

Siemens ActiveEdge Installation Guide

Hardware Requirements:

Description	Part Number	
ActiveEdge Interface (AEI)	AEI-CE2	
AEI CNC wiring harness assembly	AEI-CABLE01	
Active Edge Antenna	AEI-ANT04 or AEI-ANT09	(c/w support bracket)

For installation:

Windows based PC or laptop with a standard RJ45 ethernet port and crossover cable

NC Control Prerequisites

The NC machine parameters described below must be made available by the machine tool builder or qualified control specialist prior to the Rigibore applications engineer's arrival on site.

Memory Requirements:

Global variables - GLOBAL USER DATA (GUD) must be set on the Siemens control:

RAE[0] – RAE[199] - to be allocated as type **REAL**

These variables are exclusively for the use of the ActiveEdge macro or sub routine functions and must not be used for any other purpose in the programming structure.

Digital I/O:

ActiveEdge Hardware requires the exclusive use of:

One digital NC input (\$A_IN[1]...[4])

One digital NC output (\$A_OUT[1]...[4])

Sub Program File Numbers:

ActiveEdge **sub programs** use a numbering system from **L8500** through to **L8550**

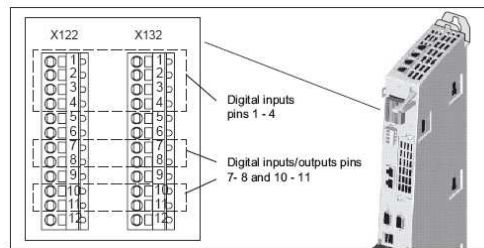
In addition to this, several test and calibration **programs** are provided within the **L8400** to **L8500** range.

Installation Process

Part 1.0

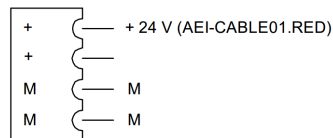
Connecting the AEI to the machine and powering up.

- Connect **AEI-CABLE01** to the X122 and X132 interface of NCU 7x0. Refer to the wiring information below. See also AEI-CE2 electrical schematic **MBS2046**
- Connect the 25 pin RGP25 connector on **AEI-CABLE01** to the **AEI** and power on.
- After a few seconds the indicator LED will change to green, confirming that the AEI is fully operational.

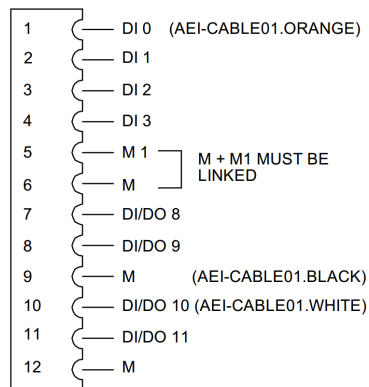


SINUMERIK NCU 7x0

X124



X132



AEI CONNECTION	PINOUT	FUNCTION	ASSIGNMENT
AEI-CABLE01.RED	X124.+24V		-
AEI-CABLE01.BLACK	X132.9		-
AEI-CABLE01.ORANGE	X132.1	INPUT	\$A IN[1]
AEI-CABLE01.WHITE	X132.10	OUTPUT	\$A OUT[1]
AEI-CABLE01.PINK	X124.+24V		-

Part 2.0

Connecting to the **ActiveNet** software.

The AEI IP address is factory set to 10:0:0:250.

- Obtain a network connection to the **AEI** from a Windows-based PC.
- Install the **ActiveNet** software onto the PC. This software can be downloaded [here](#)

Please refer to the **ActiveNet** [user guide](#) for software installation.

Part 3.0

Setting up additional supporting hardware

- Connect the antenna to the AEI.
- Insert batteries to the supplied tool or tool simulator. Please refer to the [online instructions](#) for information on this procedure.
- Switch on an ActiveEdge tool and perform a toolcheck using the ActiveNet program.

Part 4.0

Allocating machine variables and generating and loading Rigibore bespoke macros to the machine control.

- Check that the GUD variables RAE[0] – RAE[199] are present on the machine control.
- Confirm the variables are configured as REAL
- Obtain a copy of the ActiveEdge Macro Generator program from Rigibore. This software will produce a complete set of bespoke macros specific to the NC machine control.

The screenshot shows the 'Rigibore ActiveEdge Macro Generator' software window. The 'Siemens' tab is active. The 'CNC input' section has 'In:' set to '\$A_IN[1]'. The 'Subroutine location on CNC' section has '\$PATH=' set to an empty field. The 'CNC output' section has 'On:' set to '\$A_OUT[1]=1' and 'Off:' set to '\$A_OUT[1]=0'. The 'Variable format' section has 'Format:' set to 'RAE[x]'. The 'Control model' and 'Customer, cell and machine' sections have empty text boxes. The 'Variable block index number' section has '0' entered. A 'Generate macros' button is at the bottom right.

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Having generated the bespoke programs and sub programs, they must be copied and loaded into the appropriate machine tool control sub programs directory:

Program	Description	Copied	Loaded
L8503.SPF	Compute micron compensation		
L8504.SPF	Compensate a single cartridge tool		
L8506.SPF	Check compensation status		
L8508.SPF	Compensate a dual cartridge tool		
L8509.SPF	Alarms (user modifiable)		
L8511.SPF	Rigibore ActiveEdge		
L8512.SPF	Rigibore ActiveEdge		
L8514.SPF	Rigibore ActiveEdge		
L8515.SPF	Compensate 5 cartridge tool		
L8516.SPF	Rigibore ActiveEdge		
L8517.SPF	Rigibore ActiveEdge		
L8518.SPF	Rigibore ActiveEdge		
L8519.SPF	Rigibore ActiveEdge		
L8521.SPF	Data Capture		

The following main program files should be copied to the part or main program files directory:

Program	Description	Copied	Loaded
L8400.MPF	Example Program		
L8500.MPF	CNC Calibration Program		

Part 5.0

Setting up the 2-way NC / ActiveEdge Interface communication

The AEI and CNC control must be 'paired' to enable 2-way communication. Follow the steps below to do this.

- Load and run program L8500.MPF on the machine control. The program will take between three and five minutes to execute.

NB - During this time it is essential that the Interface is not rebooted and that no other requests are made. The machine control must be left to complete the program.

- On completion, retrieve the auto-generated sub program L8510.SPF from the AEI public folder and put it with the other ActiveEdge sub routines on the machine control. Access the folder from ActiveNet / Interface/Open AEI folder.

Program	Description	Copied	Loaded
L8510.SPF	AEI-GENERATED FILE		

Part 6.0

Test the completed installation by compensating an ActiveEdge tool from the NC control.

Edit the supplied demonstration program **L8400.MPF** as follows:

- **Comment out the sub routine call L8521 (199,-9999.9999).**

This macro is sometimes used to carry out an extensive communications test by sending a large negative number through the digital I/O to the AEI. It is not mandatory to run this macro.

- **Edit sub routine call L8504 (TOOLID,COMP)**

This sub routine queues a tool adjustment request on the AEI.

TOOLID: substitute the tool ID of the ActiveEdge tool being used for the test (A unique tool ID is laser-etched onto the side of every ActiveEdge tool).

COMP: substitute the required compensation amount for the tool in microns on diameter

- **Edit sub routine call L8506 (TOOLID)**

This sub routine queries the status of the adjustment process on the TOOLID. The sub routine exits when the AEI confirms that the compensation process has completed.

More detailed descriptions of these sub routines can be found [here](#) on the Rigibore website. Macro status codes and recovery procedures can be found [here](#).

The instructions described in this document are intended for the use of machine tool builders or Rigibore applications engineers only.

Rigibore accepts no liability for complications arising or resulting from the changing of machine tool parameters or programs. The use of this document is entirely at the customer's risk.

Programming and parameter changing procedures should be in place to prevent accidental machine tool damage.

For additional information and resources, visit the Rigibore website www.rigibore.com

If you have any further questions please contact a Rigibore representative.

Please email info@rigibore.com for corrections to this document.