DOCUMENTATION ISG-kernel

Functional description
Delete distance to go

Short description:
FCT-C28

Preface

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No claims may be made for products which have already been delivered if such claims are based on the specifications, figures and descriptions contained in this documentation.

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This description is solely intended for skilled technicians who were trained in control, automation and drive systems and who are familiar with the applicable standards, the relevant documentation and the machining application.

It is absolutely vital to refer to this documentation, the instructions below and the explanations to carry out installation and commissioning work. Skilled technicians are under the obligation to use the documentation duly published for every installation and commissioning operation.

Skilled technicians must ensure that the application or use of the products described fulfil all safety requirements including all applicable laws, regulations, provisions and standards.

Further information

Links below (DE)

https://www.isg-stuttgart.de/produkte/softwareprodukte/isg-kernel/dokumente-und-downloads

or (EN)

https://www.isg-stuttgart.de/en/products/softwareproducts/isg-kernel/documents-and-downloads

contains further information on messages generated in the NC kernel, online help, PLC libraries, tools, etc. in addition to the current documentation.

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It is forbidden to make any changes to the software configuration which are not contained in the options described in this documentation.

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General and safety instructions

Icons used and their meanings

This documentation uses the following icons next to the safety instruction and the associated text. Please read the (safety) instructions carefully and comply with them at all times.

Icons in explanatory text

➢ Indicates an action.

⇨ Indicates an action statement.

⚠ DANGER

Acute danger to life!

If you fail to comply with the safety instruction next to this icon, there is immediate danger to human life and health.

⚠ CAUTION

Personal injury and damage to machines!

If you fail to comply with the safety instruction next to this icon, it may result in personal injury or damage to machines.

Attention

Restriction or error

This icon describes restrictions or warns of errors.

Notice

Tips and other notes

This icon indicates information to assist in general understanding or to provide additional information.

Example

General example

Example that clarifies the text.

Programing Example

NC programming example

Programming example (complete NC program or program sequence) of the described function or NC command.

Release Note

Specific version information

Optional or restricted function. The availability of this function depends on the configuration and the scope of the version.

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1   Overview

Task

The "Delete distance to go" function interrupts the actual path motion and starts a short cut by straight line to the target position of next block. The distance to go of the current (interrupted) block is then deleted.

The operator commands motion interruption via the PLC.

Properties

If the interrupted block was executed in rapid traverse(G00), the short cut is also executed in rapid traverse. Otherwise, the short cut is executed with G01 at the programmed feed rate of the next block. The interruption can also be started during a circular motion (G02/G03). In general, a short cut is always executed as a linear motion.

Path-influencing functions (G61, spline, #HSC, etc.) are not considered in the short cut.

Programming

If the delete distance to go only contains one block, a command from the PLC is sufficient. There is no need for an explicit NC command.

Deleting distance to go can contain multiple blocks. Therefore the marker denoting the end of distance to go can be set beforehand in the NC program using the NC command #DEL DIST2GO [...] [▶ 12].

Parameterisation

The P-STUP-00033 [▶ 42] function must be parameterised in order to use it.

Mandatory note on references to other documents

For the sake of clarity, links to other documents and parameters are abbreviated, e.g. [PROG] for the Programming Manual or P-AXIS-00001 for an axis parameter.

For technical reasons, these links only function in the Online Help (HTML5, CHM) but not in pdf files since pdfs do not support cross-linking.

2   Delete distance to go

2.1   Delete single distance to go

The Delete single distance to go function interrupted the current movement and starts a short cut on a straight line to the target position of the next block.

- You can interrupt the path motion vis the PLC (Delete distance to go control unit [▶ 28]). The distance to go in the current block is then deleted.
- The block and position of the interrupt is not known in advance and not marked in the ISO program.
- Continue with linear motion to target position of next block (short cut).
- Path velocity is decelerated to 0 after interrupt at the end of the next block.
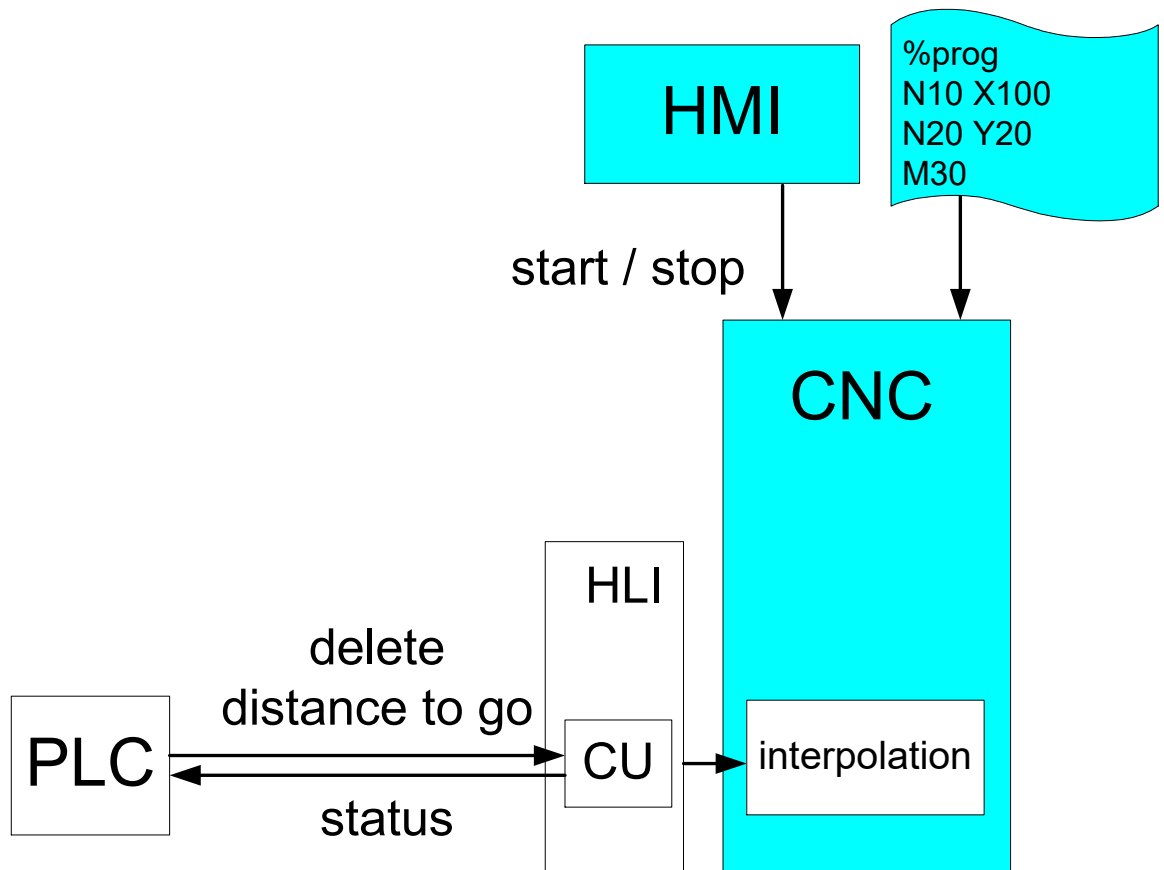
Fig. 1: Delete interfaces of single distance to go

Properties

- The short cut is executed as a linear movement.
- If the interrupted block was executed in rapid motion (G00), the short cut is also executed in rapid motion. Otherwise, the short cut is executed with G01 at the programmed feed rate of the next block.
- The interrupt can be started within a circular motion (G02/G03) but it is not executed as a circular motion itself.
- The short cut itself can also be interrupted again. The function then moves to the target position of the next block.

Restrictions

Path-influencing functions (G61, spline, #HSC, etc.) are not considered in the short cut.

⚠ **DANGER**

The user is responsible for preventing any machine collision when a modified contour is executed.

---

i **Notice**

A "Delete distance to go" Deletes the remaining distance after stopping within an NC block.

The stopping position is only known precisely after velocity v = 0 is reached. This position depends on the actual path velocity and the braking distance.

For short blocks or near block end, the position can be in the current or in the next block. In this case the result of "delete distance to go" depends on the NC block in which the stop position occurs.

To avoid this effect, the user can first stop the current motion using a FEEDHOLD and then request "delete distance to go".

Programing Example

Deleting distance to go

```
%dist.nc
N05 G0 X0 Y0
N10 G1 X80 F500    ;interrupt and delete distance to go
N20 G1 Y60
N30 G1 X60 Y80
N40 M30
```
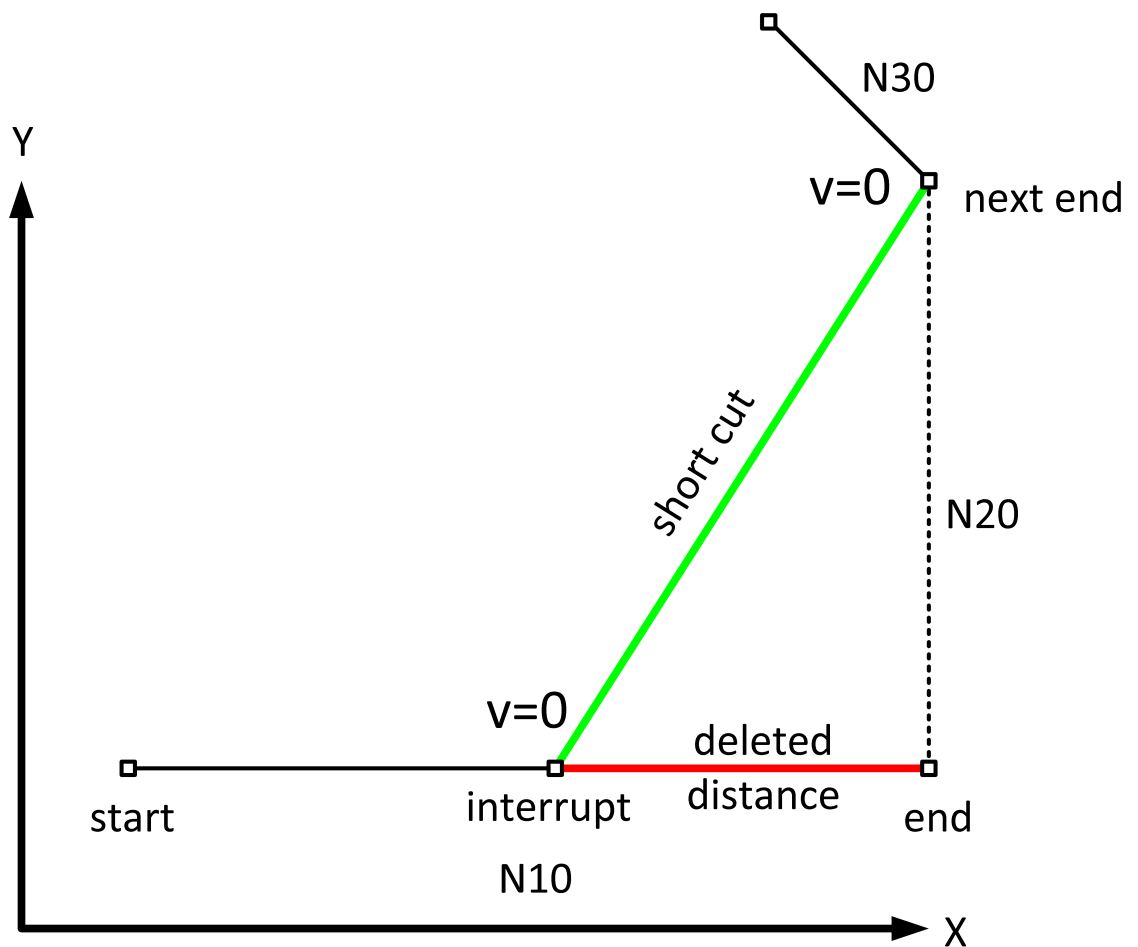

Fig. 2: Simple example - Delete distance to go in block N10

Presentation of additional processes
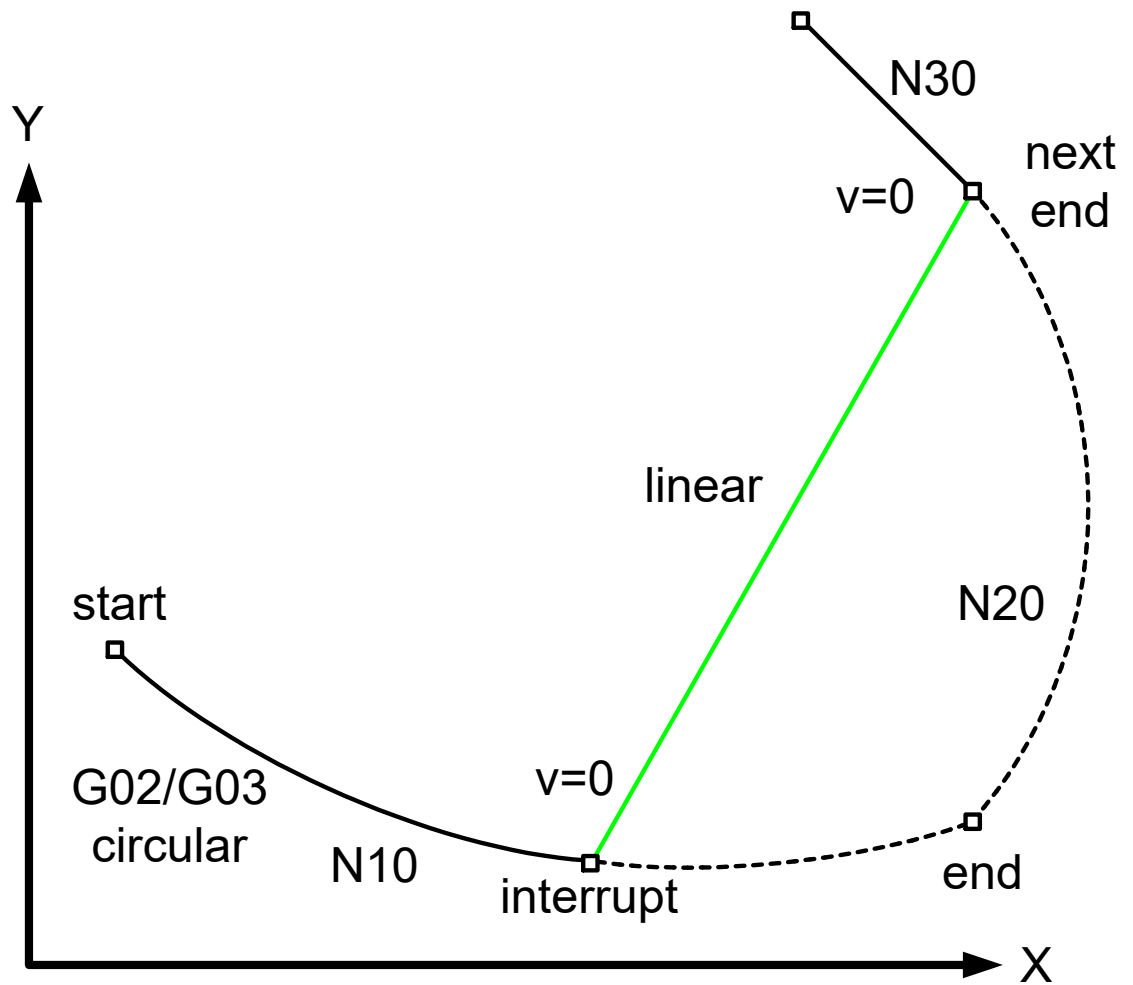
Fig. 3: Delete distance to go with circles
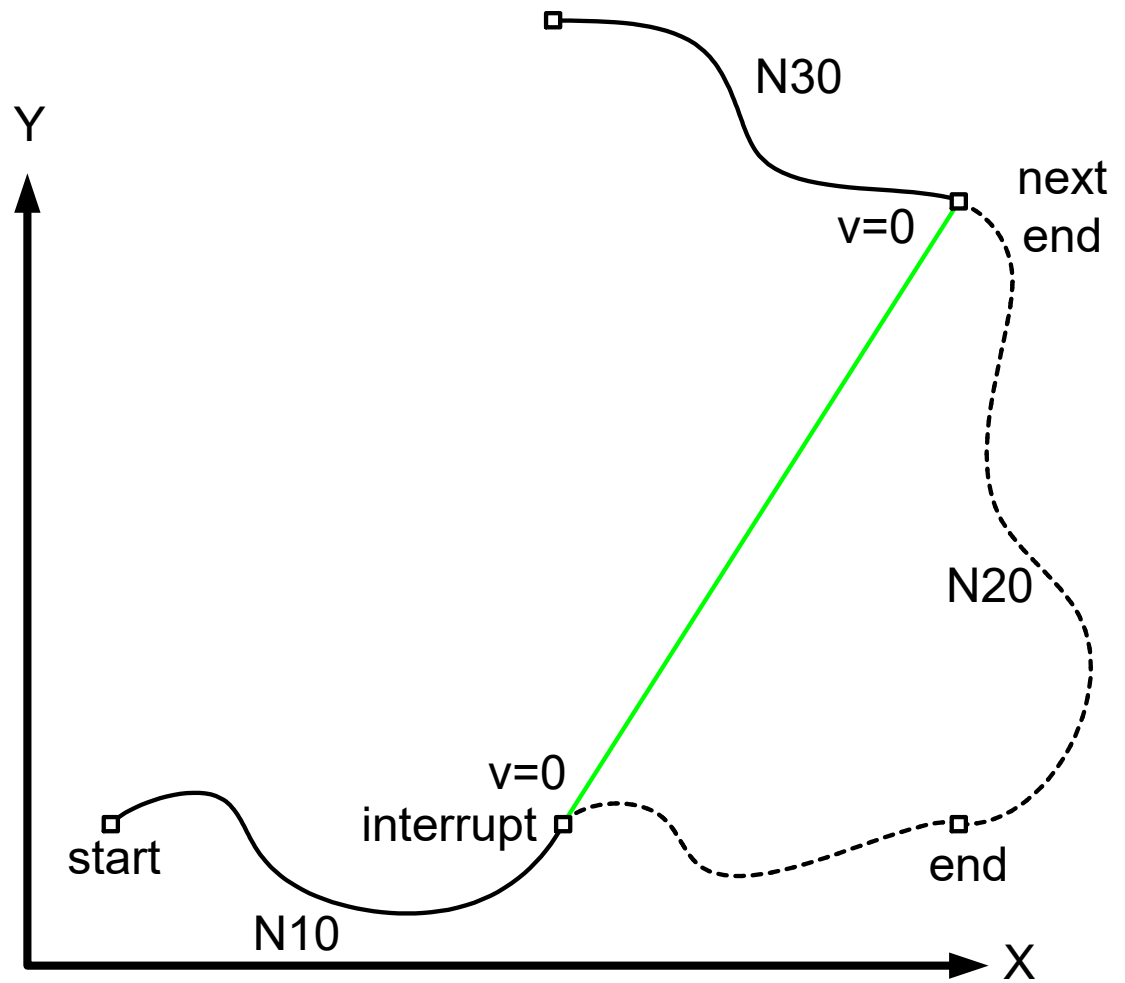
Fig. 4: Delete distance to go with polynomials

2.2   Delete distance to go up to an explicit end marker

Deleting distance to go can contain multiple blocks. In addition, the distance to go marker can be predefined in the NC program.

#DEL DIST2GO [[**END** <32bit>] **]**

If the end marker is set without an activation bit, END = 1 is set by default.

#DEL DIST2GO (corresponds to #DEL DIST2GO **[END** = 1])

Afterwards, the jump marks can be individually activated by the PLC during runtime (ACTIVATION). This can be executed via the control unit "Delete distance to go, end marker [▶ 29]".

Individual jump markers can also be compiled in groups using the same activation markers.
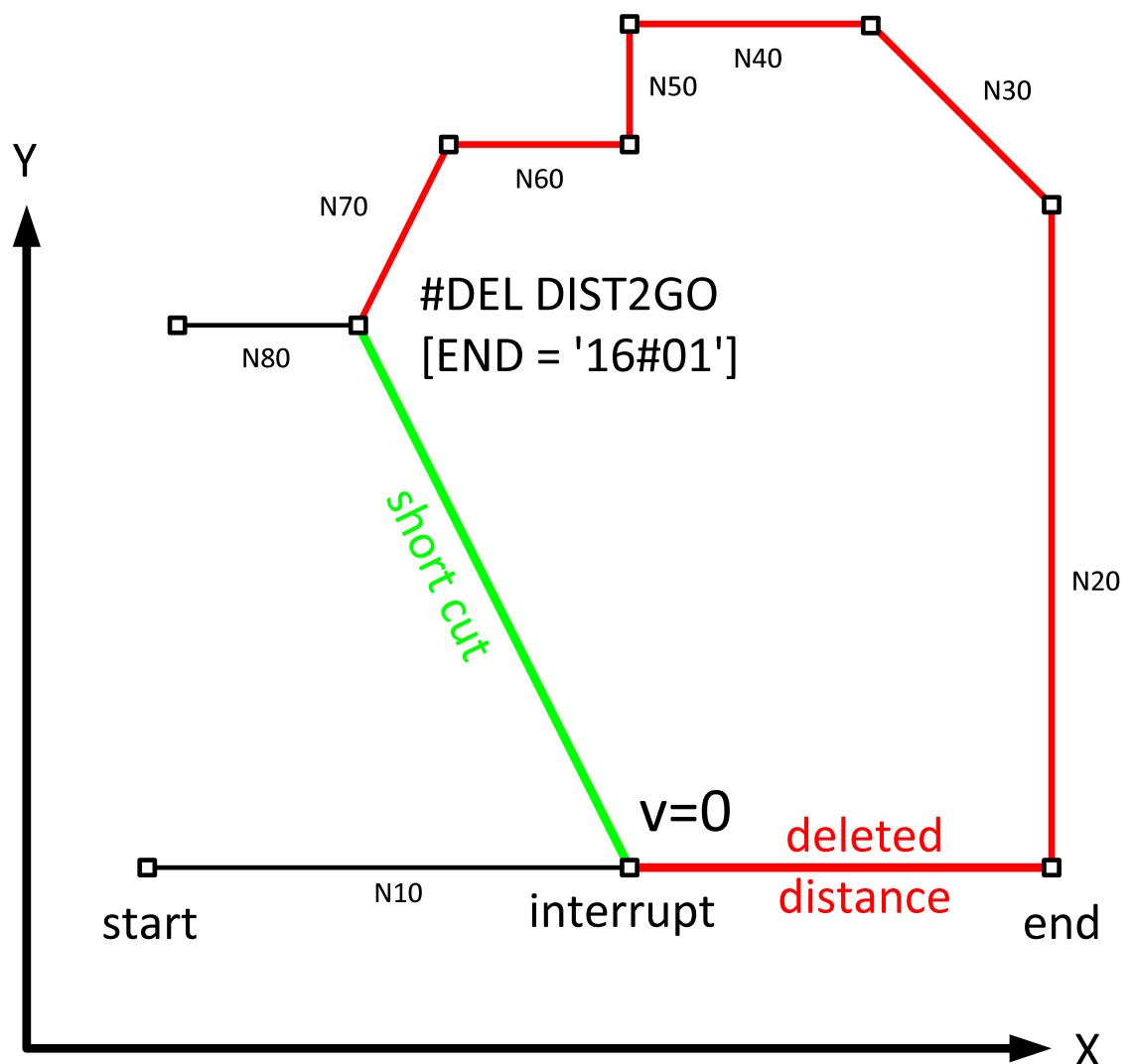
Fig. 5: Delete distance to go up to a marker
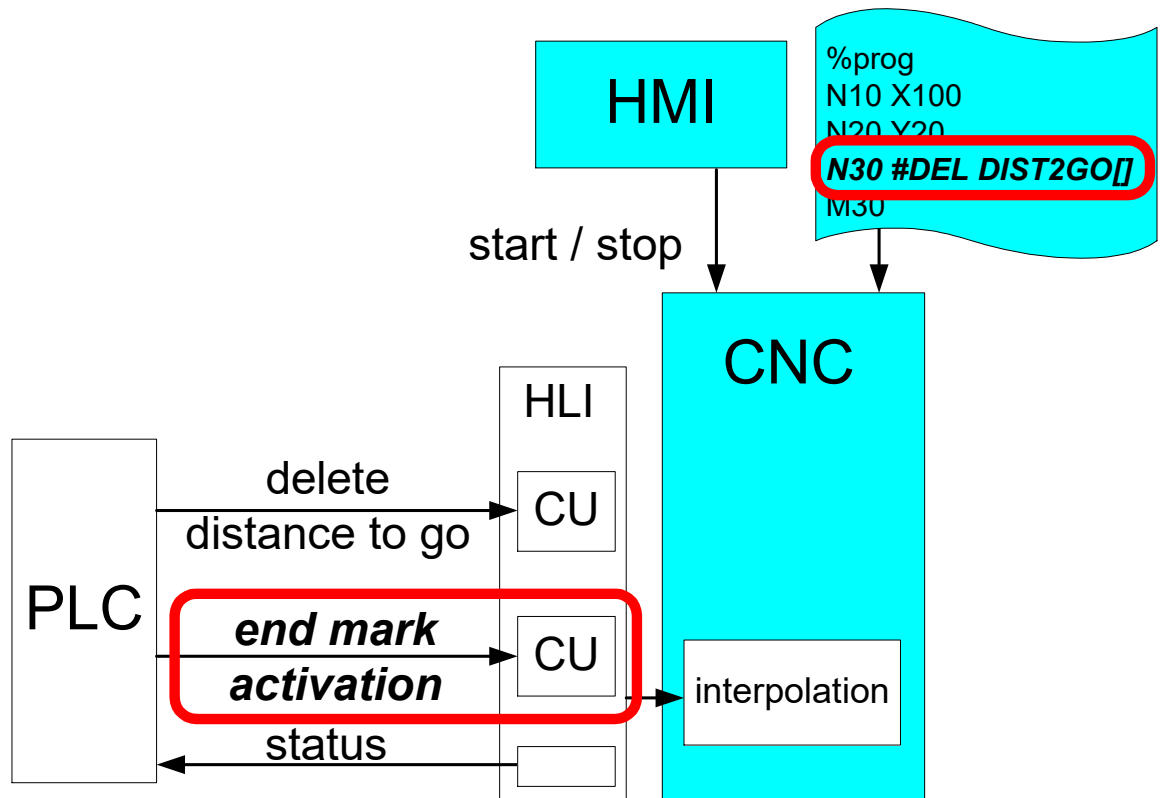
Fig. 6: Extended interfaces of "Delete distance to go".

Downwards compatibility

If no end marker is set valid by the PLC interface (control unit activation = 0), the NC moves to end of the next motion block as before.

No valid end marker

If no valid end marker is found up to the end of the program or the function "Delete distance to go" is commanded in the last motion block of the program, the motion is terminated prematurely at the stop position and a warning ID 50810 is output.

All other non motion-related NC commands are still executed at this position (e.g. technology functions, M functions, etc.).
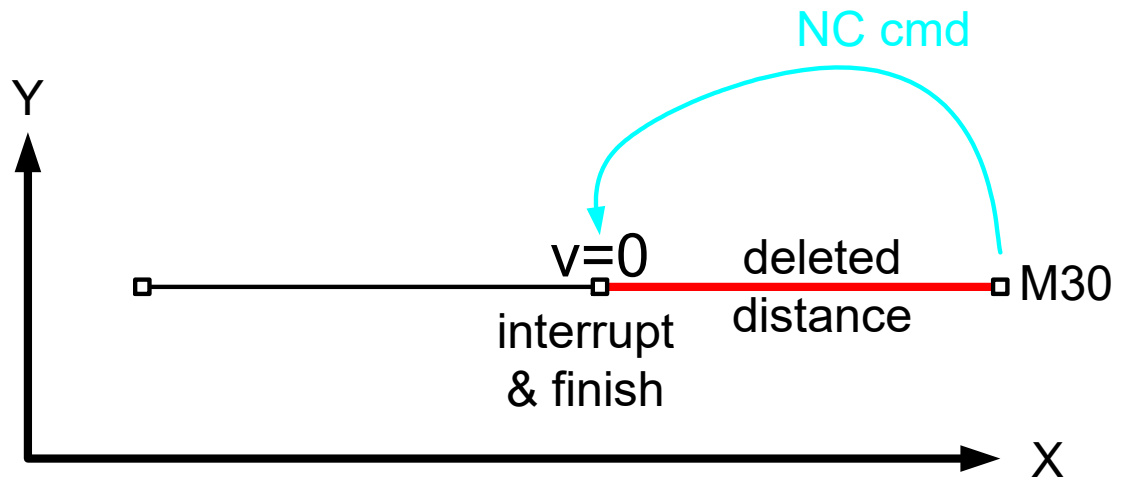
Fig. 7: Delete distance to go without end marker up to M30

> **Notice**
>
> A valid end marker is only valid if the command (see section PLC interface (control unit and the HLI)) is executed.

> **Programing Example**
>
> **Delete distance to go up to an explicit marker**

```
%deldisttogo_end_mark
…
N029 G02 Y200 J100
N031 G01 Y220
N032 G00 X110 Y220
N033 Y230
N034 X120
N035 Y240
N040 X130
N041 #DEL DIST2GO    ;Default ACTIVATION = '16#01'
N050 Y250
N051 #DEL DIST2GO [END='16#01'] ; short cut target
N060 X150
N061 #DEL DIST2GO [END=2] ; short cut target
N070 Y300
N071 #DEL DIST2GO [END='16#0105'] ; short cut target
N080 X200
N081 #DEL DIST2GO [END=8] ; short-cut target
N090 Y350
N100 X250
…
M30
```
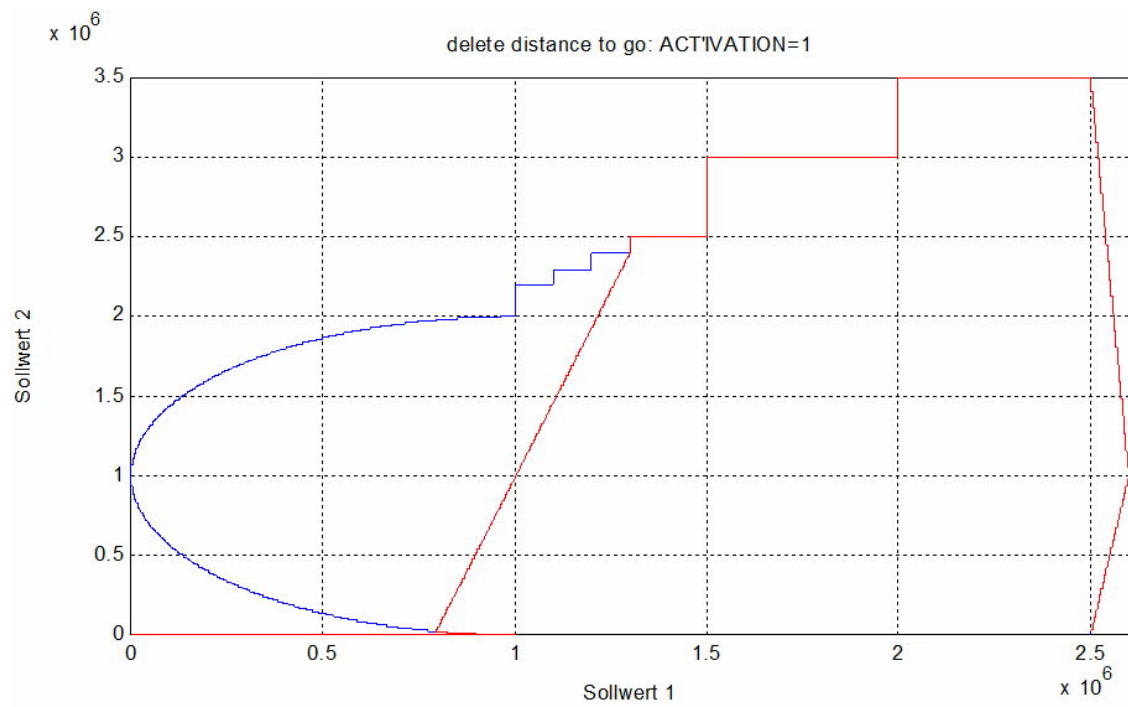
Fig. 8: Representation of an explicit marker

2.3   Interface signals

Signals and status

"Delete distance to go" is started by the rising edge of the signal at the PLC interface (commanded value in the control unit on the HLI). Signal detection (rising edge) is output in the control unit.

If the signal is cleared before the short cut is started, the original programmed contour is continued.

As long as the changed contour is executed, "delete distance to go active" = TRUE is displayed on the PLC interface.
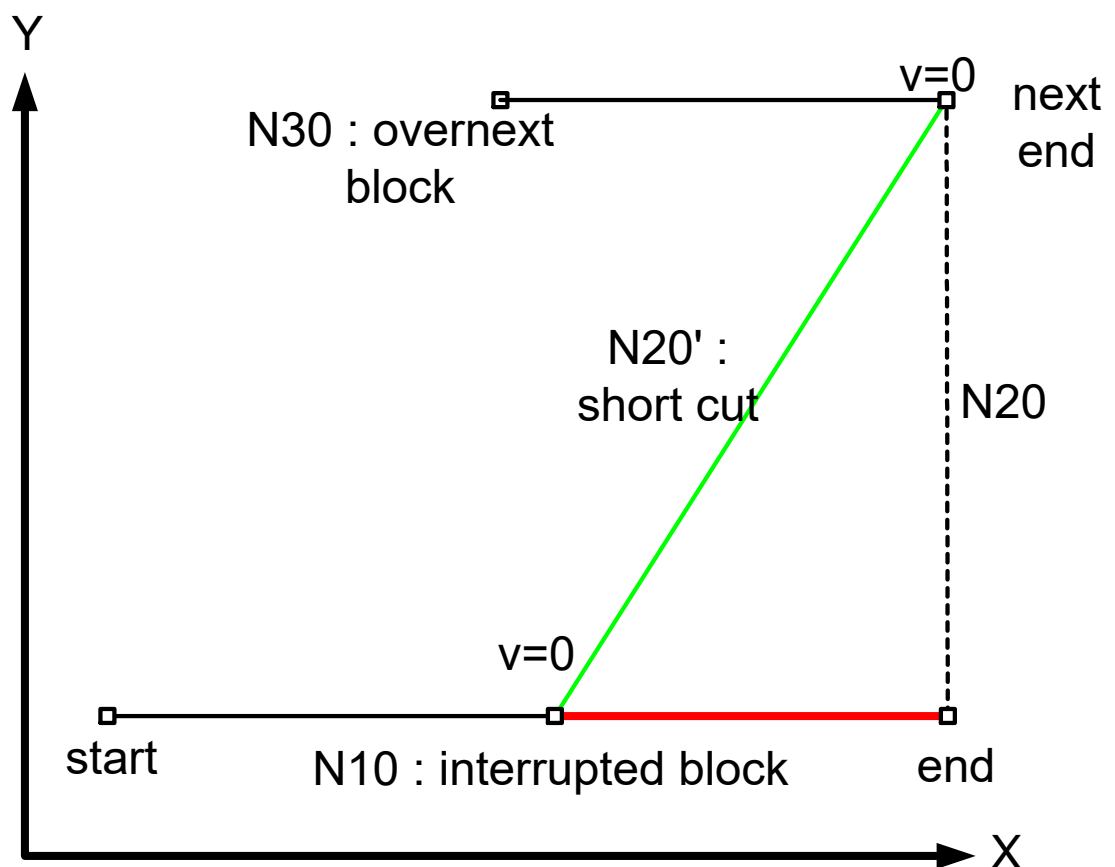
Fig. 9: Delete contour path of single distance to go
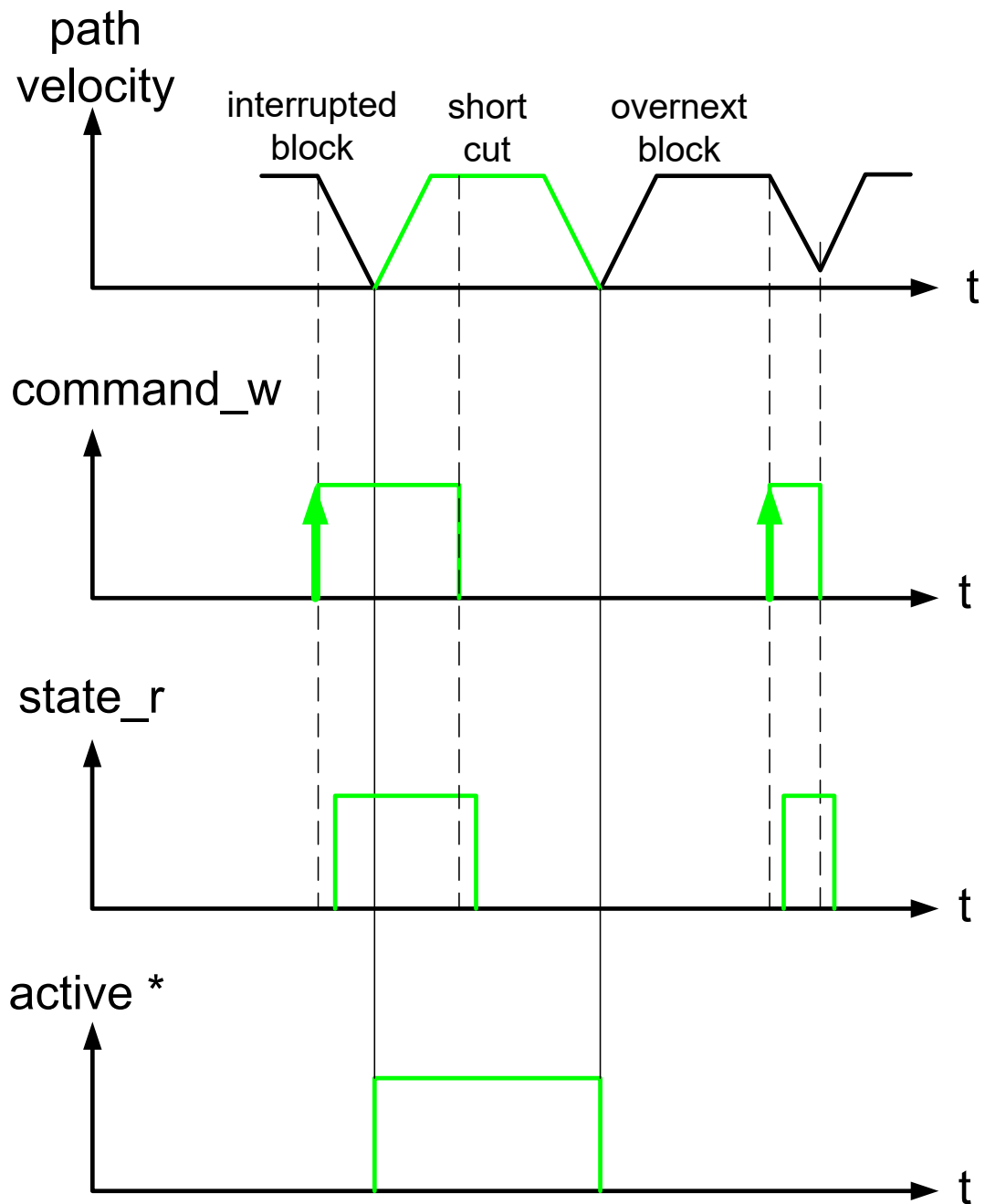
* delete_distance_to_go_active_r

Fig. 10: Delete PLC signal on the HLI for single distance to go

Delete multiple distances to go

If "delete distance to go" is cleared and reset during execution of a "delete distance to go" block, this block is also interrupted and a short cut is executed to the target position of the next block.

The starting point of the second short cut can be defined by the block change (block number, block count).
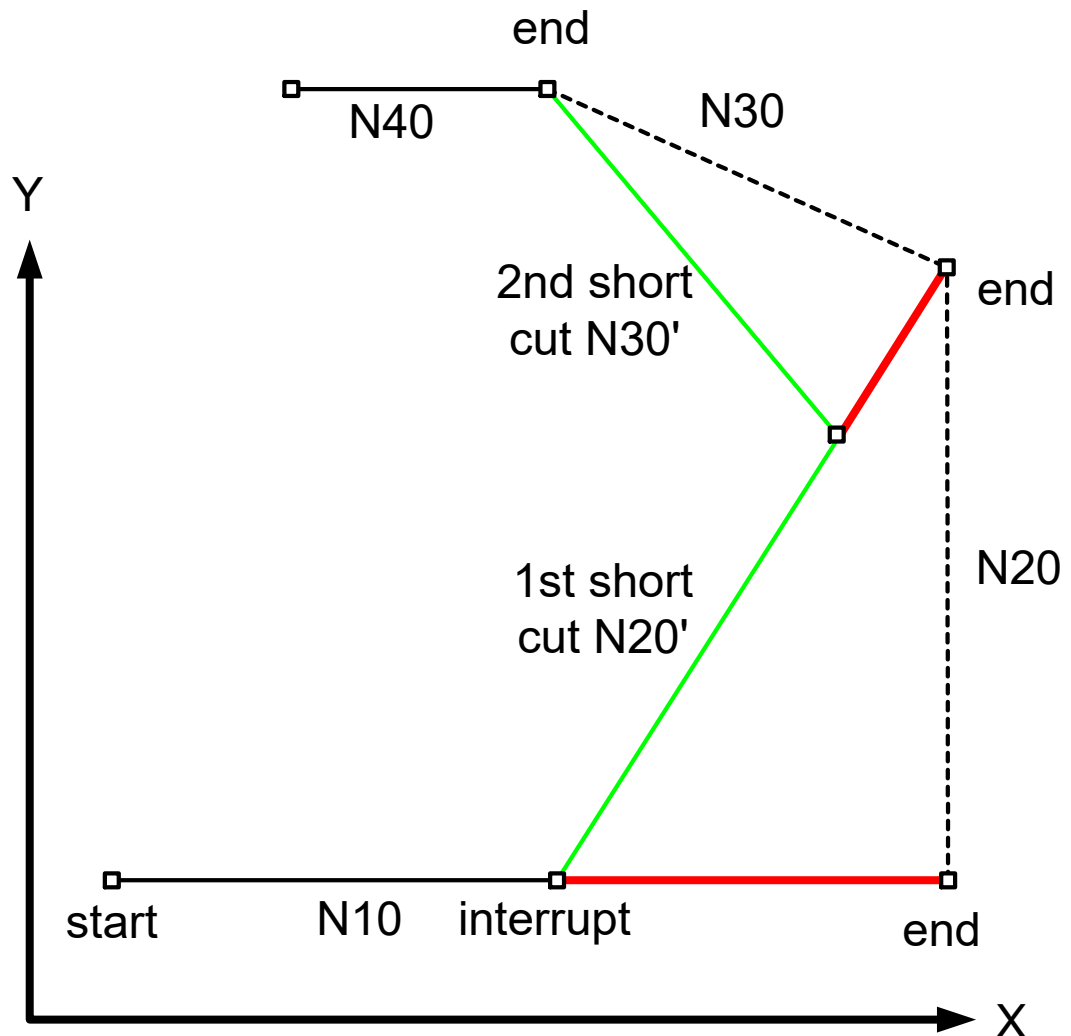
Fig. 11: Delete contour path with multiple distances to go
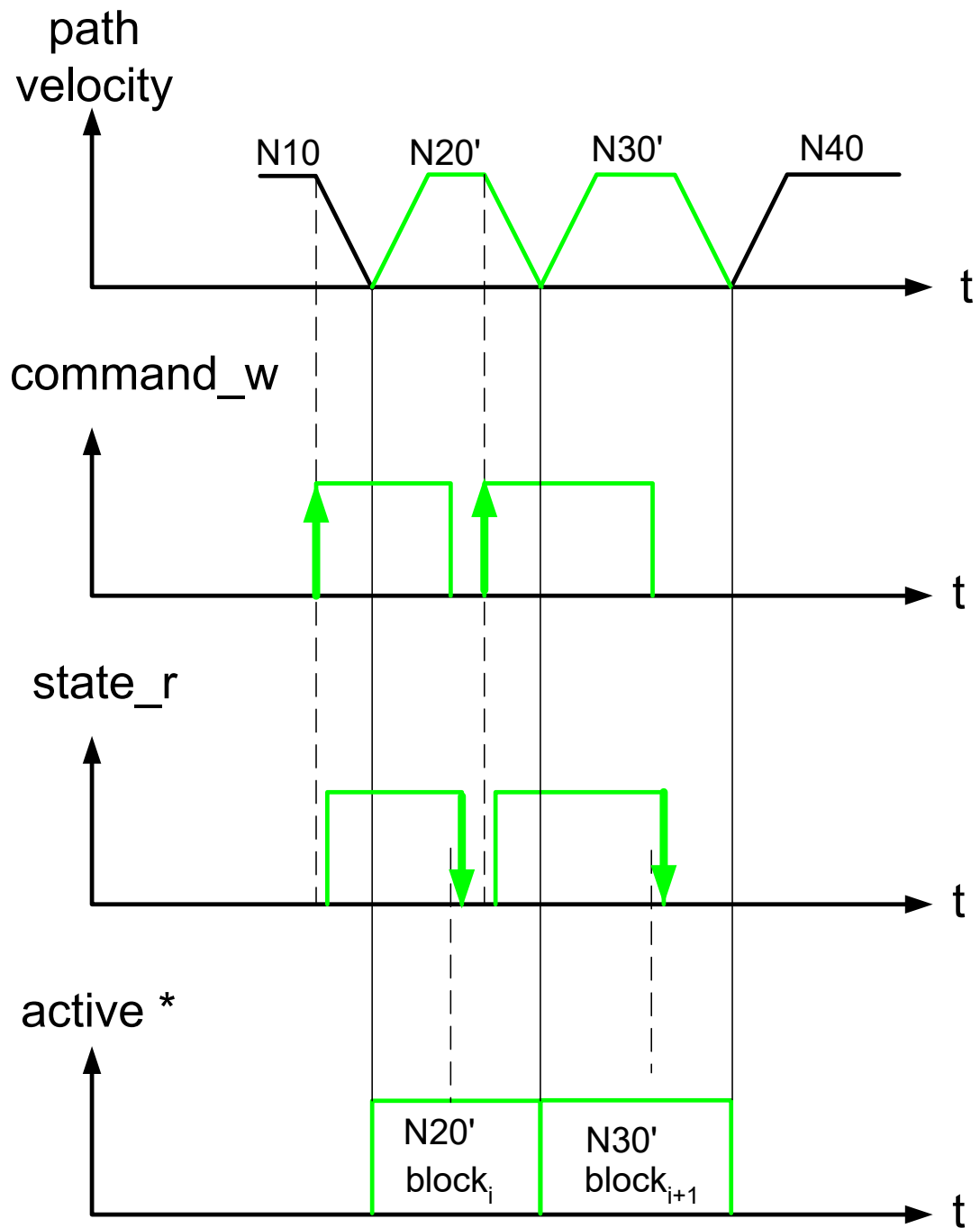
* delete_distance_to_go_active_r

Fig. 12: Delete PLC signal on the HLI with multiple distances to go

2.4 Commands in the deleted contour

If additional NC commands are programmed in the deleted contour, they are executed at the point of interrupt.

Output of M functions

M functions programmed in the same NC line as the end of the short cut (Case A) are output at the interruption point just like M functions within the omitted range (Case B).

If the M function is moved into the range to be omitted by presetting it, it is also output at the interruption point (Case C).

```
(Case A: Excerpt from the NC program)
N200 X100 (Delete single distance to go)
N210 Y70 M7


(Case B:Excerpt from the NC program)
N200 X100 (Delete single distance to go)
N210 M7
N220 Y70


(Case C: Excerpt from the NC program)
N200 X100 (Delete single distance to go)
(M7 should be output before Y70 is output)
N210 Y70
N220 M7 (With M function preset)
```

Programing Example

Additional command within a short cut.

```
%ddtg8
N00 …
N10 X100 ;interrupt and delete distance to go

N15 M48
N16 P1=1
N17 #TIME 10

N20 Y100
N30 X90 Y110
M30
```
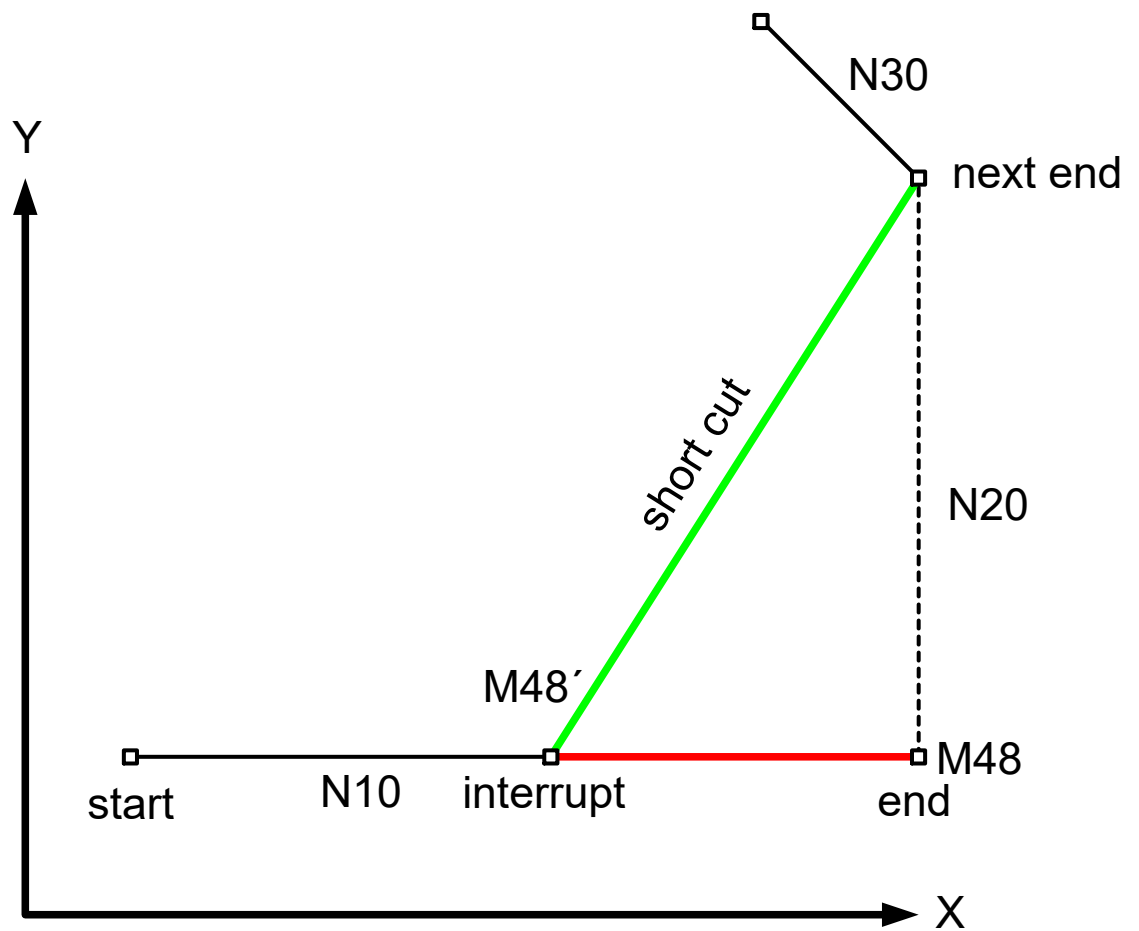
Fig. 13: Additional command within a deleted distance to go

2.5   Restrictions

Not all NC commands with an end marker can be skipped. It is not permitted to skip the following commands. Error ID 51016 is output.

- Axis couplings, e.g. #AX LINK
- Axis exchange commands, e.g. #PUT AX
- #OTC ON/ OFF
- Special commands for turning, e.g. G96, G95, G33
- #SYNC IN/OUT
- General multipath programming
- Oscillating motions, e.g. Z [OSC_ON]
- Selecting and deselecting coordinate systems, e.g. #CS ON/OFF
- Lift commands, e.g. Z[LIFT_START] or Z[LIFT_END]
- Selecting and deselecting transformations, e.g. #TRAFO ON/OFF

---

i   **Notice**

With NC commands that require channel initialisation, the search for the end market is aborted. The short cut continues up to the position where the corresponding command is located. The warning with ID 51036 is output.
The programmed sequence is continued from this position.

For example, channel initialisation is required with:

- #CHANNEL INIT
- #TRACK CHAN OFF
- Homing G74
- Measuring functions G100, G310
- Edge banding G108
- #PTP ON

Example

Interruption of "Delete distance to go" by measuring travel

The figure below represents the position sequence with a commanded short cut. The NC program contains a measurement block. The commanded short cut is interrupted by the measurement block. After the measuring travel, the programmed sequence is continued.
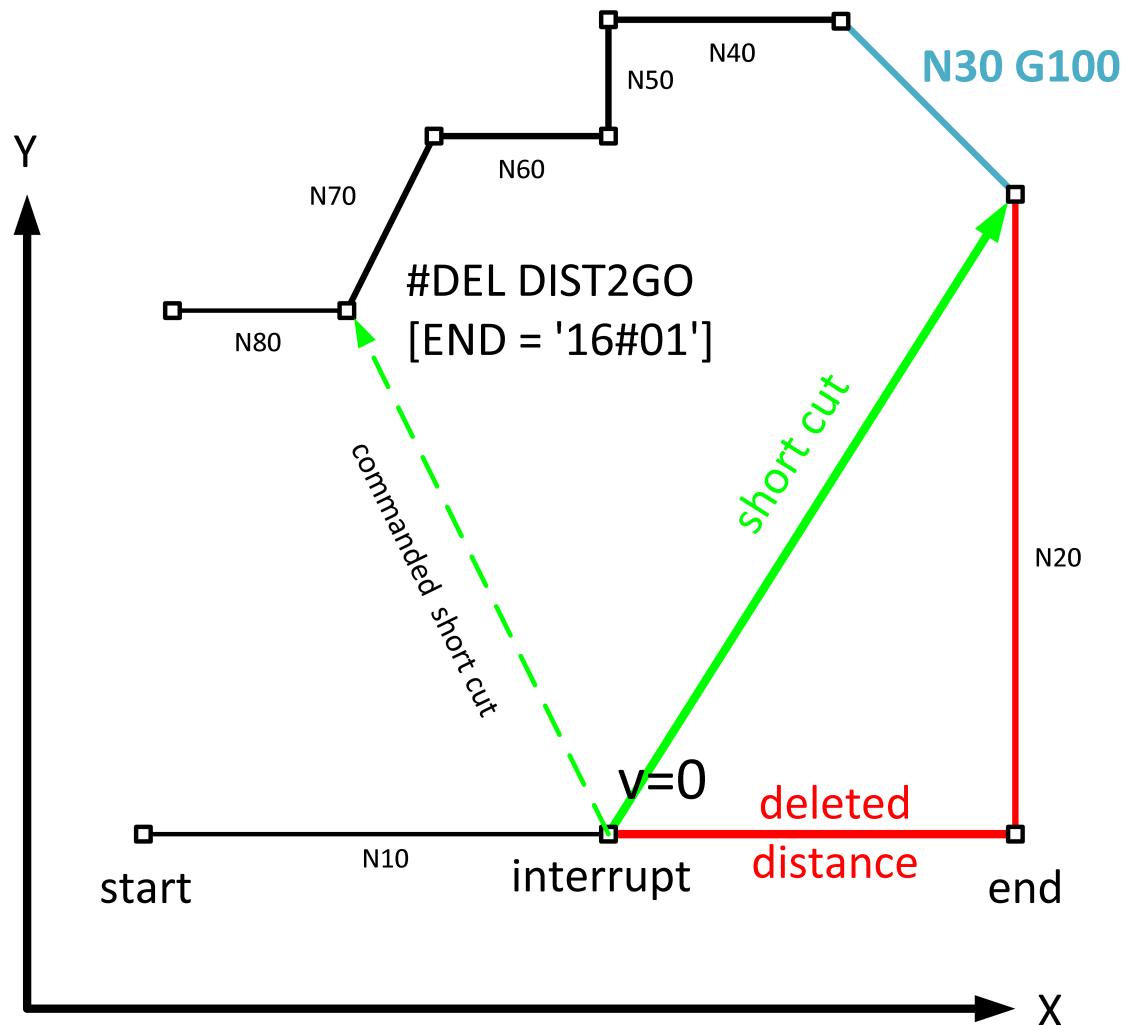
Fig. 14: Interruption of "Delete distance to go" by measurement block

2.6   Relative programming (G91)

Even if next block after delete distance to go is defined relative by G91, the end position of the next block is not recalculated relatively to the stop position at the interrupt. The end of the next block is calculated as if no interrupt had taken place.

A "Delete distance to go" does **not** result in an offset of the further relative programmed contour.

Programing Example

Effects on relatively programmed positions

```
%prog
N00 …
G1 G91 X100  ;interrupt and delete distance to go
N20 G91 Y100
N30 G91 X-10 Y10
M30
```
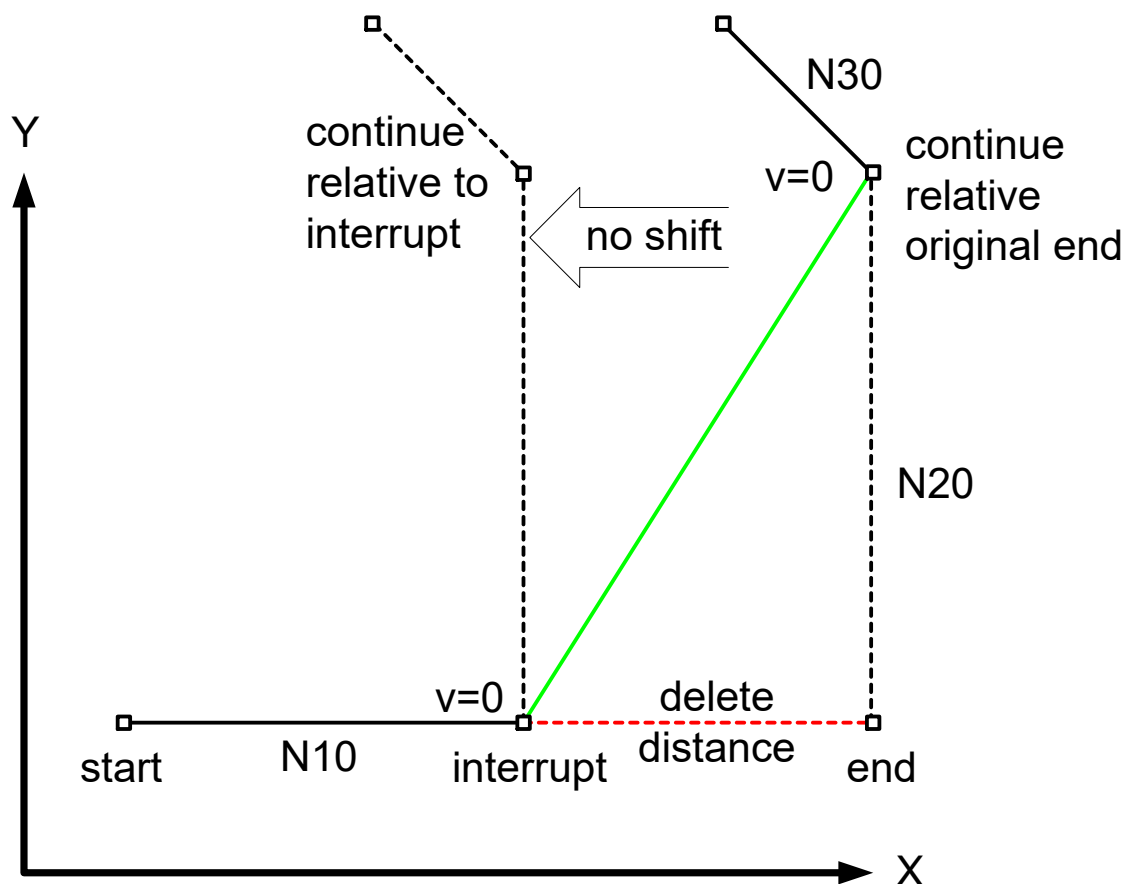

Fig. 15: Delete distance to go with active relative programming (G91)

There is no contour offset if the next block (N20) is programmed relative (G91).

2.7 Combination with backward motion

Backward motion on the path during delete distance to go

The short cut motion is calculated online by the PLC signal and not saved in the ISO program. For this reason, the short cut path can **not** move backwards.

If the user (PLC) requests backward motion while travelling on a short cut (N20'), the motion is interrupted (same as for FEEDHOLD) and a warning is output. As soon as the backward motion signal is reset, motion on the short cut is resumed.

If the backward signal is set after reaching the target position of the short cut, the backward motion is executed on the original contour (N20) which was programmed in the ISO program and **not** on the short cut.
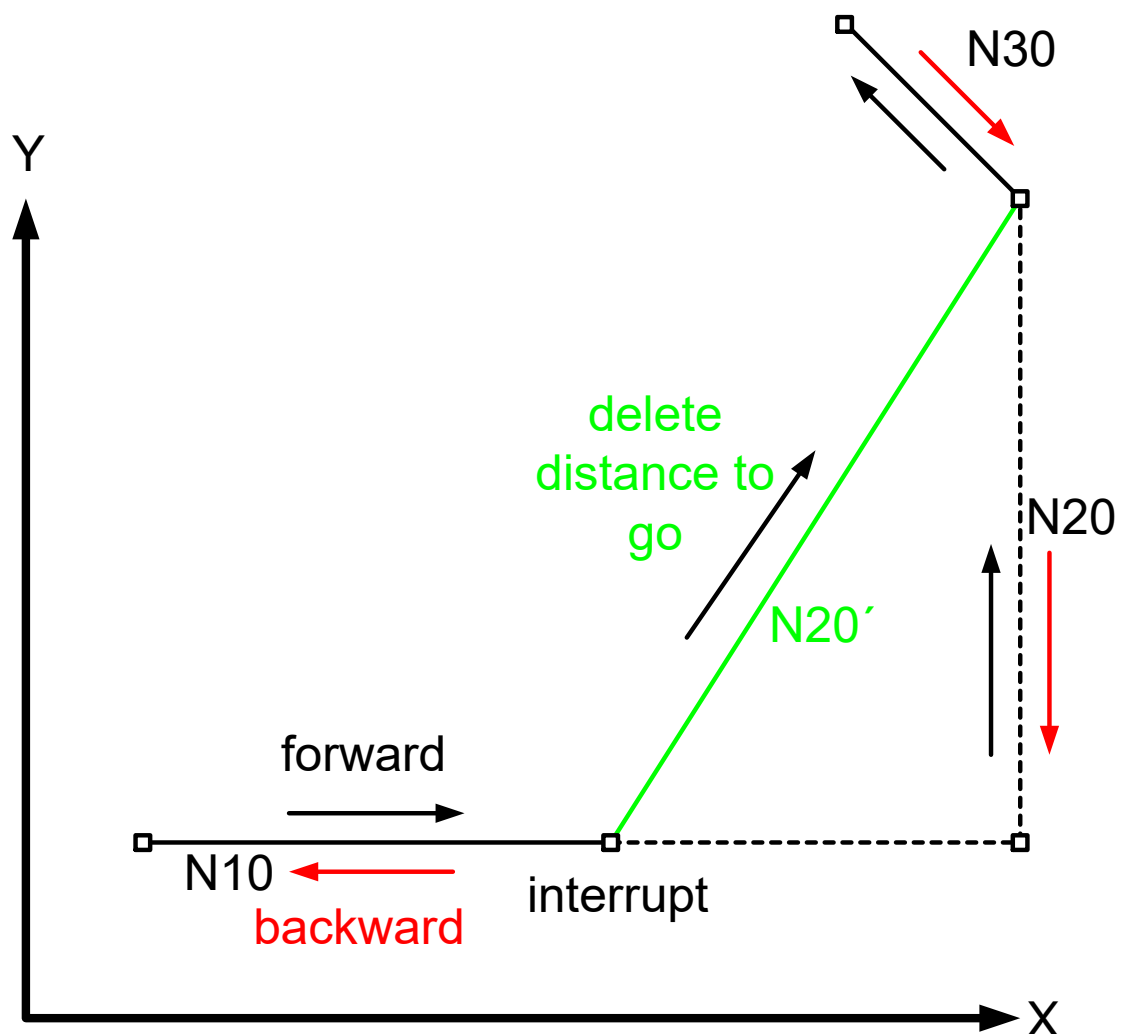
Fig. 16: Delete distance to go with backward motion

	Notice
i	The short cut executed with "delete distance to go" in not considered for backward motion. The original contour from the ISO program is always considered for backward motion.

Delete distance to go during backward motion

If the motion is already in a backward direction, the request for "delete distance to go" is only executed in the backward direction.
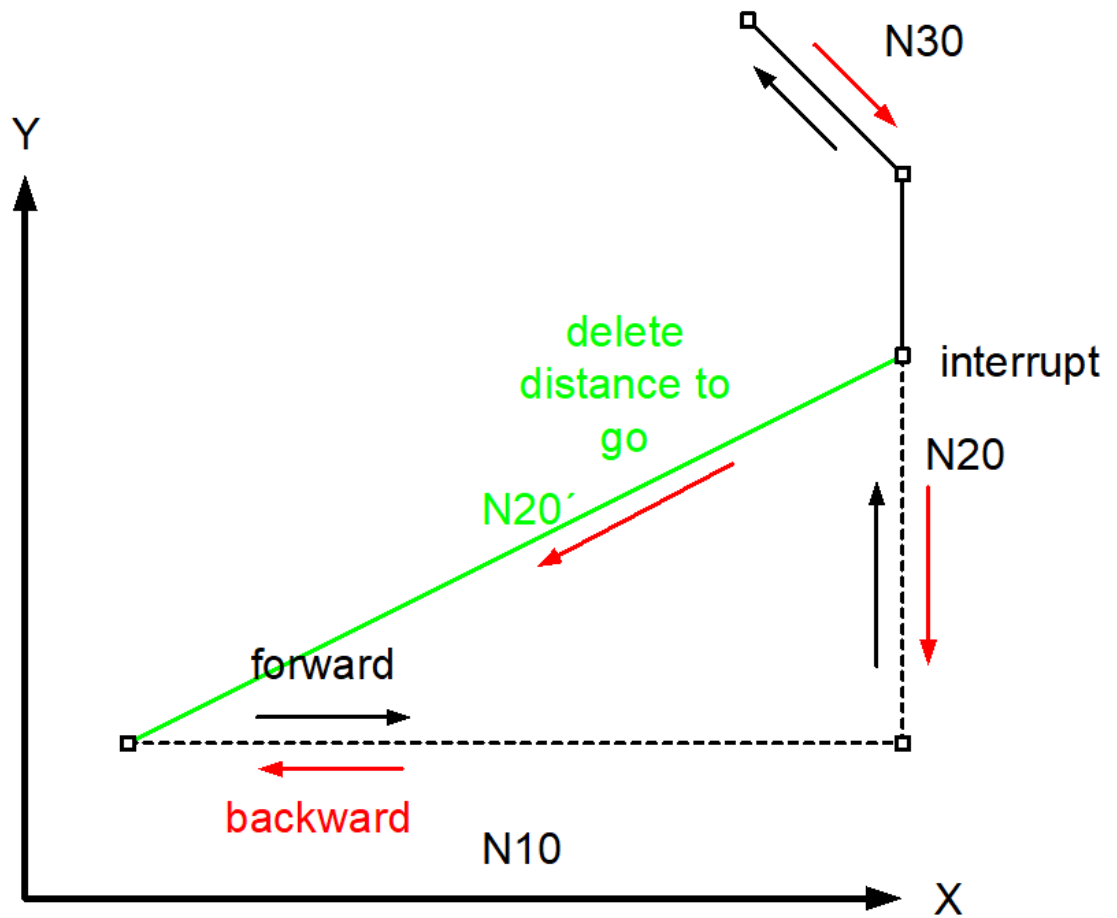
Fig. 17: Delete distance to go during backward motion

> **Notice**
>
> It is not possible to reverse the motion direction on a short cut with "delete distance to go". FEED-HOLD is set and the warning is output.
>
> The short cut must continue in the same path direction.

2.8   Abort a measuring block with Delete distance to go

If a measurement run is aborted with Delete distance to go, the behaviour depends on the measurement type used (P-CHAN-00057).

Measurement types 1 to 7

If the measuring block is aborted with Delete distance to go, the NC program continues from the point of interruption. The measuring process is aborted. If the parameter ERR_NO_SIGNAL is set in the NC command #MEAS, warning ID 51058 is output. This signals that the parameter was overwritten.

Measurement type 8 (measurement via several movement sets in connection with edge banding)

If a motion block is aborted in the measuring process and is not the last motion block, NC program processing is continued from the point of interruption. The behaviour is identical to the normal process of Delete distance to go. The measuring process remains active.

If the last measuring block is aborted, error ID 50057 is output. With this measurement type, there must always be a measured value at the end of the measurement.

3 PLC interface

Delete distance to go, command	
Description	The rising edge of the commanded value has the effect that the CNC channel is decelerated to feed velocity 0. Then a linear motion is executed to the target position of the next motion block (short cut). The command only affects motion blocks. The functional description [FCT-C28 [▶ 6]] deals with the topic of "Delete distance to go" in detail.
Data type	MC_CONTROL_BOOL_UNIT, see description of Control unit
Special features	See state data delete_distance_to_go_active_r. P-STUP-00033 must be configured for the channel.
Access	PLC reads request_r + state_r and writes command_w + enable_w
ST path	gpCh[*channel_idx*]^.bahn_mc_control.**delete_distance_to_go**
Commanded, requested and return values	
ST element	**.command_w** **.request_r** **.state_r** (TRUE indicates that the command was detected by the CNC)
Data type	BOOL
Value range	[TRUE = distance to go to be deleted, FALSE = no impacts on motion blocks]
Redirection	
ST element	**.enable_w**

Delete distance to go, end marker	
Description	This control unit sets the end marker defined in the NC program online to valid. A bit mask is defined for this in the NC program. If at least one single bit in the end marker is set on the NC interface, this marker is valid as a jump target. Example: `N10 #DEL DIST2GO [END = '16#0014']` The end marker can be set to valid by bit3 (hexadecimal 4) or by bit5 (hexadecimal 0x10).
Data type	MC_CONTROL_UNS32_UNIT, see description of Control unit
Access	PLC reads request_r + state_r and writes command_w + enable_w
ST path	gpCh[*channel_idx*]^.bahn_mc_control.**delete_distance_to_go_activation**
Commanded, requested and return values	
ST element	**.command_w** **.request_r** **.state_r**
Data type	UDINT
Value range	32-bit
Redirection	
ST element	**.**enable_w

Delete distance to go, state	
Description	If a command is sent via the delete_distance_to_go control unit [▶ 28], this value is TRUE as long as the NC block which exerts a linear motion to the target position of the next motion block is executed (short cut). It also remains TRUE if the active short cut is itself shortened by a new command. The signal is again reset when the active NC block is no longer related to the command of the delete_distance_to_go control unit [▶ 28]. See functional description [FCT-C28 [▶ 6]].
Signal flow	CNC → PLC
ST path	gpCh[*channel_idx*]^.bahn_state.**delete_distance_to_go_active_r**
Data type	BOOL
Value range	[TRUE = linear motion is executed to the target position of the next motion block (short cut), FALSE]
Access	PLC is reading

Additional status information of current block

Line counter, NC program	
Description	The datum indicates the NC program line which is the source of the command just processed by the interpolator. The value is derived from the number of NC program lines which the decoder has read since the NC program started. All the lines read the decoder are counted, i.e. repeatedly read lines, empty and comment lines. All commands to the interpolator resulting from decoding a NC program line are assigned to the associated line counter.
Signal flow	CNC → PLC
ST path	gpCh[channel_idx]^.bahn_state.block_count_r
Data type	UDINT
Access	PLC is reading

Block number, current path motion	
Description	If the N function [PROG//N function] is used in the active NC program to program NC block numbers, this datum indicates the NC block number of the NC block currently processed in the interpolator in this datum.
Signal flow	CNC → PLC
ST path	gpCh[channel_idx]^.bahn_state.block_nr_r
Data type	UDINT
Value range	[0, MAX_UNS32]
Access	PLC is reading

3.1   PLC interface with CNC Version < V2.11.28xx

Delete distance to go, command	
Description	The rising edge of the commanded value has the effect that the CNC channel is decelerated to feed velocity 0. Then a linear motion is executed to the target position of the next motion block (short cut).
	The command only affects motion blocks.
	The functional description [FCT-C28 [▸ 7]] deals with the topic of "Delete distance to go" in detail.
Data type	MCControlBoolUnit, see description of Control Unit
Peculiarities	See state data X_DeleteDistanceToGoActive
Access	PLC reads Request + State and writes Command + Enable
ST Path	pMC[*channel_idx*]^.addr^.MCControlBahn_Data.**MCControlBoolUnit_DeleteDistanceToGo**
Commanded, requested and return values	
ST Element	**.X_Command**
	.X_Request
	.X_State (TRUE indicates that the command was detected by the CNC)
Data type	BOOL
Value range	[TRUE = distance to go to be deleted, FALSE = no impacts on motion blocks]
Redirection	
ST Element	**.X_Enable**

Delete distance to go, end marker	
Description	This control unit sets the end marker defined in the NC program online to valid. A bit mask is defined for this in the NC program. If at least one single bit in the end marker is set on the NC interface, this marker is valid as a jump target. Example: `N10 #DEL DIST2GO [END = '16#0014']` The end marker can be set to valid by bit3 (hexadecimal 4) or by bit5 (hexadecimal 0x10).
Data type	MC_CONTROL_UNS32_UNIT, see description of control unit
Access	PLC reads Request + State and writes Command + Enable
ST Path	pMC[*channel_idx*]^.addr^.MCControlBahn_Data.**MCControlUNS32Unit_DeleteDistanceTo-GoActivation**
Commanded, requested and return values	
ST Element	**.X_Command** **.X_Request** **.X_State**
Data type	UDINT
Value range	32-bit
Redirection	
ST Element	**.X_Enable**

Delete distance to go, state	
Description	If a command is sent via the DeleteDistanceToGo control unit, this value is TRUE as long as the NC block which exerts a linear motion to the target position of the next motion block is executed (short cut). It also remains TRUE if the active short cut is itself shortened by a new command. The signal is again reset when the active NC block is no longer related to the command of the DeleteDistanceToGo control unit. See functional description [FCT-C28 [▸ 6]].
Signal flow	CNC → PLC
ST path	pMC[*channel_idx*]^.addr^.StateBahn_Data.**X_DeleteDistanceToGoActive**
Data type	BOOL
Value range	[TRUE = linear motion is executed to the target position of the next motion block (short cut), FALSE]
Access	PLC reads

Additional status information of current block

Line counter, NC program	
Description	The datum indicates the NC program line which is the source of the command just processed by the interpolator.
	The value is derived from the number of NC program lines which the decoder has read since the NC program started. All the lines read the decoder are counted, i.e. repeatedly read lines, empty and comment lines. All commands to the interpolator resulting from decoding a NC program line are assigned to the associated line counter.
Signal flow	CNC → PLC
ST path	pMC[*channel_idx*]^.addr^.StateBahn_Data.**D_BlockCount**
Data type	UDINT
Access	PLC is reading

Block number, current path motion	
Description	If the N function [PROG//N function] is used in the active NC program to program NC block numbers, this datum indicates the NC block number of the NC block currently processed in the interpolator in this datum.
Signal flow	CNC → PLC
ST path	pMC[*channel_idx*]^.addr^.StateBahn_Data.**D_BlockNumber**
Data type	UDINT
Value range	[0, MAX_UNS32]
Access	PLC reads

4 Programming examples

4.1 Request at different times

Programing Example

Vary the "delete distance to go" HLI signal

In the test program below, the "delete distance to go" HLI signal is triggered at different times in the NC blocks N50, N80 and N100.

```
%deldisttogo.nc
N010 G90 G165 G162
N020 G00 X0 Y0 Z0 F1000
N030 G01 X10 Y10
N040 $FOR P1 = 1,4,1
N050 G01 Y110  (1st "delete distance to go" signal)
N060 G01 Z30
N070 G01 X50
N080 G01 Y60 (2nd "delete distance to go" signal)
N090 G01 X100
N100 G02 X150 Y10 J-50 (3rd "delete distance to go" signal)
N110 G01 Y10
N120 G00 X10 Y10
N130 $ENDFOR
N140 M30
```
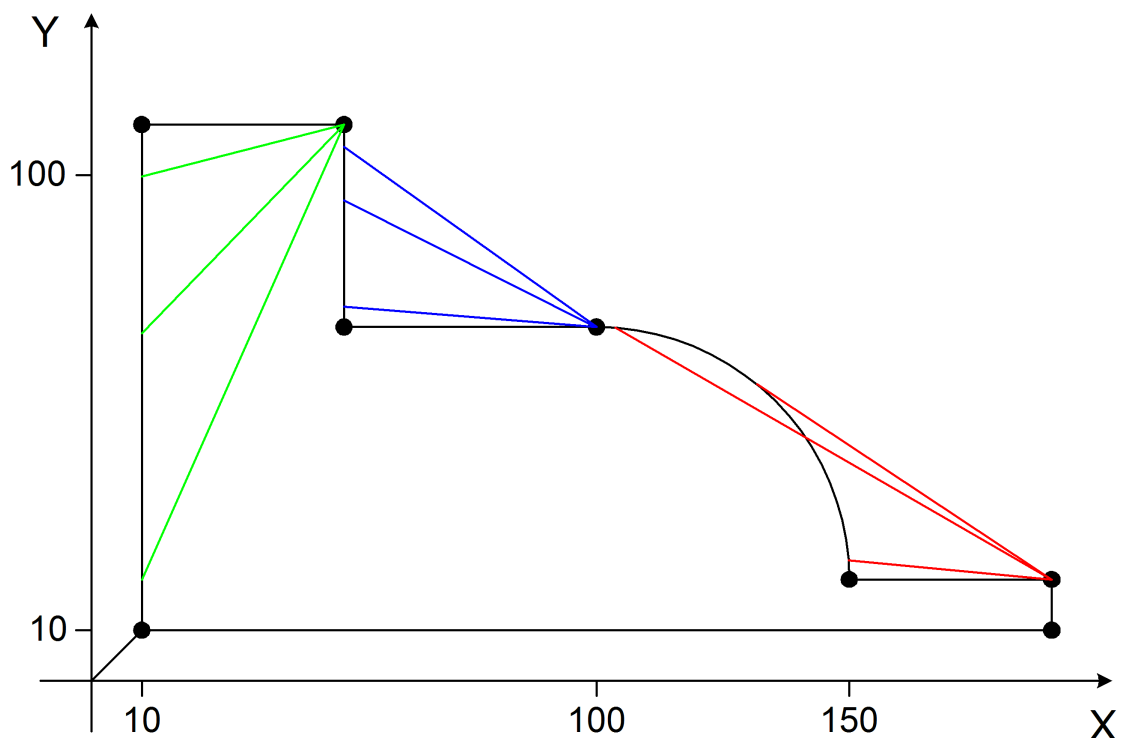

Fig. 18: Delete distance to go at different times

4.2   Delete multiple distances to go with rapid motion G00

Programing Example

Delete multiple distances to go with rapid traverse

Simulated HLI signal "delete distance to go" before end of the first "delete distance to go" is reached

---

```
%deldisttogo4
N010 X0 Y0 Z0
N020 X100 F1000
N025 G1 Z30
N029 G02 Y200 J100
N032 G00 Y220
N033 X111
N034 Y50
N035 X80
N040 X0 Y0
M30
```
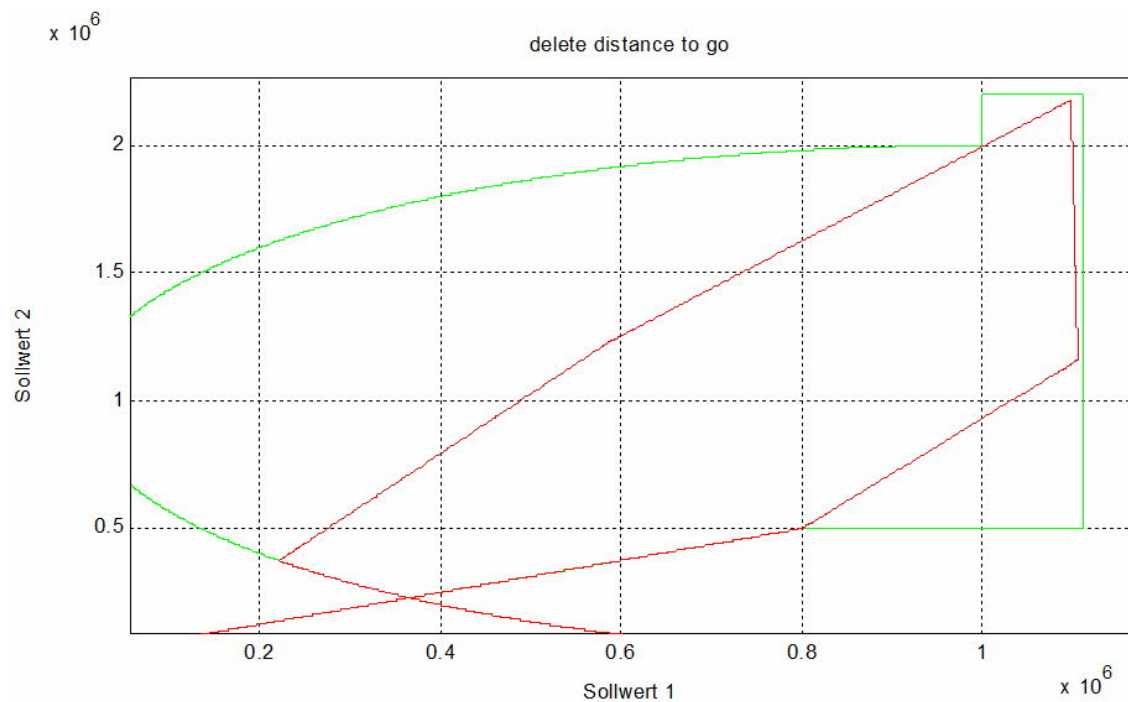

Fig. 19: Delete distance to go with rapid traverse G00

## 4.3 Delete single distance to go applied multiple times, G01 motion

> **Programing Example**
>
> **Delete single distance to go applied multiple times with G01**
>
> Simulated HLI signal "delete distance to go" before end of the first "delete distance to go" is reached

```
%deldisttogo5
N010 X0 Y0 Z0
N020 X100 F1000
N025 G1 Z30
N029 G02 Y200 J100
N032 G01 Y220
N033 X111
N034 Y50
N035 X80
N040 X0 Y0
M30
```
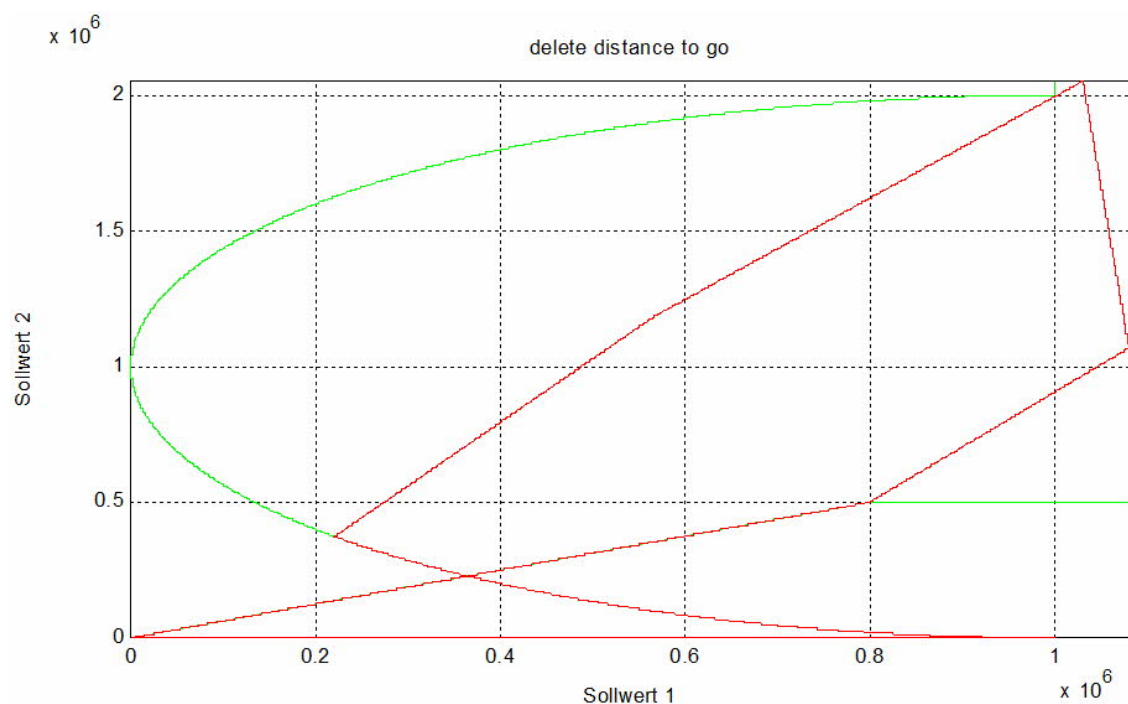
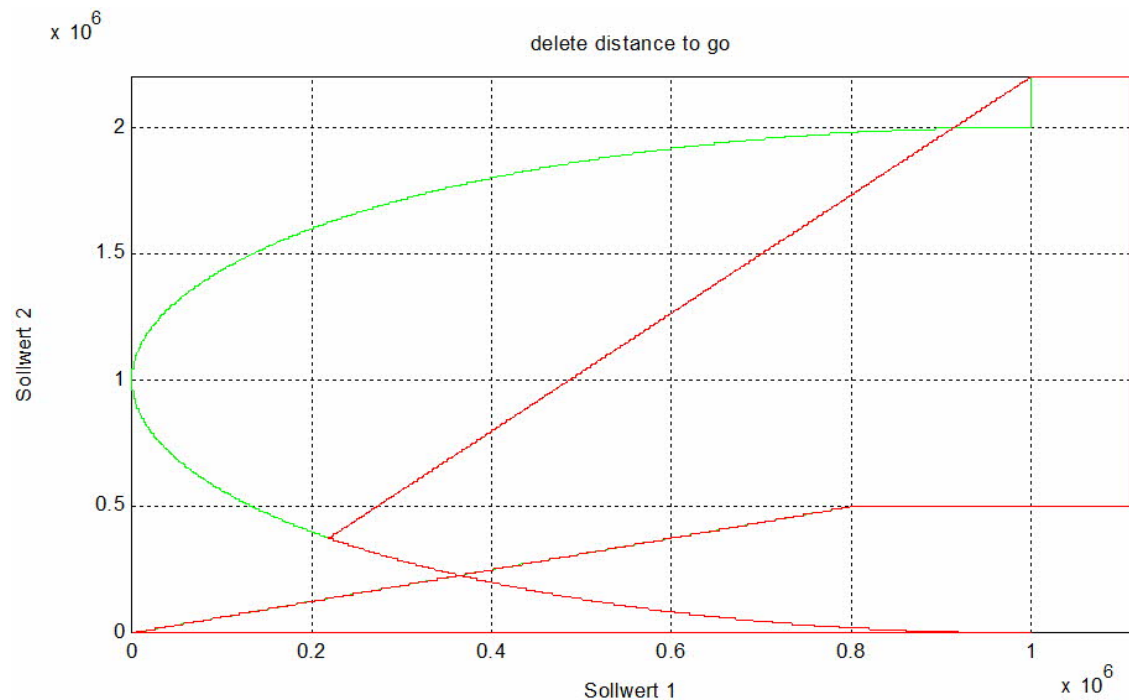

Fig. 20: Delete distance to go with linear motion G01

4.4   Delete distance to go with intermediate signal reset

Programing Example

Multiple signal reset, only the last short cut is executed.

```
%deldisttogo6
N010 X0 Y0 Z0
N020 X100 F1000
N025 G1 Z30
N029 G02 Y200 J100
N032 G01 Y220
N033 X111
N034 Y50
N035 X80
N040 X0 Y0
M30
```


Fig. 21: Delete distance to go with signal reset

4.5   Delete distance to go with command within deleted contour

Programing Example

Intermediate NC commands within the deleted contour are executed before the short cut.

```
%deldisttogo8
N005 X0 Y0 Z0 F1000

N010 X100 ;interrupt and delete distance to go

N015 M48
N016 P1=1
N017 #TIME 10

N020 Y100
N030 X90 Y110
N040 M30
```

4.6 Delete distance to go with backward motion

Programing Example

Delete distance to go with backward motion

Delete distance to go in block N34 and short cut after block N35. Backward motion is not possible on the short cut.

It is not possible to execute backward motion before block N35. The CNC stops with FEEDHOLD until the 'backward motion' command is reset.

Warning P-ERR-50729 is output.

```
%deldisttogo9
N010 X0 Y0 Z0
N020 X100 F1000
N025 G1 Z30
N029 G02 Y200 J100
N032 G00 Y220
N033 X111
N034 Y50      ;interrupt and delete distance to go
N035 X80 ; target DIST2GO
N040 X0 Y0
N050 M30
```

Extract from diagnostic data:

```
Error 800123 00000002 DELDTG raised
800149 00000004 FBC-resume : N34 dist=764000, forward=1, simu=0,
del_dist=1
800149 00000001 DELDTG stopped in N34: (1110000,1436000,300000)
800149 00000001 DELDTG short cut to N35: (800000,500000,300000)
800243 00000002 DELDTG cleared
800334 00000004 BACKWARD raised
800359 00000002 DELDTG fwd=0/bwd=1 impossible in block N35
811354 00000004 BACKWARD rollback
811465 00000001 DELDTG finished N35
```
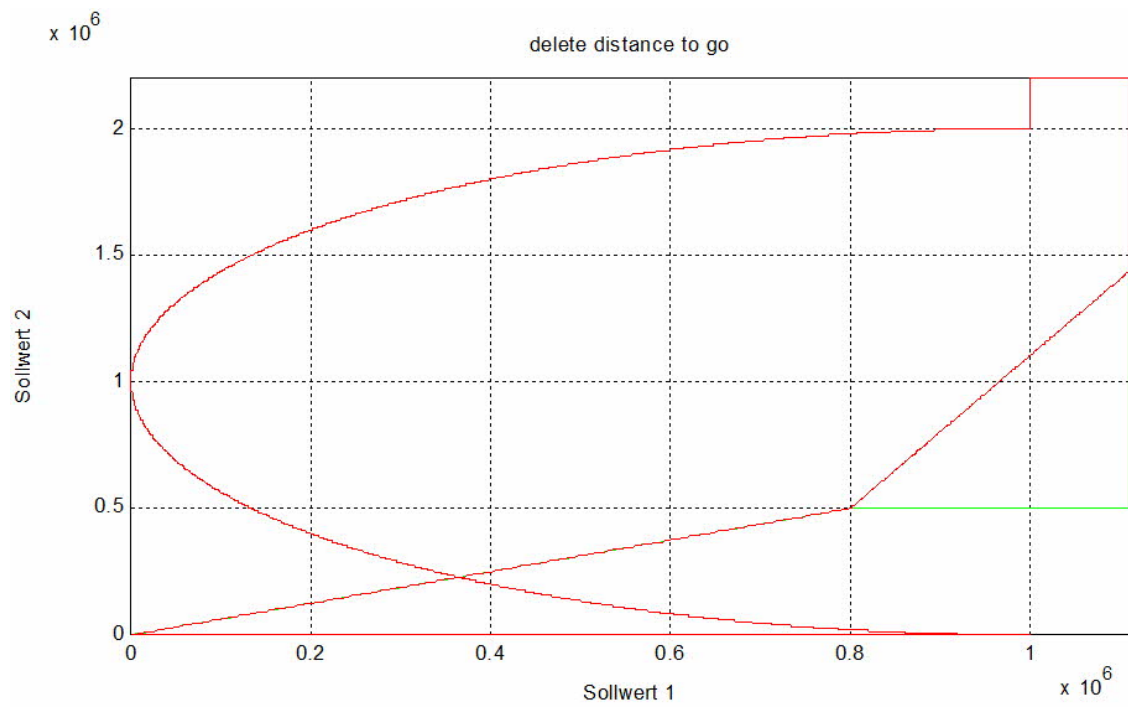
Fig. 22: Reset Delete distance to go signal

4.7 Delete distance to go for backward motion

> **Programing Example**
>
> **Delete distance to go for backward motion. Switch to short cut in forward motion.**
>
> Warning output. P-ERR-50729

If "Delete distance to go" is set during backward motion and a reversal is made back to forward motion on the short cut, FEEDHOLD is set and the warning P-ERR-50729 is output.

The short cut must continue in backward direction to the end. It is not possible to switch the motion direction on the short cut.

In the example, motion in N34 is backward.

```
%deldisttogo10
N010 X0 Y0 Z0
N020 X100 F1000
N025 G1 Z30

N029 G02 Y200 J100
N032 G00 Y220
N033 X111

N034 Y50
N035 X80
N040 X0 Y0
N050 M30
```
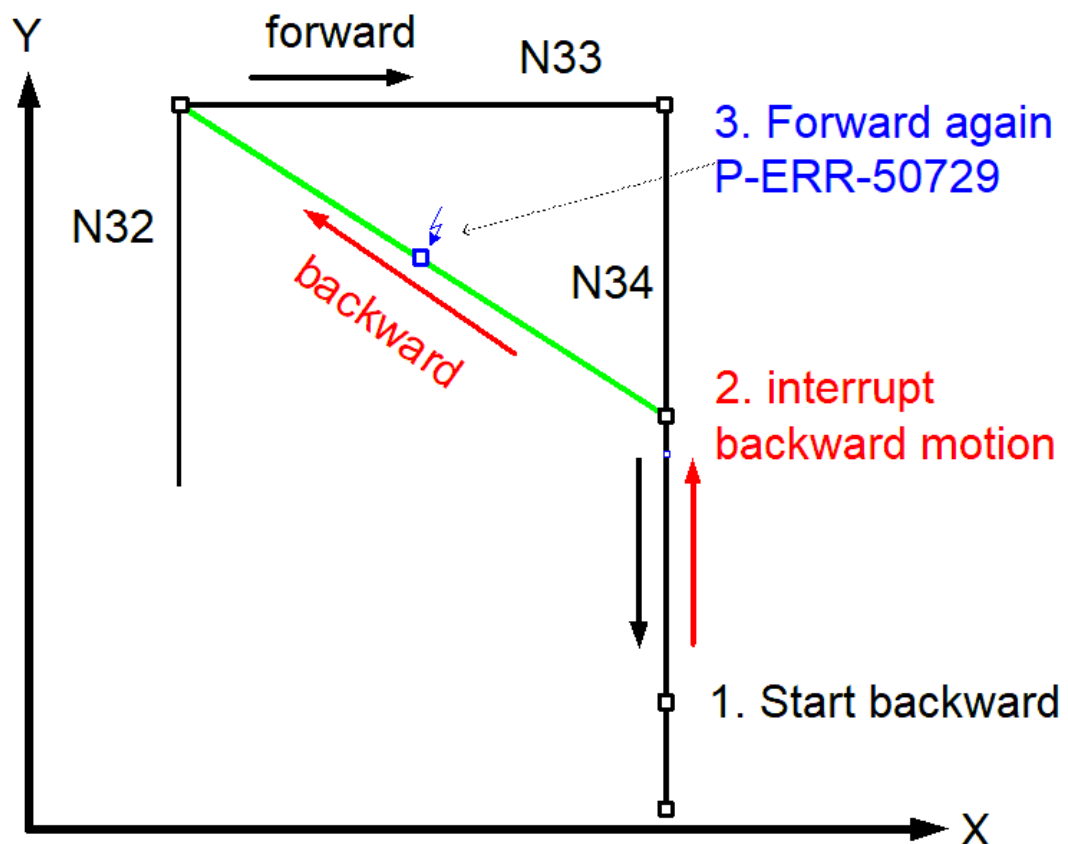

Fig. 23: Repeated forward motion in case of a backward short cut

5   Parameter

P-STUP-00033	**Memory size for backward motion**
Description	This parameter defines the memory size in bytes used for backward motion on the path. During start-up, the NC checks whether the required minimum size is available. If this is not the case, a warning is output and the memory size is set to the required minimum value. If the size is set to 0, the "forward/ backward motion on the path" function is not available. The maximum size is only limited by the resources available on the PC.
Parameter	fb_storage_size[i] where i = 0 to 11 (maximum number of channels: 12, application-specific)
Data type	UNS32
Data range	0 ... MAX(UNS32)
Dimension	----
Default value	0
Remarks	

6 Appendix

6.1 Suggestions, corrections and the latest documentation

Did you find any errors? Do you have any suggestions or constructive criticism? Then please contact us at documentation@isg-stuttgart.de.

The latest documentation is posted in our Online Help (DE/EN):

QR code link: https://www.isg-stuttgart.de/documentation-kernel/

The link above forwards you to:

https://www.isg-stuttgart.de/fileadmin/kernel/kernel-html/index.html

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