BECKHOFF New Automation Technology

Manual | EN **TX1200** TwinCAT 2 | PLC Library: TcIPUtilitiesBC

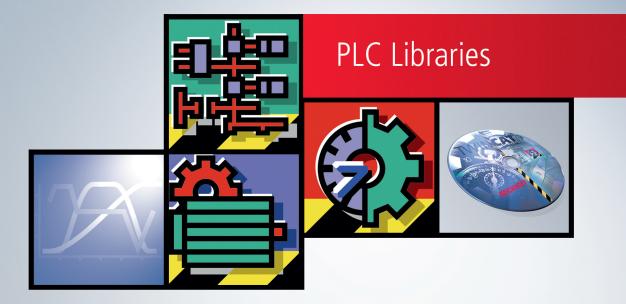


Table of contents

1	Fore	word	
	1.1	Notes on the documentation	
	1.2	Safety instructions	. 6
	1.3	Notes on information security	. 7
2	Over	view	. 8
3	Func	tion blocks	. 9
	3.1	FB_AddDnsServer	. 9
	3.2	FB_GetHostByAddr	10
	3.3	FB_GetHostByName	11
	3.4	FB_GetNetworkConfig	12
	3.5	FB_SetTargetName	13
		endix	
	4.1	Error numbers	14

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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

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1.2 Safety instructions

Safety regulations

Please note the following safety instructions and explanations! Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

Exclusion of liability

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

Description of symbols

In this documentation the following symbols are used with an accompanying safety instruction or note. The safety instructions must be read carefully and followed without fail!

▲ DANGER

Serious risk of injury!

Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.

A WARNING

Risk of injury!

Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.

Personal injuries!

Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.

NOTE

Damage to the environment or devices

Failure to follow the instructions associated with this symbol can lead to damage to the environment or equipment.



Tip or pointer

This symbol indicates information that contributes to better understanding.

1.3 Notes on information security

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In addition, the recommendations from Beckhoff regarding appropriate protective measures should be observed. Further information regarding information security and industrial security can be found in our <u>https://www.beckhoff.com/secquide</u>.

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To stay informed about information security for Beckhoff products, subscribe to the RSS feed at <u>https://www.beckhoff.com/secinfo</u>.

2 Overview

The library contains useful function blocks for the IP/network configuration of the **BC9000** Bus Controller.

Function blocks

Name	Description
FB_AddDnsServer [9]	Pass the DNS server.
FB_GetHostByAddr [▶ 10]	Find the host name from the associated IP address.
FB_GetHostByName [▶ 11]	Find the IP address from the host name.
FB_GetNetworkConfig [12]	Read at the current network communication.
FB_SetTargetName [13]	Set the Bus Controller's target name.

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3 Function blocks

3.1 FB_AddDnsServer



Up to a maximum of three DNS servers can be passed to the Bus Controller with this function block.

INPUT

```
VAR_INPUT
bStart : BOOL;
sDNSServer : STRING(15);
END VAR
```

bStart: the function block is activated by a rising edge at this input.

sDNSServer: string containing the IP address of the DNS server.

OUTPUT

```
VAR_OUTPUT
bBusy : BOOL;
bError : BOOL;
iErrorId : WORD;
END VAR
```

bBusy: this output remains TRUE until the command execution is complete.

bError: this output is switched to TRUE if an error occurs during the execution of a command. The command-specific error code is contained in *iErrorId*.

iErrorld: contains the command-specific error code of the most recently executed command (see table [<u>14]</u>).

Development environment	Target platform	PLC libraries to include
TwinCAT v2.7.0 and above	BC9xxx (165) firmware version >=0xB6	TcIPUtilitiesBC.Lb6

3.2 FB_GetHostByAddr

FB_GetHostByAddr		
bStart sIPAddr pHostName cbMaxNamel	bBusy bError iErrorld ₋en	

This function block can determine the host name associated with a specified IP address.

INPUT

```
VAR_INPUT
bStart : BOOL;
sIPAddr : STRING(15);
pHostName : DWORD;
cbMaxNameLen : WORD;
END_VAR
```

bStart: the function block is activated by a rising edge at this input.

sIPAddr: a string containing the IP address of the host.

pHostName: contains the address of a string buffer into which the host name that has been found is written. It is the programmer who is responsible for dimensioning the buffer appropriately so that *cbMaxNameLen* bytes can be removed from it. The address can be determined with the ADR operator.

cbMaxNameLen: contains the length, in bytes, of the buffer into which the host name that has been found is to be written.

OUTPUT

```
VAR_OUTPUT
bBusy : BOOL;
bError : BOOL;
iErrorId : WORD;
END VAR
```

bBusy: this output remains TRUE until the command execution is complete.

bError: this output is switched to TRUE if an error occurs during the execution of a command. The command-specific error code is contained in *iErrorId*.

iErrorld: contains the command-specific error code of the most recently executed command (see table [<u>14]</u>).

Development environment	Target platform	PLC libraries to include
TwinCAT v2.7.0 and above	BC9xxx (165) firmware version >=0xB6	TcIPUtilitiesBC.Lb6

3.3 FB_GetHostByName

FB_GetHostByName		
 bStart pHostName	bBusy- bError- iErrorld- slPAddr-	

This function block can determine the IP address associated with a specified host name.

INPUT

```
VAR_INPUT
bStart : BOOL;
pHostName : DWORD;
END_VAR
```

bStart: the function block is activated by a rising edge at this input.

pHostName: contains the address of a string variable with the host name. The address of a string variable can be determined with the ADR operator.

OUTPUT

VAR OUTPUT	
bBusy	: BOOL;
bError	: BOOL;
iErrorId	: WORD;
sIPAddr	: STRING(15);
END VAR	

bBusy: this output remains TRUE until the command execution is complete.

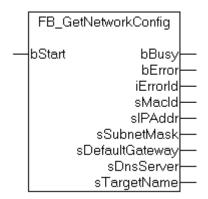
bError: this output is switched to TRUE if an error occurs during the execution of a command. The command-specific error code is contained in *iErrorId*.

iErrorld: contains the command-specific error code of the most recently executed command (see table [▶ 14]).

sIPAddr: when successful, this variable contains the IP address of the host.

Development environment	Target platform	PLC libraries to include
TwinCAT v2.7.0 and above	BC9xxx (165) firmware version >=0xB6	TcIPUtilitiesBC.Lb6

3.4 FB_GetNetworkConfig



This function block can determine information on the current network configuration.

INPUT

```
VAR_INPUT
bStart : BOOL;
END VAR
```

bStart: the function block is activated by a rising edge at this input.

OUTPUT

VAR_OUTPUT		
bBusy	:	BOOL;
bError	:	BOOL;
iErrorId	:	WORD;
sMacId	:	STRING(17);
sIPAddr	:	STRING(15);
sSubnetMask	:	STRING(15);
sDefaultGateway	:	STRING(15);
sDnsServer	:	STRING(15);
sTargetName	:	STRING(20);
END VAR		

bBusy: this output remains TRUE until the command execution is complete.

bError: this output is switched to TRUE if an error occurs during the execution of a command. The command-specific error code is contained in *iErrorId*.

iErrorld: contains the command-specific error code of the most recently executed command (see table [<u>14]</u>).

sMacId: returns the MAC ID of the bus controllers, e.g. '00-01-05-13-45-63'.

sIPAddr : returns the IP address of the Bus Controller.

sSubnetMask : returns the SubNet mask.

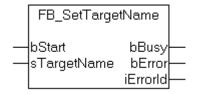
sDefaultGateway : returns the default gateway.

sDnsServer : returns the default DNS server (assigned by the DHCP server).

sTargetName : returns the Bus Controller's current target name.

Development environment	Target platform	PLC libraries to include
TwinCAT v2.7.0 and above	BC9xxx (165) firmware version >=0xB6	TcIPUtilitiesBC.Lb6

3.5 FB_SetTargetName



With this function block a target name can be assigned to the Bus Controller.

INPUT

```
VAR_INPUT
bStart : BOOL;
sTargetName: STRING(20);
END VAR
```

bStart: the function block is activated by a rising edge at this input.

sTargetName: a string containing the new target name of the Bus Controller.

OUTPUT

```
VAR_OUTPUT
bBusy : BOOL;
bError : BOOL;
iErrorId : WORD;
END VAR
```

bBusy: this output remains TRUE until the command execution is complete.

bError: this output is switched to TRUE if an error occurs during the execution of a command. The command-specific error code is contained in *iErrorId*.

iErrorld: contains the command-specific error code of the most recently executed command (see table [<u>14]</u>).

Development environment	Target platform	PLC libraries to include
TwinCAT v2.7.0 and above	BC9xxx (165) firmware version >=0xB6	TcIPUtilitiesBC.Lb6

4 Appendix

4.1 Error numbers

0x8010 Incorrect parameters 0x8011 DNS server list full 0x801F Resource error (internal) 0x8020 Invalid host length 0x8021 No host name found 0x8022 Heap error (internal) 0x8023 Resource error (internal) 0x8030 Incorrect parameters 0x8031 Invalid host name 0x8032 Host name too long 0x8034 Resource error (internal) 0x8035 Resource error (internal) 0x804F Resource error (internal) 0x8050 No valid Class-D IP address 0x8055 Stack error (internal) 0x8055 Stack error (internal) 0x8100 Incorrect parameters 0x8102 No open connection 0x8104 No data 0x8105 Stack error (internal) 0x8200 Connection was already open 0x8201 Connection error 0x8202 timeout 0x8303 Resource error (internal) 0x8203 Resource error (internal)	hex	Description
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0x8F21 Error during task initialization	0x8F13	Invalid state (internal)
	0x8F20	No free slots. Two sessions already started
0x8F22 Session is already closed	0x8F21	Error during task initialization
	0x8F22	Session is already closed

More Information: www.beckhoff.com/tx1200

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