



**North Sea  
Electronics**

# Product Specification

## Product:

HT Solenoid Board DO-100

NSE 5006-01

### REVISION HISTORY

REV	DATE	DESCRIPTION	PREP	CHECK	APPR	COMPANY
01	13.08.2014	Initial	EEN			NSE
02						
03						
04						
05						
06						
07						

PAGES DOCUMENT: 8

PAGES APPENDICES: 0

NSE DOCUMENT NUMBER: 500601-001

## Table of contents

<b>TABLE OF CONTENTS .....</b>	<b>2</b>
<b>1 ABBREVIATIONS.....</b>	<b>3</b>
<b>2 SYSTEM SPECIFICATIONS.....</b>	<b>4</b>
2.1 SENSORS, CONNECTORS AND COMMUNICATION INTERFACE.....	5
<b>3 FUNCTIONAL DESCRIPTION.....</b>	<b>5</b>
3.1 BLOCK DIAGRAM.....	5
3.2 OPEN DRAIN.....	5
3.3 INTEGRATED SENSORS.....	5
3.3.1 <i>Temperature sensor</i> .....	5
3.3.2 <i>Voltage measurement</i> .....	5
<b>5 CONNECTOR PIN-OUT .....</b>	<b>6</b>
5.1 15 PIN INPUT CONNECTOR H3 .....	6
5.2 15 PIN OUTPUT CONNECTOR H2.....	7
<b>6 MECHANICAL DIMENSIONS .....</b>	<b>8</b>

## 1 Abbreviations

NSE	North Sea Electronics
OD	Open Drain

## 2 System Specifications

Parameter	Conditions / Comments	Min	Typ	Max	Unit
<b>Supply voltage</b> <i>Input Voltage</i>		18		36	Vdc
<b>Output</b> <i>Number of channel(s)</i> <i>Output current pr. channel</i>  <i>Current measurement</i>	<i>Open drain</i> <i>Open drain</i>  <i>10-bit resolution</i> <i>±5% FS</i>		6	1 3	A A
<b>Logic Input</b> <i>Number of digital input</i> <i>Vih (input high voltage)</i> <i>Vil (input low voltage)</i>	<i>Internal pull-up, 3.3V</i>	2.3	6	0.6	V V
<b>CAN port</b> <i>Baud rate</i>			125		kbits/s
<b>Environment</b> <i>Op. Temperature Range*</i> <i>Op. Pressure Range**</i>		-20		177 T.B.D	DegC psi
<b>Physical board dimension</b> <i>Height</i> <i>Width</i> <i>Length</i> <i>Mount holes</i>	<i>Including Connectors</i>		10 25 165 6xM3		mm mm mm

\* Consult NSE for mounting guidance.

\*\* Consult NSE for pressure ratings on this board.

## 2.1 Sensors, Connectors and Communication Interface

On board sensor:	1 temperature sensor 1 Input voltage measurement 6 off – Open drain current
Communication interface:	CAN bus, NSE Protocol
Input Connector:	Glenair M83513/13-B01NW
Mating Connector:	Glenair M83513/03-Bxxx
Output Connector:	Glenair M83513/10-B01NW
Mating Connector:	Glenair M83513/04-Bxxx

## 3 Functional Description

### 3.1 Block Diagram

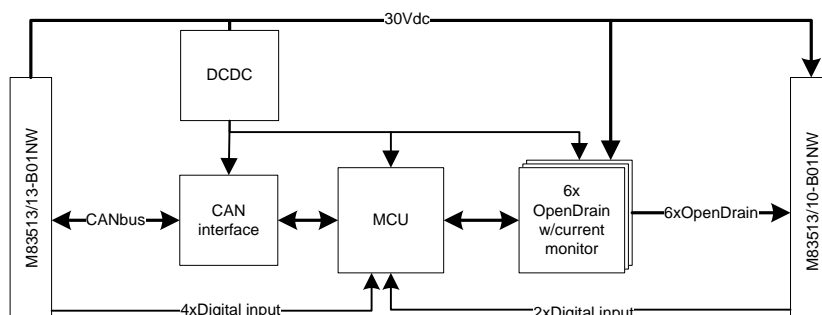


Figure 1 Block Diagram

### 3.2 Open drain

There are six open drain outputs that typically can be used for relay or solenoid switching. Refer to the “Board Specifications” for maximum current on the pin. The open drain output equals the supply input voltage of the DO-100. The current of each open drain output is measured individually.

### 3.3 Integrated Sensors

#### 3.3.1 Temperature sensor

Temperature will be acquired and distributed on request.

The temperature sensor measurements shall be within  $\pm 3\%$  of the ambient temperature (from 0 degC to 177 degC).

#### 3.3.2 Voltage measurement

Board input voltage will be acquired and distributed on request.

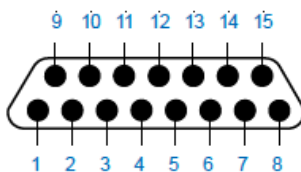
The board input voltage measurements shall be within  $\pm 3\%$  of the ambient temperature (from 0degC to 177 degC).

## 5 Connector pin-out

### 5.1 15 pin input connector H3

The 15 pin connector (H1) is a Glenair MIL-DTL-83513/13-B01NW.

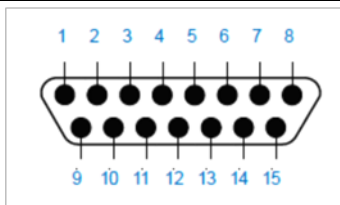
Pin Number	Signal name	Description
1	GPIO5	General Purpose Digital Pin 5
2	GPIO4	General Purpose Digital Pin 4
3	GPIO3	General Purpose Digital Pin 3
4	GPIO2	General Purpose Digital Pin 2
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	+18-36V	Supply Voltage
9		Not Connected
10	CANL	CAN low
11	CANL	CAN low
12		Not Connected
13	CANH	CAN high
14	CANH	CAN high
15	+18-36V	Supply Voltage



## 5.2 15 pin output connector H2

The 15 pin connector (H1) is a Glenair MIL-DTL-83513/10-B01NW.

Pin Number	Signal name	Description
1	+18-36V	Supply Voltage
2	+18-36V	Supply Voltage
3	GPIO0	General Purpose Digital Pin 0
4	+18-36V	Supply Voltage
5	+18-36V	Supply Voltage
6	GPIO1	General Purpose Digital Pin 1
7	+18-36V	Supply Voltage
8		
9	DRIVE2	Open drain channel 2
10	DRIVE4	Open drain channel 4
11	DRIVE6	Open drain channel 6
12	+18-36V	Supply Voltage
13	DRIVE5	Open drain channel 5
14	DRIVE3	Open drain channel 3
15	DRIVE1	Open drain channel 1



## 6 Mechanical Dimensions

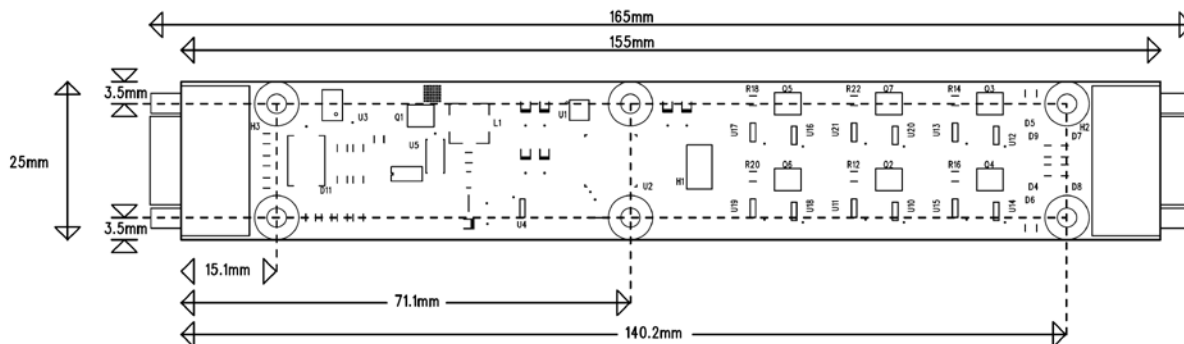


Figure 2 Mechanical drawing