



## Manual Utilizare User manual

Nivela laser autonivelanta verticala si orizontala  
Fully Automatic Horizontal and Vertical Laser Level

FL 240HV  
FLG 240HV-Green



Setul de livrare:

**FL 240HV Complet set**

Nivela laser rotativa FL 240HV, receptor FR 45 cu suport prindere, telecomanda, acumulatori, incarcator , cutie pentru baterii alcaline, suport perete, ochelari laser, tinta magnetica, cutie de transport, manual de utilizare.

**(Art.-Nr. 244000) .**

**FL 240HV Basis-Set**

Nivela FL 240HV, telecomanda, Baterii alcaline, suport perete ochelari laser, tinta magnetica, cutie de transport, manualde utilizare **(Art.-Nr. 244100) .**

**FLG 240HV-Verde Complet Set**

La fel ca FL 240HV set complet, dar cu receptor tip RG 45-Green **(Art.-Nr. 244500) .**

**FLG 240HV-Verde Set de baza**

La fel ca FL 240HV Set de baza **Art.-Nr. 244600) .**

KIT CONSISTS OF

**FL 240HV Complete Set**

Rotating Laser Level FL 240HV, receiver FR 45 with clamp for levelling staff, remote control, NiMH rechargeable battery and charger, box for alkaline batteries, wall-/ceiling mount, laser intensive glasses, magnetic target, container, user manual **(Art.-No. 244000) .**

**FL 240HV Basic Set**

Rotating Laser Level FL 240HV, remote control, alkaline batteries, wall-/ceiling mount, laser intensive glasses, magnetic target, container, user manual **(Art.-No. 244100) .**

**FLG 240HV-Green Complete Set**

Same kit as FL 240HV Complete Set - but with receiver FRG 45-Green instead **(Art.-No. 244500) .**

**FLG 240HV-Green Basic Set**

Same kit as FL 240HV Basic Set **(Art.-No. 244600) .**

FUNCTII SI CARACTERISTICI

Raza laser vizibila  
2 Viteze de rotatie  
Functie de scanare  
Functie punctiforma  
Functa inclinare pe axa X- si Y-pana  $\pm 5^\circ$  ( $\pm 9\%$ )  
Fascicol permanent in  $90^\circ$  - axa de rotatie  
Alarma iesire in afara intervalului de autonivelare  
Telecomanda Inchis/Deschis  
Cand este inchisa carcasa, ofera o buna protectie impotriva prafului si umezelii

FUNCTIONS AND FEATURES

Visible laser beam  
2 rotating speeds  
Scanning function  
Laser point function  
Manual slope setting up to  $\pm 5^\circ$  ( $\pm 9\%$ ) in X and Y axis  
Permanent  $90^\circ$  plumb beam  
TILT alarm function  
ON/OFF remote control  
Well closed housing offers best protection against dust and humidity.

#### DATE TEHNICE FL 240HV

Zona autonivelare	± 5
Precizia:	
orizontal	± 1 mm / 10 m
vertical	± 1,5 mm / 10 m
Zona actiune - receptor FR 45	500 m
Scanare	
fara receptor	ca. 30 m*
Rotatie	
Fara receptor	ca. 40 m*
Functie scanare	- 2 trepte
Reglare inclinari	
X-si Y -axe	± 5° (±9 %)
Viteze de rotatie	200, 500 U/min.
Durata acumulatori /	24 h (NimH)
Durata baterii	40 h (Alkaline)
Temperatura lucru	-10°C - +45°C
Lungime unda/Clasa	635 nm / 3R
Praf/ Ploaie	IP 54
Greutate ( doar nivela)	1,95 kg

\* depinde de iluminarea camerei

#### TECHNICAL DATA FL 240HV

Self-levelling range	± 5°
Accuracy	
horizontal	± 1 mm / 10 m
vertical	± 1,5 mm / 10 m
Working range w. FR 45	!    ř 500 m
Scanning	
w/o receiver	approx. 30 m*
Rotating	
w/o receiver	approx. ř 40 m*
Scanning function	2-step
Gradual slope setting	
in X and Y axis	± 5° (±9 %)
Rotating speed	200, 500 rpm
Power supply /	24 h (NimH)
Operating time	40 h (Alkaline)
Temperature range	-10°C - +45°C
Laser diode / Laser class	635 nm / 3R
Dust / Water protection	IP 54
Weight (instrument only)	1,95 kg

\* depending on room illumination

#### DATE TEHNICE FLG 240HV-Verde

Autonivelare zona	± 5°
Precizie	
orizontala	± 1 mm / 10 m
verticala	± 1,5 mm / 10 m
Actiune cu receptor	
FRG 45-Verde	!    400 m
Scanare	
fara receptor	ca. 40 m*
Rotire	
Fara receptor	ca. ř 50 m*
Functie scanare	2- trepte
Reglare inclinare	
X- si Y- axa	± 5° (±9 %)
Viteza rotatie	200, 500 U/min.
Durata viata acumulator	24 H (NimH)
Durata viata baterii	40 h (Alkaline)
Temperatura operare	0°C - +45°C
Lungime undalaser/clasa	532 nm / 3R
Praf/Ploaie	IP 54
Greutate (doar nivela )	1,95 kg

\* depinde de lumina din camera

#### TECHNICAL DATA FLG 240HV-Green

Self-levelling range	± 5°
Accuracy	
horizontal	± 1 mm / 10 m
vertical	± 1,5 mm / 10 m
Working range w.	
FRG 45-Green	!    ř 400 m
Scanning	
w/o receiver	approx. 40 m*
Rotating	
w/o receiver	approx. ř 50 m*
Scanning function	2-step
Gradual slope setting	
in X and Y axis	± 5° (±9 %)
Rotating speed /	200, 500 rpm
Power supply	24 H (NimH)
Operating time	40 h (Alkaline)
Temperature range	0°C - +45°C
Laser diode / Laser class	532 nm / 3R
Dust / Water protection	IP 54
Weight (instrument only)	1,95 kg

\* depending on room illumination

## CARACTERISTICI

- 1) Geam emisie laser
- 2) Cap rotativa
- 3) Fereastra senzor receptie telecomanda
- 4) Maner
- 5) Compartimentul bateriilor
- 6) Tastatura
- 7) Suport pentru utilizare verticala
- 8) Conector surub 5/8" - vertical
- 9) Conector surub 5/8" - orizontal
- 10) Sertar baterii/acumulatori

## FEATURES

- 1) Laser emitting window
- 2) Rotating head
- 3) Receiving window remote control
- 4) Handle
- 5) Battery compartment
- 6) Keypad
- 7) Support for vertical use
- 8) 5/8" thread hole vertical
- 9) 5/8" thread hole horizontal
- 10) Charging plug



## MONTARE BATERII

Pot fi folosite cele 2 compartimente, fie cel pentru acumulatori fie cel pentru baterii.

1) Puneti cele 4 baterii alcaline, in compartimentul bateriilor, respectand polaritatea si fixati in locul pentru baterii a nivelei

Sau

2)Introduceti carcasa acumulatoriilor in nivela

## INSTALLATION OF BATTERY

Both the standard NiMH battery pack and 4\* C alkaline batteries can be used.

1) Put 4\*C alkaline batteries into the alkaline battery box (take care to polarity) and fix the battery box into the instrument.

OR

2) Fix the rechargeable battery box into the instrument.

1)



2)



## INCARCARE ACUMULATORI

Conectati incarcatorul cu ajutorul mufei conectoare la nivela si la retea. LED-ul rosu se aprinde pe perioada de incarcare. Daca se aprinde LED-ul verde, acumulatorii sunt incarcati.

### ATENTIE

Acumulatorii se pot incarca atat in nivela cat si in afara ei

Cand LED-ul ce indica simbolul bateriei clipeste, acumulatorii trebuiesc incarcati

## CHARGING BATTERY

Connect charger with charging plug of the instrument and power source. If charging LED is red battery is being charged; if LED is green battery is fully loaded.

### ATTENTION

The rechargeable battery can be loaded if it is in the instrument or if it is outside.

### Battery status indication

If ON/OFF LED flashes battery has to be recharged.



Lade-LED  
Charging LED

### UTILIZARE ORIZONTALA

Asezati nivela pe o suprafata neteda, sau conectati-l la un trepid.

### UTILIZARE VERTICALA

Asezati nivela vertical, cu conectorul pentru trepid in jos si tastatura de comanda in sus, sau conectati-l la un trepid in aceasta pozitie.

### HORIZONTAL USE

Set up the instrument on an even surface or mount it onto a tripod.

### VERTICAL USE

Set up the instrument vertically (on the side with the vertical 5/8" hole) or mount it onto a tripod with its vertical 5/8" thread.

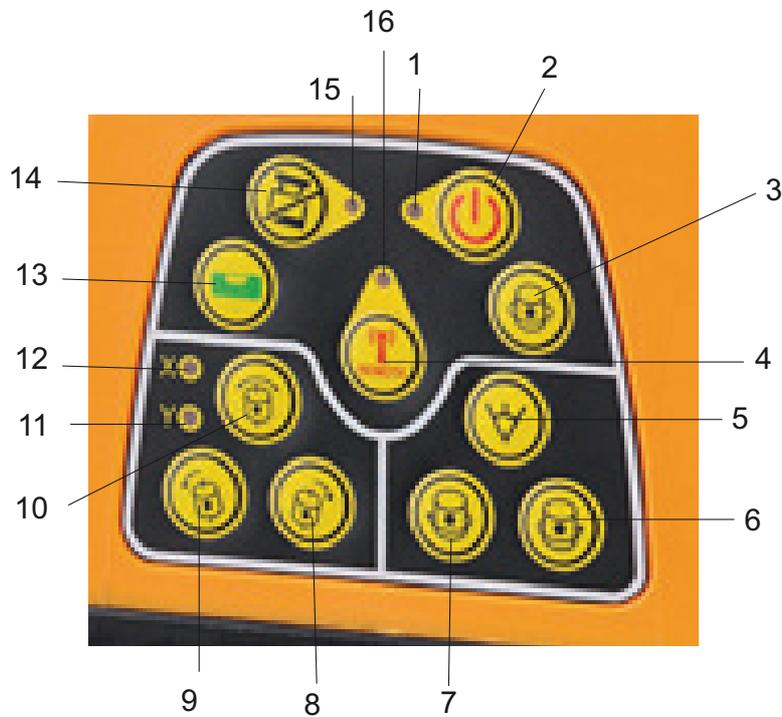


Dupa pornire, LED-ul nivelei clipeste, indicatie ca procesul de autonivelare este inceput. Se va roti doar in momentul in care este autonivelat. Daca nu porneste rotirea, inseamna ca este in afara intervalului de autonivelare si trebuie corectata inclinarea trepidului, sau gasita o alta suprafata neteda.

After switching on the unit flashing laser diode indicates that automatic self-levelling procedure is working. Laser starts rotating when self-levelled. If not the laser was set up out of self-levelling range. In this case set up instrument on a more even surface.

## TASTATURA - FUNCTIONARE

## KEYPAD AND OPERATION



### LED Pornit/Oprit (1)

Daca este aprins LED-ul rosu, nivela este pornita.  
Daca LED-ul lumineaza intermitent, atunci bateriile  
trebuie schimbate/inlocuite/incarcate.

### Tasta Pornit/Oprit (2)

Apasati butonul pentru pornire sau oprire.  
Dupa apasarea butonului, nivela va incepe  
autonivelarea.

### Viteza de rotatie (3)

Standard, nivela se roteste cu viteza maxima.  
Viteza rotatie = 500 r/min. Apasati butonul 3 pentru  
schimbare pe 200 r/min.

### On/Off LED (1)

If red LED lights the instrument is switched  
on; if the LED is flashing battery has to be re-  
charged.

### On / Off button (2)

Press this button to switch unit on and off.  
After switching on the instrument self-  
levelling procedure starts automatically.

### Rotating speed (3)

The instrument standardly rotates with max.  
speed (= 500 rpm). Press button 3 to change  
to 200 rpm.

#### **Funcție scanare (4)**

Apasati butonul pentru a incepe scanarea

Apasati 1 x data = scaneaza linie lunga  
Apasati 2 x ori = Scaneaza linie scurta  
Apasati 3 x ori = Mod punct

#### **Cu butonul (5) sau (6) se alege directia de miscare**

Directie ace de ceasornic: (5) .  
Directie inversa ace de ceasornic: (6)

#### **Deschis/Inchis Telecomanda (7)**

Apasand pe acest buton, se poate deconecta nivela in scopul de a nu deranja alte nivele in timp ce lucreaza.

Daca LED-ul este aprins, atunci nivela este pornita.

#### **Mod inclinare (9)**

##### **Reglare inclinare cu tasta (8) si (10)**

Inclinarea se poate face pana la  $\pm 5^\circ$  pe axa X- si Y-

Apasati scurt tasta (9) si intrati in acest mod.  
Pentru schimbare intre axa X si Y, apasati tasta (9) din nou, scurt. Led-ul respectiv afiseaza axa aleasa. (11) sau (12) . Pentru inclinare pe aceasta axa, apasati tasta (8) sau (10).  
Pentru iesire din modul Inclinare, apasati tasta (9) pentru mai mult de 1 secunda.

#### **Scan function (4)**

Press button (4) to change from rotating to scan mode:

Press button 1 x = scan line long  
Press button 2 x = scan line short  
Press button 3 x = point mode.

#### **With buttons (5) and (6) direction of scan mode can be changed:**

Scan direction counterclockwise = button (5)  
Scan direction clockwise = button (6).

#### **On / Off remote control (7)**

With this button remote control can be switched off in order to avoid that several units on one construction site disturb each other. If remote control LED is lighting it is switched on.

#### **Slope mode (9)**

##### **Slope setting (8) and (10)**

Slopes can be set up to  $\pm 5^\circ$  in X and Y direction.

Press button (9) shortly to enter into this mode. To change between X and Y axis press button (9) again shortly. Respective indication LEDs show the axis chosen (11) and (12). To tilt the axis chosen press button (8) and (10). To quit slope mode press button (9) for more than 1 sec.

### **Functie Interval autonivelare (14)**

#### **Procedura autonivelare (13)**

Daca nivela este miscata si deranjata, aceasta se ajusteaza automat ( in intervalul de 5°).

Daca exista riscul ca din cauza unor factori externi trepidatii, teren instabil, etc, sa se modifice inaltimea nivelei laser pe trepied fata de punctul de referinta ales, activati functia "TILT" si atunci cand vor aparea perturbari, nivela se va opri si va porni doar dupa ce veti apasa tasta pornit, verificand in prealabil nivelul

Apasati tasta (14) pentru activare.

Daca acum sunt trepidatii, nivela nu se va corecta ci se va opri din rotatie, fiind necesara pornirea de la butonul de oprire/Pornire

Pentru iesire din Modul TILT, apasati tasta (14)

### **TILT-LED (15)**

Indicatia modului Deschis/ Inchis TILT-Mod.

### **LED Telecomanda (16)**

LED-ul se aprinde, daca functia de control de la distanta este pornita.

### **TILT function (14)**

#### **Self-levelling procedure (15)**

If level of the instrument is disturbed it will re-adjust itself (within the self-levelling range of 5°). If level is disturbed at a large range (for example if a tripod leg has changed by mistake) a height offset will be caused. This will be avoided by the TILT function. The instrument will shut off even within the self-levelling range: Switch unit on, wait until self-levelling procedure is completed.

Press button (14) to activate TILT function. If now the level is disturbed the unit will not readjust itself but stop rotating. If required self-levelling procedure can be started by pressing button (13).

To quit TILT function press button (14).

### **TILT LED (15)**

Indication on / off TILT function.

### **LED remote control (16)**

LED will light if remote control function is switched on.

## TELECOMANDA

Telecomanda are aceleasi tasta ca si nivela.  
Zona de lucru pentru telecomanda este de  
aproximativ 50 m

Daca nivela se conecteaza, operarea cu telecomanda  
poate incepe imediat. Nu este nevoie de o apasare  
pe telecomanda, suplimentara

### NOTA

In scopul economisirii bateriei, nu permite reglaje  
in modul stand-by.

Aceasta tasta este doar pe telecomanda.

Daca instrumentul este in modul stand-by timp de  
30 minute, fara ca acesta sa fie utilizat, acesta se  
deconecteaza.

Pentru pornire, se apasa din nou tasta Pornit/Oprit  
aflat doar pe instrumen.t

## REMOTE CONTROL

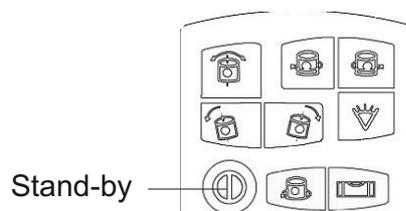
The remote control has the same keys like  
the instrument. The remote control range is  
50 m approx.

If laser is switched on operation with remote  
control can start immediately - it is not re-  
quired to switch on remote control separately.  
The instrument can be operated with the re-  
mote control only - it cannot be switeched on  
an off.

### Note

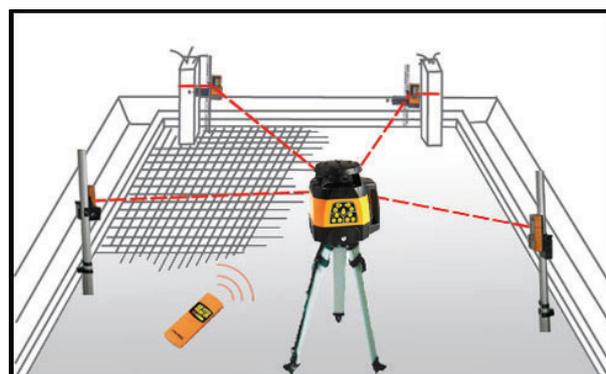
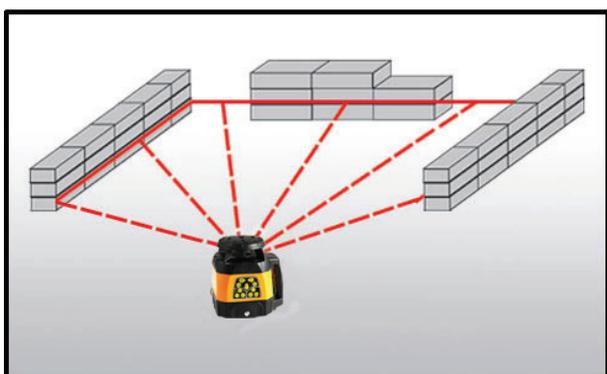
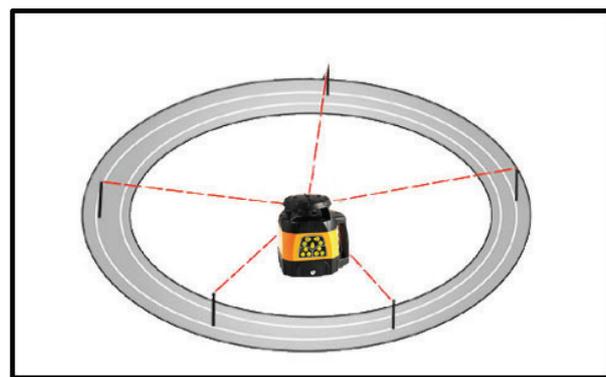
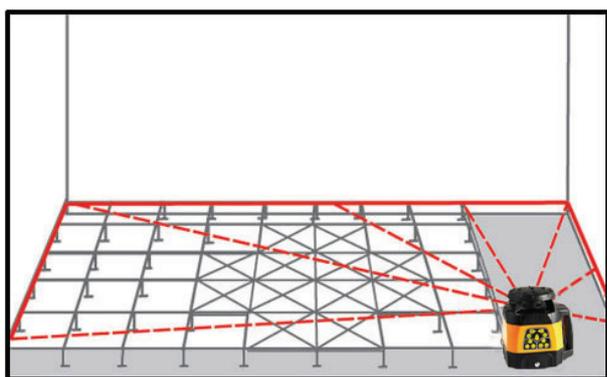
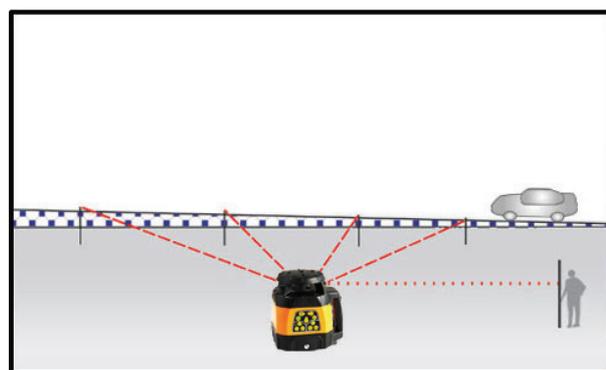
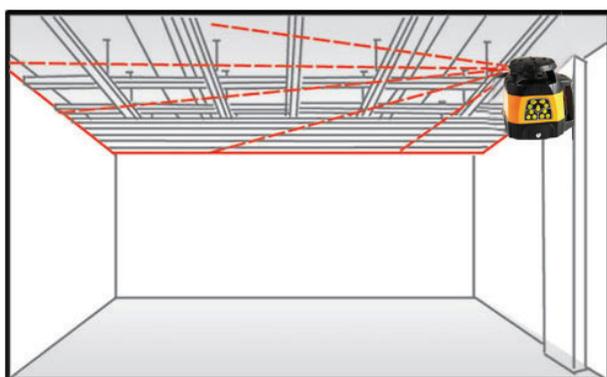
In order to save battery power the instrument  
can be set on stand-by mode. The stand-by key  
is on the remote control only.

If the instrument is in stand-by mode it automa-  
tically switches off after 30 minutes without  
use. It can be switched on again with on/off  
button on the instrument only.



Aplicatii

APPLICATION



RECEPTOR  
FR 45 / FRG 45-Green

RECEIVER  
FR 45 / FRG 45-Green



#### CARACTERISTICI

- 1) Bula (2)
- 2) Display
- 3) Linie referinta
- 4) Zona receptie
- 5) Tasta Inchis/Deschis
- 6) Difuzor
- 7) Compartiment baterii (spate)
- 8) Sunet ( inchis/Deschis
- 9) Sensibilitate precizie / normal / fina
- 10) Lumina Pornit/Oprit
- 11) Magnet (2)
- 12) 1/4"-Suport prindere

#### FEATURES

- 1) Vial (2)
- 2) Display
- 3) Reference rabbit
- 4) Receiving window
- 5) ON / OFF switch
- 6) Loudspeaker
- 7) Battery compartment (back side)
- 8) Sound on / off
- 9) Accuracy coarse / normal / fine
- 10) Light on / off
- 11) Magnets (2)
- 12) 1/4"-mounting hole for clamp (back side)

#### PACHET LIVRARE

Receptor FR 45 / FRG 45-Green, baterie,  
suport prindere, manual

#### SUPPLIED WITH

Receiver FR 45 / FRG 45-Green, battery, clamp,  
user manual

## DATE TEHNICE

Indicatii	in partea frontala a display-ului
Precizie bruta	$\pm 10$ mm
Precizie normala	$\pm 4$ mm
Precizie fina	$\pm 2$ mm
Tonalitati	3
Durata de viata baterii	400h
Sursa de alimentare:	1 x 9V
Lungime de unda laser rosu:	635 nm
Lungime de unda laser verde:	532 nm

## TECHNICAL DATA

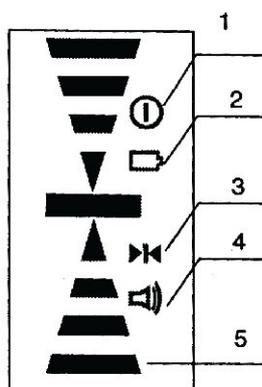
Indication	Front display
Accuracy coarse	$\pm 10$ mm
Accuracy normal	$\pm 4$ mm
Accuracy fine	$\pm 2$ mm
Tones	3
Operating time	400h
Power supply	1 x 9V
Wave length red diode	635 nm
Wave length green diode	532 nm

## SIMBOLURI

- 1) Indicator conectat
- 2) Indicator baterie descrcata
- 3) Indicator detectie
- 4) Indicator sunet
- 5) Indicator detectare pozitie

## SYMBOLS

- 1) Power indicator
- 2) Low battery indicator
- 3) Detection indicator
- 4) Sound indicator
- 5) Detected position indicator



### Precizie bruta / normala / fina

Receptoarele tip FR 45 si FR 45-GREEN , sunt dotate cu trei praguri de sensibilitate, schimbarea facandu-se apasand tasta ( 9 )

Precizie bruta  $\pm 10$  mm  
Pe display nu apare nici un simbol

Precizie normala  $\pm 4$  mm  
Pe display apare simbolul 

Precizie FINA  $\pm 2$  mm  
Pe display apare simbolul 

### Accuracy coarse / normal / fine

The FR 45 / FRG 45-Green is equipped with three precision modes. It can be chosen by pressing button (9):

Accuracy coarse  $\pm 10$  mm  
Symbol on display: without symbol

Accuracy normal  $\pm 4$  mm  
Symbol on display: 

Accuracy fine  $\pm 2$  mm  
Symbol on display: 

## INSTALARE BATERII

- Deschideti compartimentul bateriilor (7)
- Puneti 1 baterie de 9V AA in locasul bateriei, respectand polaritatea . Inchideti capacul.
- Pentru a economisi energie, receptorul se deconecteaza automat dupa 5 minute in care nu sesizeaza semnal laser

## INSTALLATION OF BATTERIES

- Open battery compartment cover (7).
- Put in 1 x 9 V AA battery according to installation symbol (take care of correct polarity!). Close cover.
- In order to save battery power the receiver will automatically turn off if it has not received laser scanning signal for 5 minutes.

## UTILIZARE RECEPTOR

Apasati butonul (5) pentru a-l porni.

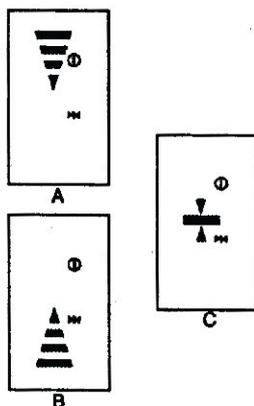
Miscati receptorul in sus si in jos, cu atentie pana detectati raza laser.

A. Mutati receptorul in jos.

B. Mutati receptorul in sus.

C. Nivel gasit - beep continuu

A+B: cand este in apropierea nivelului, sagetile scad din lungime pana la linie continua



## USE OF RECEIVER

Press button (5) to switch on.

Move receiver up and down **carefully** to detect the laser beam.

**A** Move the receiver down  
Acoustic signal : ultra-short request beep

**B** Move the receiver up  
Acoustic signal: short request beep

**C** On level  
Acoustic signal: continuous beep

A + B: The closer the distance to „on level“ (C) is, the shorter the arrows become.

## SUPPORT PENTRU PRINDERE PE RIGLA DE NIVEL

Pentru fixarea receptorului pe o rigla de nivelare, stadie , etc acesta vine insotit de un suport de prindere reglabil, universal.

## CLAMP FOR LEVELLING STAFF

If required FR 45 / FRG 45-Green can be attached to laser poles or any other equipment by means of the clamp supplied with.