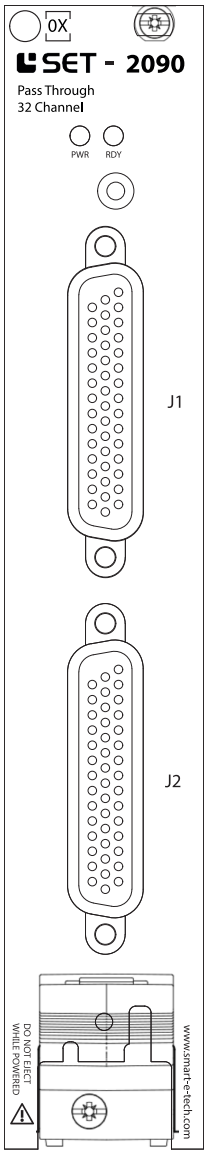
TECHNICAL DESCRIPTION

SET-2090

32 Channel Pass Through



This document is a technical description of the SET-2090.

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-2090. 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-2090 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protecti on 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.

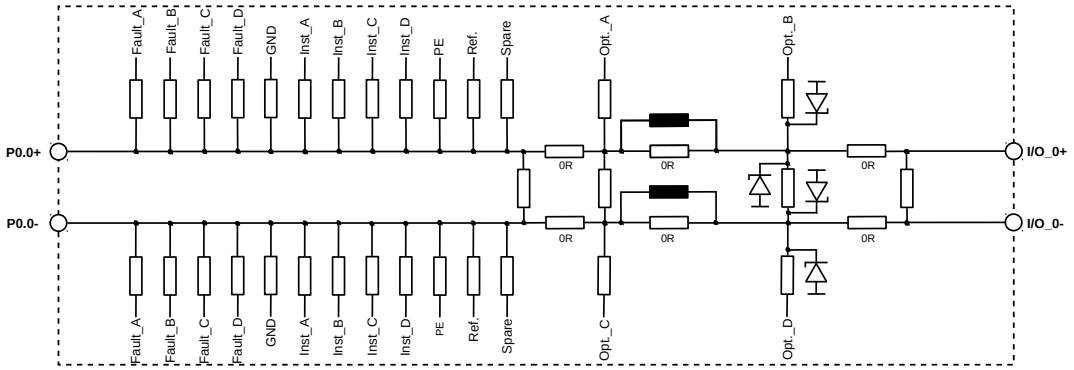
Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

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-2090 device is an experimental card for NI-SLSC and provides 32 differential inputs. The input signals can be configured by customers. Each input channel can be tested, conditioned or measured in different ways. Various inductors, filters, pull-up or pull-down resistors can be used for this purpose. In standard configuration, the input signals are transmitted directly to the output.

Circuitry

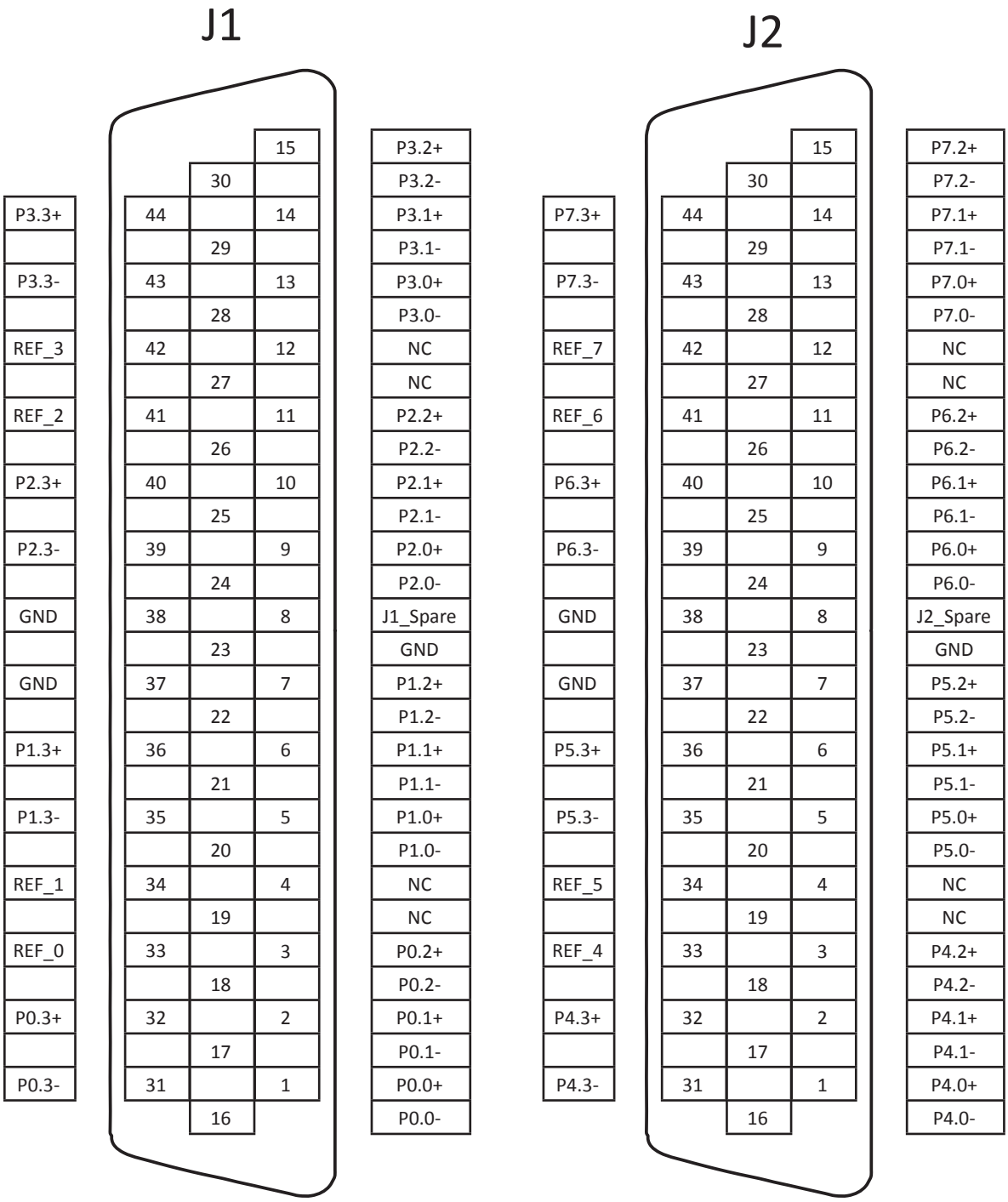


Note Diagram shows only one channel. All components, without a labeling, are optional.

Ref_0:	is for channel P0.0-P0.3
Ref_1:	is for channel P1.0-P1.3
Ref_2:	is for channel P2.0-P2.3
Ref_3:	is for channel P3.0-P3.3
Ref_4:	is for channel P4.0-P4.3
Ref_5:	is for channel P5.0-P5.3
Ref_6:	is for channel P6.0-P6.3
Ref_7:	is for channel P7.0-P7.3
J1_Spare:	is for channel P0.0-P3.3
J2_Spare:	is for channel P4.0-P7.3

All voltages are relative to DGND unless otherwise noted.

J1, J2 Pinout (Front)



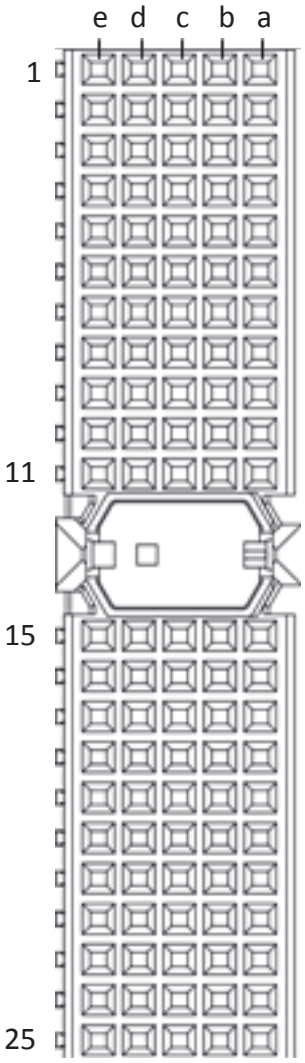
Signal	Description
Px.y	Line y in Port x
NC	Not connected

J1, J2 Connector Pin Assignments

J1	XJ2	J2	XJ2
P0.0+	I/O_1+	P4.0+	I/O_17+
P0.0 -	I/O_1-	P4.0-	I/O_17-
P0.1+	I/O_2+	P4.1+	I/O_18+
P0.1-	I/O_2-	P4.1-	I/O_18-
P0.2+	I/O_3+	P4.2+	I/O_19+
P0.2-	I/O_3-	P4.2-	I/O_19-
P0.3+	I/O_4+	P4.3+	I/O_20+
P0.3-	I/O_4-	P4.3-	I/O_20-
P1.0+	I/O_5+	P5.0+	I/O_21+
P1.0-	I/O_5-	P5.0-	I/O_21-
P1.1+	I/O_6+	P5.1+	I/O_22+
P1.1-	I/O_6-	P5.1-	I/O_22-
P1.2+	I/O_7+	P5.2+	I/O_23+
P1.2-	I/O_7-	P5.2-	I/O_23-
P1.3+	I/O_8+	P5.3+	I/O_24+
P1.3-	I/O_8-	P5.3-	I/O_24-
P2.0+	I/O_9+	P6.0+	I/O_25+
P2.0-	I/O_9-	P6.0-	I/O_25-
P2.1+	I/O_10+	P6.1+	I/O_26+
P2.1-	I/O_10-	P6.1-	I/O_26-
P2.2+	I/O_11+	P6.2+	I/O_27+
P2.2-	I/O_11-	P6.2-	I/O_27-
P2.3+	I/O_12+	P6.3+	I/O_28+
P2.3-	I/O_12-	P6.3-	I/O_28-
P3.0+	I/O_13+	P7.0+	I/O_29+
P3.0-	I/O_13-	P7.0-	I/O_29-
P3.1+	I/O_14+	P7.1+	I/O_30+
P3.1-	I/O_14-	P 7.1-	I/O_30-
P3.2+	I/O_15+	P7.2+	I/O_31+
P3.2-	I/O_15-	P7.2-	I/O_31-
P3.3+	I/O_16+	P7.3+	I/O_32+
P3.3-	I/O_16-	P7.3-	I/O_32-

Front Panel Signal Descriptions

XJ2 Connector Pinout (Rear)



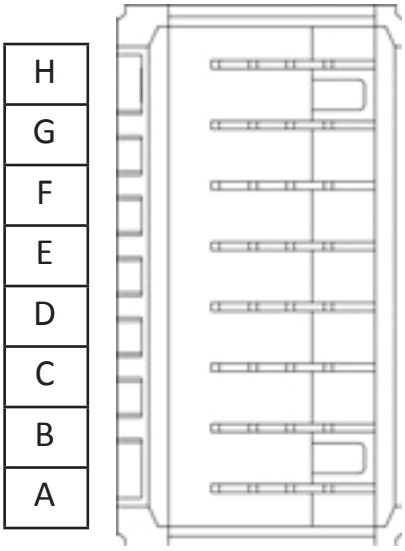
Row	e	d	c	b	a
1	I/O_1-	I/O_1+	NC	I/O_0-	I/O_0+
2	I/O_3-	I/O_3+	NC	I/O_2-	I/O_2+
3	GND	GND	GND	GND	GND
4	I/O_5-	I/O_5+	NC	I/O_4-	I/O_4+
5	I/O_7-	I/O_7+	NC	I/O_6-	I/O_6+
6	GND	GND	GND	GND	GND
7	I/O_9-	I/O_9+	NC	I/O_8-	I/O_8+
8	I/O_11-	I/O_11+	NC	I/O_10-	I/O_10+
9	GND	GND	GND	GND	GND
10	I/O_13-	I/O_13+	NC	I/O_12-	I/O_12+
11	I/O_15-	I/O_15+	NC	I/O_14-	I/O_14+
15	I/O_17-	I/O_17+	NC	I/O_16-	I/O_16+
16	I/O_19-	I/O_19+	NC	I/O_18-	I/O_18+
17	GND	GND	GND	GND	GND
18	I/O_21-	I/O_21+	NC	I/O_20-	I/O_20+
19	I/O_23-	I/O_23+	NC	I/O_22-	I/O_22+
20	GND	GND	GND	GND	GND
21	I/O_25-	I/O_25+	NC	I/O_24-	I/O_24+
22	I/O_27-	I/O_27+	NC	I/O_26-	I/O_26+
23	GND	GND	GND	GND	GND
24	I/O_29-	I/O_29+	NC	I/O_28-	I/O_28+
25	I/O_31-	I/O_31+	NC	I/O_30-	I/O_30+

XJ2 Connector Pin Assignments

Signal	Description
I/O	Input/Output
GND	Ground connection
NC	Not connected

XJ2 Connector Signal Descriptions

XJ3 Connector Pinout (Rear)



Pins	Slot1/Slot2
H	Instrument_0+
G	Instrument_0-
F	Instrument_1+
E	Instrument_1-
D	Fault_A
C	Fault_B
B	Fault_C
A	Fault_D

XJ3 Connector Pin Assignments

LED Behavior

LED Name	LED Behavior	Defintion of Behavior
PWR	Off	No power present on the board
	Solid green	Power good state
RDY	Off	Module card is unpowered
	Solid green	Card is recognized by the chassis and ready to communicate
	Solid amber	Module card is booting
	Blinking amber	Chassis is communicating with the module card

Error Handling

LED Name	LED Behavior	Actions
PWR	Off	- Checking the power supply of the chassis - Checking the external power supply if used
RDY	Off	- Checking the power supply of the chassis - Checking the external power supply if used
	Solid amber	- Waiting till boot process is finished
	Blinking amber	- Waiting till communication is finished - if communication does not finish, shut down all operations and reboot chassis

Hardware Specifications

Absolut Maximum Ratings			
Property	**Condition**	**Value**	**Comment**
Relative Humidity		5% to 95%	Non-condensing
Temperature		0°C – 85°C	
Storage		-40°C-85°C	
Max. Input Voltage	Any Pin	60Vdc	Transient 65V, Limited by connector
Min. Input Voltage	Any Pin	-60Vdc	Transient -65V, Limited by connector
Max. Switching Power	DC, Resistive load	60W	
Max. Current Rating		1.5A	2A transient

Hardware Specifications

Physical Characteristics			
Property	**Condition**	**Value**	**Comment**
Module Dimensions	Excluding ejector	144.32 mm x 30.48 mm x 302 mm (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	For mating connectors and cables, see below
RTI Connector		2 mm hard metric per IEC 61076-101	Any RTI marked

Environmental			
Property	**Condition**	**Value**	**Comment**
Operating Humidity	Relative, non-condensing	10 % to 90 %	
Storage Humidity	Relative, non-condensing	5 % to 95 %	
Operating Temperature	Forced-air cooling from chassis	0 °C to 85 °C	
Storage Temperature		-40 °C to 100 °C	
Maximum Altitude		2000 m	