

TBEN-LG EtherNet/IP[™] Configuration Guide

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TURCK Inc.





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Introduction

The guide provides information about device features, connection diagrams and LED diagnostics. It also shows how to set up device IP address using different tools. TBEN-LG devices can be configured with EDS files, or using a generic device profile. Device web server provides advanced configuration and diagnostics information. TURCK IP address tool is used for quick discovery of TURCK devices residing on different VLANS.

The guide, together with the data sheets, provides sufficient information for using TBEN in DLR (device level ring) or QC (quick connect) applications. DLR application does not require any specific device setup, as devices are ready for DLR networks. QC mat be enabled or disabled by a single configuration bit, part of configuration data tag. Address conflict detection (ADC) is implemented and enabled in the device by default. TBEN supports up to 3 TCP connections and 6 CIP connections, and it may be configured with 3 PLCs using Exclusive Owner, Input only or Listen Only connections.





TBEN-LG

TBEN-LG Product Line

The TBEN-LG series are multiprotocol communication adapters and they support Modbus TCP/IP, EtherNet/IP and PROFINET communication protocols. All protocols are enabled "outof-box" by default. After power up, a multiprotocol station queries all necessary ports to detect what protocol is used. The "Active Fieldbus Protocol" is defined as the first protocol to do one of the following actions:

- Modbus TCP Write to output register range.
- EtherNet/IP Establish Class 1 Exclusive Owner connection to device.
- PROFINET Connect request.

This "Configuration Guide" shows TBEN-LG-8DIP-8DOP in an EtherNet/IP environment to describe features and configuration procedures of the TBEN-LG series.

Part Numbers

Part Number	Inp	out de	scripti	on		Outpu	ıt desc	riptior	ו		E	therne	et	
	Number of inputs	Input type	Inputs per con- nector	PNP / NPN type	Number of outputs	Output type	outputs per connector	Maximum out- put load	Short circuit protection	Ethernet ports	Configuration Assembly	DLR	QC	ACD
TBEN-LG-16DIP	16	2S	2	PNP					✓ ^{#2}	2	<	<	~	~
TBEN-LG-16DOP					16	2G	2	1A ^{#1}	~	2	<	<	~	<
TBEN-LG-16DXP	16	2X	2	PNP	16	2X	2	1A	~	2	~	~	~	<
TBEN-LG-8DIP-8DOP	8	2S	2	PNP	8	2G	2	1A	~	2	~	~	~	~

Key:

- 2S: Two PnP inputs per connector
- 2X: Dual combined input/output per connector, PNP / 1A
- 2G: Two outputs per connector, 1A each
- #1: 2A output when single output per connector is used
- #2: Inputs protected per connector; outputs are individually protected
- DLR Device Level Ring
- QC Quick Connect; QC time 100msec
- ACD Address Conflict Detection and resolution



Connection Diagrams



M12	2, d-coded	M12, a-coded	Power (7/8")
4 TBEN-LG-16DIP 1 = 2 = 3 = 4 = (see ,	$ \begin{array}{c} -c & -c \\ 1 & 1 \\ 4 & 0 \\ 0 \\ 3 \\ 2 \\ 4 \\ 0 \\ 3 \\ 2 \\ 4 \\ 0 \\ 3 \\ 2 \\ 3 \\ 3 \\ 2 \\ 3 \\ 3 \\ 2 \\ 3 \\ 3 \\ 2 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3$	$\mathbf{C0} \dots \mathbf{C7}$ $1 = VAUX1 (+)$ $2 = Second input$ $3 = V1 (-)$ $4 = First input$ $5 = FE$ (see "Note 2")	$\begin{array}{c} - & - & - \\ 1 & 1 = 24 \ VDC \ V2 \\ 2 = 24 \ VDC \ V1 \\ 3 = GND \ V1 \\ 4 = GND \ V2 \end{array}$



Automation

Device Type	Ethernet M12, d-coded	IN M12, a-coded	Out M12, a-coded	Power (7/8")
TBEN-LG-8DIP-8DOP	$P1 \qquad P2$ $1 = TD+ \qquad 1 = RD+$ $2 = RD+ \qquad 2 = TD+$ $3 = TD- \qquad 3 = RD-$ $4 = RD- \qquad 4 = TD-$ (see "Note 1")	$\int \frac{1}{\sqrt{1 + \sqrt{1 + \sqrt{2}}}} + \sqrt{1 + \sqrt{2}}$ $\int \frac{1}{\sqrt{2}} + \sqrt{2}$ $\int \frac{1}{2$	$C4 \dots C7$ $1 = VAUX2 (+)$ $2 = Second output$ $3 = V2 (-)$ $4 = First output$ $5 = FE$	$\begin{array}{c} - & - & - \\ 1 & 3 & 1 = 24 \text{VDC} \text{V2} \\ 2 & 3 & 2 = 24 \text{VDC} \text{V1} \\ 3 & = \text{GND} \text{V1} \\ 4 & = \text{GND} \text{V2} \end{array}$ $\begin{array}{c} \text{X1} & \text{X2} \end{array}$
TBEN-LG-16DOP	P1 P2 1 = TD+ 1 = RD+ 2 = RD+ 2 = TD+ 3 = TD- 3 = RD- 4 = RD- 4 = TD- (see "Note 1")		$C0 \dots C7$ $1 = VAUX2 (+)$ $2 = Second output$ $3 = V2 (-)$ $4 = First output$ $5 = FE$	$\begin{array}{c} - & - & - \\ 1 \underbrace{3}_{2} \underbrace{3}_{2} \underbrace{3}_{2} \underbrace{24VDC}_{2} V1 & 3 \underbrace{0}_{2} \underbrace{0}_{2} \\ 3 \underbrace{3}_{4} \underbrace{0}_{3} \underbrace{0}_{2} \underbrace{0}_{2} \\ 4 \underbrace{0}_{4} \underbrace{0}_{3} \underbrace{0}_{2} \underbrace{0}_{2} \\ 1 \underbrace{0}_{1} \underbrace{1}_{1} \underbrace{0}_{2} \underbrace{0}_{2} \underbrace{1}_{2} \underbrace{0}_{1} \underbrace{0}_{1} \underbrace{0}_{2} \underbrace{1}_{2} \underbrace{0}_{1} \underbrace{0}$



Au<mark>tomation</mark>

Device Type	Ethernet M12, d-coded	IN M12, a-coded	Out M12, a-coded	Power (7/8")
TBEN-LG-16DXP	$4 \bigcirc 3 2 4 \bigcirc 3 2 3$	3 BU - 5 PE 4 BK J 6 2 WH J 3 BU - 3 BU -	5FE 4BK J 1BN +X 2WH J 3BUX	$\begin{array}{c} 1 & 1 & 24 \text{ VDC V2} \\ 1 & 2 & 24 \text{ VDC V1} \\ 2 & 3 & 3 & 3 & 0 \\ 4 & 3 & 3 & 6 \text{ ND V1} \\ 4 & 3 & 6 \text{ ND V1} \\ 4 & 3 & 6 \text{ ND V1} \\ 4 & 3 & 6 \text{ ND V1} \end{array}$
	P1 P2	C0 C7	C0 C7	X1 X2
	1 = TD+ 1 = RD+ 2 = RD+ 2 = TD+ 3 = TD- 3 = RD- 4 = RD- 4 = TD- (see "Note 1")	1 = VAUX1 (+) 2 = Second input 3 = V1 (-) 4 = First input 5 = FE	1 = VAUX2 (+) 2 = Second output 3 = V2 (-) 4 = First output 5 = FE	
		DXP allows for any combination of IO per single connector		

Note 1:

The pin-out of P1 and P2 are "crossed over". P1 has a "NIC-Type" connection and P2 has a "Switch-Type" connection. The TBEN devices are configured with Auto-MDIX enabled when not used for fast startup / quick connect. In that case the switch detects the cabling type itself.

With the crossed connection of P2 it is possible to connect multiple devices in a row without Auto-MDIX with 1:1 EtherNet cables. This ensures that the switch could establish a link quickly for fast start-up devices.

Note 2:

VAUX1 = V1 - 0.2 VDC (voltage drop over protective circuit) VAUX2 = V2 - 0.2 VDC (voltage drop over protective circuit)

TURCK Whys

LED Diagnostics

The notation of the IO LEDs (LD04 ... LD72) is "LDxy". It is linked to the appropriate channel and is coded as follows:

LDxy key:

- x: connector number: 0, 1,..., 7 (C0, C1, ..., C7)
- y: signal pin number of the appropriate connector (2, 4)
- LD24: connector 2, pin 4







Ethernet Ports and Device Fault LEDs

LED	Status	Description			
LD_P1 and LD_P2 (same functionality for all device types)					
	off	No Ethernet link			
LD_P1 , LD_P2	green on	Link 100MBit. The LED flashes during data transfer.			
(yellow / green)	yellow on	Link 10MBit. The LED flashes during data transfer.			
	yellow on / green on	Not valid state			
LD_BUS (same functionality for all device types)					
	off	No supply voltage			
	green on	Active connection to a master			
LD_BUS	green blinking	Ready for operation			
(red / green)	red on	IP address conflict is detected or restore mode (0 / 900 switch position),			
	red flashing	Blink / Wink is active (command sent from the IO assistant, IP address tool)			
	alternating red on / green on	Auto-negotiation and/or DHCP/BOOTP waiting for IP address assignment			
LD_ERR (same functionality for all device types)					
	off	No supply voltage			
LD_ERR	green on	Normal operation			
(red / green)	red on	Diagnostics active			
	red on / green on	Not valid state			



Power LED

LED	Status	Description					
	LD-PWR (device powered by V1 only) TBEN-LG-16DIP						
LD_PWR	off	V1 power off or undervoltage < 18V					
(green)	on	V1 and V2 power on					
LD_PWR (device powered by V1 and V2) TBEN-LG-8DIP-8DOP TBEN-LG-16DOP TBEN-LG-16DXP							
	off	V1 power off or undervoltage < 18V					
LD_PWR (green)	green on	V1 and V2 power on					
	flashing	V1 power on V2 power off or undervoltage < 18V					



IO LEDs TBEN-LG-16DIP

LED	Status	Description				
Input Channel I0,…,I15 LEDs Channel LEDs: LD02 … LD74 (Channel CH02 … Channel CH74) TBEN-LG-16DIP						
	off	Input inactive				
LD02,,LD72 LD04,,LD74 (red / green)	green on	Input active				
	red flashing	Power overload at the connector "x", both LEDs of the input channels CHx2 and CHx4 are flashing.				

IO LEDs TBEN-LG-16DOP

LED	Status	Description				
Output Channel O0,,O15 LEDs Channel LEDs: LD02 LD74 (Channel CH02 Channel CH74) TBEN-LG-16DOP						
	off	Output inactive				
LD02,,LD72 LD04,,LD74 (red / green)	green on	Output active				
	red on	Power overload at the corresponding output chan- nel CHxy				



IO LEDs TBEN-LG-8DIP-8DOP

LED	Status	Description			
Input Channel I0,,I7 LEDs Channel LEDs: LD02 LD34 (Channel CH02 Channel CH34) TBEN-LG-8DIP-8DOP					
LD02, LD04,	off	Input inactive			
LD12, LD14,	green on	Input active			
LD22, LD24, LD32, LD34, (red / green)	red flashing	Power overload at the connector "x", both LEDs of the input channels CHx2 and CHx4 are flashing.			
Chann	Output Cha el LEDs: LD42 LD TBEN-LG-8I	nnel O0,…,O7 LEDs 74 (Channel CH42 … Channel CH74) DIP-8DOP OUTPUTS			
LD42, LD44,	off	Output inactive			
LD52, LD54, LD62, LD64, LD72, LD74, (red / green)	green on	Output active			
	red on	Power overload at the corresponding output channel CHxy.			

IO LEDs TBEN-LG-16DXP

LED	Status	Description
Chann	IO Channe el LEDs: LD02 LD TBE	l IO0,,IO15 LEDs 74 (Channel CH02 Channel CH74) N-LG-16DXP
	off	IO inactive (input or output)
LD02,,LD72 LD04,,LD74 (red / green)	green on	IO active (input or output)
	2 x red flashing	Power overload at the connector "x", both LEDs of the input channels CHx2 and CHx4 are flashing.
	red on	Power overload at the corresponding output channel CHxy.
	green on / flashing red e.g. LD22	Output channel CH22 active (solid green / flashing red). Power overload at the input channel CH24 (flashing red)



IO Data Format

Abbreviations:

I0…I15:	Inputs
O0O15:	Outputs
FCE:	Force mode active
CFG:	I/O configuration error
COM:	Communication lost on the internal bus
V1:	V1 too low
V2:	V2 too low
DiagWarn:	Summarized diagnostic of the device
EM0:	Summarized diagnostic of the device
ECx :	Error Code bit x in error-code bit area
SRO015:	Short circuit recovery mode of outputs 015
Err Vaux07:	Auxiliary supply error on connector 07
Err Out015:	Short circuit output 015
Inv.I0I15:	Inverted input signal 015

TBEN-LG-16DIP

TBEN-LG-16DIP																	
Туре	Word Nr	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output (scar	nner 🧈	statio	n)														
GW Command 1 Word 1																	
Input (station -> scanner)																	
GW Status Word(*)	1		FCE			CFG	сом	V1		V2							Diag. War n
Input	2	115	114	113	112	111	110	19	18	17	16	15	14	13	12	11	10
Diagnostic Word 1 (*)	3			EC 5													EM 0
Diagnostic Word 2 (*)	4									Err Vaux 7	Err Vaux 6	Err Vaux 5	Err Vaux 4	Err Vaux 3	Err Vaux 2	Err Vaux 1	Err Vaux 0

Note: a blank field means reserved or not used.



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TBEN-LG-8DIP-8DOP

TBEN-LG-8DIP-8DOP																	
Туре	Word Nr	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output (sca	nner ->	statio	n)														
GW Command Word	1																
Output	2									07	06	O5	04	O3	02	01	00
Input (statio	n 🔺 sca	nner)															
GW Status Word(*)	1		FCE			CFG	сом	V1		V2							Diag War n
Input	2									17	16	15	14	13	12	11	10
Diagnostic Word 1 (*)	3			EC 5							•	•				•	EM 0
Diagnostic Word 2 (*)	4	Err Out 7	Err Out 6	Err Out 5	Err Out 4	Err Out 3	Err Out 2	Err Out 1	Err Out 0	Err Vaux 7	Err Vaux 6	Err Vaux 5	Err Vaux 4	Err Vaux 3	Err Vaux 2	Err Vaux 1	Err Vaux 0

TBEN-LG-16DOP

TBEN-LG-16DOP																	
Туре	Word Nr	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output (scar	nner 🧈	statio	n)														
GW Command 1 Word																	
Output	2	015	014	013	012	011	O10	09	08	07	06	O5	04	03	02	01	00
Input (statio	n -> sca	nner)															
GW Status Word(*)	1		FCE			CFG	сом	V1		V2							Diag. War n
Diagnostic Word 1 (*)	2			EC 5													EM 0
Diagnostic Word 2 (*)	3	Err Out 7	Err Out 6	Err Out 5	Err Out 4	Err Out 3	Err Out 2	Err Out 1	Err Out 0								
Diagnostic Word 3 (*)	4									Err Out 15	Err Out 14	Err Out 13	Err Out 12	Err Out 11	Err Out 10	Err Out 9	Err Out 8



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TBEN-LG-16DXP

TBEN-LG-16DXP																	
Туре	Word Nr	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output (scar	nner 🧈	statio	n)														
GW Command Word	1																
Output	2	015	014	013	012	011	O10	09	08	07	06	O 5	04	03	02	01	00
Input (statio	n -> sca	nner)															
GW Status Word(*)	1		FCE			CFG	сом	V1		V2							<u>Diag</u> War n
Input	2	115	114	113	112	111	110	19	18	17	16	15	14	13	12	11	10
Diagnostic Word 1 (*)	3			EC 5													EM 0
Diagnostic Word 2 (*)	4	Err Out 7	Err Out 6	Err Out 5	Err Out 4	Err Out 3	Err Out 2	Err Out 1	Err Out 0	Err Vaux 7	Err Vaux 6	Err Vaux 5	Err Vaux 4	Err Vaux 3	Err Vaux 2	Err Vaux 1	Err Vaux 0
Diagnostic Word 3 (*)	5									Err Out	Err Out 14	Err Out 13	Err Out 12	Err Out 11	Err Out 10	Err Out 9	Err Out 8



Setting up IP Address

TBEN has three rotary switches which are used to set either the last octet of the device IP address or device mode of operation. Valid address range and mode of operation are:



The address switches are pre-set out of box to 600 (PGM-DHCP mode). IP address can be assigned immediately using DHCP server.

General procedure for IP address setup is:

- Set rotary switches to desired mode (300, 400, 500, 600)
- Cycle power to the station
- Run IP address utility to assign IP address
- Set address switches to static rotary position or PGM mode
- Cycle power to the station

The TBEN station IP address can be configured and/or changed in following ways:

- Using static rotary mode
- BootP Server utility
- DHCP Server utility
- TBEN Web page
- IP Address tool

Address Switches in Static Rotary

When address switches are in static mode, the last octet may be dialed in 1-254 range. Addresses 0 and 255 are reserved and cannot be used.

Following example shows the last octet set to of address xx.xxx.xxx.173



Setting rotary switches to any other position not listed on the device or data sheet sets device into DHCP mode and bus LED flashes green / red.



BOOTP/DHCP Mode (300/400)

The TBEN rotary switches, when set to 300 or 400, allow for IP address assignment as follows:

- Set the rotary switches to 300 to enable BOOTP mode and power cycle the device
- Set the rotary switches to 400 to enable DHCP mode and power cycle the device
- Run BOOTP or DHCP utility and assign IP address
- Set the rotary switches either to 500 (PGM mode) or to a number that matches the last octet of the assigned IP address (e.g. 125)
- Power cycle the device

5	BOOTP/DHCP S	ierver 2.	3									Ľ
File	Tools Help											
сB	equest History-											
	Clear History	Add to	Relation List									
	(hr:min:sec)	Туре	Ethernet Ad		.C)	IP Address		Hostnar	ne			
	16:00:12	DHCP	00:17:08:61	:44:10		102 160 1	125					
	16:00:07	DHCP	00:07:46:FF	20:07		132.100.1.	125					
			Nev	v Entry						×		
										_		
E B	elation List		Eth	nernet Ada	dress (MAC): 00:0	7:46:FF:	20:07				
	New Delete	Enable	BOOTF		IP Addres	s: 192	2.168	. 1	. 125			
Ì	Ethomot Addres		[T		Hostnam	e:						- 11
	00:07:46:FF:20:1	<u>is (mial)</u> 07			Description			En	ter the IP	addres	s for the devic	e to be
			-		Descriptio	n						
							ок	Ca	ncel			
	hale of										Enking	
	tatus Inable to service		west from 00	17:08:61-	44-10						1 of 25	6
			paest non ou	11.00.01.							10/20	

Note:

When the device is set to 500 (PGM) mode, its IP address can be further changed using either the IP Address Tool or WEB page.



PGM-DHCP Mode (600)

When rotary switches are set to 600, it enables PGM–DHCP mode of operation. It is the default, out-of-box setup mode of the device. To assign IP address the first time:

- Power up the device
- Run the DHCP utility and assign IP address
- Disable the DHCP request from the module by clicking the **Disable BOOTP/DHCP** button in the utility
- Leave the rotary switches in 600 (PGM-DHCP) position or set switches to a number that matches the last octet of the assigned IP address [1,...,254]
- Power cycle the device

5	BOOTP/DHCP	Server 2	.3				
Fi	e Tools Help						
-	Request History						
	Class History	1	Detailer Line 1				
	Clear History	Add 0	D Relation List				
	(hr:min:sec)	Туре	Ethernet Address (MAC)	IP Addre	388	Hostname	^
	16:24:25	DHCP	00:50:56:84:32:EC				
	16:24:24	DHCP	00:07:46:FF:20:07	192.168	1.125		
	16:24:24	DHCP	00:07:46:FF:20:07				
	16:24:21	DHCP	00:07:46:FF:20:07				
	16:24:20	DHCP	00:10:25:72:85:30 00:07:46:EE:20:07				
	16:24:14	DHCP	00:07:46:FF:20:07				- 1
	1.000111	D.110D	00.07 /0 FF 00.07				
	Relation List						
	New Delet	Enabl		Disable ROC			
	INEW Delet	Enabl	eboorr Enablebrick	Disable DOC	TEADHCE		
	Ethernet Addre	ess (MAC)	Type IP Address	s (F	lostname	Description	
	00:07:46:FF:20	0:07	DHCP 192.168.1.	.125			
	I						
Г	Status						Entries
	(Disable DHCP)	Command :	successful				1 of 256
-							

Note:

When the device is set to 600 (PGM-DHCP) mode, its IP address can be further changed using either the IP Address Tool or WEB page.



PGM Mode (500, 600)

When the device rotary switches are set to 500 or 600, the device IP address can be changed using following tools:

- Device WEB server
- TURCK IP address tool

While the rotary switches are set to 500, power up the device. It comes up with the last IP address that was saved in the EEPROM memory. It can be either the factory default IP address 192.168.1.254 or the last assigned IP address whatever it is.

PGM (500) and Web Server

To login into the Web server as administrator use following procedure:

- Set rotary switches to 500 and power-up device
- If IP address has never been assigned before, enter 192.168.1.254 into Web browser
- If IP address is known, enter the device current IP address into Web browser
- If IP address is unknown, read the "Factory Reset Mode (900)" to reset device to factory default setup. IP address
- When device web server starts, enter "password" into "Password" field and click "Login"

Home	×	- 100 -	
← → C ☆ □ 19 TBEN-LG-8DIP-8DOP Embedded Website of TBEN	2.168.1.225/home.html	Enter "password" word [Login]	
Home >			
Home Station Diagnostics Ethernet Statistics Links	Station Information Type Identification Number Firmware Revision Bootloader Revision EtherNet/IP Revision PROFINET Revision Modbus TCP Revision Rotary Switch Mode PROFINET Station Name	TBEN-LG-8DIP-8DOP 6814066 V3.1.3.0 V8.0.1.0 V2.5.3.0 V1.2.1.0 V1.3.0.0 PGM	



- Select "Network Configuration" at the left column

T Home X		-	
← → C ㎡ 🗋 192.168	.1.225/home.html		☆ =
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block	I/O Module		TURCK
Home >	admin-user@192.16	8.1.48 [Logout]	Automation
Home Network Configuration Station Configuration Station Diagnostics Ethernet Statistics Links Change Admin Password 8DIP-8DOP Parameters	Station Information Type Identification Number Firmware Revision Bootloader Revision	TBEN-LG-8DIP-8D0 6814066 V3.1.3.0 V8.0.1.0	9P

- Enter new IP address, Netmask and Default Gateway and press "Submit"

T Network Configuration ×		
← → C ☆ 192.168	3.1.225/network_config.html	☆ =
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block	I/O Module	TURCK
	admin-user@192.16	8.1.48 [Logout] Industrial Automation
Network Configuration >		
Home Network Configuration Station Configuration Station Diagnostics	Network Settings Changing the IP address will r	not take affect until the device is rebooted.
Ethernet Statistics Links	Ethernet Port 1 setup	Autonegotiate •
8DIP-8DOP Parameters	Ethernet Port 2 setup	Autonegotiate 🔻
	IP Address	136.129.10.33
	Netmask	255.255.0.0
	Default Gateway	0.0.0.0
	MAC Address	00:07:46:01:fb:66
	LLDP MAC Address 1	00:07:46:01:fb:67
	LLDP MAC Address 2	00:07:46:01:fb:68
	Submit Reset	

- To reboot device, leave rotary switches at 500 and cycle device power

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IP Address Tool

Download IP address tool from: <u>http://www.turck.de/en/index.php</u> Search > Downloads > Software > Service tool

Product IP-Address Tool												
IP Adress Tool Order number: SW_IP_Address_tool Service tool Search for TURCK devices in the network Assigning of IP addresses Identification of devices by WINK function Other features include the display of device type and firmware version												
SPECIFICATIONS INF	and firmwar	e version	.,									
product overview	Modular I/O systems and compact I/O modules in IP20 and IP67	2013 KB	Download									
configuration software	Turck IP-Address Tool	1817 KB	Download									

The tool is designed to:

- Search TURCK devices on different subnets
- Modify IP address when rotary switches are set to 500 / PGM mode
- Access device web page, when tool and device are on the same subnet

🧮 Tu	urck IP Address Tool	Vers. 1.6.0.5					
K	D 🥒 🤅				25	<	TURCK
Sear	ch Change Win	k Reset Factory	reset Clipboar	d Language	Help Clo	ose	Industrial Automation
No	MAC address	IP address	Netmask	Gateway	Mode	Device	Version
1	00:07:46:01:7D:29	<u>192.168.1.121</u>	255.255.255.0	0.0.0.0	PGM	TBEN-L1-16DIP	3.1.2.0
2	00:07:46:BB:30:04	<u>10.10.10.54</u>	255.0.0.0	10.10.10.1	PGM_DHCP	FEN20-4DIP-4DXP	3.0.5.0
3	00:07:46:01:7B:A3	<u>192.168.1.122</u>	255.255.255.0	0.0.0.0	PGM	TBEN-L1-16DOP	3.1.2.0
4	00:07:46:01:F2:05	<u>192.168.1.124</u>	255.255.255.0	0.0.00	PGM	TBEN-L1-16DXP	3.1.2.0
5	00:07:46:01:7D:D1	<u>192.168.1.125</u>	255.255.255.0	0.0.00	PGM	TBEN-L1-8DIP-8DOP	3.1.2.0
6	00:07:46:BB:30:01	<u>192.168.1.44</u>	255.255.255.0	0.0.0.0	ROTARY	FEN20-16DXP	3.0.6.0
7	00:07:46:80:00:04	<u>192.168.1.42</u>	255.255.255.0	192.168.1.1	PGM	BL67-GW-EN	3.1.0.0
8	00:07:46:00:09:21	<u>192.168.1.4</u>	255.255.255.0	192.168.1.1	PGM	Unknown	0.0.00



PGM (500) and IP address tool

Start the IP address tool and click "Search":

🧮 Ti	urck IP Address Tool, V	ers. 1.6.0.5					
8	D 🖉 🐧		· D .		? 🛛		TURCK
Searc	ch Change Wink	Reset Factory res	set Clipboard	Language	Help Close		Automation
No	MAC address	IP address	Netmask	Gateway	Mode	Device	Version
1	00:07:46:01:FB:42	192.168.1.221	255.255.255.0	0.0.0.0	ROTARY	TBEN-LG-16DIP	3.1.3.0
2	00:07:46:01:FB:E4	<u>192.168.1.222</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DOP	3.1.3.0
3	00:07:46:01:FB:96	<u>192.168.1.224</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DXP	3.1.3.0
4	00:07:46:01:FB:66	<u>192.168.1.225</u>	255.255.255.0	0.0.00	PGM	TBEN-LG-8DIP-8DOP	3.1.3.0
5	00:07:46:BB:06:05	<u>192.168.1.52</u>	255.255.255.0	192.168.1.1	ROTARY	BL67-GW-EN	3.0.3.0
6	00:07:46:80:00:04	192.168.1.42	255.255.255.0	192.168.1.1	PGM	BL67-GW-EN	3.1.0.0
7	00:07:46:00:09:21	<u>192.168.1.4</u>	255.255.255.0	192.168.1.1	PGM	Unknown	0.0.00
•							
Foun	d 7 Devices.						

Highlight device which is in PGM mode and click "Change":

T 💳	urck IP Address Tool, Ve	ers. 1.6.0.5					
Sear	Change Wink	Reset Factory res	set Clipboard	Language	P Close		TURCH
No	MAC address Change	IP address	Netmask	Gateway	Mode	Device	Version
1	00:07:46:01:FB:42	<u>192.168.1.221</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DIP	3.1.3.0
2	00:07:46:01:FB:E4	<u>192.168.1.222</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DOP	3.1.3.0
3	00:07:46:01:FB:96	<u>192.168.1.224</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DXP	3.1.3.0
4	00:07:46:01:FB:66	<u>192.168.1.225</u>	255.255.255.0	0.0.0	PGM	TBEN-LG-8DIP-8DOP	3.1.3.0
5	00:07:46:BB:06:05	192.168.1.52	255.255.255.0	192.168.1.1	ROTARY	BL67-GW-EN	3.0.3.0
6	00:07:46:80:00:04	<u>192.168.1.42</u>	255.255.255.0	192.168.1.1	PGM	BL67-GW-EN	3.1.0.0
7	00:07:46:00:09:21	<u>192.168.1.4</u>	255.255.255.0	192.168.1.1	PGM	Unknown	0.0.00





Enter new IP address and click "Write to device":

Change Device IP proper	ties
IP Properties MAC address 00:07:46:01:FB:66	IP address 136.129.1.225
Netmask 255.255.255.0	Gateway 0.0.0.0
Cancel	Write to device

Search again and verify setup:

-	Tu	rck IP Address Tool, V	ers. 1.6.0.5					
	ç			I D.	×.	2 🗙		TURCK
Se	arc	h Change Wink	Reset Factory res	set Clipboard	Language	Help Close		Industrial Automation
No		MAC address	IP address	Netmask	Gateway	Mode	Device	Version
	1	00:07:46:01:FB:42	192.168.1.221	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DIP	3.1.3.0
	2	00:07:46:01:FB:E4	<u>192.168.1.222</u>	255.255.255.0	0.0.0.0	ROTARY	TBEN-LG-16DOP	3.1.3.0
	3	00:07:46:01:FB:96	<u>192.168.1.224</u>	255.255.255.0	0.0.00	ROTARY	TBEN-LG-16DXP	3.1.3.0
	4	00:07:46:01:FB:66	136.129.1.225	255.255.255.0	0.0.00	PGM	TBEN-LG-8DIP-8DOP	3.1.3.0
	5	00:07:46:80:00:04	<u>192.168.1.42</u>	255.255.255.0	192.168.1.1	PGM	BL67-GW-EN	3.1.0.0
	6	00:07:46:BB:06:05	<u>192.168.1.52</u>	255.255.255.0	192.168.1.1	ROTARY	BL67-GW-EN	3.0.3.0
	7	00:07:46:00:09:21	<u>192.168.1.4</u>	255.255.255.0	192.168.1.1	PGM	Unknown	0.0.0.0
•								
Foi	un	d 7 Devices.						:



Restore Mode (0)

When rotary switches are set to 0 and device power cycled, the device recovers only IP address to factory default value:

- IP address: 192.168.1.254
- Mask: 255.255.255.0
- Gateway: 192.168.1.1

The device responds to PING command, but it does not operate when switches are set to 0. At this point it is necessary either, to assign new IP using address tools as described earlier, or simply dial rotary switches between xx=1,..., 253; to set address as 192.168.1.x.

Factory Reset Mode (900)

The device resets itself to factory default settings, as follows:

- Set the rotary switches to 900 position
- Power up the device (the BUS LED solid red) and wait 10 sec
- Set the rotary switches to 600 (PGM-DHCP mode)
- Cycle power to the device



TBEN EtherNet/IP Configuration

Following section provides information how to configure TBEN device with Rockwell Automation Logix controllers. There are two configuration methods which depend on a controller revision:

- Configuration using EDS file (Electronic Data Sheet):
 - It is supported only by Logix controllers firmware revision 20.00.00 and above.
- Configuration using Ethernet Generic device profile: It is supported by all Logix controllers

TBEN Configuration Using EDS Files

The EDS file which supports configuration assembly may be imported into RSLogix5000 project. The Logix Designer creates device profile based on EDS and saves device configuration in the project. The controller pushes configuration data to the device whenever connection between them is established.

The TBEN-LG configuration procedure includes following steps:

- Configure EtherNet/IP User Interface
- Create RSLogix5000 project
- Install Device EDS File(s)
- TBEN General Configuration
- TBEN Connection Configuration
- Module Definition Data Format
- Communication RPI, Multicast / Unicast
- TBEN Input, Output and Configuration Data Tags



Configure EtherNet/IP User Interface

Configure user interface to the ControlLogix platform using RSLinx communication software. Add new EtherNet/IP driver that is used to establish connection between programing PC and the Logix controller:

RSLinx Classic Professional	_ 🗆 ×
File Edit View Communications Station DDE/OPC Security Window Help	
Configure Drivers	? X
Available Driver Types: EtherNet/IP Driver Add New	Close Help
Configured Drivers: Name and Description AB_VBP-1 Running	Configure
Add New RSLinx Classic Driver	Startup
Choose a name for the new driver. OK (15 characters maximum)	Start
AB_ETHIP-1	Stop
	Delete

Select designated driver and click apply:

Configure driver: AB_ETHIP-1	? ×
EtherNet/IP Settings	
Browse Local Subnet C Browse Remote Subnet	
Description	IP Address
Windows Default	
ASIX AX88772 USB2.0 to Fast Ethernet Adapter	192.168.1.48
Microsoft Virtual WiFi Miniport Adapter #2	unknown
Microsoft Virtual WiFi Miniport Adapter	unknown



Create RSLogix5000 Project

Open new RSlogix5000 project and configure PLC resourced or open an existing project.

🔀 RSLogix 5000 - Sample [1769-L23E-QB1 20.11]	- 🗆 🗙
File Edit View Search Logic Communications Tools Window Help	
🖹 🖆 💭 🐇 🐘 🛍 🗠 🖙 Shut_Down_Power 🚽 🏘 🍇 🏗 📝 😰 🍳 🔍	\$
Offline Image: Compute/Math & More Compu	ove/Logical 🔏 File
Controller Organizer + X 🔐 Controller Properties - Sample	
Controller Sample Controller Sample Controller Tags Controller Tags Controller Fault Handler Power-UP Handler Power-UP Handler Power-UP Handler DeterTime Advanced SFC Execution Fie Memory Security Order System Protocol User Protocol Major Faults Minor Faults Vendor: Alen-Bradley Type: 1769-123E-QBI CompactLegic5323E-QBI Controller DeterTime CompactLogic5323E-QBI System Type: 20.11 Name: Bample Description: CompactDagic5323E-QBI System Type: 20.11 Name: Bample Description: Descrip	
Ready	h.



Install EDS File(s)

Tools > EDS H	Hardware	Installation	Tool
---------------	----------	--------------	------



Follow the wizard instructions



Register single file or directory of EDS files and follow registration dialog:

Rockwell Automation's EDS Wizard			×
Final Task Summary This is a review of the task you want to comp	olete.		
You would like to register the following TBEN-LG-16DIP TBEN-LG-16DOP TBEN-LG-16DXP TBEN-LG-8DIP-8DOP	4 devices		
	< Back	Next >	Cancel



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Create new TBEN Module

Configure new TBEN device in RSLogix5000:

File > New Component > Module

💕 R	SLogix 5000 - Sample [1769-L23E-QB1 20.11]		
File	Edit View Search Logic Communications	Tools	Window Help
1	<u>N</u> ew	Ctrl+N	
2	<u>O</u> pen	Ctrl+O	
	Close		I H H H H I I I I I I I I I I I I I I I
	Save	Ctrl+S	Favorites 🖌 Add-On 👗 Safety 👗 Alarms 👗 Bit 👗 T
	Save <u>A</u> s		Language 🔻 🦻
	Ne <u>w</u> Component	•	🖾 Add-On Instruction
	Import Component	+	🙀 Data Type
	Compact		[] <u>M</u> odule
			Program
	Page Set <u>up</u>		Routine
	Generate Report		String Type
	Print	•	I ag Ctrl+W
			Los Tas <u>k</u>
	<u>1</u> Sample.ACD		<u> </u>
	<u>2</u> C:\Users\\CLX23_EDS_Update3.ACD		
	3 BL67_Catalog_file_V19_2014_12_08.ACD		
	4 C:\Users\\CLX16_IOL_Test.ACD		
	5 C:\Users\\CLX62V20_RM94_DLR_Test3.ACD		
	<u>6</u> CLX23_EDS_Update3.USMS.BBEGIC.BAK045.acd		
	7 C:\RSLogix 5000\\CLX23_EDS_Update.ACD		
	8 BL20_Catalog_file_V19_2014_8_10.ACD		
	E <u>x</u> it		

Or right-click at "Ethernet" and select "New module"

	on gix5323 3E-QB1 3E-QB1 met	3E-QB1 System Sample Ethernet Port LocalEf	νв
E Compac	tB 🖠	New Module	
🚔 🔄 Emb	ed	Discover Modules	
	1] 2] 🖪	Paste	Ctrl+V
Expa	ns	Print	•
	_		



"Select Module Type" page provides a search box:

- Enter device name into search box
- Highlight device to be configured
- Click "Create"

TBEN	1-LG		Clea	ar Filte	ers		Hide Filters	*
	Module	Type Category Filters		•		Module Type Vend	dor Filters	
	CIP Motion Drive Communication Communications Adapte	er				Advanced Micro Controls I Allen-Bradley Cognex Corporation	nc. (AMCI)	
•	Controller	III	•		•	Endress+Hauser III		Þ.
iatalo 68	og Number 114065	Description TBEN-LG-16DIP				Vendor Turck	Category Communications Ad	apter
68 68 68	14066 14067 114068	TBEN-LG-8DIP-8DOP TBEN-LG-16DOP TBEN-LG-16DXP				Turck Turck Turck	Communications Ad Communications Ad Communications Ad	apter apter apter
۲.	367 Module Types Foun	d		11			Add to Favo	▶ prites



Enter required data into the "New Module" General page:

- Name (tag name)
- IP address
- Click "Change" to open Module Definition page

New Module	nection Module Info Internet Protocol Port Configuration	
Type: Vendor: Parent: Name: Description:	6814066 TBEN-LG-8DIP-8DOP Turck LocalENB TBEN_LG_8in8out Type TBEN-LG-8DIP-8DOP Identification Number 6814066 Firmware Revision V3.1.3.0 EtherNet/IP Revision V2.5.3.0 MAC Address 00:07:46:01fb:66	Ethemet Address
Module Defir Revision: Electronic K Connections	nition 2.7 eying: Compatible Module : Exclusive Owner Change	Change data format into INT
Status: Creating		OK Cancel Help



Configure Connection and data format

When Module Definition page is opened select:

- Connection type = Exclusive Owner
- Data size format = INT

New Module							X	
General* Conn	ection Module Info Ir	nternet Protocol Port Configur	ation					
Type:	6814066 TBEN-LG-8D	IP-8DOP						
Vendor:	Turck							
Parent: LocalENB Module Definition*								
Name:	TBEN_LG_8in8out	Revision: 2	-	7 🌲	_			
Description:	Type Identification Numbe Firmware Revision EtherNet/IP Revision	Electronic Keying: Compatible Module						
	MAC Address	Name		Size		-		
		Exclusive Owner	Input:	4	INT 🚽			
Module Defin Revision: Electronic Ke Connections:	ition 2.7 xying: Compatible Mo Exclusive Ow		output.					
		ОК	Canc	el	Help			
Status: Creating					ОК	Cancel H	lelp	

Click OK and follow dialog to complete device configuration.



Module Definition Data Format

TBEN utilizes integer IO data format. It can be selected from drop down menu as follows:

	Module Definition*			×						
Be	evision: 2	•	5 🌲							
E	Electronic Keying: Compatible Module 👻									
Co	onnections:									
IΓ	Name		Size							
	Eveluaire Orman	Input:	8	SINT						
	Exclusive Owner	Output:	4							
				SINT						
			/	DINT						
				REAL						
_	Must use INT data format									

TBEN supports following CIP connections:

- Exclusive Owner
- Input Only
- Listen Only

The Exclusive Owner is preferred and default IO connection used by the device. It provides access to the input and output data, and configuration assembly.

The Input-Only and Listen-Only connections may be used to configure the device with multiple PLCs. The TBEN device supports up to 3 TCP sessions and 8 CIP connections.

Module Definition			- A	x				
Revision:	2	•	5 👻					
Electronic Keying:	Compa	tible Mod	ule	•				
Connections:								
Name			Size					
Exclusive Owner	_	Input:	8	CINT				
	Ť	Output:	4	SINT				
Exclusive Owner Input Only Connec Listen Only Conne	tion ection							
OK Cancel Help								



TBEN Data Tags

Once the TBEN is configured and added to the Controller Organizer, the controller creates configuration, input and output data tags as shown hereafter:

	ى	Controller Organizer 🔷 🗸 X
l	Sta	⊕ 🕮 Controller Sample
	7 P	🗄 🗂 Tasks
I	age	🗄 🗀 Motion Groups
l		Add-On Instructions
l		🗄 🕮 Data Types
l		Trends
l		🗄 🛁 I/O Configuration
l		🚊 🎬 CompactLogix5323E-QB1 System
l		🔁 1769-L23E-QB1 Sample
l		🚊 🛷 1769-L23E-QB1 Ethernet Port LocalENB
l		॑뀸 Ethernet
l		
		6814066 TBEN_LG_8in8out
		🛓 🛲 CompactBus Local

Input data tag:

Device "Connection Faulted" flag is also attached to the input data by the controller.

Scope: 🛐 Sample 👻 Show: All Tags									
	Name	그림 스	Value 🔸	Style	Data Type	Description			
	TBEN_LG_8in8out:C		{}		_0030:6				
	- TBEN_LG_8in8out:l		{}		_0030:6				
	-TBEN_LG_8in8out:I.Con	nectionFaulted	0	Decimal	BOOL				
	🖃 TBEN_LG_8in8out:I.Data	a	{}	Decimal	INT[4]				
	🛨 - TBEN_LG_8in8out:I.D	ata[0]	0	Decimal	INT	GW Status Word			
	🛨 - TBEN_LG_8in8out:I.D	0 Decimal		INT	_Input data				
	🛨 - TBEN_LG_8in8out:I.D	0	Decimal	INT	_Diagnostics				
	🛨 - TBEN_LG_8in8out:I.D	ata[3]	0	Decimal	INT	_Diagnostics			
			{}		_0030:6				

Output data tag:

s	cope: 🚺 Sample 🛛 👻 Show: All Ta	▼ T. Enter Na				
	Name 📑	8	Value 🔸	Style	Data Type	Description
	TBEN_LG_8in8out:C		{}		_0030:6	
	TBEN_LG_8in8out:I		{}		_0030:6	
	-TBEN_LG_8in8out:0		{}		_0030:6	
	E TBEN_LG_8in8out:0.Data		{}	Decimal	INT[2]	
	TBEN_LG_8in8out:0.Data[0]		0	Decimal	INT	GW Control Word
			0	Decimal	INT	_Output data

Configuration tags may be edited, which enables user to utilize device features such as:

- Enable QuickConnect
- Invert input signal
- Disable auto-recovery of outputs (requires user to turn-off and then-on an output that was previously faulted)
- Stretch input signal for specified time

S	Scope: 🛐 Sample 👻 Show: All Tags									
	Name 📰 🛆	Value 🔸	Style	Data Type	Description					
	TBEN_LG_8in8out:C	{}		_0030:6						
	-TBEN_LG_8in8out:C.Quick_Connect_0	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch0	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch1	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch2	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch3	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch4	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch5	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch6	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Input_inversion_Ch7	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch8	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch9	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch10	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch11	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch12	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch13	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch14	0	Decimal	BOOL						
	-TBEN_LG_8in8out:C.Disable_Automatic_Recovery_Ch15	0	Decimal	BOOL						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch0	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch1	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch2	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch3	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch4	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch5	0	Decimal	SINT						
	TBEN_LG_8in8out:C.Pulse_Stretching_Ch6	0	Decimal	SINT						
	<u>+</u> - TBEN_LG_8in8out:C.Pulse_Stretching_Ch7	0	Decimal	SINT						
	TBEN_LG_8in8out:I	{}		_0030:6						





The device configuration data consist of parameters that are read / write enabled. Parameters are set while the controller is in the program (offline) mode. Configuration is saved in the controller. The controller always pushes configuration data to the device during PLC download, or at device power-up, when connection between the controller and the device is in process of configuring (ForwardOpen).

TBEN-LG Configuration Parameters

Item	Parameter name	Description					
TBEN Digital Inputs							
<i>Pulse_stretching</i> Trigger to an internal TOF timer, (available for input channels only)	IStx	It is an input signal OFF timer. The time base is 10ms. For example a value of 14 means 140ms. Pulse stretch range [0-127]. Default = 0 value [Pulse stretching is disabled].					
Input_Inversion	Inv.lx	Inversion of input signal. A 0 means that an activated input (green LED on) is transmitted as a logical 1 in the process data. A 1 means that an activated input (green LED on) is transmitted as a logical 0 in the process data. Default = 0					

TBEN Digital Outputs						
<i>Disable_Auto_Recovery</i> Recovery mode of the out- puts in case of short circuit	SROx	The behaviour of an output that recovers from short condition is controlled by this parameters: = 0, automatic recovery is enabled; Output turns ON after short condition = 1, automatic recovery is disabled; Output stays OFF after short condition. Default = 0				
Output_Enable	Out Enable x	Only available on DXP devices. 0 = output driver is not be enabled. 1 = output driver is enabled Default = 1				



Configuration Assembly Data Structure

TBEN-LG-8DIP-8DOP									
	Bit7	Blt6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
Byte0									
Byte1									
Byte2									
Byte3									
Byte4	Reserved	ł							
Byte5									
Byte6									
Byte7									
Byte8									
Byte9	Reserved	1						QC	
Byte10	Inv I7	Inv I6	Inv I5	Inv I4	Inv I3	Inv I2	Inv I1	Inv I0	
Byte11	SRO 7	SRO 6	SRO 5	SRO 4	SRO 3	SRO 2	SRO 1	SRO 0	
Byte12									
Byte13	Reserved	1							
Byte14									
Byte15	ISt0								
Byte16	ISt1								
Byte17	ISt2								
Byte18	ISt3								
Byte19	ISt4								
Byte20	ISt5								
Byte21	ISt6								
Byte22	ISt7								
Byte 23-45	Reserved	1							

The structure of the configuration data is different for each TBEN-LG device, as follows:

Table 2.4 - TBEN-LG-8DIP-8DOP configuration data

Abbreviations:

- QC Quick Connect
- INVx Input Inversion
- SROx Output Short Recovery
- IStx Input pulse stretching
- OE Output enable



Industrial Automation

TBEN-LG-16DIP								
	Bit7	Blt6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0								
Byte1								
Byte2								
Byte3								
Byte4	Reserved							
Byte5								
Byte6								
Byte7								
Byte8								
Byte9	Reserved							QC
Byte10	Reserved							
Byte11	110001100							
Byte12	Inv I7	Inv l6	Inv I5	Inv l4	Inv I3	Inv I2	Inv I1	Inv I0
Byte13	Inv I15	Inv I14	Inv I13	Inv I12	Inv I11	Inv I10	Inv 19	Inv I8
Byte14	Reserved							
Byte15	ISt0							
Byte16	ISt1							
Byte17	ISt2							
Byte18	ISt3							
Byte19	ISt4							
Byte20	ISt5							
Byte21	ISt6							
Byte22	ISt7							
Byte23	ISt8							
Byte24	ISt9							
Byte25	ISt10							
Byte26	ISt11							
Byte27	ISt12							
Byte28	ISt13							
Byte29	ISt14							
Byte30	ISt15							
Byte 31-45	Reserved							

Table 2.5 – TBEN-LG-16DIP configuration data



Industrial Automation

	TBEN-LG-16DOP								
	Bit7	Blt6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
Byte0									
Byte1									
Byte2									
Byte3									
Byte4	Reserved								
Byte5									
Byte6									
Byte7									
Byte8									
Byte9	Reserved							QC	
Byte10	SRO 7	SRO 6	SRO 5	SRO 4	SRO 3	SRO 2	SRO 1	SRO 0	
Byte11	SRO 15	SRO 14	SRO 13	SRO 12	SRO 11	SRO 10	SRO 9	SRO 8	
Byte12	Reserved								
Byte13	Reserved								
Byte 14-45	Reserved								

Table 2.6 – TBEN-LG-16DOP configuration data



Industrial Automation

			TBEN-I	_G-16DXF	כ						
	Bit7	Blt6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0			
Byte0											
Byte1											
Byte2											
Byte3											
Byte4	Reserved	Reserved									
Byte5											
Byte6											
Byte7											
Byte8											
Byte9	Reserved							QC			
Byte10	Reserved										
Byte11	Reserved										
Byte12	Inv I7	Inv l6	Inv I5	Inv I4	Inv I3	Inv I2	Inv I1	Inv I0			
Byte13	Inv I15	Inv I14	Inv I13	Inv I12	Inv I11	Inv I10	Inv I9	Inv I8			
Byte14	SRO 7	SRO 6	SRO 5	SRO 4	SRO 3	SRO 2	SRO 1	SRO 0			
Byte15	SRO 15	SRO 14	SRO 13	SRO 12	SRO 11	SRO 10	SRO 9	SRO 8			
Byte16	OE 7	OE 6	OE 5	OE 4	OE 3	OE 2	OE 1	OE 0			
Byte17	OE 15	OE 14	OE 13	OE 12	OE 11	OE 10	OE 9	OE 8			
Byte18	Reserved										
Byte19	ISt0										
Byte20	ISt1										
Byte21	ISt2										
Byte22	ISt3										
Byte23	ISt4										
Byte24	ISt5										
Byte25	ISt6										
Byte26	ISt7										
Byte27	ISt8										
Byte28	ISt9										
Byte29	ISt10										
Byte30	ISt11										
Byte31	ISt12										
Byte32	ISt13										
Byte33	ISt14										
Byte34	ISt15										
Byte 35-45	Reserved										

Table 2.7 – TBEN-LG-16DXP configuration data



TBEN-LG Profile Info

The device property is a subject to change. It provides path to view installed EDS file: right-click on the device and select *"Properties"*:



Click on marked icon and follow instructions:

General [*] Conr	rties: LocalENB (6814066 2.7)	iguration	
Type:	6814066 TBEN S & DIP-8DOP		
Vendor:	Turck Click icon and select	About RSLogix 5000 Module Profile I	info 🔜
Parent:	LocalENB "About Module Pfofile"	6814066 TBEN-LG-8DIP-8DOP	
Name:	TBEN_LG_8in8out	Core:	
Description:	Type TBEN-LG-8DIP-8DOP	RSLogix 5000 Module Profile Core	0.07.0500.0
	Firmware Revision V3.1.3.0 EtherNet/IP Revision V2.5.3.0	Software version installed:	9.07.3526.0
	MAC Address 00:07:46:01.fb:66	Module Vendor:	
		Turck	
		EDS File:	
- Module Defin	sition	Revision:	2.7
Devision	2.7	Creation Date:	12/05/2014
Revision:	2.7	Creation Time:	5:03:31 PM
Electronic Ke	eying: Compatible Module	Modification Date:	12/05/2014
Connections	Exclusive Owner	View ED.	S File
	View device pro EDS file	file and OK	



TBEN Configuration Using Generic Device

Earlier versions of RSlogix5000 Programming Software and Logix controllers, revision 19 or less do not support EDS files. In such case, TBEN may be configured using Ethernet Generic Module profile. The TBEN device configuration includes following steps:

- Create / open existing RSLogix5000 project
- Add Ethernet Generic device (as seen in RSLogix5000 rev 16)

	Sele	ect Module			x
	Modu	ule	Description	Vendor	
L		ETHERNET-BRIDGE	Generic EtherNet/IP CIP Bridge	Allen-Bradley	
L		ETHERNET-MODULE	Generic Ethernet Module	Allen-Bradley	
L		EtherNet/IP	SoftLogix5800 EtherNet/IP	Allen-Bradley	
		In-Sight 1700 Series	Vision System	Coonex Corporation	

Add Ethernet Generic device (as seen in RSLogix5000 rev 20 and up)

Generic		Clear	r Filt	ers]	Hide Filters	*
Modu	e Type Category Filters		<u> </u>		Module Type Vendor F	ilters	-
CIP Motion Drive Communication Communications Controller	Adapter		 	 Image: A state of the state of	Advanced Micro Controls Inc. Allen-Bradley Cognex Corporation Endress+Hauser	(AMCI)	
•	m	•		•	III		Þ
Catalog Number	Description				Vendor	Category	
ETHERNET-BRIDGE	Generic EtherNet/IP CI	P Bridge e			Allen-Bradley Allen-Bradley	Communication Communication	
•							Þ

- Configure device by entering assembly instances and data size as follows:



Configure TBEN-LG-16DIP

🖳 Module Prop	erties Report: LocalENB (ETHE	RNET-N	MODULE 1.1)			— X—
General Conr	nection Module Info					
Туре:	ETHERNET-MODULE Generic E	thernet	Module			
Vendor:	Allen-Bradley					
Parent:	LocalENB					
Name:	TBEN_LG_16DIP		Connection Para	meters		
Description:				Assembly Instance:	Size:	
		Î	Input:	103	4	膏 (16-bit)
		*	Output:	104	1	🚔 (16-bit)
Comm Format:	Data - INT	-	Configuration:	1	0	🦲 (8-bit)
Address / H	ost Name		eeningenedien.			(° 5.1)
IP Addre	ss: 192 . 168 . 1 . 121		Status Input:			_
🔘 Host Na	me:		Status Output:			
Status: Offline)K	Cancel	Apply		Help

Note: <u>"Comm Format" is always "Data – INT"</u>.

Configure TBEN-LG-16DOP

Type:	ETHEBNET-MODULE Gene	eric Ethern	et Module			
Vendor:	Allen-Bradley					
Parent:	LocalENB					
Name:	TREN LG 16DOP		Connection Para	ameters		
Description:				Assembly Instance:	Size:	
			Input:	103	4	🚔 (16-bit)
		*	Output:	104	2	🚔 (16-bit)
Comm Format	Data - INT		Configuration:	1	0	(8-bit)
Address / H	ost Name		2			_
IP Addre	ss: 192 . 168 . 1 .	122	Status Input:			_
🔘 Host Na	me:		Status Output:			





Configure TBEN-LG-8DIP-8DOP

New Module						x
Type: Vendor: Parent:	ETHERNET-MODULE Generic Ethern Allen-Bradley LocalENB	et Module				
Name: Description:	TBEN_LG_DIP_8DOP	Connection Para	Assembly Instance:	Size:		
		Input:	103	4	🚖 (16-bit)	
		Output:	104	2	🚔 (16-bit)	
Comm Format: Address / H	Data - INT	Configuration:	1	0	(8-bit)	
IP Addre	ss: 192 . 168 . 1 . 125	Status Input:			_	
🔘 Host Na	ne:	Status Output:				
🔲 Open Modu	le Properties	ОК	Cano	el	Help	

Configure TBEN-LG-16DXP

General Con	nection Module Info					
Туре:	ETHERNET-MODULE Generic	Etherne	t Module			
Vendor:	Allen-Bradley					
Parent:	LocalENB		Comparties Deer			
Name:	TBEN_LG_16DXP		Connection Para	Accombly		
Description:				Instance:	Size:	
		<u></u>	Input:	103	5	🚔 (16-bit)
		*	Output:	104	2	🚔 (16-bit)
Comm Formal	: Data - INT	-	Configuration:	1	0	i (8-bit)
-Address / H	lost Name		Configuration.			- (0 DK)
IP Addre	ess: 192 . 168 . 1 . 12	24	Status Input:			_
🔘 Host Na	me:		Status Output:			



Configure Connection

The "Connection" page setup is identical for all TBEN devices as follows:

Module Properties Report: LocalENB (ETHERNET-MODULE 1.1)							
General Connection* Module Info							
Requested Packet Interval (RPI): 10.0 ms (1.0 - 3200.0 ms)							
Major Fault On Controller If Connection Fails While in Run Mode							
☑ Use Unicast Connection over EtherNet/IP							
Module Fault							
Status: Offline OK Cancel Apply Help							

Controller organizer differentiates between EDS and Generic configured device by default icon.

	Controller Organizer
Sta	⊕ 🗂 Controller Sample
뤝	🗄 💼 Tasks
age	🗄 💼 Motion Groups
<u> </u>	
	🗄 💼 Data Types
	Trends
	🖃 📇 I/O Configuration
	CompactLogix5323E-QB1 System
	1769-L23E-QB1 Sample
	□ 🛷 1769-L23E-QB1 Ethernet Port LocalENB
	E
	📓 6814066 TBEN_LG_8in8out 🛛 🚽 EDS device configuration
	ETHERNET-MODULE TBEN_LG_16DIP
	ETHERNET-MODULE TBEN_LG_16DOP
	D ETHERNET-MODULE TBEN_LG_16DXP
	🖞 ETHERNET-MODULE TBEN_LG_8DIP_8DOP
	⊕ - 🎟 CompactBus Local



TBEN Web Server

Open the web server by entering the device IP address in a web browser. If IP address is not assigned to the device (DHCP, BootP server etc.), it's the web server can be opened using the default IP address 192.168.1.254.

Home Page

The home or start page of the web server shows general device information, network settings and network status. There are several pages such as "Station Diagnostics", "Ethernet Statistics" and "Links" which can be accessed for viewing.





Login / password

In order to get access to the extended functions of the web server and access to device setup, login to the web server as administrator.

Enter initial password as "password" and click Login. The administrator privileges allow changing device setup using page links listed to the left. The home page shows the same information:

C T http://192.168.1.205/	home.html 🔎	- C THome	× 11 ★ 13
TBEN-LG-8DIP-8DOP	I/O Madula		TURCK
Embedded website of TBEN Block	1/0 1/000010		and the second se
Homo >	admin-user@1	92.168.1.48 [Logout]	Automation
Home Network Configuration Station Configuration Station Diagnostics Ethernet Statistics Links Change Admin Password 8DIP-8DOP Parameters	Station Information Type Identification Number Firmware Revision Bootloader Revision EtherNet/IP Revision PROFINET Revision Modbus TCP Revision Rotary Switch Mode PROFINET Station Name Network Settings Ethernet Port 1 setup	TBEN-LG-8DIP-8DOP 6814066 V3.1.3.0 V8.0.1.0 V2.5.3.0 V1.2.1.0 V1.3.0.0 Rotary	
	Ethernet Port 2 setup IP Address Netmask Default Gateway MAC Address LLDP MAC Address 1 LLDP MAC Address 2	Autonegotiate 192.168.1.205 255.255.255.0 192.168.1.1 00:07:46:01:fb:66 00:07:46:01:fb:67 00:07:46:01:fb:68	
http://192.168.1.205/device_config.ht	EtherNet/IP Status Network topology DLR State QuickConnect PROFINET Status Network topology FastStartUp	Linear Normal Disabled Linear Disabled	~



Network Configuration

The network configuration page is used to modify EtherNet port settings and device IP address.

	(network_config.html	🁕 Network Configuration × 🖬 🏠 🏵			
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block	k I/O Module	TURCK			
admin-user@192.168.1.48 [Logout] Industrial					
Network Configuration >					
Home Network Configuration Station Configuration Station Diagnostics Ethernet Statistics Links Change Admin Password 8DIP-8DOP Parameters	Network Settings Changing the IP address will not Ethernet Port 1 setup Ethernet Port 2 setup IP Address Netmask Default Gateway MAC Address LLDP MAC Address 1 LLDP MAC Address 2 Submit Reset	Autoneqotiate ✓ Autoneqotiate ✓ 192.168.1 .255.255.0 192.168.1.1 00:07:46:01:fb:66 00:07:46:01:fb:67 00:07:46:01:fb:68			
	For comments or questions, please email TU URL http://www.turck.com * Revision V	RCK Support V1.2.5.0			



Station Configuration

The station configuration page is used for enabling / disabling listed features. It is recommended to keep default setup of the device.

Notes:

- Disabling GW Status and/or Control word shifts the position of the IO data map. Do not change.
- "Submit" button applies changes to the device setup
- "Reset" only resets the changes done in the web server mask, back to the original values
- "Reboot" executes a power-cycle at the device.
- "Reset to Factory Defaults" corresponds to switch position 900 and it restores factory default setup, including password.

	/device_config.html	5 T Station Configuration × 🕅 🛣 🔅				
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block I/O Module						
admin-user@192.168.1.48 [Logout] Industrial Automation						
Station Configuration >						
Home Network Configuration Station Configuration Station Diagnostics	Protocols NOTE: A check mark next to a	a protocol means it is disabled.				
Links	EtherNet/IP					
Change Admin Password 8DIP-8DOP Parameters	Modbus TCP					
	PROFINET					
	Web Server					
	EtherNet/IP Configuration					
	GW Control Word	Enabled V				
	GW Status Word	Enabled V				
	Scheduled Diagnostics	Enabled 🗸				
	Summarized Diagnostics	Disabled V				
	Quick Connect	Disabled ¥				
	Submit Reset					
	Reboot Reset to Factory D	Defaults				
	For comments or questions, please email URL http://www.turck.com * Revision	TURCK Support on V1.2.5.0				



Station Diagnostics

The diagnostics page provides historical content of diagnostics from the last device power-up.



Ethernet Statistics

The Ethernet statictics page provide currrent status and statistics of Ethernet ports.

			X-
	eth_stats.html	C 📅 Ethernet Statistics	× 11 大 登
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block	k I/O Module		TURCK ^
	admin-user@192	2.168.1.48 [Logout]	Industrial Automation
Ethernet Statistics >			
Home Network Configuration Station Configuration Station Diagnostics Ethernet Statistics Links Change Admin Password 8DIP-8DOP Parameters	Ethernet Port 1 Status Setup Mode Link State Autonegotiation Status Link speed Link Duplex	Autonegotiate Connected Failed 100 Full-Duplex	
	Ethernet Port 1 Statistics RX Frame Counter RX Frame Error Counter RX Symbol Error Counter TX Frame Counter TX Frame Error Counter Dropped Frame Counter	11941 0 0 2367 0 0	

IO Parameters

TURCK WOWS

The IO parameters page is used to change setup of device IO behavior such as:

- Invert state of discrete input
- Disable automatic recovery of an output upon recovery from a short condition
- Pulse stretching value is in range 0-127; input signal is extended in steps of 10msec from 0-1270 msec.

+ ttp://192.168.1.205/I	001_06.html	arameters 🗙 🟦 🛣			
TBEN-LG-8DIP-8DOP Embedded Website of TBEN Block I/O Module					
admin-user@192.168.1.48 [Logout] Industrial Automation					
8DIP-8DOP > Parameters >					
Home Network Configuration	8DIP-8DOP Parameters				
Station Configuration	Input Inversion - Channel 0				
Ethernet Statistics	Input Inversion - Channel 1				
Change Admin Password	Input Inversion - Channel 2				
8DIP-8DOP Parameters	Input Inversion - Channel 3				
	Input Inversion - Channel 4				
	Input Inversion - Channel 5				
	Input Inversion - Channel 6				
	Input Inversion - Channel 7				
	Disable Automatic Recovery on Output - Channel 0				
	Disable Automatic Recovery on Output - Channel 1				
	Disable Automatic Recovery on Output - Channel 2				
	Disable Automatic Recovery on Output - Channel 3				
	Disable Automatic Recovery on Output - Channel 4				
	Disable Automatic Recovery on Output - Channel 5				
	Disable Automatic Recovery on Output - Channel 6				
	Disable Automatic Recovery on Output - Channel 7				
	Pulse Stretching - Channel 0	0			
	Pulse Stretching - Channel 1	0			
	Pulse Stretching - Channel 2	0			
	Pulse Stretching - Channel 3	0			
	Pulse Stretching - Channel 4	0			
	Pulse Stretching - Channel 5	0			
	Pulse Stretching - Channel 6	0			
	Puise Stretching - Channel /	0			
	Submit Reset				
		~			

