

**TERM10
Product Specification
Preliminary**



High Performance Simultaneous Data Acquisition

Table of Contents

| | | |
|-------|------------------------------|---|
| 1 | Product Description..... | 3 |
| 1.1 | Product Variants..... | 3 |
| 1.2 | Applications..... | 3 |
| 1.3 | Overview..... | 3 |
| 2 | Physical..... | 4 |
| 2.1 | Appearance..... | 4 |
| 2.2 | TERM10 – Physical..... | 5 |
| 3 | Interface Specification..... | 6 |
| 3.1 | Signal Connectors..... | 6 |
| 3.2 | System Connectors..... | 6 |
| 4 | TERM10 Specification..... | 7 |
| 4.1 | Electrical..... | 7 |
| 4.1.1 | Input Signals..... | 7 |
| 4.1.2 | Output Signals..... | 7 |
| 4.2 | Physical..... | 7 |

1 Product Description

TERM10 is an accessory Digital I/O module for ACQ400 Carriers with:

- 4 Channels of Digital Input. Opto-Coupled or Comparator Inputs
- 4 Channels of Digital Output. TTL Output

1.1 Product Variants

- **TERM10-OPTO**: Optocoupled Input Channels.
- **TERM10-COMP**: Comparator Input Channels.

1.2 Applications

- Core Clock and Trigger accessory for Digital I/O to D-TACQ ACQ400 Carriers ACQ1001 and ACQ2106
- Opto-Coupled input Signals for isolated inputs
- TTL outputs and daisy chain connector for multi-carrier synchronisation

1.3 Overview

D-TACQ Carriers have 4 key Digital Inputs and Output that provide the following signals:

| <i>Pin</i> | <i>Name</i> | <i>Description</i> | |
|--|-------------|--|--|
| | | <i>Output</i> | <i>Input</i> |
| 1 | Sync | Synchronisation Output | Synchronisation Input |
| 4 | Trigger | Trigger Output | Trigger Input |
| 7 | GPIO | General Purpose Output. May be switched to an input if desired. | General Purpose Input. May be switched to an output if desired. |
| 10 | Clock | Clock Output | Clock Input |
| | | | |
| 18 | +V | +3.3V for powering auxiliary devices. Current-limited to 100mA. | +3.3V for powering auxiliary devices. Current-limited to 100mA. |
| 2, 3, 5, 6, 8, 9, 11, 12, 17 | GND | Ground (0VD) | |
| 13, 14 | NC | Not Connected | |

These D-TACQ custom core digital control signals are passed between a TERM10 module and Carrier using standard HDMI cables.

2 Physical

2.1 Appearance

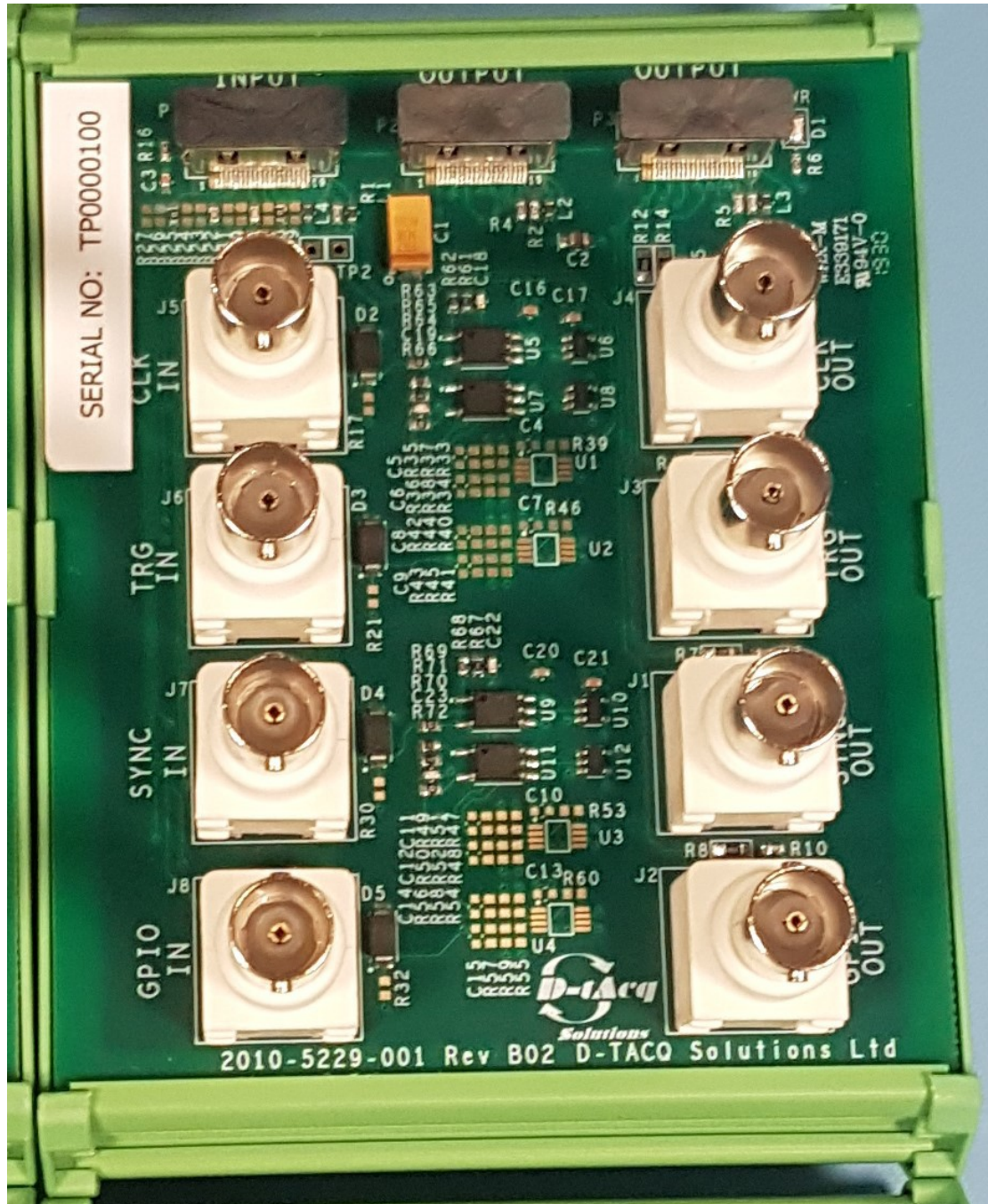


Figure1. Image of a revision B TERM10 module showing BNC input, BNC output and HDMI connectors

2.2 TERM10 – Board Silkscreen

The diagram below shows the silkscreen on the board identifying the input and output connectors

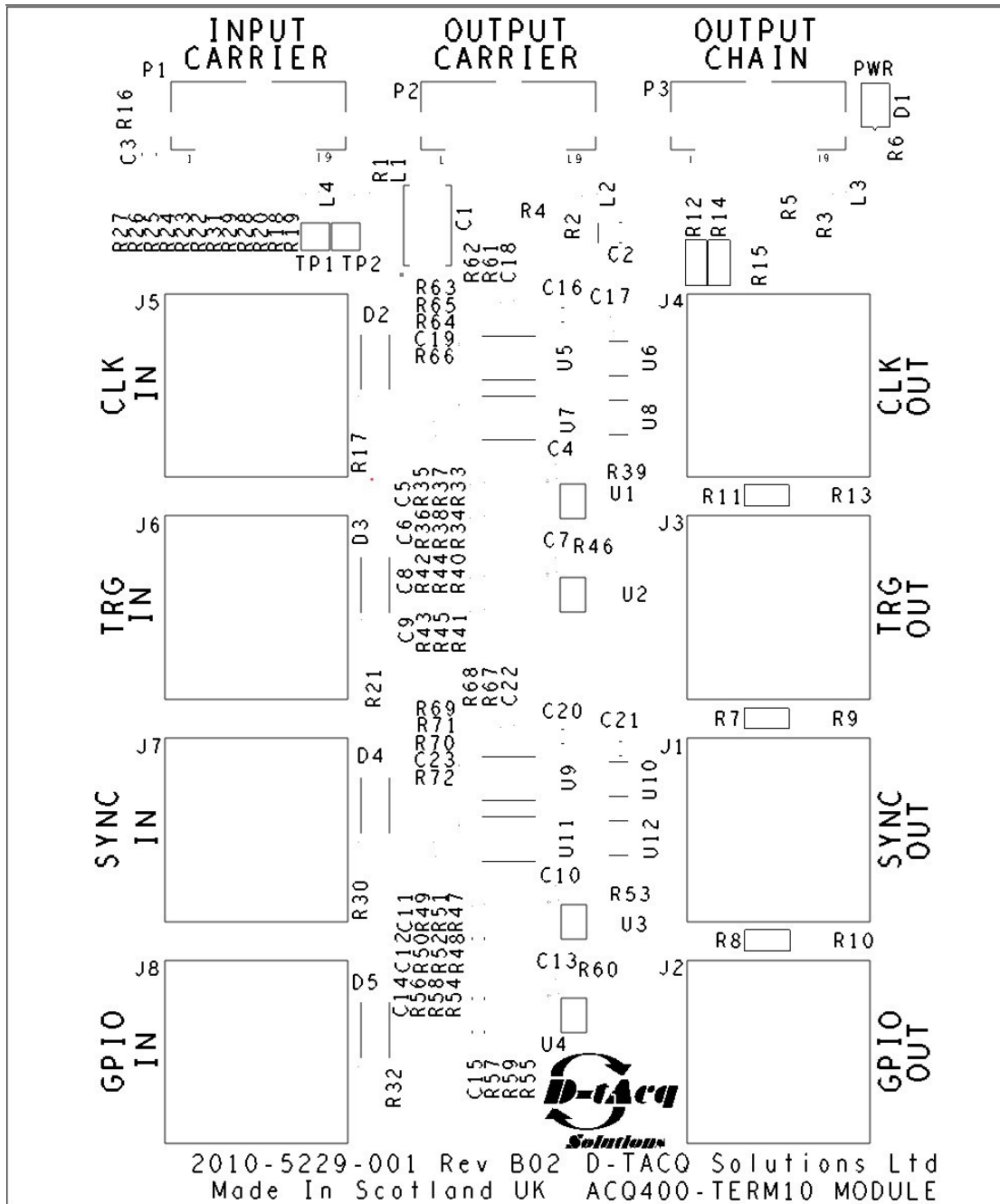


Figure 2. PCB top silk screen showing component placement and reference designators.

3 Interface Specification.

3.1 Signal Connectors

- Standard BNC connectors
- Input Connectors Centre pin is signal, shield is signal return
- Output Connectors Centre pin is signal, shield is 0V

3.2 System Connectors

- Standard HDMI Cables with D-TACQ custom signal connections. (See Section 1.3 Overview.)
- “Input Carrier” Connector. Connects to the Carrier “Input” connection.
- “Output Carrier” Connector. Connects to the first Carrier “Output” connection.
- “Output Chain” Connector. Connects to the second Carrier “Output” connection. Used to synchronise multiple Carriers

4 TERM10 Specification

4.1 Electrical

4.1.1 Input Signals

| # | Parameter | Value |
|----|---|------------------------|
| 1 | Number of Signals | 4 |
| 2 | Input Type | Opto-Coupler LED input |
| 3 | Isolation | > 1kV |
| 4 | Recommended Input Voltage Transition Time | < 0.5 uS |
| 5 | Propagation Delay | 10nS typical |
| 6 | Skew Between signals | ±10nS max |
| 7 | Maximum Frequency | 40 MHz |
| 8 | Recommended Input Voltage for LED ON | 5V @ 5.5 mA |
| 9 | Maximum voltage for LED OFF | 2V and < 1 mA |
| 10 | Minimum voltage for LED ON | 2.5V and > 1.8mA |
| 11 | Maximum Input Voltage | 7V @ 10mA |

4.1.2 Output Signals

| # | Parameter | Value |
|---|--------------------|--|
| 1 | Number of Signals | 4 |
| 2 | Output Type | 3.3V TTL |
| 3 | Output Voltage | Output High 3.1V Output Low 0.2V @ ±100 uA |
| 4 | Output Current Max | Source 12 mA Sink 12 mA |

Typical values except where indicated

4.2 Physical

| # | Parameter | Value |
|---|---------------|---|
| 1 | Form Factor | DIN Rail |
| 2 | Power source | External DC 3.3V From HDMI connector, 75mA typical current |
| 3 | Environmental | 0°C-50°C Operational -10°C-85°C Non-Operational |