

Mahr

DO YOU WANT TO AIM EVEN HIGHER? FOR THIS THERE IS DIGIMAR.



▶ I Mahr offers you a complete range of products in order for you to obtain the most reliable solution for all your measuring tasks. Whether it's simply scribing a work piece or complex measurements in two dimensions - Digimar Height Measuring Instruments guarantee a maximum of both flexibility and quality. Our motorized Height Measuring Instruments Digimar 817 CLM and 816 CL exceed all customer requirements; they are simple to operate, all the basic functions can be executed with a single key as well as offering a maximum of ease and accuracy.

▶ | Digimar. Height Measuring Instruments

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Digimar. Height Measuring Instruments **OVERVIEW**



^{*} At 20°C in conjunction with a base plate in accordance to DIN 876/0 and a standard probe K6/51

Digimar 816 CL	D igimar l	M 814 N	Digimar	M 814 G	Digima	r 814 SR
Digimar 816 Ct.)				
2-8 2-8	2-16	2-16	2-17	2-17	2-19	2-19
0-350 / 0-14" 0-600 / 0-24"						
520 / 20.47" 770 / 30.31"						
2.8+L/300 (L in mm)	20	30	20	30	40	50
• •	•	•	•	•	•	•
• •						
	•	•	•	•	•	•
•	•	•	•	•		
•	•	•	•	•		
	•	•	•	•		
1 1						
• •						
• •						
USB / RS232	Opto F	RS232	Opto	RS232	USB / RS23	2 / Digimatic
4429030 4429031	4426540	4426542	4426541	4426543	4426100	4426101



Digimar 817 CLM Quick Height

▶ I The new Height Measuring Instrument **Digimar** 817 CLM with the innovative Quick Mode. Highly accurate rapid measurements, a wide range of measuring and evaluation options and excellent operator comfort.

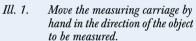
The best solution for all measuring tasks



Fast measurement per hand

Easy to operate due to the "Quick Mode"; an innovative solution from Mahr (patented).







Ill. 2. The motor starts, the measurement procedure will automatically be performed.

Measurement using the keypad (speed keys) on the base







Ideal in conjunction with the air bearings for large work pieces.

By using the keys that are integrated into the base; the operator can comfortably move the measuring carriage into the desired position and start a measurement. This eases measurement particularly when measuring large workpieces as these do not have to be moved into position. The operator can keep both hands on the measuring instrument (one hand on the key for the air bearing and other on the high-speed keys) and measure the workpiece in one run.



Highest accuracy and reliability

- Extremely accurate incremental measuring system with double reader head system, insensitive to the contamination of dirt
- Robust guide column, made from stainless steel
- Measuring head in precision ball bearings guide
- Temperature compensation with an integrated temperature sensor





Ergonomic operating and display unit



 The display unit can be positioned freely with the swivel arm



- Large, back-lit display
- Self-explanatory guided operation with icons



Easy to operate all measurement functions with the function keys due to the clearly defined symbols.

Universal measurement possibilities

- Wide range of measurement functions in 1D or 2D
- Dynamic measurement functions with the analog display
- Automatic perpendicularity and straightness measurements (in conjunction with accessories)
- Automated measuring procedures (measurement programs)
- Auto function for chain measurements and distance measurements













Extensive evaluation possibilities

- Transmit data to a PC via RS232 or USB (with an adapter) for example into MS Excel via the MarCom-Software
- Print measured values, statistics, etc. via a USB printer
- Save measued values in the integrated USB memory (will be recognized by a PC as an interchangeable disc drive) or on a USB dongle
- Broad range of statistical evaluations are available











Height Measuring Instrument Digimar 817 CLM



Features

Measuring system

- Excellent accuracy and reliabilty due to the optical incremental measurement system with the double reader head
- Dynamic probing system enabling high repeatability
- Air bearings system for light and smooth movement
- Precise measuring head on stainless steel guideways
- Motorised measuring carriage simplifies measurement runs
- Probe constant remains after the instrument is switched off
- Integrated rechargeable battery with a long operating time span for mains independent measurement
- Temperature compensation with an integrated temperature sensor

Operating and display unit

- · Large and clearly defined function keys
- Easy to read background lit graphic LCD display
- Operator guidance with self-explanatory icons / pictograms
- Operator prompts and menus are available in several languages
- Possible to set additional zero points on a work piece
- RS232 and / or USB data output for further data processing
- Save measured data on the integrated USB memory or on a USB stick
- USB interface to connect a compatible USB printer
- Additional measuring instruments with Opto RS232-interface can be connected
- Secure the future due to software update potential
- Automatic Stand-by switch mode
- Selectable Auto-off function, without loss of measured values
- Supplied with:

Height Measuring Instrument incl. operating and display unit, Carrier 817h1, Probe K6/51, Setting block 817 eb, Operating instructions, Mains power adapter, USB cable and a Calibration certificate

Technical Data

Measuring range	mm /	350 / 14"	600 / 24"	1000 / 40"
Range of application	mm /	520 / 20.47"	770 / 30.31"	1170 / 46.06"
Resolution	mm	0.01	/ 0.005 / 0.001 / 0.0005 / 0	.0001
	inch	.001"/	.0005" / .0001" / .00005" /	'.00001 "
Measuring error*	μm		(1.8 + L/600), L in mm	
Repeatability	μm		0.5 (plane) 1 (bore)	
Perpendicularity error (elect. adjusted)	μm	frontal ≤5	frontal ≤6	frontal ≤10
Operating time of rechargeable battery	h		up to 12	
Measuring force	N		1.0 ± 0.2	
Permissible relative air humidity	%		65 (non condensed)	
Working temperature	°C / °F		$20 \pm 1 / 68 \pm 1.8$	
Operating temperature	°C / °F		10 40 / 50 104	
3-point air cushion, height	μm		ca. 9	
Measuring system		incr	emental scale with optical rea	ading
Total height	mm / <i>inch</i>	741 / 29.17"	985 / 38.78"	1392 / 54.80"
Base area (L x W)	mm / <i>inch</i>		240 x 250 / 9.45" x 9.84"	
Weight	kg / lbs	25 / 55.15	30 / 66.14	35 / 77.16
Order no.		4429010	4429011	4429012



Height Measuring Instrument Digimar 817 CLM

- Save measured values on the integrated USB memory or on a USB dongle

Operating and display unit



Operating and display unit		
Measurement		
One dimensional (1D)	↑ ^{1D}	•
Two dimensional (2D)		•
Measuring programs (automatic run)	PROG	40
Perpendicularity / straightness measurement		•
Flatness / parallel deviation (Max, Min)	$\overline{\gtrsim}$	•
Roundness / run-out deviation (Max-Min)	$\overline{\mathbf{x}}$	•
Measuring a taper		•
Evaluation		
- Statistics	STAT	•
- Transmit measured values to a PC via RS232	RSZBZC	•
- Print measured values and diagrams on a USB printer		•
- Print out statistical evaluations		•



Digimar 816 CL

▶ I The new Height Measuring Instrument **Digimar** 816 CL.

You want to obtain highly accurate measurement results without any complicated procedures? With the Digimar 816 CL you have the perfect partner for simple and accurate measurements both in the workshop or on the production line, just as you expect from Mahr! ✓

User-friendly operation...

- ...due to the
- Clearly displayed measured values
- Self-explanatory operator guidance



The operating and display unit has a background illuminated display.

Precise measuring results. . .

- . . . on the production line
- Robust design
- Measuring results independent of the user
- Reliable results even outside of the inspection room



Probe contact with the motorized measuring carriage.



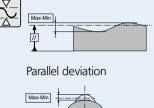
Temperature compensation with an integrated temperature sensor

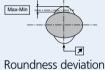


Versatile

The Height Measuring Instrument Digimar 816 CL offers numerous practical measuring and evaluation functions:

- Convenient standard measuring functions
- Dynamic measuring functions





• Wide range of options for data evaluation





The measuring program...

.. is essential for repetitive component measurement



- Repetitive measuring procedures can easily be automated
- Simply create a measuring program with the Teach-In-mode
- Complex procedures can be started by just pressing one key



Height Measuring Instrument Digimar 816 CL



* 20°C with surface base plate according to DIN 876/0 and standard probe K6/51

Features

Measuring system

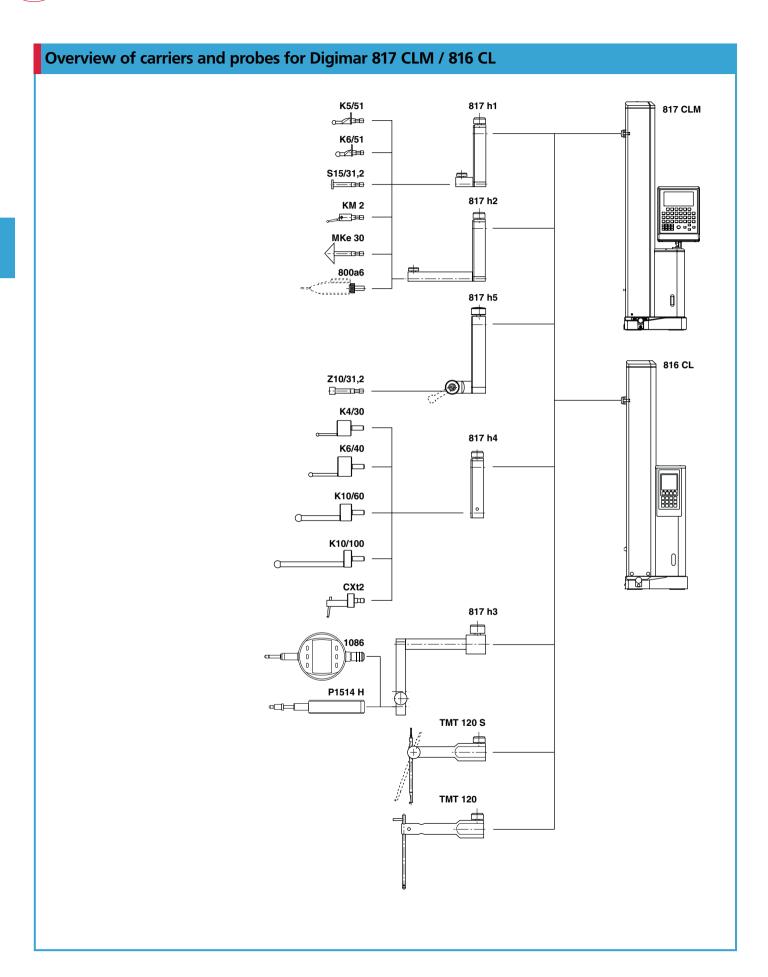
- Excellent accuracy and reliabilty due to the optical incremental measurement system with the double reader head
- Dynamic probing system enabling high repeatability
- Air bearings system for light and smooth movement
- Precise measuring head on stainless steel guideways
- Motorized measuring carriage simplifies measurement runs
- Temperature compensation with an integrated temperature sensor
- Probe constant remains after the instrument is switched off
- Integrated rechargeable battery with a long operating time for mains independent measurement

Operating and display unit

- Easy to read background lit graphic LCD display
- Large and clearly defined function keys
- Operator guidance with self-explanatory icons / pictograms
- Possible to set additional zero points on a work piece
- Memory can store up to 99 measured values
- MarConnect data output, select either:
- USB
- OPTO RS232C
- Supplied with:
 Height Measuring Instrument incl. operating and display unit,
 Carrier 817h1, Probe K6/51, Setting block 817 eb, Operating
 instructions, Mains power adapter and a Calibration certificate

Technical Data

Measuring range	mm / <i>inch</i>	350 / 14"	600 / 24"	
Range of application	mm /	540 / 21.26"	770 / 30.31"	
Resolution	mm (inch)	0.01 / 0.001 (.0	0001" / .00005")	
Measuring error*	μm	(2.8+L/30	00), L in mm	
Repeatability	μm	2 (plane	e) 3 (bore)	
Perpendicularity error (mech.)	μm	frontal ≤15	frontal ≤20	
Operating time of rechargeable battery	h	up	to 14	
Measuring force	N	1.0	± 0.2	
Permissible relative air humidity	%	65 (non	condensed)	
Working temperature	°C / °F	20 ±1 / 68 ±1.8		
Operating temperature	°C / °F	10 40	/ 50 104	
3-point air cushion, height	μm		a. 9	
Measuring system		incremental scale	with optical reading	
Total height	mm / inch	741 / 29.17"	985 / 38.78"	
Base area (L x W)	mm /	240 x 250 / 9.45" x 9.84"		
Weight	kg / lbs	25 / 55.15	30 / 66.14	
Order no.		4429030	4429031	

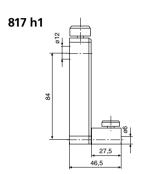


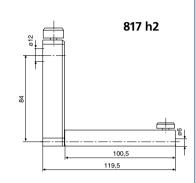


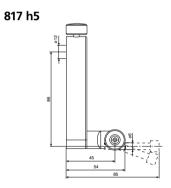
Accessories

Carrier for probes with mount dia. 6 mm					
Catalog no.	Description	Shaft length mm	Order no.		
817 h1	Carrier for a probe	27.5	4429154*		
817 h2	Carrier for a probe	100	4429219		
817 h5	Carrier with a joint for a probe	35	4429454		

^{*} Supplied with standard accessories







rotatable

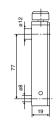
Catalog no.	Description	Order no.	K 5/51		K 6/51	
K5/51 K6/51 S15/31,2 Z10/31,2 MKe 30 KM 2	Spherical probe Spherical probe Disc probe Cylindrical probe Taper probe Probe M2 incl. styli 800 ts, dia. 2 mm Mounting shaft 800 a6 for MarTest	4429158 4429254* 4429226 4429227 4429228 4429256 4301865	S 15/31,2	2.8	MKe 30	17.7 24.2 g
* Supplied with	standard accessories		Z 10/31,2	8 31.2 0		
			KM 2	26 h8	800 a6	
				18,8 36,8 13,7	8	O MILLION



Accessories

Carrier for probes with mount dia. 8 mm Catalog no. Description Order no.

817 h4 Carrier for probes 4429220 817 h4



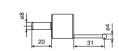
Probes with mount dia. 8 mm						
Catalog no.	Ball dia. D mm	Order no.				
K4/30 K6/40 K10/60 K10/100	4 6 10 10	7023813 7023816 7023810 7023615				

Universal probe CXt2 see page 2-14 The above Probes requires the Probe Carrier 4429220 in order to be used on either an 817 CLM or 816 CL

K 6/40



K 4/30



K 10/60



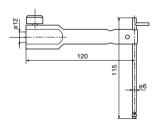
K 10/100



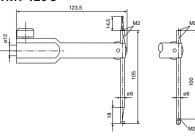
Depth probes

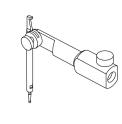
Catalog no.	Description	Order no.
TMT 120 TMT 120 S	Depth probe incl. carrier 2 depth probes incl. carrier (rotatable)	4429221 4429421

TMT 120





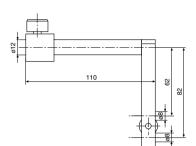






Accessories for checking perpendicularity

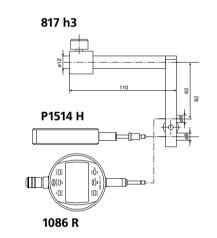
Catalog no. Description Order no. 817 h3 Carrier for transducers 4429206



817 h3

Transducers for checking perpendicularity				
Catalog no.	Description	Order no.		
P1514 H	Incremental probe, 12 mm incl. cable	4426810*		
1086 R	Digital indicator, 12.5 mm Resolution 0.001 mm / .00005"	4337620		
16 EXr	Data cable for digital indicator 1086 R	4102410*		

^{*} Only for Digimar 817 CLM



Accessories

Setting b	olocks		
Catalog n	o. Description	Order no.	817 eb
817 eb	Setting block	4429168*	

^{*} Supplied with standard accessories



16 EXr



Accessory sets for probes

Probe set	4429019	
817 h2 S15/31,2 Z10/31,2 MKe 30 TMT 120 KM 2	Carrying case for accessories Carrier for probes Disc probe Cylindrical probe Taper probe Depth probe incl. carrier Probe for MarTest styli M2	4429020 4429219 4429226 4429227 4429228 4429221 4429256
817 h4 K4/30 K6/40 K10/60 K10/100	Carrier for probes Spherical probe Spherical probe Spherical probe Spherical probe	4429220 7023813 7023816 7023810 7023615



817 ts1

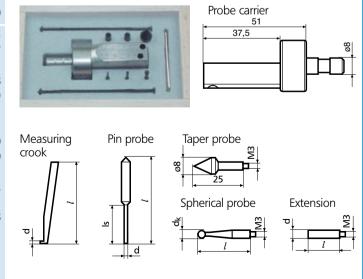
Probe set	4429018	
S15/31,2 Z10/31,2 MKe 30 TMT 120	Carrying case for accessories Carrier for probes Disc probe Cylindrical probe Taper probe Depth probe incl. carrier	4429020 4429219 4429226 4429227 4429228 4429221
KM 2	Probe for MarTest styli M2	4429256



817 ts2

Universal probe set	7034000		
Case			3015925
Probe carrier			3015917
	Dimension	Shaft length	
Measuring crook	d = 0.5 mm	l = 78 mm	3015918
Probe pin /tip:	dia. $d = 1.2 \text{ mm}$	l = 75 mm	3015919
		ls = 15.5 mm	
Taper probe	dia. $d = 0-7.5 \text{ mm}$		3015920
Spherical probe	TC dia. $dk = 3 \text{ mm}$	l = 24 mm	3022000
Spherical probe	TC dia. $dk = 2 \text{ mm}$	l=24 mm	3022001
Spherical probe	TC dia. $dk = 1 \text{ mm}$	l=24 mm	3022002
Extension M3 – M3	d = 4 mm	l=20 mm	3015921
Extension M3 – M2.5	d = 4 mm	l = 20 mm	3015888
T			

The above Probes requires the Probe Carrier 4429220 in order to be used on either an 817 CLM or 816 CL





Accessories for data transmission for 816 CL

Data connection cable

Order no.

Data connection cable 2000 usb 4346023

incl. MarCom Standard, USB (2 m)

Data connection cable 2000 r 4346020

Opto RS232C (2 m), with SUB-D jack 9-pin

Accessories for Data Processing see Chapter 11





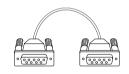


Accessories for data transmission for 817 CLM

Data connection cable

	Order no.
Data cable 817 CLM to a PC	7024634
Adapter cable RS232-USB for Digimar 817 CLM incl. MarCom Standard	4102333

Accessories for Data Processing see Chapter 11



7024634





Printer for 817 CLM

HP Ink jet printer

- Standard connectivity: USB compatible with USB 2.0 specifications
- Compatible operating systems: Microsoft® Windows® 98 SE, Me, 2000, XP, 7, 8
- Standard printer languages HP PCL 3



Similar to illustration

HP Ink jet printer 4429015



Height Measuring and Scribing Instrument Digimar 814 N Standard version









Applications

Ideal for measuring:

- Heights
- Center distances between bores and surfaces, widths of ledges, plus marking and scribing of workpieces

Features

With extra rugged, cast iron base with three-point support. To be used on base plates, machine beds and work piece surfaces. Conversion to a 814 G version is quick and easy at any time.

- High accuracy
- Incremental inductive measuring system
- · Measuring head with an ball bush guide
- Resistance free measuring system
- Large, easy to read digital display
- Measuring and display unit are incorporated in the measuring head
- Easy to operate due to the hand crank on the side of the measuring head
- Constant measuring force; acting upwards or downwards as
- Measuring head can be locked in position, ideal for scribing tasks
- With fine adjustment
- Data transmission via Opto RS232C interface
- Digital Preset
- Zero setting in any position
- MAX, MIN and MAX-MIN functions
- Enter tolerance limit for 1 characteristic
- Switch between mm/inch
- Mains independent due to being battery operated
- Universal application due to a broad range of accessories

Technical Data

Measuring range	mm / <i>inch</i>	320 / 12.6"		620 / 24.4"
Resolution	mm (inch)		0.01 / 0.001 (.0005" / .00005")	
Measuring error	μm	20 / .0008"		30 / .0012"
Repeatability	μm		5 / .0002"	
Perpendicularity error	μm	frontal 20 (300 mm)		frontal 30 (600 mm)
Operating time of the battery	h		2000	
Measuring force	N		ca. 3	
Working temperature	°C / °F		20 ±1 / 68 ±1.8	
Operating temperature	°C / °F		5 40 / 41 104	
Measuring system			inductive	
Total height	mm /	513 / 20.20"		813 / 32.01"
Cast iron base (L x W)	mm /	205 x 175 / 8.07" x 6.8 9	9" 2	05 x 175 / 8.07" x 6.89"
Weight	kg / lbs	6.2 / 13.22		10.5 / 23.15

Order no. 4426540 4426542

Height Measuring and Scribing Instrument Digimar 814 G Base plate version



Applications

Ideal for measuring:

- Heights
- Center distances between bores and surfaces, widths of ledges, plus marking and scribing of workpieces

Features

Table plate is made of fine grained black granite (greenstone) which is extremely hard and stable.

Conversion to a 814 N version is quick and easy at any time.

- High accuracy
- Incremental inductive measuring system
- Measuring head with an ball bush guide
- Resistance free measuring system
- Large, easy to read digital display
- Measuring and display unit are incorporated in the measuring head
- Easy to operate due to the hand crank on the side of the measuring head
- Constant measuring force; acting upwards or downwards as
- Measuring head can be locked in position, ideal for scribing tasks
- With fine adjustment
- Data transmission via Opto RS232C interface
- Digital Preset
- Zero setting in any position
- MAX, MIN and MAX-MIN functions
- Enter tolerance limit for 1 characteristic
- Switch between mm/inch
- Mains independent due to being battery operated
- Universal application due to a broad range of accessories

Technical Data

Measuring range	mm / <i>inch</i>	320 / 12.6"		620 / 24.4"
Resolution	mm (inch)		0.01 / 0.001 (.0005" / .00005")	
Measuring error	μm	20 / .0008"		30 / 0.0012"
Repeatability	μm		5 / .0002"	
Perpendicularity error	μm	frontal 20 (300 mm)		frontal 30 (600 mm)
Operating time of the battery	h		2000	
Measuring force	N		ca. 3	
Working temperature	°C / °F		20 ±1 / 68 ±1.8	
Operating temperature	°C / °F		5 40 / 41 104	
Measuring system			inductive	
Total height	mm / <i>inch</i>	558 / 21.97"		858 / 33.78"
Granite plate (L x W)	mm /		200 x 300 / 7.87" x 11.81"	
Grade of accuracy			1 DIN 876	
Weight	kg / lbs	14 / 30.86		18.3 / 35.27
Order no.		4426541		4426543

Accessories for Height Measuring and Scribing Instrument Digimar 814 N $_{/}$ 814 G Order no. ₩ФШ 814 t 4426510* Probe arm with joint for mounting probes, dial indicators, dial comparators and test indicators. 814 t (5.91")Length of mounting shank 150 mm Mounting bore 8 mm (.315'')814 m Spherical probe 2 mm ball (.0787")4426525 814 m To mount in probe arm 814 t 3 mm ball (.118'')4426526 4 mm ball (.157")4426512 814 s 5 mm ball (.197")4426527 6 mm ball (.236")4426511 7 mm ball (.276")4426528 814 h 8 mm ball 4426509* (.315'')814 s Disc probe 4426513 for measuring heights, distances, surfaces and edges. Especially recommended for narrow shoulders, e.g. on centering edges. 814 a 814 h 4426514 to mount the styli of dial indicators and dial comparators. 814 kh For special applications. 0 15 814 a 4426515 for scribing and marking of work pieces. Carbide tipped. To be mounted on the Probe arm 814 t. 814 kh Halter 4426516 817 ks1 817 ks2 817 ks1 Measuring taper 0 - 154426071 (0 - .591")817 ks3 817 ks2 Measuring taper 14 - 20(.551" - .787") 4426072 817 ks4 817 ks3 Measuring taper 18 - 24(.709" - .945") 4426073 817 ks4 Measuring taper 23 - 30(.906" -1.181") 4426074 814 u Two direction probe 4 mm ball (.157")4426517 for measuring outside and inside diameters, width of ledges, recesses and slots. Actual ball diameter does not influence the results. 814 u 814 ua 814 ua Interchangeable probe arm 2 mm ball (.0787")4426518 for use in conjunction with the two direction probe 814 u 817 Cl-r Spherical probe 4 mm ruby ball (.157")4426498 817 Cl-r **817 Cl-am** Holder with connection thread M 2.5, M 1.6, M 1.4 4426434 817 Cl-sa Stylus with exchangeable measuring pin 4426433 817 Cl-p Stylus with parallel measuring faces 4426435 817 Cl-am Battery 3 V, type CR 2032 4102520* Dust cover 0-320 mm (0 - 12.60")4426616* Dust cover 0-620 mm (0 - 24.41")4426619* 814 Nf Cast iron base 4426506** 814 Gf Table plate 4426507** 817 CI-p 814 X 0-320 mm Column with measuring head (0 - 12.60") 4426544 814 X Column with measuring head 0-620 mm (0 - 24.41")4426545 Length 2 m 16 ESv Data connection cable Opto RS232C (6.56 ft) 4102510 Scope of supply

** for upgrade



Height Measuring and Scribing Instrument Digimar 814 SR









Application

- Scribing and marking of work pieces
- Measuring heights and distances



Features

Functions:

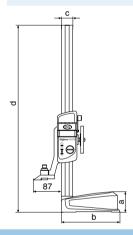
RESET (Set the display to zero for relative measurement)
ABS (Switch between relative and absolute measurement)
mm/inch
Reference-Lock/Unlock
PRESET (To enter a numerical value)
DATA (Data transmission via connection cable)

- Life of the battery up to 3 years
- Max. measuring speed 1.5 m/s (60"/s)

Auto-ON/OFF

 MarConnect Data output: choose either USB OPTO RS232C Digimatic

- High contrast Liquid Crystal Display with 12 mm high digits
- Sturdy heavy-duty base, easy to handle
- Hardened and lapped contact surface which produce both a smooth and even movement
- Slide and beam made of hardened stainless steel
- Hand crank for positioning and measuring
- Fine adjustment
- Locking screw
- Interchangable scriber point, carbide tipped
- Scope of supply: Scriber point, cardboard box, battery and operating instructions



Dimensions

mm	а	b	С	d
350 600		180 x 98 180 x 98		

Technical Data

	suring nge	Resolution	Error limit	Weight	Order no.
mm	(inch)	mm / <i>inch</i>	mm / <i>inch</i>	kg / lbs	
350	(14")	0.01 / .0005 "	0.04 / .0016"	7 / 15.43	4426100
600	(24")	0.01 / .0005 "	0.05 / .0020"	8 / 17.64	4426101

Accessories

		Order no.
Measuring / Scriber Point, carbide tipped Holder for Test Indicators	814 SRs 27 Sp	4123867 4123041
Battery 3V, type CR 2032 Data Connection Cable USB (2 m) Data Connection Cable Opto RS232C	16 EXu	4102520 4102357
(2 m), with SUB-D jack 9-pin Data Connection Cable Digimatic (2 m),	16 EXr	4102410
Flat plug 10-pin	16 EWd	4102915

