



The SPN4 controller is an ECU (Electronic Control Unit) which can handle up to 8 inputs and up to 12 outputs.

It can be implemented in a serial line (RS232) or in a CAN network, as MASTER or SLAVE.

The polyurethane resin case makes the controllers suitable for use on machines that operate in harsh work environments.



## TECHNICAL FEATURES

|                     |             |  |
|---------------------|-------------|--|
| MASTER CODE         |             | SPN4   |
| POWER SUPPLY        |             | 9-36 VDC / CURRENT CONSUMPTION 25 mA AT 24 VDC (STAND BY MODE)   |
| INPUT               | TOTAL<br>8  | 4 UNIVERSAL INPUT<br>4 DIGITAL INPUTS  |
| OUTPUT              | TOTAL<br>12 | 8 PWM/DIGITAL OUTPUTS OR 4 PWM/DIGITAL OUTPUTS & 4 RELAY WITH DRY CONTACT OUTPUTS<br>4 DIGITAL LOW SIDE OUTPUTS                      |
| CAN BUS             | 1 PORT      | 2.0B COMPLIANT - (11, 29 BIT) - ISO 11898 - UP TO 1MBIT/S  |
| CAN BUS PROTOCOLS   |             | CAN OPEN (CIA DS401 DEVICE PROFILE FOR GENERIC I/O MODULE, WITH DS306 EDS FILE)<br>ON REQUEST: SAE J1939 - ISO 11783 (ISO BUS) - FMS |
| SERIAL PORT         | 1 PORT      | RS232  |
| CONNECTIONS PORT    | 2           | NR.1 MOLEX 32 PIN<br>NR.1 MOLEX 48 PIN   |
| WORKING TEMPERATURE |             | -40°C +80°C  |
| CASE                |             | PUR  |





## ELECTRONIC FEATURES

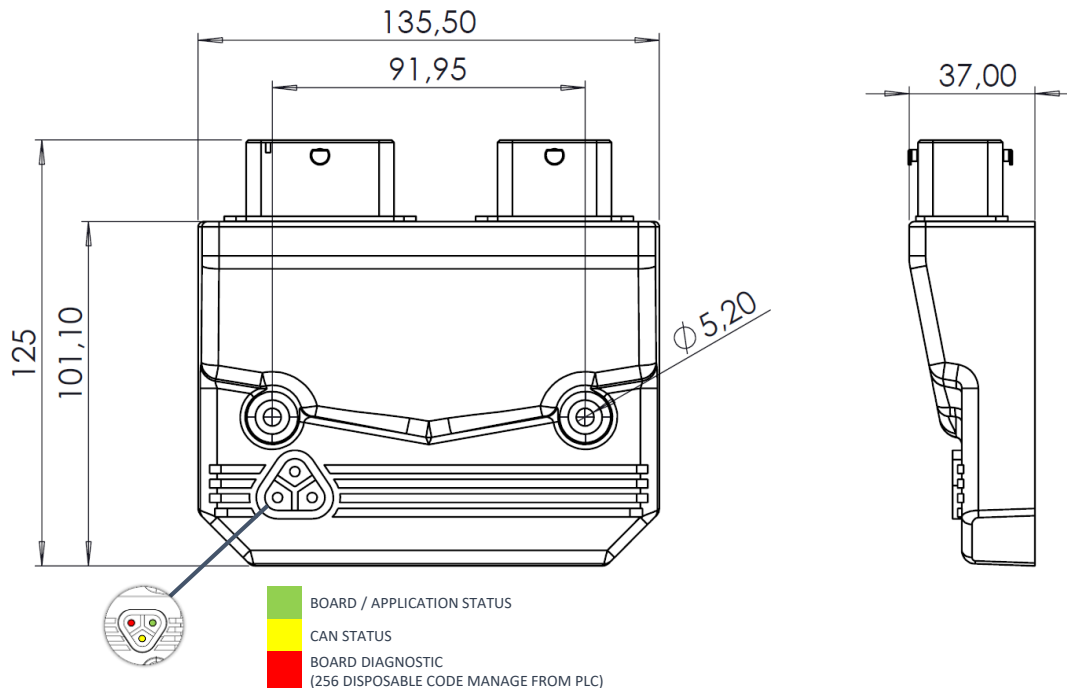
|              |   |
|--------------|---|
| SLAVE USAGE  | EDS FILE  |
| MASTER USAGE | STANDARD C PROGRAM LANGUAGE                           |
| PROGRAMMING  | FIRMWARE UPLOAD BY CAN BUS WITH ALOADER SOFTWARE TOOL |
| CYCLE TIME   | 10 ms   |

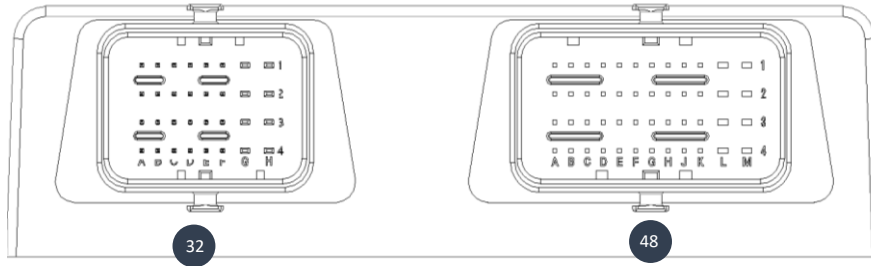
## STANDARDS

|  |  |
|--|--|
| ELECTROMAGNETIC EMISSIONS              | EN 61000-6-4// EN 55011 (RF RADIATE)   |
| ELECTROMAGNETIC IMMUNITY               | EN 61000-6-2// EN 61000-4-2/3/4/6  |
| IP                                     | BOX: IP68; CONNECTORS: IP67  |
| MTTFd                                  | 55,98 YEARS<br>CALCULATED ACCORDING TO THE IEC61709 (SIEMENS SN29500), WITH ENVIRONMENTAL FACTORS 3K7 (IEC60721) |
| PERFORMANCE AND SAFETY INTEGRITY LEVEL | PLc – SIL1<br>(SINGLE-CHANNEL INTERNAL SCHEME)   |

IN ACCORDANCE WITH THE EN50498 THE DEVICE MEETS THE TECHNICAL SPECIFIC REQUIREMENTS OF 2004-104 DIRECTIVE (AUTOMOTIVE). THE DEVICE IS EMC 2004/108 COMPLIANT.

## SIZE (mm)





SPN4.B

SPN4.A

### 32 PINS CONNECTOR

| PIN | A                            | B                            | C                            | D                            | E   | F   | G                     | H                      |
|-----|------------------------------|------------------------------|------------------------------|------------------------------|---|---|-----------------------|------------------------|
| 1   | DIGITAL/PWM OUTPUT 1         | GND                          | GND                          | DIGITAL/PWM OUTPUT 2         | DIGITAL NEGATIVE OUTPUT 9                 | DIGITAL NEGATIVE OUTPUT 10                | POSITIVE POWER SUPPLY | SUPPLY OUTPUTS 1/2/3/4 |
|     | DIGITAL/PWM OUTPUT 1         | GND                          | GND                          | DIGITAL/PWM OUTPUT 2         | DIGITAL NEGATIVE OUTPUT 9                 | DIGITAL NEGATIVE OUTPUT 10                | POSITIVE POWER SUPPLY | SUPPLY OUTPUTS 1/2/3/4 |
| 2   | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | GND POWER SUPPLY      | GND                    |
|     | POSITIVE SENSOR POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | GND POWER SUPPLY      | GND                    |
| 3   | DIGITAL INPUT 8              | DIGITAL INPUT 7              | DIGITAL INPUT 6              | DIGITAL INPUT 5              | CANL                                      | DRY CONTACT RELAY 3                       | GND                   | DIGITAL/PWM OUTPUT 3   |
|     | DIGITAL INPUT 8              | DIGITAL INPUT 7              | DIGITAL INPUT 6              | DIGITAL INPUT 5              | CANL                                      |   | GND                   | DRY CONTACT RELAY 3    |
| 4   | GND                          | GND                          | GND                          | GND                          | CANH                                      | DRY CONTACT RELAY 4                       | GND                   | DIGITAL/PWM OUTPUT 4   |
|     | GND                          | GND                          | GND                          | GND                          | CANH                                      |   | GND                   | DRY CONTACT RELAY 4    |

### 48 PINS CONNECTOR

| PIN | A                    | B                   | C                    | D                          | E   | F                          | G                            | H                            | J                            | K                            | L                     | M                      |
|-----|----------------------|---------------------|----------------------|----------------------------|---|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-----------------------|------------------------|
| 1   | DIGITAL/PWM OUTPUT 5 | DRY CONTACT RELAY 6 | DIGITAL/PWM OUTPUT 6 | DIGITAL NEGATIVE OUTPUT 11 | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | DIGITAL NEGATIVE OUTPUT 12 | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | POSITIVE POWER SUPPLY | SUPPLY OUTPUTS 5/6/7/8 |
|     | DRY CONTACT RELAY 5  |                     | DRY CONTACT RELAY 6  | DIGITAL NEGATIVE OUTPUT 11 | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | DIGITAL NEGATIVE OUTPUT 12 | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | SENSOR POSITIVE POWER SUPPLY | POSITIVE POWER SUPPLY | SUPPLY OUTPUTS 5/6/7/8 |
| 2   | DRY CONTACT RELAY 5  | GND                 | GND                  | NOT USED                   | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | NOT USED                   | ANALOGIC INPUT 4             | ANALOGIC INPUT 3             | ANALOGIC INPUT 2             | ANALOGIC INPUT 1             | GND POWER SUPPLY      | GND                    |
|     |                      | GND                 | GND                  | NOT USED                   | POSITIVE POWER SUPPLY FOR NEGATIVE OUTPUT | NOT USED                   | ANALOGIC INPUT 4             | ANALOGIC INPUT 3             | ANALOGIC INPUT 2             | ANALOGIC INPUT 1             | GND POWER SUPPLY      | GND                    |
| 3   | GND                  | GND                 | GND                  | GND                        | GND                                       | GND                        | GND                          | GND                          | GND                          | GND                          | GND                   | DIGITAL/PWM OUTPUT 7   |
|     | GND                  | GND                 | GND                  | GND                        | GND                                       | GND                        | GND                          | GND                          | GND                          | GND                          | GND                   | DIGITAL/PWM OUTPUT 7   |
| 4   | NOT USED             | NOT USED            | NOT USED             | NOT USED                   | CANH                                      | CANL                       | RS232RX                      | RS232TX                      | CAN2L                        | CAN2H                        | GND                   | DIGITAL/PWM OUTPUT 8   |
|     | NOT USED             | NOT USED            | NOT USED             | NOT USED                   | CANH                                      | CANL                       | RS232RX                      | RS232TX                      | CAN2L                        | CAN2H                        | GND                   | DIGITAL/PWM OUTPUT 8   |

### COUPLING CONNECTORS

|           | 32 PIN           | 48 PIN           |
|-----------|------------------|------------------|
| CONNECTOR | 64319-3211       | 64320-3311       |
| TERMINAL  | 64323-1029 (x8)  | 64323-1029 (x8)  |
|           | 64322-1029 (x24) | 64322-1029 (x40) |
| WIRE CAP  | 64319-1201       | 64320-1301       |





**ALMEC**  
MECHATRONICS

NOTE