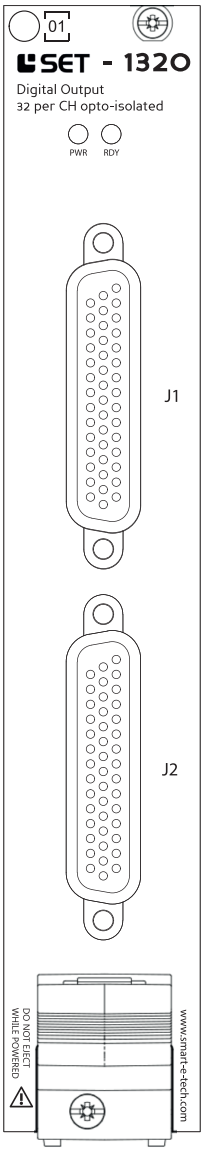
TECHNICAL DESCRIPTION

SET-1320

32 Channel Isolated Digital Output



This document is a technical description of the SET-1320.

Note Before you begin, complete the software and hardware installation procedures applicable to your application.

Note The guidelines in this document are specific to the SET-1320. The other components in the system might not meet the same safety ratings. Refer to the documentation of each component in the system to determine the safety and EMC ratings for the entire system.

MORE INFORMATION ON OUR WEBSITE:
www.smart-e-tech.com/slsc

Safety Guidelines

Caution Do not operate the SET-1320 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it for repair.

Electromagnetic Compatibility Guidelines

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by SET GmbH could void your authority to operate it under your local regulatory rules.

Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

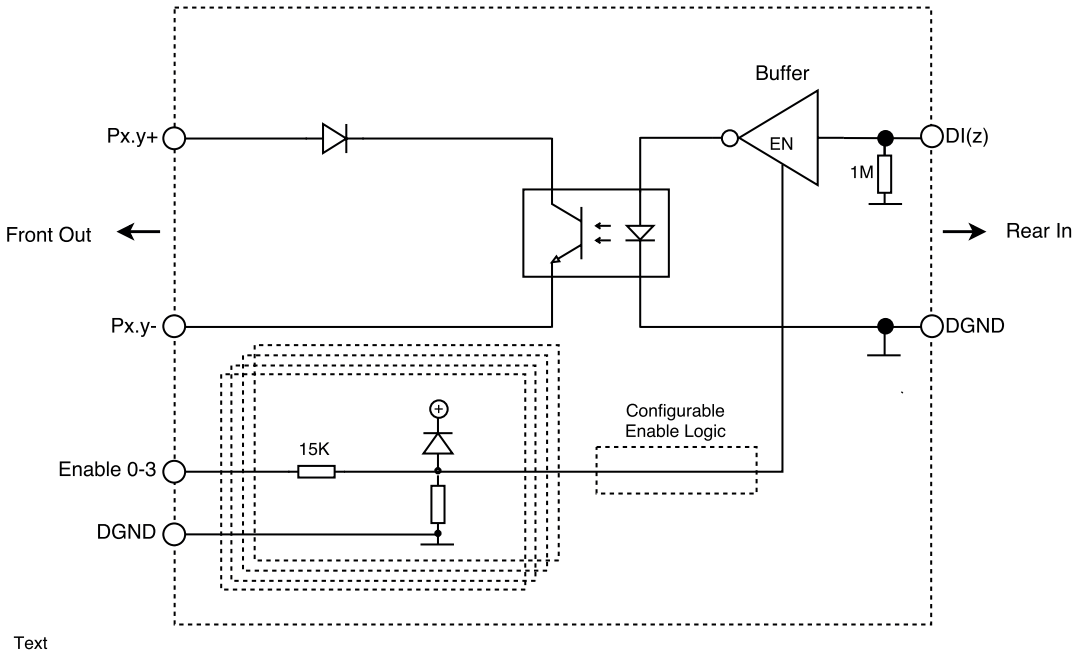
Caution To ensure the specified EMC performance, the length of any cable attached to connectors J1 and J2 must be no longer than 3 m (10 ft.)

Description

The SET-1320 device is an isolated digital output interface for NI-SLSC. This card provides 32 optically isolated open-collector outputs that can switch up to 100mA at 60V. SET-1320 combines high-density IO with high isolation voltages and a wide output voltage range. It allows to break ground loops and protect susceptible test equipment from DUTs. It also enables to interface standard logic-level test equipment with almost any system voltage. The SET-1320 can be driven through the RTI or through the SLSC chassis via software. RTI inputs are compatible with LVTTL and TTL logic levels.

The SET-1320 has 32 optically isolated open-collector outputs. Current can flow from CH+ to CH- when the output is on. The outputs are reverse polarity protected to -60V. The outputs are controlled from a logic-level digital output source, like NI R-Series FPGA or NI C-Series digital output modules, through the RTI.

Circuitry



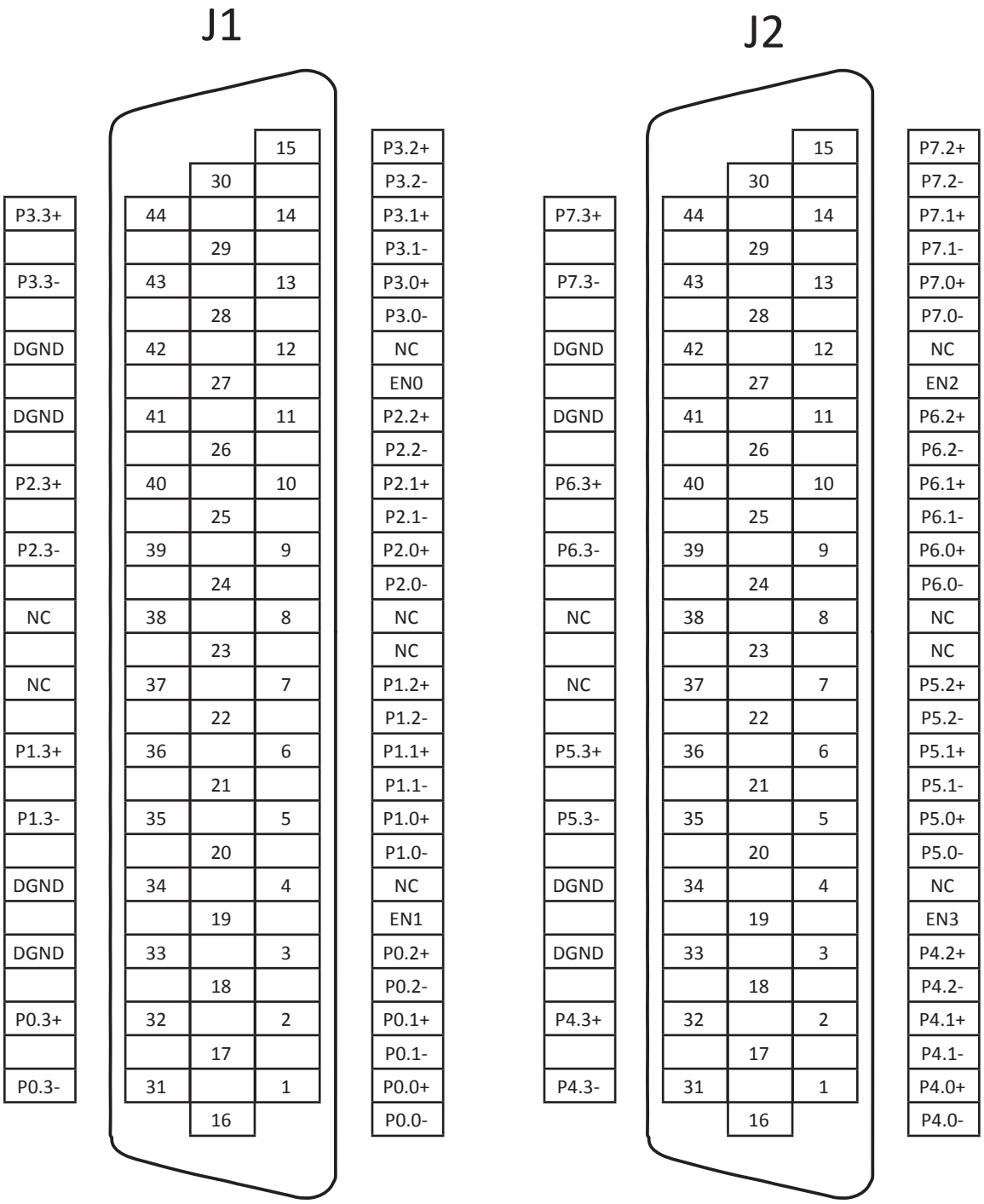
Text

Note Diagram only shows one channel.

All voltages are relative to DGND unless otherwise noted.

Note The power up default configuration of the Enable Logic is Channel 0-15 enabled by EN0; Channel 16-31 enabled by EN2.

J1, J2 Pinout (Front)



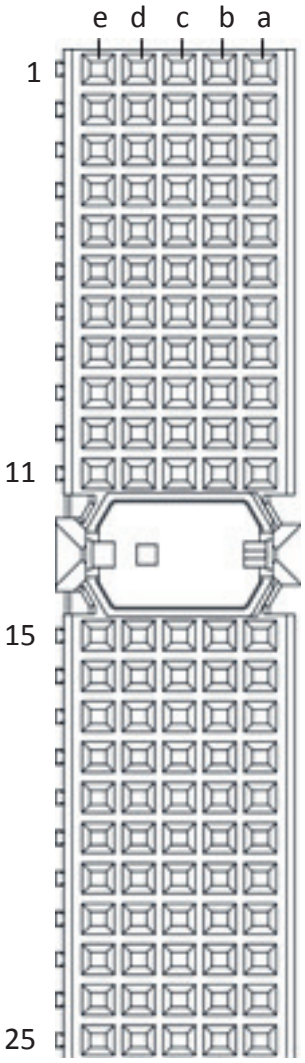
Signal	Description
Px.y	Line y in Port x
DGND	Ground connection
NC	No connection
EN	Enable

J1, J2 Connector Pin Assignments

J1	XJ2	J2	XJ2
P0.0 +	DI0	P4.0 +	DI16
P0.0 -		P4.0 -	
P0.1+	DI1	P4.1+	DI17
P0.1 -		P4.1 -	
P0.2 +	DI2	P4.2 +	DI18
P0.2 -		P4.2 -	
P0.3 +	DI3	P4.3 +	DI19
P0.3 -		P4.3 -	
P1.0 +	DI4	P5.0 +	DI20
P1.0 -		P5.0 -	
P1.1 +	DI5	P5.1 +	DI21
P1.1 -		P5.1 -	
P1.2 +	DI6	P5.2 +	DI22
P1.2 -		P5.2 -	
P1.3 +	DI7	P5.3 +	DI23
P1.3 -		P5.3 -	
P2.0 +	DI8	P6.0 +	DI24
P2.0 -		P6.0 -	
P2.1 +	DI9	P6.1 +	DI25
P2.1 -		P6.1 -	
P2.2 +	DI10	P6.2 +	DI26
P2.2 -		P6.2 -	
P2.3 +	DI11	P6.3 +	DI27
P2.3 -		P6.3 -	
P3.0 +	DI12	P7.0 +	DI28
P3.0 -		P7.0 -	
P3.1 +	DI13	P7.1 +	DI29
P3.1-		P7.1-	
P3.2+	DI14	P7.2+	DI30
P3.2-		P7.2-	
P3.3+	DI15	P7.3+	DI31
P3.3-		P7.3-	

Signal Assignments

XJ2 Connector Pinout (Rear)



Row	a	b	c	d	e
1	DI0	DI1	NC	DI2	DI3
2	DI4	DI5	NC	DI6	DI7
3	DGND	DGND	DGND	DGND	DGND
4	DI8	DI9	NC	DI10	DI11
5	DI12	DI13	NC	DI14	DI15
6	DGND	DGND	DGND	DGND	DGND
7	DI16	DI17	NC	DI18	DI19
8	DI20	DI21	NC	DI22	DI23
9	DGND	DGND	DGND	DGND	DGND
10	DI24	DI25	NC	DI26	DI27
11	DI28	DI29	NC	DI30	DI31
15	NC	NC	NC	NC	NC
16	NC	NC	NC	NC	NC
17	DGND	DGND	DGND	DGND	DGND
18	NC	NC	NC	NC	NC
19	NC	NC	NC	NC	NC
20	DGND	DGND	DGND	DGND	DGND
21	NC	NC	NC	NC	NC
22	NC	NC	NC	NC	NC
23	DGND	DGND	DGND	DGND	DGND
24	NC	NC	NC	NC	NC
25	NC	NC	NC	NC	NC

XJ2 Connector Pin Assignments

Signal	Description
DI	Digital input signal connection
DGND	Ground connection
NC	No connection

XJ2 Connector Signal Descriptions

LED Behavior

LED Name	LED Behavior	Defintion of Behavior
PWR	Off	No power on the board
	Solid green	Power good state
RDY	Off	Module card is unpowered or reset active
	Solid green	Card is recognized by the chassis and ready to communicate
	Blinking Amber	Chassis is communicating

Error Handling

LED Name	LED Behavior	Actions
PWR	Off	- Check the power supply of the chassis - Check the external power supply if used
PWR	Blinking Red	- Switch off and switch on the power supply (power cycle) - Please contact the support

Hardware Specifications

Absolut Maximum Ratings			
Property	**Condition**	**Value**	**Comment**
Max. Output Channel Voltage	Measured between CH+ and CH-	60Vdc	
Max. Channel Reverse Voltage	Measured between CH+ and CH-	-60Vdc	
Channel to Channel		120Vdc	
Channels to Chassis		60Vdc	

Technical Data Front Interface			
Property	**Condition**	**Value**	**Comment**
Max Output Switching Frequency	1 kOhm Pull up @5V	50kHz	Depending on Pull up Current
Max. Current		100mA	Peak: 500mA
Max. Output Forward Voltage	I= 100mA	< 1,3V	

Technical Data Rear Interface			
Property	**Condition**	**Value**	**Comment**
Max. Input Channel Voltage	Relative to DGND	5.5V	

Connects to an NI digital output device supporting 5 V TTL or 3.3 V LVTTL signaling.

Hardware Specifications

Physical Characteristics			
Property	**Condition**	**Value**	**Comment**
Module Dimensions	Excluding ejector	144.32mm x 30.48mm x 302mm (H x W x D)	Standard SLSC card size
Front Panel Connector		2x female DB -44 high-density D-Sub with 4-40 UNC screw lock	
RTI Connector		2mm hard metric per IEC 61076-101	Any RTI marked

Environmental			
Property	**Condition**	**Value**	**Comment**
Operating Humidity	Relative, non-condensing	10%-90%	
Storage Humidity	Relative, non-condensing	5%-95%	
Operating Temperature	Forced-air cooling from chassis	0°C-40°C	
Storage Temperature		-40°C-85°C	
Maximum Altitude		2000m	