

Coating Thickness Gauges



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**ABSOLUTE DIGIMATIC**  
Built-in Calipers



Pages 325–328

**DIGIMATIC Displays**  
for Built-in Calipers



Page 329



# Coating Thickness Gauges "DIGI-DERM"–1100/2100

- For non-destructive, quick and accurate measurement of layer thickness.
- The great number of measurable coatings on the most different materials is shown in the probe selection table on page 323.
- Measurement values and operating instructions are displayed on a large, easy to read LCD display.

## Series 179

### DIGI-DERM 1100

This instrument is very easy to operate. Measurement values are not stored. In conjunction with the data processor DP-1 VR (No. 264–504 D and data cable 011230 (optional accessory)), all measurement values can be printed directly.



179-606-11 + probe (optional accessory)

## Series 179

### DIGI-DERM 2100

This unit is capable of storing the measured data max. 10,000 e. g. for statistical evaluation later on and/or for printing. In conjunction with the data processor DP-1 VR (No. 264–504 D and data cable 011230 (optional accessory)) all measuring values can be printed directly.



179-606-21 + probe (optional accessory)

Probe selection table and optional accessories probes can be found on the next page ▶

Functions	Series 179	
	179-606-11	179-606-21
<b>Statistical evaluation:</b>		
Individual value statistics: $\bar{x}$ , s, kvar, n, max, min		●
Block value statistics: $\bar{x}$ , s, kvar, m, max, min		●
Display and printout of date and time of printout and measurement series record by year, month, day, hour and minute		●
<b>Calibration method:</b>		
Zero-point calibration, calibration using layer thickness standard	●	●
Calibration on the coated surface, if base material is not accessible.	●	●
Measurement on raw surfaces. By averaging the calibration values, the roughness factor can be largely eliminated.	●	●
Data stored when battery is changed.	●	●
Measuring unit can be switched from metric to imperial (inches) system	●	●

#### Specifications DIGI-DERM 1100

Including box and battery (without probe and Layer thickness standard)

#### Optional accessories

- No. 011230 Signal cable "DIGIMATIC"
- No. 011283 Interface cable (RS-232 C)
- Probes see page 323

#### Specifications DIGI-DERM 2100

Including box and battery (without probe and Layer thickness standard)

#### Optional accessories

- No. 011230 Signal cable "DIGIMATIC"
- No. 011283 Interface cable (RS-232 C)

## Optional accessories Probes for DIGI-DERM-1100/2100

Basic material	Coating	Type probes		
		F-probe	N-probe	FN-probe
Iron and steel also alloyed and hardened ferromagnetic steels	Insulating layers: Lacquers, enamel, anodic oxidation, plastics....	●	–	●
	Nonferrous metal coatings: Chromium, copper, zinc, tin currentless nickel..	●	–	●
Nonferrous metals: Aluminium, copper, zinc austenitic steels	Insulating layers: Lacquers, enamel, anodic oxidation, plastics....	–	●	●
	Nonferrous metal coatings: Chromium, copper, zinc, tin currentless nickel..	–	–	–

### Specifications

#### Contents Layer thickness standard

- No. 011335** 1 x Zero-plate / steel  
3 films: 50, 100 and 300  $\mu\text{m}$
- No. 011281** 1 x Zero-plate / steel  
3 films: 100, 500 and 1500  $\mu\text{m}$
- No. 011279** 1 x Zero-plate / steel  
1 x Zero-plate / aluminium  
3 films: 100, 500 and 1000  $\mu\text{m}$
- No. 011441** 1 x Zero-plate / aluminium  
3 films: 10, 50 and 100  $\mu\text{m}$

### Series 179

No.	Probe	Measuring method	Measuring range	Initial-sensitivity $\mu\text{m}$	Error limits (% from measuring values)	Min. bend radius	Min. measuring surface $\varnothing$ mm	Min. thickness of the base material	Calibration film No.
<b>011334</b>	F 05	Magneto electric induction	0– 500 $\mu\text{m}$	0,1	1 % + 0,7 $\mu\text{m}$	convex 0,75 mm concave 5 mm	3	0,1 mm	<b>011335</b>
<b>011226</b>	F 3	Magneto electric induction	0–3000 $\mu\text{m}$	0,2	1 % + 1 $\mu\text{m}$	convex 1,5 mm concave 10 mm	5	0,5 mm	<b>011281</b>
<b>011228</b>	FN 1,6	Combination probe	0–1600 $\mu\text{m}$	0,1	1 % + 1 $\mu\text{m}$	convex 1,5 mm concave 10 mm	5	F = 0,5 mm N = 50 $\mu\text{m}$	<b>011279</b>
<b>011440</b>	N 02	Eddy current	0– 200 $\mu\text{m}$	0,1	1 % + 0,5 $\mu\text{m}$	convex 1 mm concave 5 mm	2	50 $\mu\text{m}$	<b>011441</b>

### Specifications

Dimensions: 220 x 120 x 50 mm

#### Optional accessories

- No. 179-551** Layer thickness standard 0–50  $\mu\text{m}$   
Nominal dimensions  $\approx$  0, 10, 20, 40  $\mu\text{m}$   
chrome on steel in each case
- No. 179-552** Layer thickness standard 0–400  $\mu\text{m}$   
Nominal dimensions  $\approx$  0, 40, 120, 400  $\mu\text{m}$   
40  $\mu\text{m}$  chrome on steel  
120  $\mu\text{m}$  paint on steel  
400  $\mu\text{m}$  paint on steel



- No. 011029** Leather box for safe transport of the device at the belt
- No. 527599** Layer thickness standard  $\approx$  25  $\mu\text{m}$
- No. 527600** Layer thickness standard  $\approx$  50  $\mu\text{m}$
- No. 527601** Layer thickness standard  $\approx$  100  $\mu\text{m}$
- No. 527602** Layer thickness standard  $\approx$  250  $\mu\text{m}$
- No. 527603** Layer thickness standard  $\approx$  500  $\mu\text{m}$
- No. 527604** Layer thickness standard  $\approx$  1000  $\mu\text{m}$
- No. 527605** Layer thickness standard  $\approx$  2000  $\mu\text{m}$

## Layer Thickness Measuring Instrument "MINI-DERM"

- For non-destructive measurement of non-magnetic layers as e. g. galvanic layers, zinc, copper, chromium, cadmium, paints, enamels, plastics etc. on steel and iron.

### Series 179

No power supply needed



No.	Application for	Measuring range $\mu\text{m}$	Error limits (% from measuring values)	Min. measuring surface $\varnothing$ mm	Minimum thickness of the base material mm	Minimum bend radius on the test piece	Mass g
<b>179-503</b>	galvanic layers on steel and iron	0... 100	1 mm ( 0... 20 $\mu\text{m}$ ) 5 %* ( 20... 100 $\mu\text{m}$ )	20	0,4	5 mm convex 40 mm concave	660
<b>179-504</b>	paint, lacquer on steel and iron	0... 1000	5 mm ( 0... 100 $\mu\text{m}$ ) 5 %* (100... 1000 $\mu\text{m}$ )	30	0,4	8 mm convex 40 mm concave	660

\* from the measured value

# Coating Thickness Gauges "MINI-DERM-1000"

## Series 179



179-571

No.	Measuring method	Application	Including
179-571	magneto-electric induction	measurements on steel	Film Set No. 011316: Contents: Zero-plate Fe, Films 200 μm, 800 μm
179-572	magneto-electric induction and Foucault current principle	measurements on steel and nonferrous metal	Film Set No. 011317: Contents: Zero-plate Fe and Al, Films 200 μm, 800 μm

Functions	Series 179	
	179-571 Type F	179-572 Type FN
<b>Statistical evaluation:</b>		
Individual value statistics: $\bar{x}$ , s, max, min	●	●
Block value statistics: Freely definable number of measured values per block (5-30) $\bar{x}$ , s pro block	●	●
<b>Data storage:</b>		
90 individual measured value, 45 block values	●	
Tolerance input	●	●
<b>Calibration method:</b>		
Zero-point calibration, calibration using layer thickness standard	●	●
Measurement unit metric / inches	●	●
Autoswitch		●
steel/non-ferrous metals		●

### Specifications

Measuring range:	0 – 2000 μm
Error limits:	2 μm + 3 % of the measuring value
Initial sensitivity:	0,1 μm
Min. measuring surface:	Ø 20 mm
Min. thickness of the base material:	F = 0,5 mm N = 50 μm
Min. bend radius at the edge of a measured object:	convex: 5 mm concave: 35 mm
Min. bend radius in the center of a measured object:	60 mm
Dimensions:	160 x 35 x 40 mm
Mass:	ca. 200 g

### Standard accessories

Main unit with Zero-plate made of steel or aluminium, calibration films, belt leather box

### Optional accessories

No. 011282 RS-232 C Cable

## Wet-film Thickness Measuring Instrument

for measuring freshly applied, still wet coatings

### Series 179



011030



Sample application

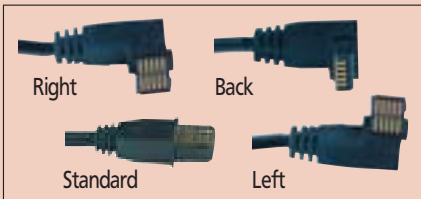
Functions	Series 572
ON / OFF	●
Zero-setting	●
ORIGIN	●
Data output	●

### Specifications

Accuracy: Factory specification  
 Resolution: 0,01 mm  
 Including 1 battery

### Optional accessories

- No. 959143 Data Hold Unit
- No. 905338 Signal cable (1 m) Standard
- No. 905409 Signal cable (2 m) Standard
- No. 959149 Signal cable with data key (1 m)
- No. 959150 Signal cable with data key (2 m)
- No. 905689 Signal cable with angle entry-plug (1 m), cable guide rear
- No. 905690 Signal cable with angle entry-plug (2 m), cable guide rear
- No. 905691 Signal cable with angle entry-plug (1 m), cable guide right
- No. 905692 Signal cable with angle entry-plug (2 m), cable guide right
- No. 905693 Signal cable with angle entry-plug (1 m), cable guide left
- No. 905694 Signal cable with angle entry-plug (2 m), cable guide left



### Specifications

As above, but protection standard IP-66

### Optional accessories

- No. 05CZA624 Signal cable (1 m)
- No. 05CZA625 Signal cable (2 m)

### Consumable Spares

- No. 938882 Battery SR-44



## ABSOLUTE DIGIMATIC Built-In Caliper

- World-wide unique capacitive electronic built-in caliper with an absolute scale.
- The ZERO point is set only once and is stored as the absolute ZERO point until the next battery replacement.
- Highest measuring precision even at highest drive speed.
- Large display characters for easy reading.
- Capacitive absolute measuring system (patented).

### Series 572

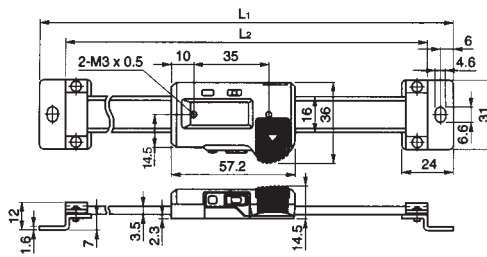
Standard Horizontal Construction with data output

**ABSOLUTE™**  
 Absolute System Patented by MITUTOYO

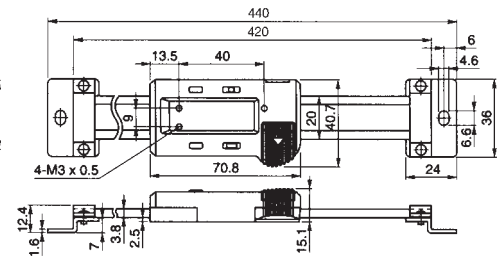


572-200-10

Measuring range mm	No.	Error limits mm	L1 mm	L2 mm	Mass g
100	572-200-10	0,03	209	185	230
150	572-201-10	0,03	259	235	250
200	572-202-10	0,03	311	287	270
300	572-203-10	0,04	440	420	370



572-200-10 ~ 572-202-10



572-203-10

### Series 572

Standard Horizontal Construction with data output  
 Protection Standard: IP 66

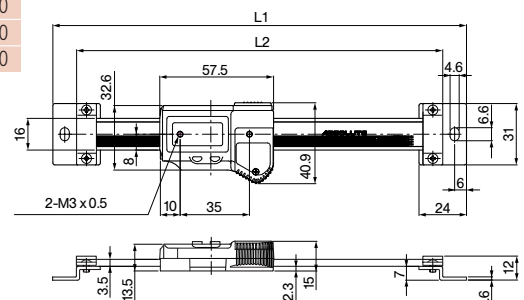


572-600



572-601

Measuring range mm	No.	Error limits mm	L1 mm	L2 mm	Mass g
100	572-600	0,03	209	185	230
150	572-601	0,03	259	235	250
200	572-602	0,03	311	287	270



™ Patent numbers see page 464

# ABSOLUTE DIGIMATIC Built-In Caliper

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- Highest measuring precision even at highest drive speed.
- Large display characters for easy reading.
- Capacitive absolute measuring system (patented).

## Series 572

Standard Vertical Construction with data output

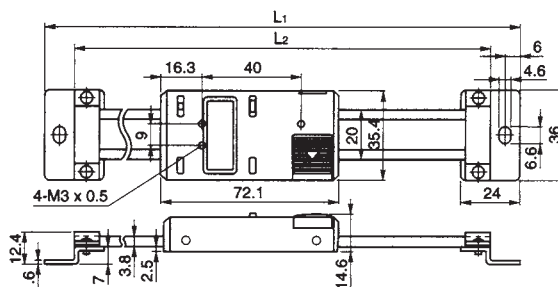


572-302-10

# ABSOLUTE™

Absolute System Patented by MITUTOYO

Measuring range mm	No.	Error limits mm	L1 mm	L2 mm	Mass g
100	572-300-10	0,03	244	220	250
150	572-301-10	0,03	294	270	280
200	572-302-10	0,03	344	320	310
300	572-303-10	0,04	444	420	370



Functions	Series 572
ON / OFF	●
Zero-setting	●
ORIGIN	●
Data output	●

### Specifications

Accuracy: Factory specification

Resolution: 0,01 mm

Including battery

### Optional accessories

No. 959143 Data Hold Unit

No. 905338 Signal cable (1 m) Standard

No. 905409 Signal cable (2 m) Standard

No. 959149 Signal cable with data key (1 m)

No. 959150 Signal cable with data key (2 m)

No. 905689 Signal cable with angle entry-plug (1 m), cable guide rear

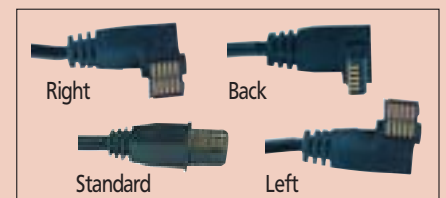
No. 905690 Signal cable with angle entry-plug (2 m), cable guide rear

No. 905691 Signal cable with angle entry-plug (1 m), cable guide right

No. 905692 Signal cable with angle entry-plug (2 m), cable guide right

No. 905693 Signal cable with angle entry-plug (1 m), cable guide left

No. 905694 Signal cable with angle entry-plug (2 m), cable guide left



### Consumable Spares

No. 938882 Battery SR-44

# ABSOLUTE DIGIMATIC Built-In Caliper

- World-wide unique capacitive electronic built-in caliper with an absolute scale.
- The ZERO point is set only once and is stored as the absolute ZERO point until the next battery replacement.
- Highest measuring precision even at highest drive speed.
- Large display characters for easy reading.
- Capacitive absolute measuring system (patented).

## Series 572

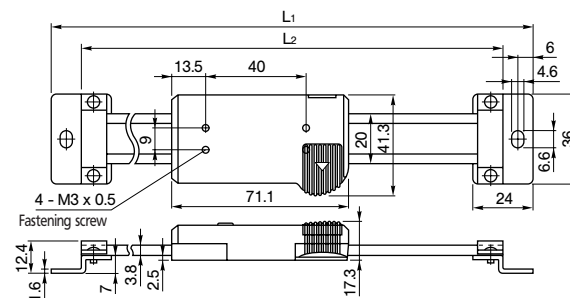
Multifunctional Horizontal Construction with data output

**ABSOLUTE™**  
Absolute System Patented by MITUTOYO

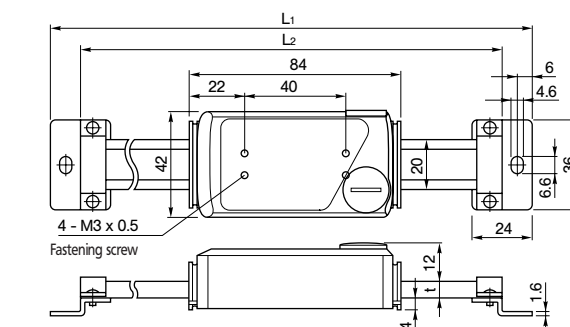


572-460

Measuring span mm	Nr. Error limits	L <sub>1</sub> mm	L <sub>2</sub> mm	t mm	Mass mm	g
<b>without diameter function, with reversible counting direction</b>						
100	<b>572-460</b>	0,03	244	220	-	410
150	<b>572-461</b>	0,03	294	270	-	460
200	<b>572-462</b>	0,03	344	320	-	510
300	<b>572-463</b>	0,04	444	420	-	610
450	<b>572-464</b>	0,04	594	570	6	760
600	<b>572-465</b>	0,05	774	750	6	900
800	<b>572-466</b>	0,06	974	950	10	1710
1000	<b>572-467</b>	0,07	1174	1150	10	2040
<b>with diameter function, without reversible counting direction</b>						
100	<b>572-480-10</b>	0,03	244	220	-	410
150	<b>572-481-10</b>	0,03	294	270	-	460
200	<b>572-482-10</b>	0,03	344	320	-	510
300	<b>572-483-10</b>	0,04	444	420	-	610
450	<b>572-484-10</b>	0,04	594	570	6	760
600	<b>572-485-10</b>	0,05	774	750	6	900
800	<b>572-486-10</b>	0,06	974	950	10	1710
1000	<b>572-487-10</b>	0,07	1174	1150	10	2040



572-460~463 / 572-480~483



572-464~467 / 572-484~487

™ Patent numbers see page 464

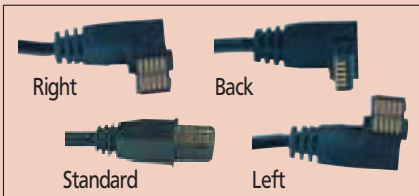
Functions	Series 572	
	572-46x	572-48x-10
ON / OFF	●	●
Zero-setting	●	●
ORIGIN	●	●
PRESET (2 values)	●	●
DATA / HOLD	●	●
Diameter function		●
Reversible counting direction	●	
Data output	●	●

### Specifications

Accuracy: Factory specification  
Resolution: 0,01 mm  
Including battery

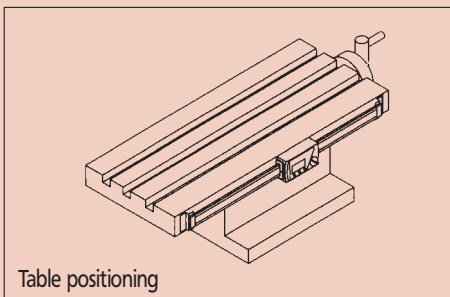
### Optional accessories

- No. 905338 Signal cable (1 m) Standard
- No. 905409 Signal cable (2 m) Standard
- No. 905689 Signal cable with angle entry-plug (1 m), cable guide rear
- No. 905690 Signal cable with angle entry-plug (2 m), cable guide rear
- No. 905691 Signal cable with angle entry-plug (1 m), cable guide right
- No. 905692 Signal cable with angle entry-plug (2 m), cable guide right
- No. 905693 Signal cable with angle entry-plug (1 m), cable guide left
- No. 905694 Signal cable with angle entry-plug (2 m), cable guide left



### Consumable Spares

- No. 938882 Battery SR-44



# ABSOLUTE DIGIMATIC Built-In Caliper

- World-wide unique capacitive electronic built-in caliper with an absolute scale.
- The ZERO point is set only once and is stored as the absolute ZERO point until the next battery replacement.
- Highest measuring precision even at highest drive speed.
- Large display characters for easy reading.
- Capacitive absolute measuring system (patented).

## Series 572

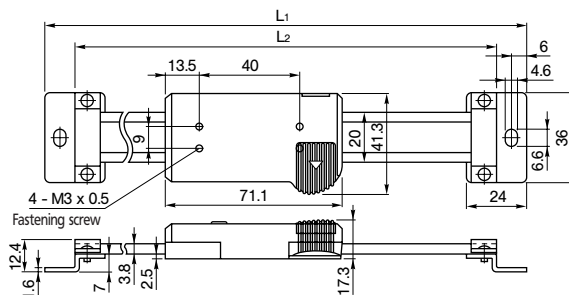
Multifunctional Vertical Construction with data output

**ABSOLUTE™**  
Absolute System Patented by MITUTOYO

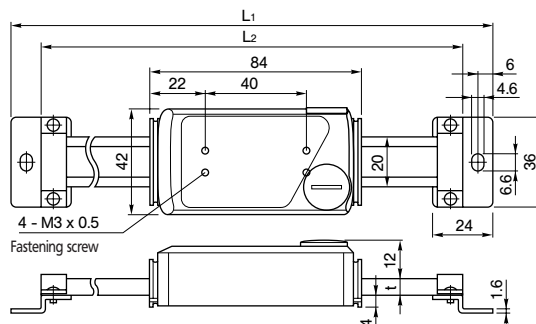


572-560

Measuring span mm	No.	Error limits mm	L <sub>1</sub> mm	L <sub>2</sub> mm	t mm	Mass g
<b>without diameter function, with reversible counting direction</b>						
100	572-560	0,03	244	220	-	410
150	572-561	0,03	294	270	-	460
200	572-562	0,03	344	320	-	510
300	572-563	0,04	444	420	-	610
450	572-564	0,04	594	570	6	760
600	572-565	0,05	774	750	6	900
800	572-566	0,06	974	950	10	1710
1000	572-567	0,07	1174	1150	10	2040
<b>with diameter function, without reversible counting direction</b>						
100	572-580-10	0,03	244	220	-	410
150	572-581-10	0,03	294	270	-	460
200	572-582-10	0,03	344	320	-	510
300	572-583-10	0,04	444	420	-	610
450	572-584-10	0,04	594	570	6	760
600	572-585-10	0,05	774	750	6	900
800	572-586-10	0,06	974	950	10	1710
1000	572-587-10	0,07	1174	1150	10	2040



572-560~563 / 572-580~583



572-564~567 / 572-584~587

™ Patent numbers see page 464

Functions	Series 572	
	572-56x	572-58x-10
ON / OFF	●	●
Zero-setting	●	●
ORIGIN	●	●
PRESET (2 values)	●	●
DATA / HOLD	●	●
Diameter function		●
Reversible counting direction	●	
Data output	●	●

### Specifications

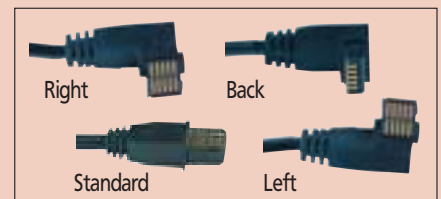
Accuracy: Factory specification

Resolution: 0,01 mm

Including battery

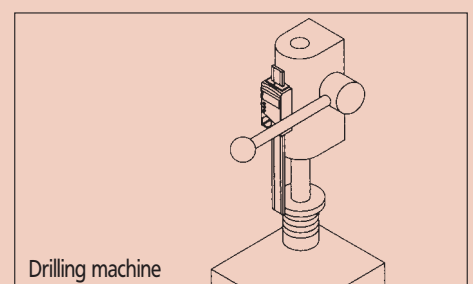
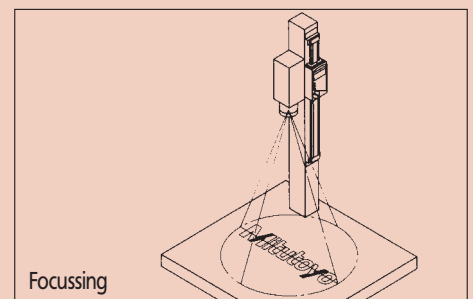
### Optional accessories

- No. 905338 Signal cable (1 m) Standard
- No. 905409 Signal cable (2 m) Standard
- No. 905689 Signal cable with angle entry-plug (1 m), cable guide rear
- No. 905690 Signal cable with angle entry-plug (2 m), cable guide rear
- No. 905691 Signal cable with angle entry-plug (1 m), cable guide right
- No. 905692 Signal cable with angle entry-plug (2 m), cable guide right
- No. 905693 Signal cable with angle entry-plug (1 m), cable guide left
- No. 905694 Signal cable with angle entry-plug (2 m), cable guide left



### Consumable Spares

- No. 938882 Battery SR-44



# DIGIMATIC EC display

- Can be connected to devices with DIGIMATIC output:
  - Built-in micrometers
  - Dial indicators
  - Measuring probes.
- DIN-compatible compact front panel assembly (96 x 48 mm).

## Series 542

With data output and tolerance evaluation function



542-007 D

No.	Dimensions (W x H x D) mm	Mass g
542-007 D	96 x 48 x 84,6	150

Functions	Series 542
ON / OFF	●
PRESET	●
Zero-setting	●
Tolerance limit input	●
Go / ± NG signal output (3 steps) on the display as well as via the I/O interface	●
Counting direction switching	●
Error report	●
Key lock	●
Display of measured value with factor	●
DIGIMATIC Data input	●
DIGIMATIC Data output	●
mm / inch switching	●

### Specifications

Display: green LED display,  
6-digit, with (-) sign,  
character height: 15 mm

Power supply: +9-12 V DC 400 mA  
or AC adapter

### Standard accessory

No. 526688 D AC adapter

### Optional accessory

No. C 162-155 I/O cable (2 m)

No. 936937 Signal cable (1 m)

No. 965014 Signal cable (2 m)

No. 214938 Adapter for power supply



Sample application

I/O interface  
1. For relaying 3-level tolerance signals  
2. For calling PRESET values or hold  
function from outside

OR

DIGIMATIC output  
for relaying to:  
1. SPC printer  
2. Transmitter DMX etc.

DIGIMATIC input

