
Weight	approx. 1.5 kg

**When the LH70/71 general purpose applications or milling machine function are selected
(General setting in the model type selection mode of the basics settings)**
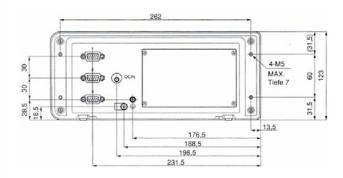
	LH70-1	LH71-1	LH70-2	LH71-2	LH70-3	LH71-3
Number of axes	1		2		3	
Multi datum point	10	150	10	150	10	150
Bolt hole circle	-	-	Displays coordinates for opening equidistant holes along the perimeter of a designated diameter			
Simple R cutting	-	-	Displays coordinates for simple R cutting			
Line hole	-	-	Displays coordinates for opening equidistant holes along a designated straight line (LH71 only)			

When the LH70/71 lathe function is selected (Lathe setting in the model type selection mode of the basics settings)

	LH70-3	LH71-3
Number of axes	2 (2 or 3 axis input)	
Tool offset	12	99
Measuring unit input addition	2 axis addition display is available	
Display hold	The displayed value can be held and the tool coordinate entered	

TECHNICAL DRAWING MAGNESCALE

FEATURES LH70, LH71

Display resolution switching

The display resolution can be selected from: linear 0.1 µm to 10 µm and diameter display. Angles: 1 second to 10 minutes

The correct setting depends on the used scale and is shown in the table below:

	Resolution	Connection
Series GB-ER	0.5 µm	directly
Series SJ300	1 µm	directly
Series SJ700A	5 µm	directly
Series PL20C	10 µm	directly
Series DK	max. 0.1 µm	by cable CE29 (sold separately)

Machine error compensation

The LH70/71 compensates errors arising from the inclination or deflection of a machine tool and displays the actual displacement of the machine.
Thus the displayed value accords with the actual displacement of the work piece to achieve high-accuracy positioning and restoration of machine tool accuracy.
(Linear compensation for LH70 and LH71. Segmented error compensation only for LH71).

Preset

Each axis can have up to three preset values.
This is useful when setting multiple preset values.

Measuring Unit Reference Point Detection function

Combining with a measuring unit with a built-in reference point makes it possible to detect the measuring unit reference point at all times
This can be used as the reference point for machining.
You can also freely set the amount of reference point offset and easily reproduce it, which makes reference point setting an a boring machine
and the like very effective.

Multiple Datum Point function.

You can keep a number of preset ABS coordinate datum points in memory (10 for the LH70, 150 for the LH71)

Data storage function

Data on display and preset data are held automatically.
Therefore, data is retained even after power is turned off or in case of a temporary power outage.

Flicker control

This reduces noticeable display flicker in cases such as when a high-resolution measuring unit is connected or when the measuring system is exposed to large vibrations.

Alarm display

In the following cases the alarm will be activated and the display will show an error message (exact description in the manual):
- measuring unit disconnected
- displacement speed too high
- maximum display amount exceeded
- power failure
- error in stored data

Milling Machine, Lathe

The basic settings can be used to select milling machine (general purpose) function and lathe function.
Make the settings to match your operating environment. Please see the manual, Part 5 for the setting procedure.

Milling Machine: Canned cycle (2- and 3-axis models only):
- Bolt hole circle: Bolt hole positions are calculated and displayed by inputting the diameter and number of holes.
- Simple R cutting: The arc cutting positions are calculated and displayed by inputting the radius, tool bore, feed angle and other data.
- Line hole: Entering the start angle, number of holes and hole pitch causes the unit to calculate and display the position of line holes.

Lathe (3-axis model only)
- Tool coordinating: The provided number of coordinates can be set as tool coordinates and the coordinate of any cutting tool can be retrieved
  with a tool number (99 coordinates).
- Adding: The sum of the reading from the measuring unit mounted on the lathe's cutting tool holder and the reading from the measuring unit mounted
  on the carriage can be displayed to show the exact position of the cutting edge of the tool.

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FEATURES LH71 ONLY

Program

Write Program mode:
- This lets you manually enter a program in the Edit mode.
- Playback program: The program is created with the content of actual machining.

Run Program Mode:
- Machining procedures are displayed for each stage.
- The Mirror Image function flips the data polarity for each axis.

Digiruler Easy Angle Display function

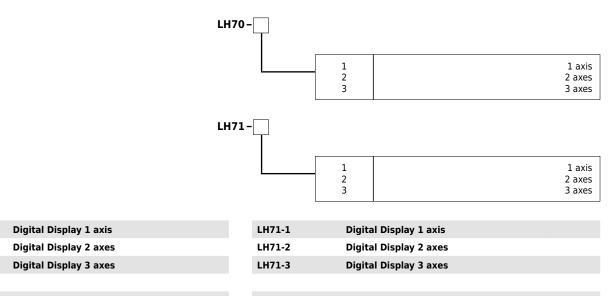You can easily display the angle by pasting the Digiruler on an arc.

Scaling

The counter can count the actual moving distance on an enlarged or reduced scale using any multiplier within the setting range.
This can compensate for shrinkage of resin, etc. when making dies, or convert product dimensions to die dimensions.

ORDER CODE

LH70 – ☐

1	1 axis
2	2 axes
3	3 axes

LH71 – ☐

1	1 axis
2	2 axes
3	3 axes

LH70-1	**Digital Display 1 axis**
LG70-2	**Digital Display 2 axes**
LG70-3	**Digital Display 3 axes**

LH71-1	**Digital Display 1 axis**
LH71-2	**Digital Display 2 axes**
LH71-3	**Digital Display 3 axes**

Power supply for displays

PC23

Subject to change without prior notice.