



Wireless spindle
positioning system



STANDARD MACHINE ELEMENTS WORLDWIDE

elesa®

Wireless spindle positioning system



The wireless system, consisting of **UC-RF** control unit and up to 36 electronic position indicators **DD52R-E-RF**, is designed for an efficient manual spindle positioning.

DD52R-E-RF position indicators (Elesa Patent) are networked to **UC-RF** control unit via radio frequency (RF), so that connecting cables are not required for an easy and quick installation.

Current and target positions are transmitted via RF, from and to the control unit, facilitating machine set-up.

Efficient Machine Set-Up

The system allows to save time during the format alignment process.

- Once the set-up profile has been called up by PLC, UC-RF control unit transmits the target position to each DD52R-E-RF position indicator.
- The current / target position is displayed on LCD display of DD52R-E-RF indicator.
- The operator manually sets the position of the spindles following the arrow displayed on LCD display (clockwise/anti-clockwise rotation).
- Once all the spindles are correctly set, UC-RF control unit communicates to PLC of the machine that the set-up has been completed.

LED

Four LED's on the UC-RF master allow the operator to check the correct installation and data transmission.

Easy installation

Up to 36 position indicators can be networked (via radio frequency) to a single control unit.

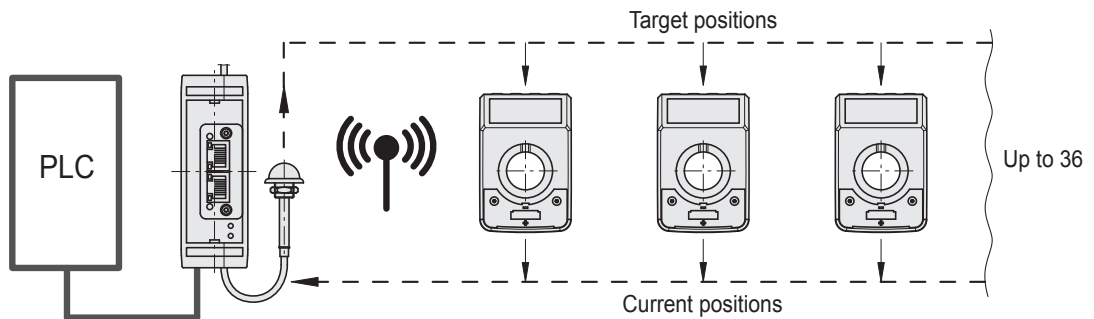
No cables required to connect the position indicators to the control unit.

Safety

The system can prevent the machine from starting up until the machine set-up is completed, avoiding production issues and risks for the operators.

System protection

The radio-frequency communication between the UC-RF master and the DD indicators can also occur in environments where WIFI, BLUETOOTH, mobile phones etc are present. Besides, since the communication between the indicators and the UC-RF follows a proprietary ELESA protocol, it is not possible to have access to the PLC via the UC-RF.



Flashing display

When the DD52R-E-RF indicator receives a new target position from the UC-RF, the display starts flashing as an indication of a non-correct position. On the display appears the distance to the new target position and the direction of rotation; the display will stop flashing once the operator reaches zero, meaning the indicator has been correctly moved to the new target position.

Battery check and replacement

When the battery of the indicator is almost out of power, it sends a warning to the PLC, allowing a quick battery replacement.

The indicator maintains the data and position acquired during setting whilst the battery is replaced.

Net ID

Each UC-RF and each indicator can be set on up to 100 different net IDs. This feature ensures that multiple UC-RF can coexist in the same space exchanging information with the correct indicators without any interference with other machines.



**BASE AND CASE**

High-resistance polyamide based (PA) technopolymer.

Black base.

Case in the following colours:

- **C2:** RAL 2004 orange, glossy finish.
- **C3:** RAL 7035 grey, glossy finish.

Available on request in RAL 7021 grey-black colour (C1).

Cover with perfectly sealed gasket and AISI 304 stainless steel UNI 6955 type self-tapping screws with six-lobe socket TORX®T06 (registered trademark by TEXTRON INC.).

The ultrasonic welding between the base and the case prevents separation and avoids dust and liquid penetration.

BOSS

AISI 304 stainless steel with Ø 20 mm H7 reamed hole, fitting to shaft by means of AISI 304 stainless steel grub screw, hexagon socket and cup end UNI 5929-85, included in the supply.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY

- 6-digit LCD of 12,0 mm height and special characters.

The visualization parameters can be set and modified by the operator by means of appropriate keys:

- values displayed in mm, inches or degrees
- display of mode for use (absolute or incremental mode)
- reading orientation (right or reverse).

KEYBOARD

Polyester membrane. Resistant to solvents, alcohol, acids, alkalis.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the boss.

Brass bushing with double O-ring sealing in NBR synthetic rubber inside the rear cavity of the base (DD52R-E-RF-SST-IP67).

REAR GASKET

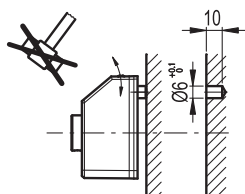
Foam polyethylene, supplied.

STANDARD EXECUTIONS

- **DD52R-E-RF-SST-IP65:** completely sealed indicator with IP 65 protection class, see EN 60529 table.
- **DD52R-E-RF-SST-IP67:** completely sealed indicator with IP 67 protection class, see EN 60529 table obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ASSEMBLY INSTRUCTIONS

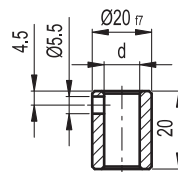
1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 30 mm centre distance from the spindle to fit the rear referring pin.
2. Fit the indicator onto the spindle and make sure that the referring pin fit the hole.
3. Clamp the boss to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



ELESA Original design

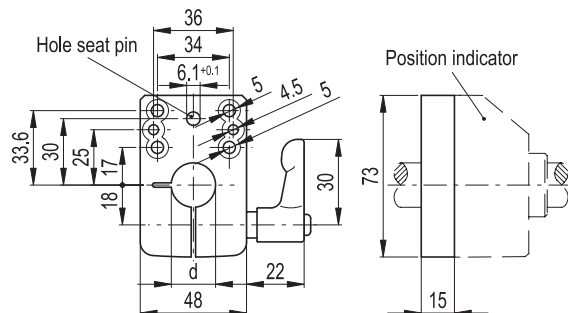
ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **RB52-SST:** AISI 304 stainless steel reduction sleeves.

**RB52-SST**

Code	Description	dH7
CE.97941	RB52-12-SST-304	12
CE.97951	RB52-14-SST-304	14
CE.97956	RB52-15-SST-304	15
CE.97961	RB52-16-SST-304	16

- **BSA52-E:** die-cast zinc alloy bases for spindle locking, epoxy resin coating, black colour, matte finish. GN 302 adjustable handle with die-cast zinc alloy lever body and AISI 304 stainless steel clamping element. A Ø 6.1 mm hole to fit the referring pin of the indicator. Handle positioned either on the right or on the left. Fitting to the machine by means of two M4 cylindrical-head screws (not included in the supply).



Code	Description	dH7
CE.99091	BSA52-E-12	12
CE.99093	BSA52-E-14	14
CE.99094	BSA52-E-15	15
CE.99095	BSA52-E-16	16
CE.99099	BSA52-E-20	20

FEATURES AND APPLICATIONS

DD52R-E-RF position indicators, with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component.

- The 6-digit display of 12,0 mm height ensures excellent readability even from a distance and from different viewing angles.

The window in transparent technopolymer protects the LCD display against accidental shocks.

- The high protection degree, IP 65 or IP67, makes the indicator suitable for applications that require frequent washing, even with intense water jets.
- In the operating mode, by using the 4 function keys, it is possible to select the incremental or the absolute mode, the unit of measure (mm, inches or degrees), reset the absolute counter or load a preset source value and the preset offset value.
- In the programming mode, through the 4 function keys, it is possible to program the reading after one revolution of the shaft, the direction of rotation, the display orientation, the resolution (number of decimal digits displayed), the source value and the offset value, the max. speed of rotation and set the functions of the keys for the different options available.
- The internal battery ensures long battery life (over 3 years). A special symbol appears on the display when it is necessary to replace the battery. The replacement can be performed easily by removing the front cover (Fig.1), without disassembly of the indicator from the control shaft and without the loss of configuration parameters.

QUICK POSITIONING SYSTEM

DD52R-E-RF indicators (Elesa Patent) are networked to the control unit UC-RF via radio frequency (RF), constituting a wireless system for rapid positioning of the machine parts (fig.2).

This system is particularly suitable for applications that require frequent format changes, facilitating the correct adjustment of the target/current position of the machine parts, also representing a safety system. In fact, even if a single DD52R-E-RF indicator is not placed in the target position, PLC doesn't allow the beginning of the machine production cycle, thus avoiding production issues.

The installation of the system is quick and easy as it does not require the use of connecting cables between the control unit and the indicators. Further technical information available in "Operating instructions".

Mechanical and electrical characteristics	
Power supply	Lithium battery CR2477 3.0 V
Battery life	3 years
Display	6-digit LCD of 12 mm height and special characters
Reading scale	-199999; 999999
Number of decimal digits	programmable (1)
Unit of measure	mm, inches, degrees programmable (1)
Rotation max. speed	300/600/1000 r.p.m (2) programmable (1)
Precision	10.000 impulses / revolution
Protection class	IP65 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Interference protection	IEC 61326-1

- (1) See the operating instructions.
(2) Default: 600 r.p.m.
Higher rotation speed to 600 r.p.m. can be maintained for short periods of time.
The value of the max. speed affects the battery life.

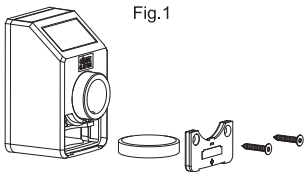


Fig.1

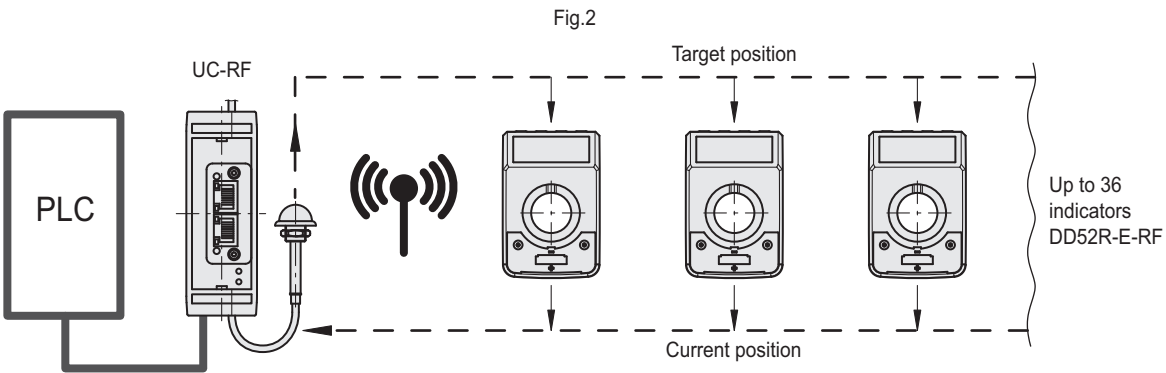
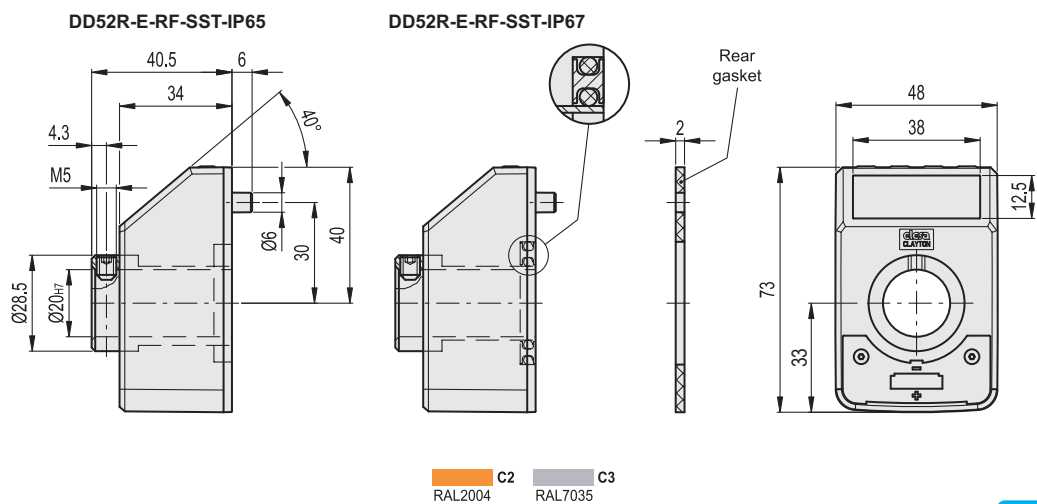


Fig.2



Code	Description	△
CE.99202	DD52R-E-RF-SST-IP65-C2	129
CE.99201	DD52R-E-RF-SST-IP65-C3	129
CE.99212	DD52R-E-RF-SST-IP67-C2	141
CE.99211	DD52R-E-RF-SST-IP67-C3	141

MATERIAL

ABS reinforced polycarbonate, self-extinguishing.

STANDARD EXECUTIONS

- **UC-RF ETHERNET/IP**: control unit with Ethernet/IP serial interface.
 - **UC-RF PROFINET IO**: control unit with Profinet IO serial interface.
 - **UC-RF MODBUS TCP**: control unit with Modbus TCP serial interface.
- UC-RF control unit can manage up to 36 position indicators. DD52R-E-RF. Compatible for mounting on DIN RAIL. Two leds (green and red) for correct diagnostics.

FEATURES AND APPLICATIONS

UC-RF control unit, connected directly to PLC, receives the target positions and sends them to DD52R-E-RF electronic position indicators, receiving their current position (Fig.1).

This system is particularly suitable for applications that require frequent format changes, facilitating the correct adjustment of the target/current position of the machine parts, also representing a safety system.

In fact, even if a single DD52R-E-RF indicator is not placed in the target position, PLC doesn't allow the beginning of the machine production cycle, thus avoiding production issues.

SPECIAL EXECUTIONS ON REQUEST

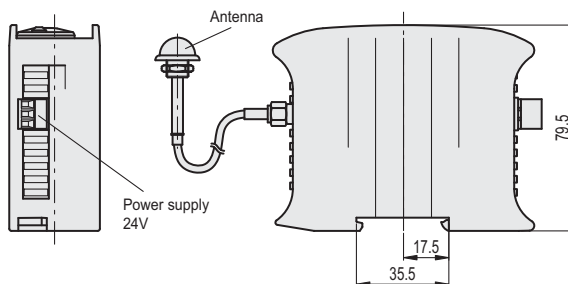
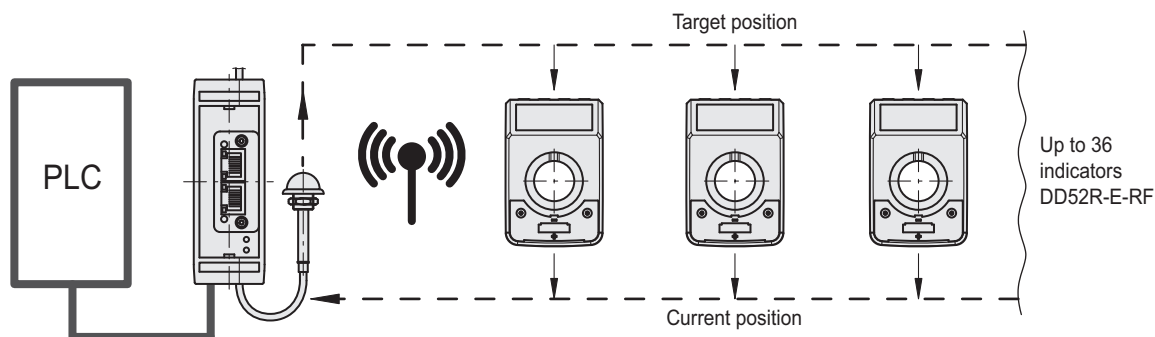
Control unit with Profibus, RS485 or RS232 serial interface.



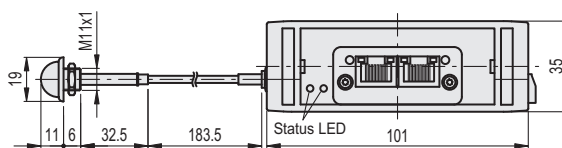
ELESA Original design

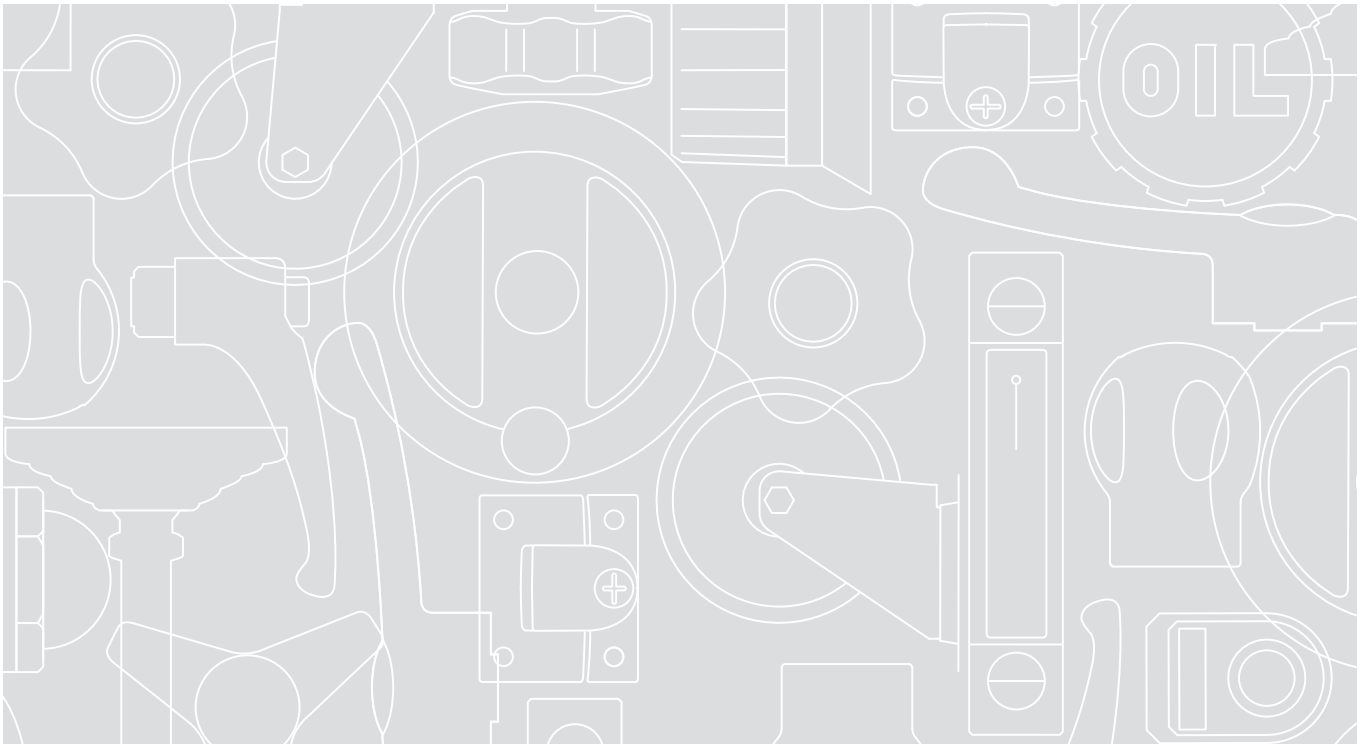


Fig.1



Code	Description	△
CE.99225	UC-RF ETHERNET/IP	50
CE.99231	UC-RF PROFINET IO	50
CE.99229	UC-RF MODBUS TCP	50





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