

# DATASHEET

## NORVI CONTROLLERS

### NORVI X-Q8 | 8 x Transistor Outputs

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The **NORVI X-Q8** is an 8 x Transistor Outputs Expansion module designed for the NORVI X modular controller platform.

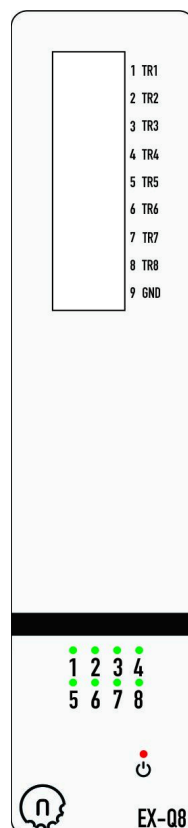
It provides **eight high-side switching channels** suitable for driving industrial actuators, relays, and solenoids. The outputs are optically isolated for circuit protection and utilize high-side MOSFET switches, enabling reliable control of DC loads with integrated fuse protection for industrial safety.

#### Product Features

- 8 × Transistor Output channels
- High-side switching (up to 24V DC)
- Full optical isolation for circuit protection
- Enhanced Circuit Protection
- Dual Opto-Isolation
- Integrated fuse and surge protection per channel
- Individual LED status indicators
- Designed for NORVI X modular architecture

#### Applications

- Standard Actuator Control
- Small-Scale Industrial Automation
- Industrial Automation
- High-Density PLC Output Expansion
- Remote Multi-Device Power Management
- Complex Relay and Contactor Logic Switching

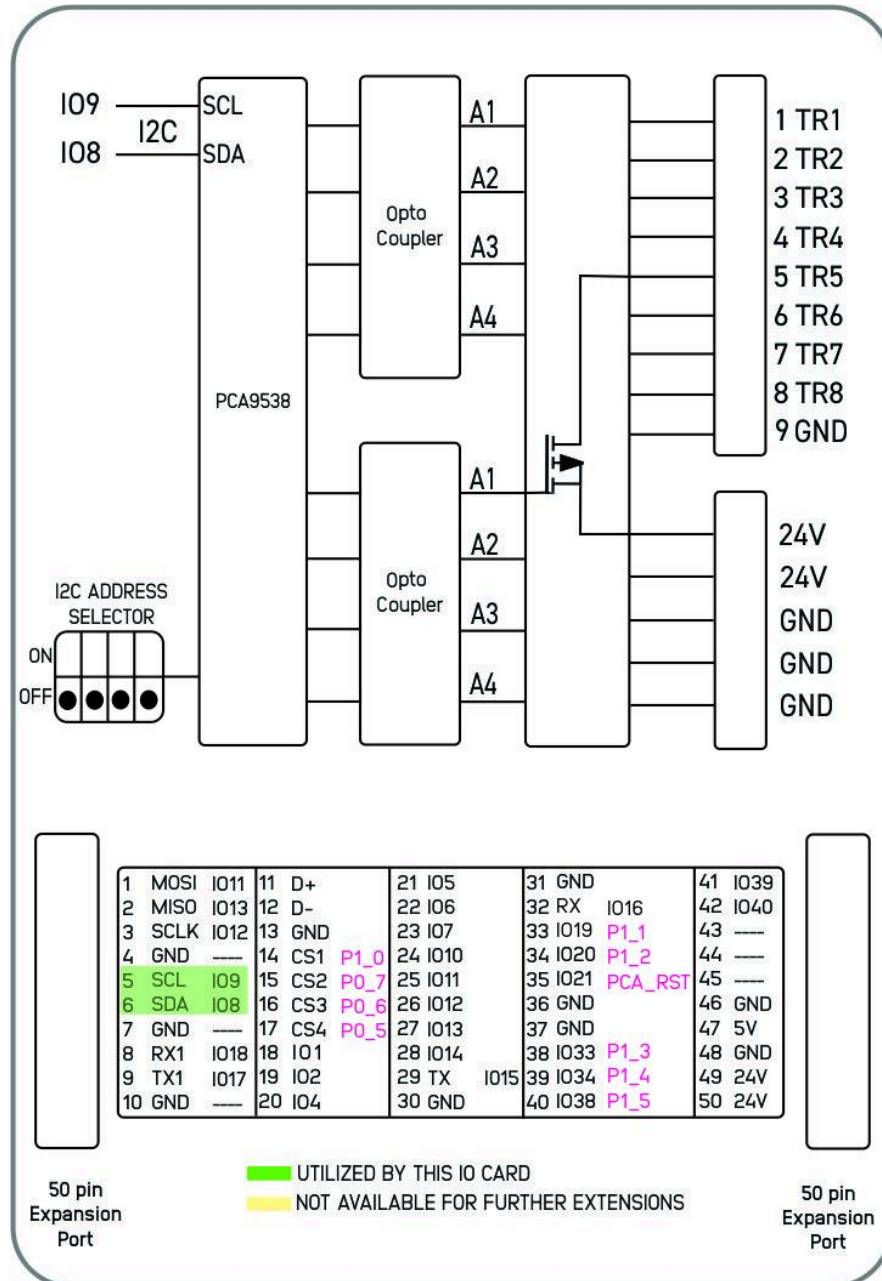


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## Product Block Diagram



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## Main

Range of Product	NORVI X
Product type	Expansion Module for NORVI X Series
Certifications	EN 61131-2:2007 EN 61010-1:2010+A1:2019 EN IEC 61010-2-201:2018 2014/30/EU- Electromagnetic Compatibility (EMC) Annex III, Part B, Module C
Rated supply voltage	24V DC

## Complementary

Product Part Numbers	NORVI X-Q8
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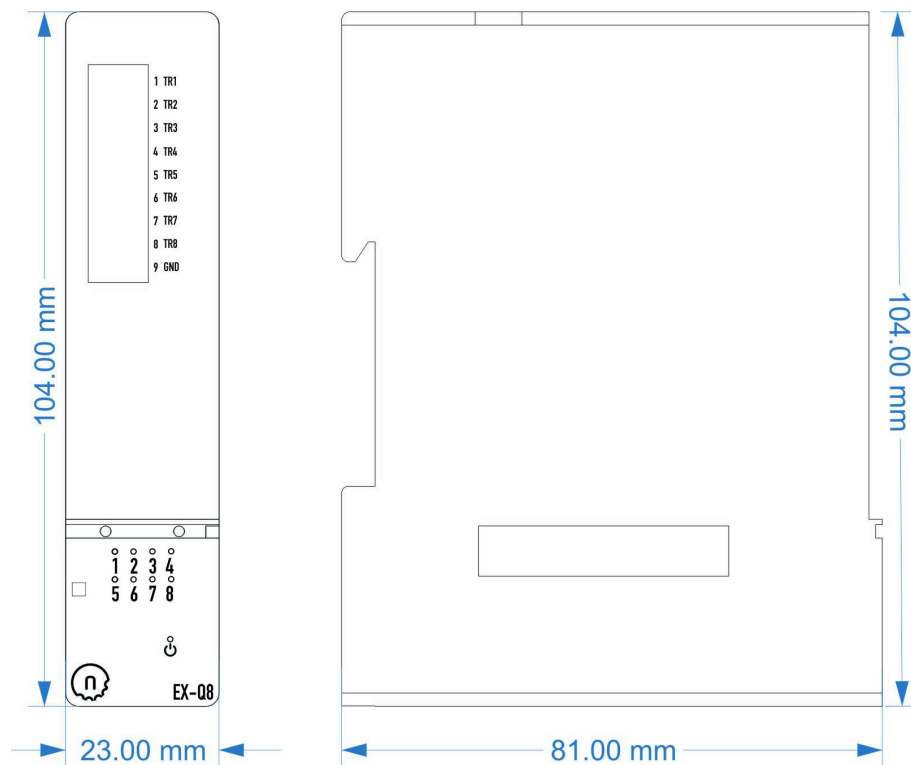
## Mechanical Properties

Enclosure	NORVI X-N1
Mounting / Installation Method	DIN RAIL
Terminal Type	Push-in terminal
Terminal Arrangement	Front
Length	81.00 mm
Height	104.00 mm
Width	23.00 mm

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## Environment

IP degree of protection	IP20
Operating altitude	0 - 2000 meters
Operating Temperature	- -10 ... +85° C (14...185 °F)
Storage altitude	0 - 3000 meters
Shock resistance	15 gn for 11ms
Resistance to electrostatic discharge	4kV on contact 8kV on air
Resistance to electromagnetic fields	10 V/m (80 MHz ..... 1GHz) 3 V/m (1.4 MHz ..... 2 GHz) 1 V/m (2 MHz ..... 3 GHz)

## Electrical Characteristics

### Grid Powered Devices

Rated Supply Voltage (V)	24V DC
Current Consumption (mA)	80mA @ 24VDC

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## I/O Specifications

Parameter	Specification
Number of Outputs	8 Transistor Output Channels
Output Type	High-Side Switch
Switching Transistor	P-Channel MOSFET
Isolation Type	Optocoupler Isolation
Operating Voltage	24V DC Nominal
Protection (Per Channel)	Per-channel resettable PTC fuse
Switching Frequency	High-Speed
Output Diagnostics	Individual LED indicators
Field Connector	9-Pin Terminal Block

## Terminal Configuration

No.	Terminal	Description
1	TR1	Transistor Output 1
2	TR2	Transistor Output 2
3	TR3	Transistor Output 3
4	TR4	Transistor Output 4
5	TR5	Transistor Output 5
6	TR6	Transistor Output 6
7	TR7	Transistor Output 7
8	TR8	Transistor Output 8
9	GND	Ground

## GPIO Utilization

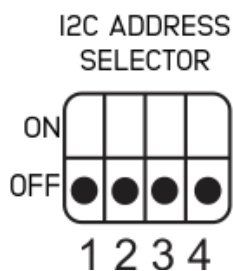
Utilization	Connection to CPU
SCL	IO9
SDA	IO8

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## I2C Address Selection



Address Selection				
DIP 1	DIP 2	DIP 3	DIP 4	Address
OFF	OFF	x	x	0x73
ON	OFF	x	x	0x72
OFF	ON	x	x	0x71
ON	ON	x	x	0x70

## Expansion Port

Utilized GPIO Connections are highlighted in Green. They cannot be used for any other purpose with this module connected.

PIN INDEX	Purpose	GPIO	SOURCE
1	MOSI	IO11	ESP32-S3
2	MISO	IO13	
3	SCLK	IO12	
4	GND	----	
5	SCL	IO9	
6	SDA	IO8	
7	GND	----	
8	RX1	IO18	
9	TX1	IO17	
10	GND	----	
11	D+	----	
12	D-	----	
13	GND	----	
14	CS1	P1_0	PCA9539 I2C Address 0x75
15	CS2	P0_7	
16	CS3	P0_6	
17	CS4	P0_5	
18	IO1	IO1	ESP32-S3
19	IO2	IO2	
20	IO4	IO4	
21	IO5	IO5	
22	IO6	IO6	
23	IO7	IO7	
24	IO10	IO10	

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25	IO11	IO35	
26	IO12	IO36	
27	IO13	IO37	
28	IO14	IO14	
29	RS485_TX	IO15	
30	GND	----	
31	GND	----	
32	RS485_RX	IO16	
33	P1_1	P1_1	PCA9539
34	P1_2	P1_2	I2C Address 0x75
35	IO21	IO21	PCA9538 Reset
36	GND	----	
37	GND	----	
38	P1_3	P1_3	PCA9539
39	P1_4	P1_4	I2C Address 0x75
40	P1_5	P1_5	
41	IO39	IO39	
42	IO40	IO40	
43	NC	----	ESP32-S3
44	NC	----	
45	NC	----	
46	GND	----	
47	5V	5V	
48	GND	GND	
49	24V	24V	
50	24V	24V	

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## REACH US

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