USER MANUAL

DUAL RESPONDER TRIGGER ETHERNET

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1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This document outlines and defines the configuration and operation of the PCB Dual Responder Trigger Ethernet.
The manual is to be used by trained and competent personnel only.

1.2 ABBREVIATIONS

Abbreviation	Description
PCB	Printed Circuit Board
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
IP	Internet Protocol
EEPROM	Electric Erasable Programmable Read Only Memory

1.3 SUPPLIER CONTACT INFORMATION

Ixys AS
Langmyra 11
4344 Bryne
Norway

+47 51 52 22 22
post@ixys.no
https://ixys.no

1.4 DOCUMENT REFERENCES

Document number	Description

2 HEALTH, SAFETY AND ENVIROMENT

2.1 GENERAL

Safety Notes and General Precautions shall be presented to all personnel concerned prior to testing, operation, maintenance, and repair. The operations shall be performed by the responsible engineer/supervisor.
The personnel performing this job shall have knowledge of this type of equipment and have familiarized themselves with the applicable procedures and manuals for this product.

2.2 USER HEALTH AND SAFETY

This product is made to operate under many circumstances and specific cases for health and safety will not be described here but must be considered by the equipment manufacturer or owner.

2.3 QUALIFICATIONS AND TRAINING

It is essential that operating personnel have been given training and education how to operate and maintain the software and equipment described in this manual. It is also essential that operating personnel have general operational experience.

The personnel responsible for the operation of this system must be appropriately qualified. The operating company must do the following tasks:

- Define the responsibilities and competency of all personnel handling this system.
- Provide instruction and training.
- Ensure that the contents of the operating instructions have been fully understood by the personnel.

2.4 NON-COMPLIANCE RISKS

Failure to comply with all safety precautions can result in the following conditions:

- Death or serious injury due to electrical and mechanical influences
- Product damage
- Property damage
- Loss of all claims for damages

2.5 UNACCEPTABLE MODES OF OPERATION

The operational reliability of this product is only guaranteed when it is used as designated. The operating limits given in this manual shall not be exceeded under any circumstances.

3 TECHNICAL INFORMATION AND DATA

3.1 TECHNICAL DESCRIPTION

The PCB Dual Responder Trigger Ethernet is made to read digital on/off signals at one location and then forward the signals to an equal board at another location with low latency by using Ethernet UDP packet. A network packet is sent for each edge of the incoming signal, so the output pulse length will be the same as the incoming.

Web interface for configuration allows adjustment of parameters like IP address and signal inversion.

3.2 TECHNICAL DATA

General	
Manufacturer	Ixys AS
Ixys part number	118092
Description	PCB Dual Responder Trigger Ethernet
Weight	39g
Dimensions	96 x 90 x 15 mm
Supply voltage	9 – 28 V DC
Power consumption	36 mA @ 24 V DC
Communication	Ethernet 10 / 100 Mbps, Auto negotiation enabled, Auto MDIX enabled
Digital input	0 / 5 V DC

4 DRAWING

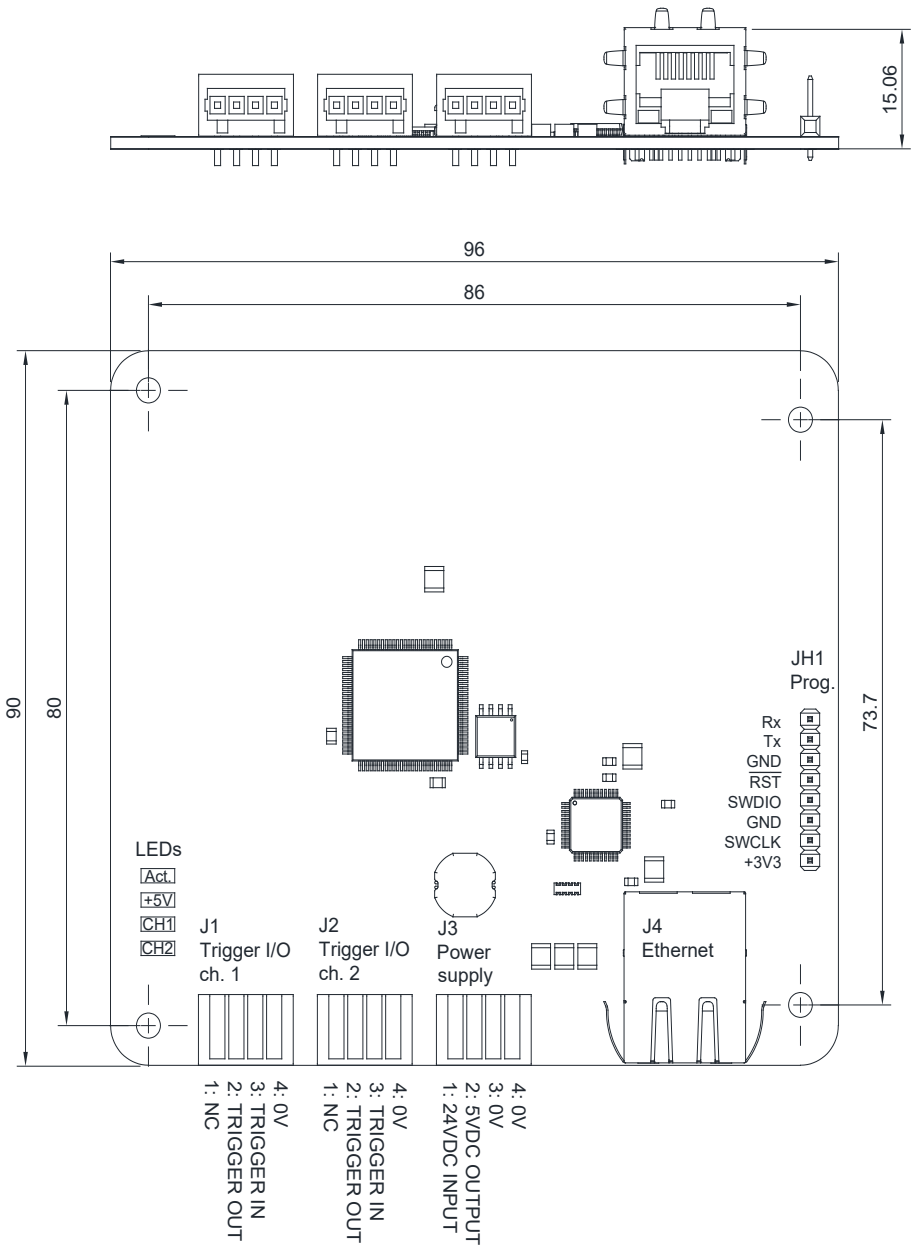

Figure 1 – Dimension and pin configuration.

5 CONFIGURATION

To configure the parameters in the Dual Responder Trigger PCB, use any available computer and connect to the same network as the PCB.

If the IP of the PCB is known, then set the computer IP address to one in the same subnet as the PCB (the first three numbers in the IP must be the same as the PCB).

If the IP of the PCB is unknown, then use Wireshark network utility and look for heartbeat messages from the PCB at one hertz interval to IP 255.255.255.255 and port 65000.

Use a web browser and enter the IP address of the PCB (10.0.37.236) in the address bar to access the built-in web server. The first page to show is the “About” page. Use the buttons in the upper right corner to navigate to the different pages.

5.1 CONFIGURATION

To configure PCB parameters, navigate to the “Configuration” page. Here you can adjust the following parameters.

IP address: IP address of the PCB itself.

Default Output state: The high/low state of the outputs on this board at startup.

Peer IP: The IP of the destination PCB of the signal from the respective channel.

Target Channel: The target channel on the destination PCB.

Inverted: Selection to invert the input signal before transmitting to destination PCB.

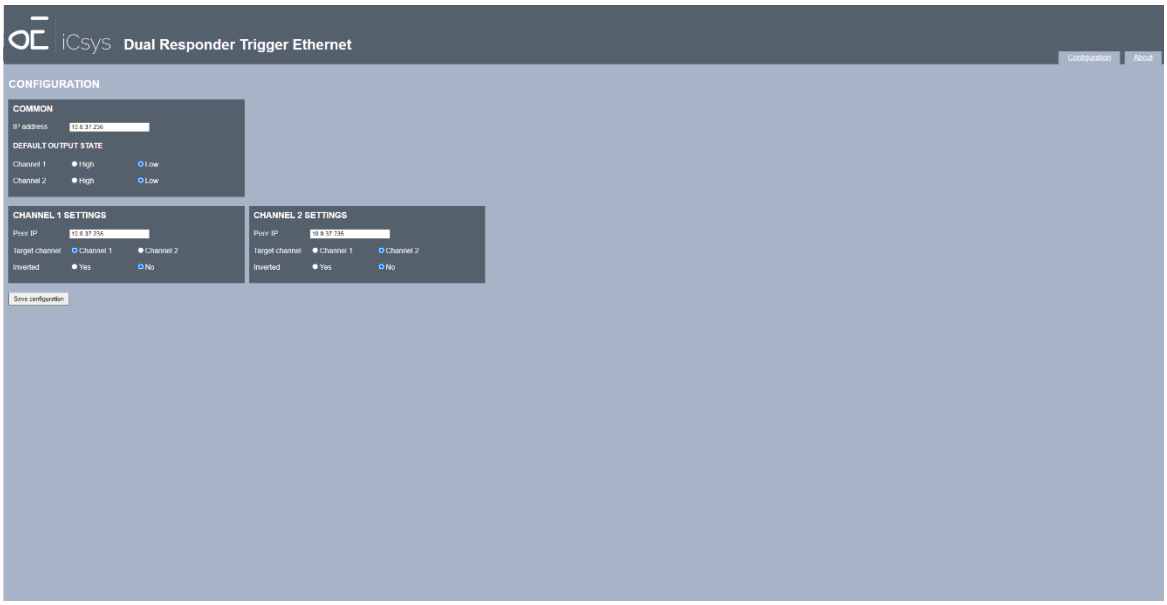

Figure 2 – Web server “configuration” page.

5.2 ABOUT

The “About” page holds information on hardware and firmware versions, and it allows for firmware updates if any update file is provided by Ixys AS.

To update the firmware, select the applicable firmware file and press “Upload”. Then wait for positive feedback of the upload.

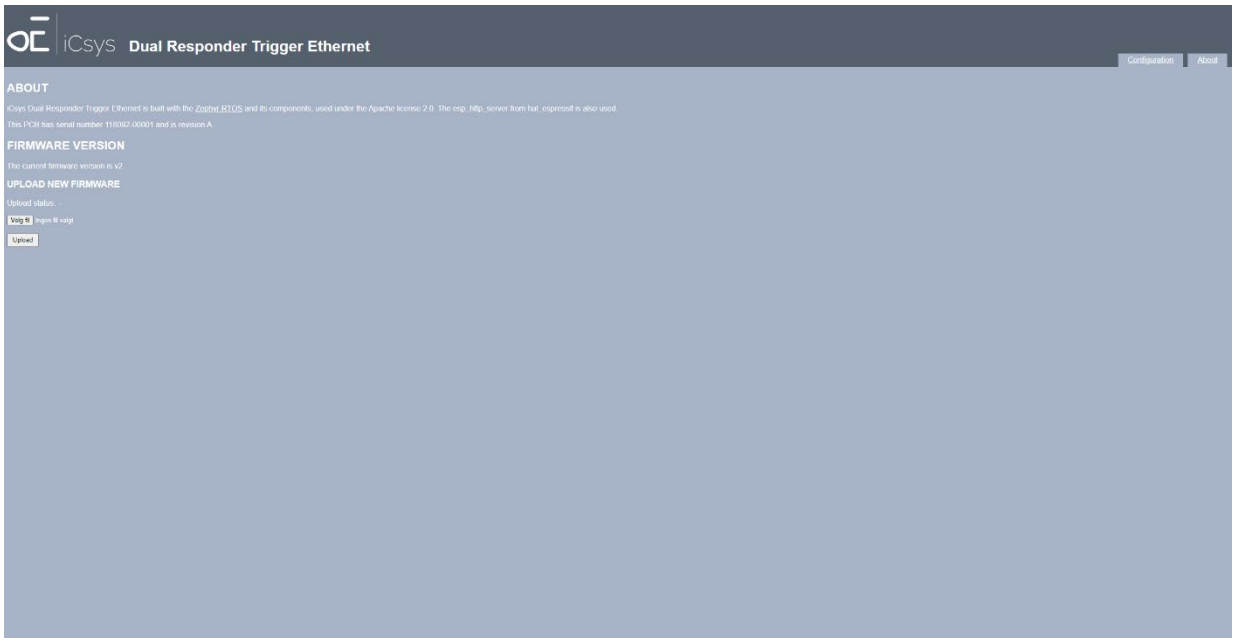

Figure 3 – Web server “about” page.

6 OPERATION

6.1 NORMAL OPERATION

The PCB will transmit a message to the destination PCB each time the input state changes, and the output of the destination PCB will reflect the state of the input that was changed.

7 TROUBLESHOOTING / FAULTFINDING

The below list is meant to provide some hints for troubleshooting but does not guarantee that the issue is covered by the list. Operational feedback will be used to extend the list in future revisions.

Troubleshooting		
Symptom	Possible causes	Remedy
No connection to PCB from computer	Lack of power	Check that supply power is within limits
	Incorrect ethernet connection	Check wiring of ethernet connection
	IP Address of computer in wrong subnet	Find IP address of PCB from heartbeat in Wireshark and set computer IP to one in the same subnet as the PCB
LED on destination PCB does not blink	Wrong IP address configured for peer IP	Check configuration for peer IP address
	Lack of signal on input	Verify that signal voltage at input is within limits
Activity LED does not blink (orange)	Faulty board	Return for repair