User Manual

Meyton Electronic Scoring Target (EST)

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1.1. Overview

Illustration 1 Overview

Control PC

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Power Supply

Measuring Frame
MF4R1 / MF5R1
MF4R3 / MF5R3

The electronic scoring system consists of a measuring frame, a control PC and an operator console and optionally one or more printers.

1.1.1. Measuring Frame (target)

Illustration 2 10 m Measuring Frame

Illustration 3 View of Backing Card

The front of the measuring frame shows a square target without scoring rings made of paper or foil. The hole in the centre of the card has a diameter of the black area of the corresponding target. A backing card for hit verification can be

found behind this measuring panel.

REMARK: For ISSF competitions an ongoing paper witness stripe is required, which is available on request.

1.1.2. Control PC and Operator Console

Illustration 4 Control PC Screen

The control PC evaluates the measured data from the measuring frame. Displayed on the screen are the target with the hits, the shot values and the overall results, the remaining competition time, the competition title, the position and the fire point number as well as the name of the shooter. The fire point number is positioned on the top right hand side of the screen and, when set in a green rectangle, the shooter has his turn to shoot, if this number is set in a red rectangle, the shooter is not allowed to shoot.

The operator console has a small display at the top with a numerical digit and six keys. The keys are arranged in three rows of 2. One key can be allocated with several different functions. These functions are dependant on the competition which has been selected. The digit represents the number of the selected competition.

1.1.3. Printer

The Meyton system differentiates between two basic types of printer; the target printer and the protocol printer. One or more of both types of printer can be connected to the system.

Illustration 5 Operator Console

1.1.3.1 Target Printer

This printer prints a DIN A4 print-out on which an image of the hits, the positions and the individual series can be seen. In addition, the overall result, the series, the hit values and the number of tens, nines, eights etc. (value counters) can be found on this print-out.

1.1.3.2 Protocol Printer

Directly after a competition hit has been measured, this printer prints the following data concerning the hit: time, fire point number, start number, hit number, hit

value, result, series and the value counter.

1.1.4. Hit Verification

1.1.4.1 Backing Card

To verify the correct measurement of hits during a competition a so-called backing card is fixed behind the measuring frame. This backing card is situated a few centimeters behind the measuring panel. With the help of a work station computer, a 1:1 scale grafic of the hits on the backing card can be printed out (1:1 Hit-Image Print-Out). The backing card is then placed over the print-out and for each hole in the backing card there should be a corresponding hit on the print-out.

1.1.4.2 No Reading

Should a shooter claim that his last shot hasn´t been recorded by the target system, the official invigilating has the possiblity to determine the cause with the help of the target system. This is done by pressing and holding the PROBE key on the operator console which results in:

1. Screen display shows the time, coordinates and, with a valid hit, the value of the last measurement.
2. The control PC checks the measuring panel and signals on the screen ``measuring frame OK´´ or ``measuring frame failure´´.

1.1.4.3 Foreign Shots

A foreign shot (a shot from an opponent) can also be determined by help of the backing card and the 1:1 Hit-Image Print-Out. Again by placing the backing card over the print-out, foreign shots can be identified by comparing the position of the hole in the backing card with the position of the hit on the print-out. Foreign shots are displaced either to the left or right. A displacement to the left identifies a foreign shot from the right and a displacement to the right identifies a foreign shot from the left.

2. First Steps

2.1. Switch-On

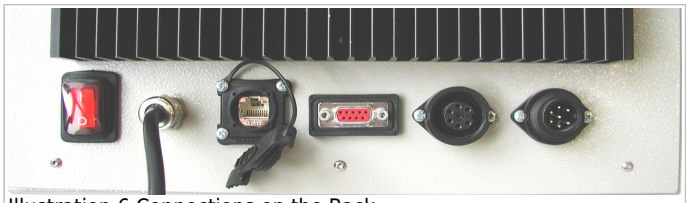

Illustration 6 Connections on the Back

The control PC is switched on and a connection is made to the measuring frame. The control PC automatically activates a self-test, which among other things, checks the measuring frame. This ensures that faulty equipment (regardless of the reason) is detected on time.

2.1.1. Switch-on without an external power supply for measuring frame

The mains switch of the control PC is switched on.

2.1.2. Switch-on with an external power supply for measuring frame

First check if the mains switch of the power supply is switched on. If switched off, switch it on. Then switch on the mains switch of the control PC.

2.2. Trial and Competition

The control PC differentiates between ``Trial´´ and ``Competition´´. A new trial target is obtained by pressing the Probe key. The control PC switches into the competition mode by pressing the Wertung key. As long as no hit has been recorded on the competition target, one can return to the trial mode simply by pressing the Probe key.

2.3. Deleting a Firing Point

Conditions:

1. Hits must be recorded on the trial or competition target.
2. Competition mode is NOT activated.

Press and hold the Disziplin key for longer than 3 seconds.

2.4. Selecting and Changing a Competition

Conditions:

1. Current firing point is deleted.
2. Competition mode is NOT activated

Press and hold the **Disziplin** key for longer than 3 seconds. This opens a pop-up window on the screen containing a table of all available competitions. Using the keys **vor** and **zurück** you can switch from row to row (activated row is marked) to select the desired competition. The desired competition (where the row is marked) is then activated by again pressing and holding the **Disziplin** key.

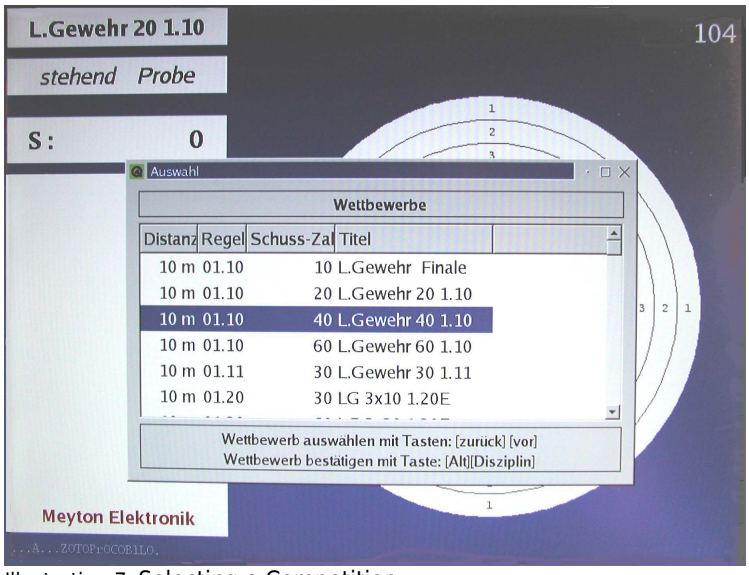

Illustration 7 Selecting a Competition

2.5. Setting and Adjusting the Zoom

Illustration 8 Zoom 0

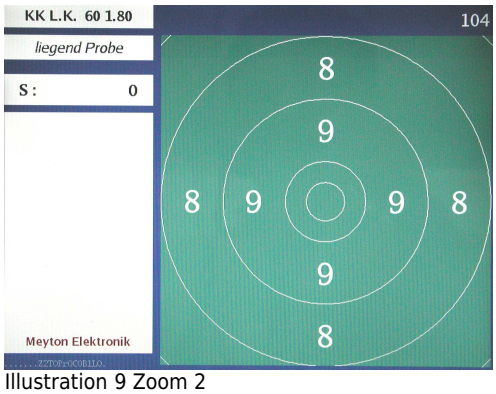

Illustration 9 Zoom 2

Press the **Zoom** key. By doing this you can switch between the following settings:

1. No zoom; the whole target is displayed.
2. Automatic zoom; the zoom adjusts itself automatically so that all hits are displayed. Even hits on the outer limits of the target are displayed.
3. Display up to and including 8.
4. Display up to and including 6.
5. Display up to and including 4.

The fixed zoom settings (3 to 5) vary in relation to the size of the divisions on the target.

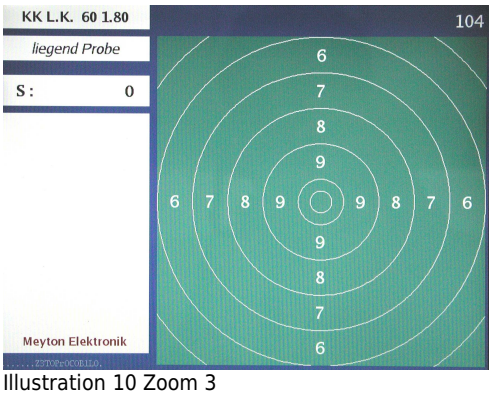

Illustration 10 Zoom 3

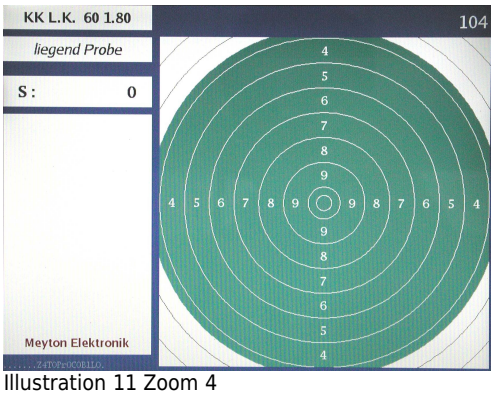

Illustration 11 Zoom 4

2.6. Scrolling Hits

The **zurück** key scrolls a hit backwards on the screen and the **vor** key scrolls a hit forwards.

2.7. Setting the Number of Hits per Target

Press the **zurück** key for longer than 3 seconds. This changes the number of hits per target in the following cycle:

1 hit

2 hits

5 hits

10 hits

?

1 hit

2.8. Change to and from `Hit Image´ and ``Hits per Target´´

Press and hold the **zoom** key for longer than 3 seconds to switch between ``hits image´´ and ``hits per target´´. All hits on the target are shown simultaneously under hits image.

2.9. Printing the Target

Condition:

Hits are recorded on the Trial or Competition target

Press and hold the **vor** key for longer than 3 seconds.

2.10. Setting up List of Competitions

By pressing any two keys simultaneously for longer than 3 seconds a list of competitions can be set up. The control PC switches to service mode. The list number is displayed at the top of the screen. By pressing the Disziplin key this number can be increased, each time by one, up to seven. By pressing a further key the cycle continues again from zero. After setting the desired list, return to the target by pressing any two keys simultaneously as before.

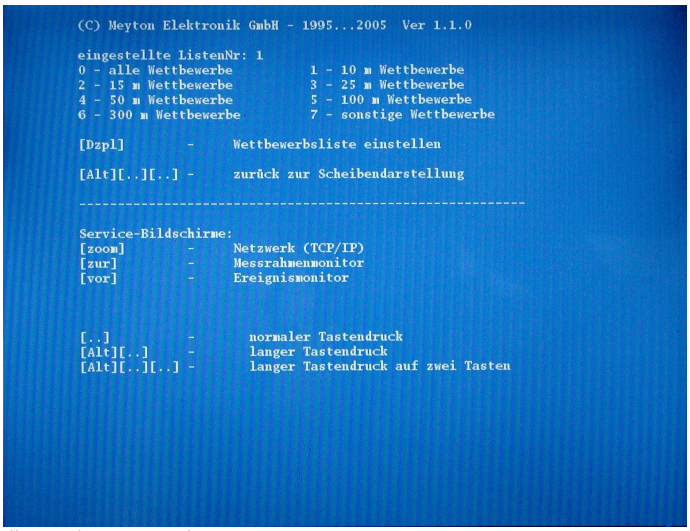

Illustration 12 Service Screen

2.11. Activating / De-activating Competition Mode

The Competition mode can only be activated or deactivated from a work station computer.

3. Status Information

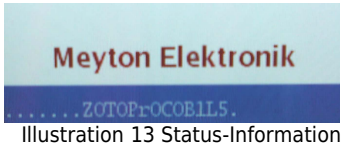

Illustration 13 Status-Information

The status information is shown at the bottom left of the screen. Status information includes the following:

1. **Master Mode;** A capital `M´ in the status information means that the operator console of this firing point operates a group of firing points. All firing points in the same competition form one group. One firing point in this group can become a master. The master mode can only be engaged or deleted by means of the workstation computer of a firing point.
2. **Competition Mode;** A small `m´ in the status information means that the competition mode is activated. The competition mode can only be activated or de-activated via a workstation computer.
3. **Zoom;** A `Z´ in combination with a number means: Z0 – no zoom Z1 – automatic zoom Z2 – display up to ring 8 Z3 - display up to ring 6 Z4 - display up to ring 4 The fixed Zoom display is dependant on the size of the divisions on the target.
4. **Hits per target;** An `S´ combined with a number means the following: S1 – one hit per target is displayed S2 – two hits per target are displayed S5 – five hits per target are displayed S10 – ten hits per target are displayed No ´S´ - status information means that: all hits are displayed on the target.
5. **Competition Phase;** A `T´ combined with a number describes the present phase of the competition (Preparation, Trial, Competition etc.). The following phases are possible: T0 – start status; competition hasn´t started T1 – Trial T2 – Competition T7 – additional trial; e.g. after change of firing point or interruption T8 – Competition has been interrupted T9 – Competition is finished
6. **Printer Identification;** A `Pr´ combined with a two-digit number shows the printer which received the last print job. For example: ``Pr05´´ shows that printer 5 received the last print job.
7. **Cluster;**
   A `C´ combined with a number describes the requirements which have to be met in order to belong to a certain group of firing points (cluster). (Isn't used at the moment).
8. **Allocation of Keys;** A `B´ with a two-digit number shows the set key allocation of the operator console. To operate the competitions different key allocations are necessary on the operator console. Each allocation is given a number as a means of identification. This number can be found behind the `B´ in the status. (see capital - operator console).
9. **List of Competitions;** An `L´ with a number shows the set up list of competitions. These competitions (i.e. recognised by the system) are divided into lists depending on the distance to the target. The lists have the following definitions: L0 – all competitions recognised by system L1 – 10 m competition L2 – 15 m competition L3 – 25 m competition L4 – 50 m competition L5 – 100 m competition L6 – 300 m competition
10. **Prize Shooting;** A `Ps´ in the status information means that this fire point is in prize shooting mode. This is only possible when there is at least one work station computer connected to the system.

4. Operator Console

4.1. General Information

The task which is carried out by pressing a key on the operator console depends on the competition being played. Each competition is given it´s own key allocation. The key allocation for the `easy´ static competitions like e.g. 10 m air rifle, 50m Rifle Rifle Prone has the definition `B1´. See the table below for the most important key allocations.

Identification	Description
B1	Static competition with one position
B2	Static competition with up to 3 different positions; without interruption between positions
B3	Static competition with up to 3 positions; with interruption between positions
B4	Olympic Rapid Fire Pistol
B6	Sport Pistol, Central Fire Pistol
B8	Standard Pistol

Table 1 Overview of Key Allocation

A further difference in the tasks carried out dependant on key allocation can also be seen in the mode Competition and Training (see Competition mode). Tasks like `change or delete a competition´ are of course not possible for a shooter to carry out during a competition, whereas in training these tasks are necessary.

4.2. Description of the most important key allocations

Symbol	Description
Zoom	Zoom-key
Disziplin	Discipline key
zurück	Backwards key
vor	Forward key
Probe	Trial key
Wertung	Competition key
Alt <Taste>	Press key and hold (for longer than 3 seconds)
Alt	Press any 2 keys simultaneously (for longer than 3 seconds)

Table 2 Legend Key Symbols

4.2.1. Key Allocation B1

4.2.1.1 Training

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch between: tenth ring evaluation, ring evaluation, distance between center of hit and center of target and hit circle diameter.

Alt Disziplin if hit is present; delete firing point no hit is present; select a competition if competition selection is activated: load selected competition

zurück if selection is not activated; scroll hits backwards if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forward scroll hits if selection is activated; select next competition

Alt vor if hit is recorded; print target

Probe start trial

Alt Probe carry out measuring system diagnosis

Wertung start competition

Alt ... ... switch to service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.1.2 Competition

Zoom set zoom

Alt zoom switch between hit image and `number of hits per target´

zurück backwards scroll hits

Alt zurück change number of hits per target

vor forward scroll hits

Alt vor print target

Probe if no hit is recorded in the competition; start trial

Alt Probe carry out measuring system diagnosis

Wertung if at trial; start competition

Alt ... ... switch to service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.2. Key Allocation B2

The key allocation B2 is used for competitions with up to three positions. It is only possible to shoot the positions in the order as specified. The order of the positions with the `50m Rifle 3 x 20´ competition is prone, kneeling and standing. A different order is NOT possible!

4.2.2.1 Training

Zoom set zoom

Alt zoom switch between hit image and `number of hits per target´

Disziplin switch between the positions

Alt Disziplin if hit is recorded; delete firing point if no hit is recorded; start selected competition if selection is activated; load selected competition

zurück if selection is not activated; backwards scroll hits if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forward scroll hits if selection is activated; select next competition

Alt vor if hits are recorded; print target

Probe start trial

Alt Probe carry out measuring system diagnosis

Wertung start competition

Alt ... ... switch to service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.1.1.Competition

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin change between positions

zurück backwards scroll hits

Alt zurück change number of hits per target

vor forwards scroll hits

Alt vor if hits is recorded; print out target

Probe if not hits are recorded in the competition; start trial

Alt Probe carry out mearuring system diagnosis

Wertung if at trial; start competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin	select competition list
Alt	switch off service mode

4.2.3. Key Allocation B3

The key allocation B3 is used for competitions with up to three positions. It is only possible to shoot the positions in the order as specified. The order of the positions with the `50m Rifle 3 x 40´ competition is prone, kneeling and standing. A different order is NOT possible!

4.2.3.1 Training

Zoom set zoom

Alt zoom switch between hit image and `number of hits per target´

Disziplin change between positions

Alt Disziplin if hit is recorded ; delete firing point if no hit is recorded; start the selected competition if selection is activated; load selected competition

zurück if selection is not activated; backwards scroll hits if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forwards scroll hits if selection is activated: select next competition

Alt vor if hits are recorded; print out target

Probe start trial

Alt Probe carry out measuring system diagnosis

Wertung start competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.3.2 Competition

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin change between the positions

zurück backwards scroll hits

Alt zurück change number of hits per target

vor forwards scroll hits

Alt vor if hits are recorded; print out target

Probe if no hits are recorded in the competition; start trial

Alt Probe carry out measuring system diagnosis

Wertung if at trial; start competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt	switch off service mode

4.2.4. Key Allocation B4

Olympic Rapid Fire Pistol (OSP).

4.2.4.1 Training

Zoom set zoom

Alt zoom switch between hit image and `number of hits per target´

Disziplin change between: 8 seconds trial, 8 secs. Competition, 6 secs. Competition and 4 secs. Competition

Alt Disziplin if hits are recorded; delete firing point if no hits are recorded; start competition selection is selection is activated; load selected competition

zurück if selection is not activated; backwards scroll hits

if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forwards scroll hits

if selection is activated; select next competition

Alt vor if hit is recorded; print out target

Probe start or stop series

Alt Probe carry out measuring system diagnosis

Wertung start or stop series

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.4.2 Competition

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch between: 8 seconds trial, 8 ,6 and 4 seconds competition

zurück backwards scroll hits

Alt zurück change number of hits per target

vor forward scroll hits

Alt vor if hits are recorded; print out target

Probe start or stop series

Alt Probe carry out measuring system diagnosis

Wertung start or stop series

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt	switch off service mode

4.2.5. Key Allocation B6

Sport Pistol (SP), Central Fire Pistol.

4.2.5.1 Training

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch between: precision and duell

Alt Disziplin if hits are recorded; delete firing point if no hits are recorded; start competition selection if hits are recorded; load selected competition

zurück if selection is not activated; backwards scroll hits if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forward scroll hits if selection is activated; select next competition

Alt vor if hits are recorded; print out target

Probe start or stop series trial starten

Alt Probe carry out measuring system diagnosis

Wertung start or stop series competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.5.2 Competition

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch bewtween: precision and duell

zurück backwards scroll hits

Alt zurück change number of hits per target

vor forwards scroll hits

Alt vor if hits are recorded; print out target

Probe start or stop series trial

Alt Probe carry out measuring system diagnosis

Wertung start or stop series competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.6. Key Allocation B8

Standard Pistol.

4.2.6.1 Training

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch between: 150 secs., 20 secs., 10 secs.

Alt Disziplin if hits are recorded; delete firing point

if no hits are recorded; start competition selection if selection is activated; load competition selection

zurück if selection is not activated; backwards scroll hits if selection is activated; select previous competition

Alt zurück change number of hits per target

vor if selection is not activated; forwards scroll hits if selection is activated; select next competition

Alt vor if hits are recorded; print out target

Probe start or stop series trial

Alt Probe carry out measuring system diagnosis

Wertung start or stop series competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

4.2.6.2 Competition

Zoom set zoom

Alt zoom switch between hits image and `number of hits per target´

Disziplin switch between: 150 secs., 20 secs., 10 secs.

Zurück backwards scroll hits

Alt zurück change number of hits per target

vor forwards scroll hits

Alt vor if hits are recorded; print out target

Probe start or stop series trial

Alt Probe carry out measuring system diagnosis

Wertung start or stop series competition

Alt ... ... switch on service mode

---

in service mode:

Disziplin select competition list

Alt ... ... switch off service mode

5. Self Test

It is only necessary for those who are responsible for the technical maintenance of a firing point to have a working knowledge of the service functions. These functions serve to provide early warning signals in the case of technical problems or for the purpose of diagnosis in the case of breakdowns. Some of these functions are for the exclusive use of Meytons technical personnel. A normal firing point official requires no knowledge of these functions.

5.1. Starting Self-Test

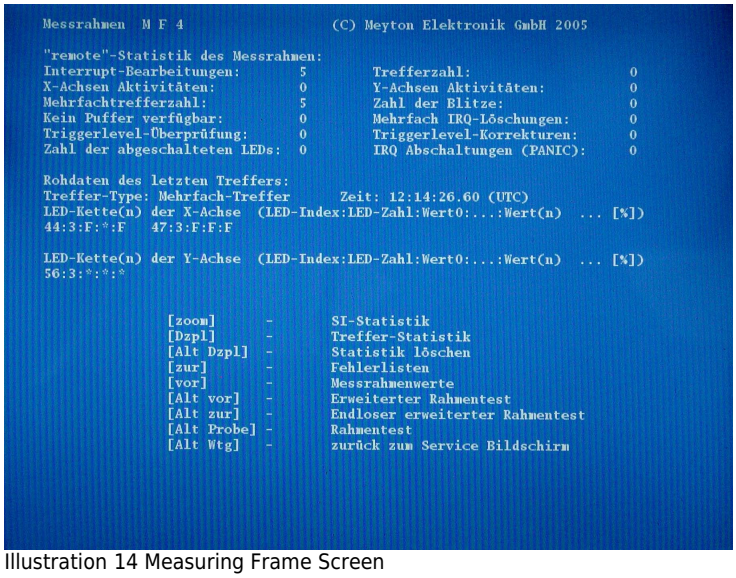

Illustration 14 Measuring Frame Screen

Press and hold any two keys and the service screen automatically appears on the screen. By pressing the key **zurück** you enter the service area of the measuring frame. Press and hold the key **Probe** (longer than 3 seconds) and the self test is started. This takes between two and five minutes – depending on the type of measuring frame in use -.

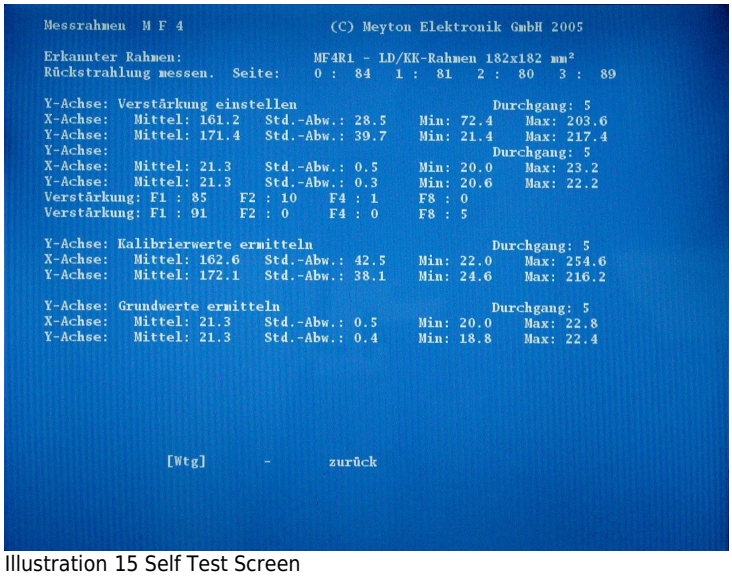

Illustration 15 Self Test Screen

The screen as above (see illustration 14) is gradually built up during a self test. By pressing any key this screen can be stopped. The contents of this screen is for the

use of Meyton experts and not for the `normal´ user.

5.2. Checking Self-Test Result

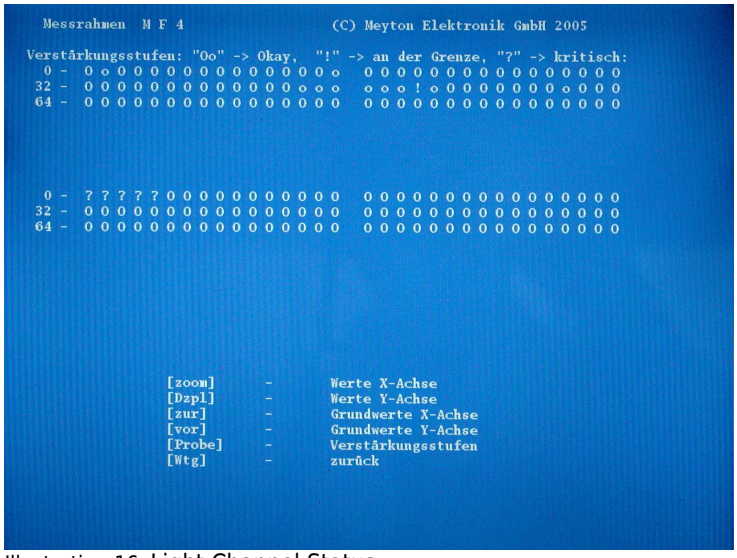

Illustration 16 Light Channel Status

Press keys **zurück** und then **Probe** . An overview of the light channels and their status then appears on the screen. Each channel is represented by a sign. The signs are ordered in rows. If you were to arrange the signs in a row one after the other, this would represent an illustration of the light channels from right to left or from bottom to top. Each sign has the following meaning:

``O´´ - Light channel optimum status (optimal) ``o´´ - Light channel is okay ``!´´ - Light channel is bordering critical limit

``?´´ - Light channel is critical (kritisch)

If a light channel has the status `on limit´ or `critical´, this is usually caused by dirt on the measuring frame and only in very seldom cases due to a technical problem.

6. Installation Notes

6.1. Position at the firing points

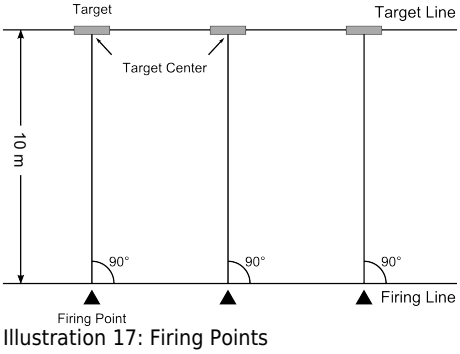

Illustration 17: Firing Points

As a parallax situation exists on the 10m MF4R1 / MF5R1 targets, the shooter should be as near as possible to the centre of the firing point and should not change his location during the course of the shooting.

It is useful if the organizing committee marks the center of firing points at the shooting range.

List of Illustrations

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