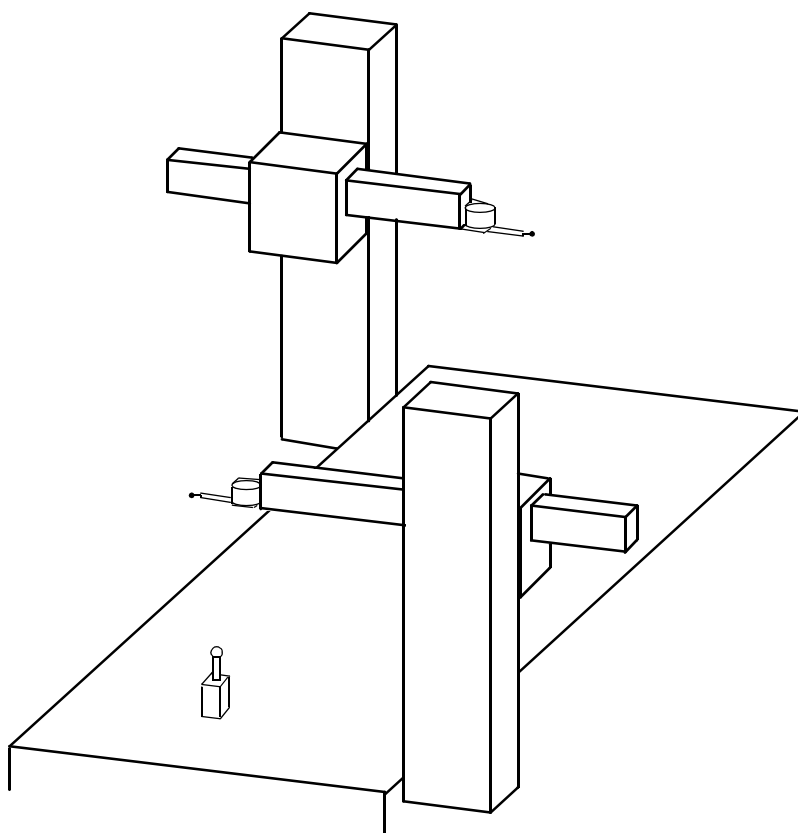


UMESS

Option 11 Remote start and linking for twin columns for UNIX and LINUX



Operating Instructions



This manual must not be circulated or copied, or its contents utilized and disseminated, without our express written permission. Persons misusing this manual are subject to prosecution.

All rights reserved, especially in cases of granting a patent or registering a utility model.

Subject to modifications. All rights pertaining to changes in the measuring machine version, scope of delivery, the software packages and the pertaining documentation reserved.

Carl Zeiss does not grant any warranty on this material and no implied warranties on commercial quality and the suitability for a certain purpose.

Carl Zeiss cannot be held liable for errors included in this document, accidental damage or damage resulting from the provision, function or use of this manual.

All product names are registered trademarks or trademarks of the corresponding proprietors.

Carl Zeiss
Unternehmensbereich
Industrielle Meßtechnik
D-73446 Oberkochen

Document Type: . . . Operating instructions
Version: 8.x
Date: 11/01
Order No.: 61212-1120102

Preface

It is here assumed that the user is familiar with the coordinate measuring machine and its components. Please keep all printed materials delivered with the measuring machine ready to hand at all times.

Principles in this operating manual

Before starting to work with this manual, the user has to familiarize himself with the applied principles.

In the following, you will find information on the used font types, signs and symbols.

Typographic principles

The font types and font schemes used in this manual have the following meaning:

- **bold face**
 - Dialog element on the screen
Example: "... the button <TERMIN>"
 - Term
Example: "During calculation the location of a **measuring element** in relation to a **reference element** is determined."
 - File and directory names
Example: **/home/zeiss/UB**
- *italic*
 - Highlighted text of which the contents are very important
Example: "Click with the *right* mouse button ..."
 - Cross reference
Example: "..., see also ► *"Preparing and starting a master-slave run" on page 1-2*"
- Courier
Program code, file contents
- **Courier bold face**
Text in dialog windows and records

Signs and symbols

Special signs and symbols are used in this manual.

Symbols for warnings and information



Danger!

In this case, special care is called for. The warning triangle indicates risk of injury. Non-observance of this warning may cause personal injury.



Note!

This symbol warns against situations which may lead to loss of data, measuring errors, errors in the measuring run, collisions or damage to the machine and workpiece.



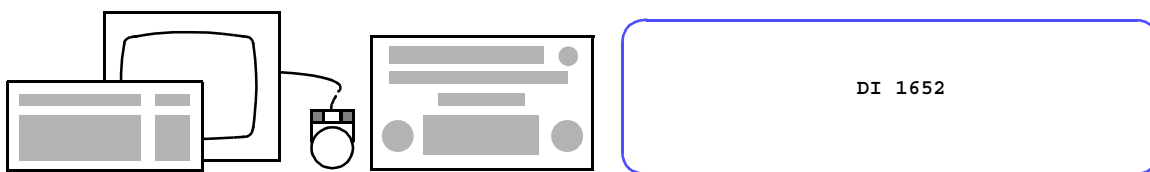
The **Note** symbol is shown next to important text and helpful additional information.

Symbol for function call

There are several possibilities:

- Direct input by means of the DI number
- Function selection by means of the pull-down menu
- Selection by means of icons

Example:



Symbol for softkey

Reference to softkeys in dialogs.

Overview of chapters

These operating instructions describe the remote start and linking with UMESS Option 11 twin columns.

The following subjects are described:

- *“Overview one button start for twin columns” on page 1-1*
- *“Prerequisites” on page 2-1*
- *“Program functions for the remote control” on page 3-1*
- *“Preparations” on page 4-1*
- *“Special situations” on page 5-1*
- *“Application example” on page 6-1*

Table of contents

| | | |
|------------------|---|----------|
| | Principles in this operating manual | 3 |
| | Typographic principles | 3 |
| | Signs and symbols | 4 |
| | Overview of chapters | 5 |
| Chapter 1 | Overview one button start for twin columns | |
| | Programming the CNC measuring runs in the MAN mode | 1-2 |
| | Preparing and starting a master-slave run | 1-2 |
| Chapter 2 | Prerequisites | |
| | Hardware technology | 2-2 |
| | Safety measures | 2-2 |
| | Checking the linking signals | 2-2 |
| Chapter 3 | Program functions for the remote control | |
| Chapter 4 | Preparations | |
| | Creating the slave CNC measuring run | 4-2 |
| | Creating the master CNC measuring run | 4-2 |
| | Bringing the remote CMM to the "Remote control" status .. | 4-3 |
| Chapter 5 | Special situations | |
| Chapter 6 | Application example | |
| | Progr. the CNC measuring runs in MAN operating mode | 6-2 |
| | Starting CNC measuring runs | 6-3 |

Chapter



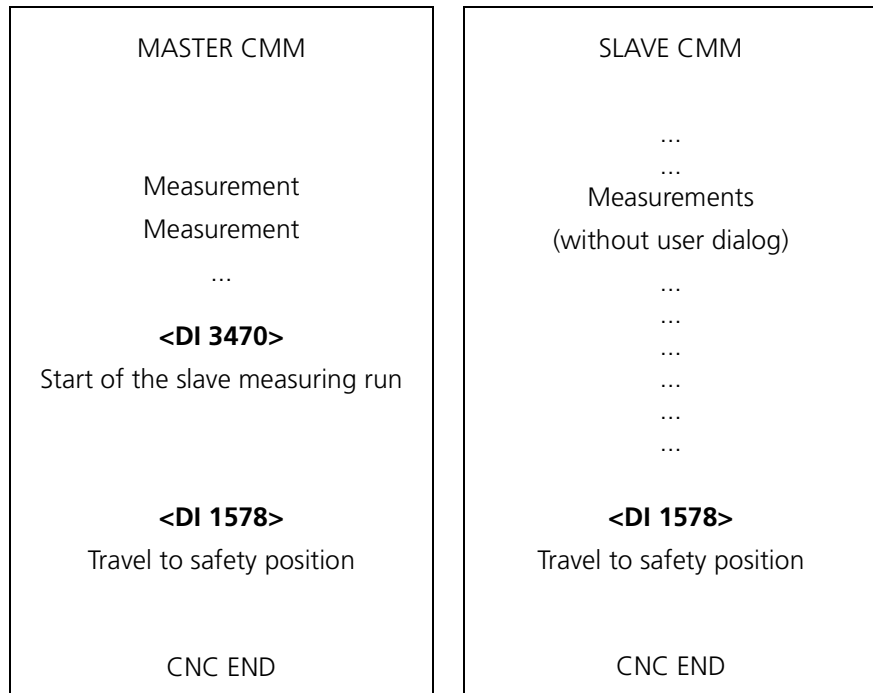
Overview one button start for twin columns

This option enables the remote start of a CNC measuring run: The start command for a CNC measuring run is made on a remote column within the CNC run of a column. In this case the status of the linking signals of the CMM control are also checked, see prerequisites.

This chapter contains:

- Programming the CNC measuring runs in the MAN mode 1-2
- Preparing and starting a master-slave run. 1-2

Programming the CNC measuring runs in the MAN mode



Preparing and starting a master-slave run

- Check whether both columns are in the safety position. If not, move the CMM clear and call **<DI 1578>**.
- Set the AUTO or MAN operating mode at both control cabinets.
- Call **<DI 1013>** on the CMM to be remote controlled (slave status is activated).
- Call the CNC measuring run on the master CMM.

NOTE

See also further information in the instructions for the system administrator.

Chapter

2

Prerequisites

This chapter contains:

| | |
|---------------------------------------|-----|
| Hardware technology. | 2-2 |
| Safety measures. | 2-2 |
| Checking the linking signals. | 2-2 |

Hardware technology

A CNC run may only be started if the object to be measured has previously been positioned correctly using the automation (feed device). The signals of the digital I/O interface of the CMM control then have the following status:

Bit 0 = 1 Object to be measured is positioned

The assignment is hardwired, it cannot be changed by the operator.

Safety measures

- When starting a CNC run by a remote computer, make sure that no one is in the working area of the measuring machine. This check must be carried out before starting the coordinate measuring machine.
- Make sure that the address and/or name of a computer only exists once within a computer network.

Checking the linking signals

The following overview shows when the linking signals are checked:

| Mode of operation | Process | Effects, Measures |
|-------------------|------------------------------|--|
| AUTO | CNC run | Status of the linking signals is checked. Run is stopped as long as the object to be measured is not in position. |
| MAN | CNC run | No check on the master. <i>The operator must decide himself whether he is allowed to start a run.</i> |
| AUTO or MAN | Remote controlled CNC run | Status of the linking signals is checked. Run is stopped as long as the object to be measured is not in position. |

Chapter

3

Program functions for the remote control

<DI 1013>

This function is called at the computer of the column to be controlled. The computer now waits for the command from a remote computer to start a local CNC measuring program.

This function is reset by calling **<CANCEL>** or EMERGENCY STOP.

<DI 1578>

Travel to the safety position which has been specified during the installation. This safety position must be travelled to before an object is transported using the automatic feed device.

<DI 3470>

This function gives the command from the remote computer to start a CNC run on the computer of the column to be controlled.

Chapter

4

Preparations

This chapter contains:

| | |
|--|-----|
| Creating the slave CNC measuring run. | 4-2 |
| Creating the master CNC measuring run | 4-2 |
| Bringing the remote CMM to the "Remote control" status | 4-3 |

Creating the slave CNC measuring run

A slave CNC measuring run runs on the coordinate measuring machine to be remote controlled. It is programmed there and remains stored in the local computer.

Special features:

- The measuring run must not contain steps which would require the intervention of the operator (e.g. replying to dialogs).
- At the end of the CNC measuring run the coordinate measuring machine must be travelled to the safety position with **<DI 1578>**. Make sure before the call that the safety position can be reached without collision.
- No blank is allowed in the program name of this CNC run.

Creating the master CNC measuring run

A master CNC run runs on the CMM which starts the remote control. The **<DI 3470>** is programmed at the desired place in the CNC measuring run. During the programming mode, the computer name and session number of the remote system as well as the program name of the CNC measuring run to be started on the remote system are requested.

During a CNC run the slave CNC measuring run is started and monitored by this function.

Bringing the remote CMM to the "Remote control" status

The following steps are required to change over a CMM:

- If not already done, call **<DI 1578>** and enable the automation.
- Call **<DI 1013>** on the CMM to be remote controlled. Now locally stored CNC measuring runs can be started by a remote CMM. Intervention on the CMM to be remote controlled is no longer allowed, as this could have unpredictable consequences.

Exception

A remote controlled CNC measuring run can be concluded with **<CANCEL>**. This is interpreted as a malfunction on the master CMM.

Chapter

5

Special situations

The following overview explains special situations during the remote controlled CNC measuring run. These do not normally occur, but cannot be excluded technically.

| Situation | Consequences | Measures |
|---------------------------------------|---|--|
| Failure of linking signal | The CMM can no longer execute CNC functions (e.g. probe change, positioning) | Switch the operating mode switch to MAN. Caution: Linking checks no longer take place. |
| <CANCEL> during the CNC measuring run | CNC measuring runs are cancelled on the master and slave CMM. The slave CMM is no longer in the remote control status. | If necessary, move the CMM clear and then call <DI 1578>. Call <DI 1013> on the CMM to be remote controlled before renewed start of a remote controlled CNC measuring run. |

| Situation | Consequences | Measures |
|---|--|---|
| EMERGENCY STOP during the CNC measuring run | The drives switch off, the slave CMM is no longer in the remote control status. | <p>Note the computer dialog of each column (switch on the drives again after the situation has been resolved).</p> <p>If necessary, move the individual columns clear and continue the CNC measuring runs separately or call<DI 1578>. Call <DI 1013> on the CMM to be remote controlled before renewed start of a remote controlled CNC measuring run.</p> |
| Collision during the CNC measuring run | The drives switch off, the slave CMM is no longer in the remote control status. | <p>Note the computer dialog of each column (switch on the drives again after the situation has been resolved).</p> <p>If necessary, move the individual columns clear and continue the CNC measuring runs separately or call<DI 1578>. Call <DI 1013> on the CMM to be remote controlled before renewed start of a remote controlled CNC measuring run.</p> |

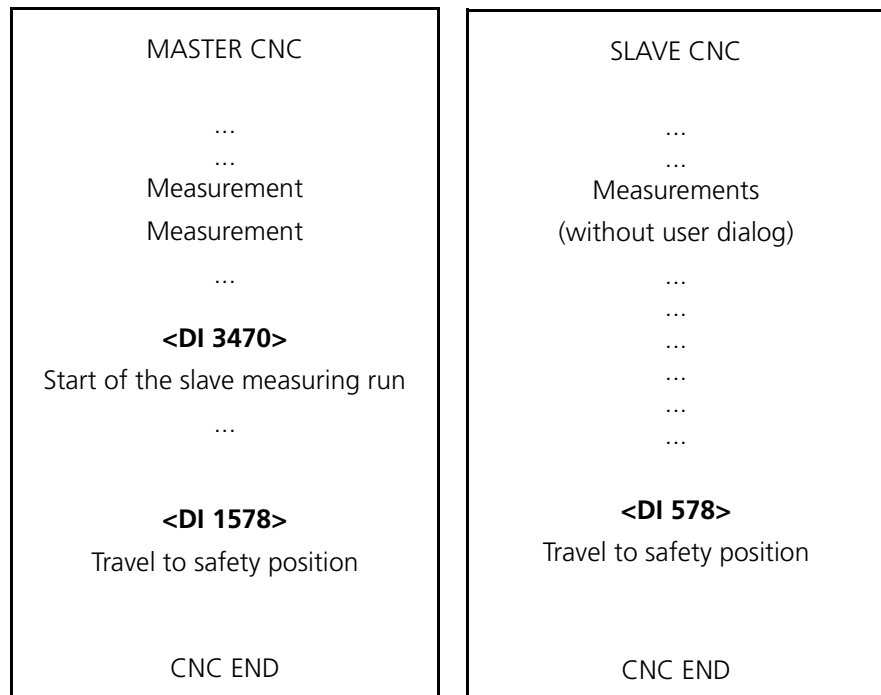
Chapter 6

Application example

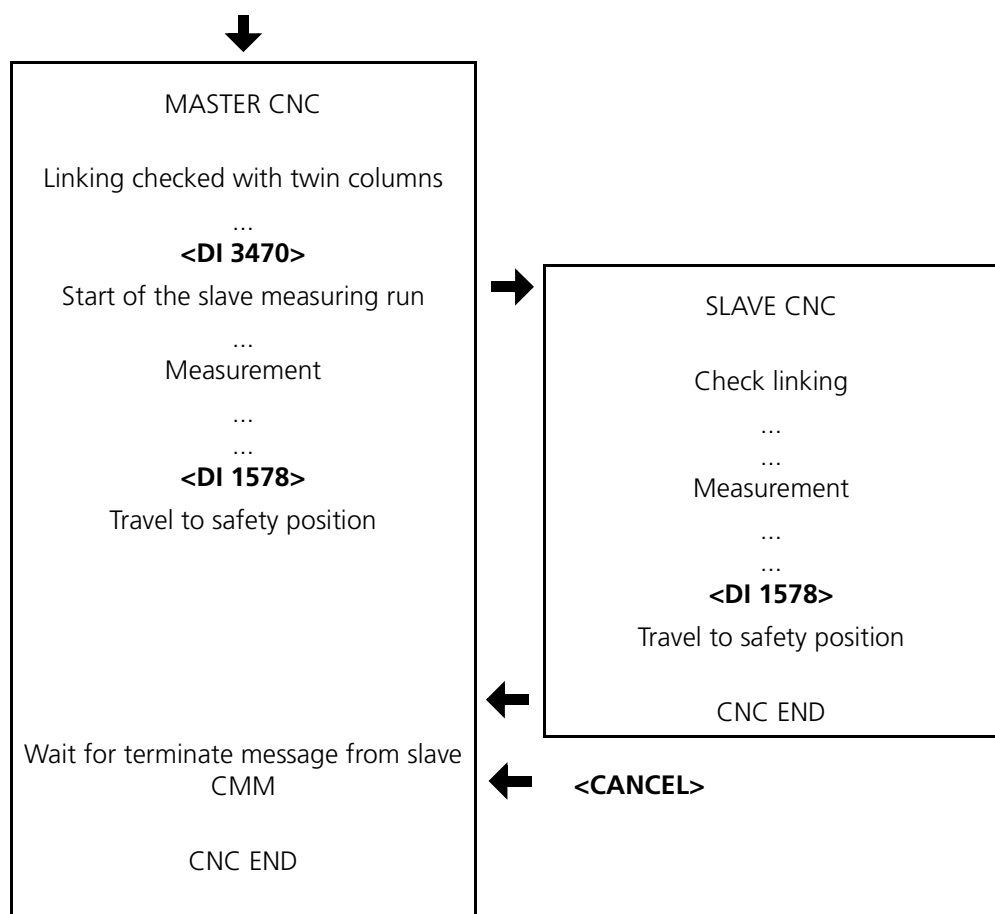
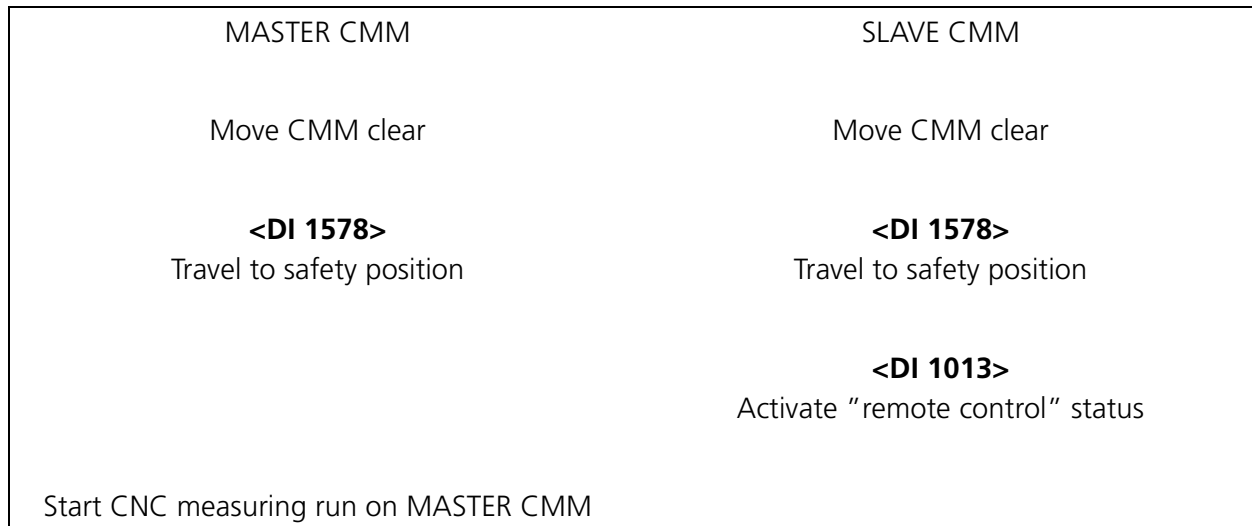
This chapter contains:

| | |
|---|-----|
| Progr. the CNC measuring runs in MAN operating mode | 6-2 |
| Starting CNC measuring runs. | 6-3 |

Progr. the CNC measuring runs in MAN operating mode



Starting CNC measuring runs



Index

A

Application example 6-1

C

Checking the linking sign 2-2

Creating the master CNC measuring run
4-2

Creating the slave CNC measuring run 4-
2

H

Hardware technology 2-2

P

Preparations 4-1

Prerequisites 2-1

Program functions for the remote control
3-1

Programming the CNC measuring runs in
the MAN operating mode 6-2

S

Safety 2-2

Special situations 5-1

