# USER MANUAL

# ZC-8AI

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# Seneca Z-PC Line module: **ZC-8AI**

The ZC-8AI module acquires up to 8 single-ended input signals (voltage or current type) and it converts them to a digital format (normalized measure), with two types of communication: CANopen protocol, ModBUS protocol (RS232 serial).

## *General characteristics*

### ***Hardware***

- 8 analog inputs (4 isolation zones)
- Inputs: 0 -20.5mA; 0 - 10.5V
- 6 isolation zones, 1500 VAC isolation amongst every zone
- Protection against ESD discharge up to 4 kV.
- Simplified power supply and serial bus wiring by means of the bus housed in the DIN rail.
- Power up to 8 sensors, up to 22mA @ 16.5V each.
- Adjustable resolution: 14 or 15 bit
- Minimum refresh time: 20ms.

### ***Software***

- Adjustable rejection 50 or 60 Hz
- Variable input filtering
- Led Indications: Power Supply, CAN communication, MODBUS-RTU communication, Inputs fault.

### ***Communication***

- CAN Interface with CANopen protocol: up to 1 Mbps speed.
- CANopen Baud rate and Node ID configurability by DIP-switches or software.
- Node guarding or heartbeat
- RS232 Serial Communication with MODBUS-RTU protocol
- Complete configurability through specific software downloadable in the website www.seneca.it.

## *Features*

| **INPUTS** | |
|---|---|
| **Type** | Monopolar input: current or voltage |
| **Full scale** | 0..20.5 mA; 0..10.5 V |
| **Voltage input error 14 bit** | 0.046% end scale + 1.7 mV |
| **Voltage input error 15 bit** | 0.039% end scale + 1.3 mV |
| **Current input error 14 bit** | 0.046% end scale + 3.4 µA |
| **Current input error 15 bit** | 0.039% end scale + 2.4 µA |
| **CONVERSION/ACCURACY SPECIFICATIONS** | |
| **ADC** | 15 bit |
| **Thermal drift** | < 100 ppm/°C |
| **Sampling frequency** | Settable from 11 to 48 Hz |
| **Disturbance rejection** | Selectable either at 50 Hz or 60 Hz |



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| CONNECTIONS | |
|---|---|
| **Removable terminals** | Removable 4-way screw terminals, 3.5 mm pitch |
| **IDC10 rear connector** | CAN interface and power supply (for DIN rail) |
| **Stereophonic frontal jack** | 3.5 mm for RS232 connection (COM) |
| **1500 Vac ISOLATIONS** | |
| | Between: power supply, CAN, inputs |

| POWER SUPPLY | |
|---|---|
| **Supply voltage** | 10 – 40 Vdc or 19 – 28 Vac ( 50Hz - 60Hz) |
| **Power consumption** | Max: 5 W (all sensors powered) |

**NOTE: "0x" means an exadecimal number interpretation.**

## *CANOpen features*

| TECHNICAL DATA | |
|---|---|
| Baud rate | 20, 50, 125, 250, 500, 800, 1000 kbps |
| Typical conversion time | 20 ms for 4 channels/ 40 ms for 8 channels |
| Input supported | Voltage from 0 to 10.5 V<br>Current from 0 to 20.5 mA |
| **CANOpen TECHNICAL DATA** | |
| NMT | Slave |
| | Node guarding, heartbeat |
| Node ID | HW switch or software |
| Number of PDO | 4 TX |
| PDO modes | Event triggered, Sync (cyclic), Sync (acyclic) |
| PDO mapping | Variable |
| PDO linking | supported |
| Number of SDO | 1 server |
| Error message | yes |
| Supported application | Cia 301 v4.02 |
| Layer | Cia 401 v2.01 |

## *CANOpen TPDOs transmission type supported*

| Object Value 0x180x Sub 2 | TRANSMISSION TYPE |
|---|---|
| 0 | Synchronous - acyclic |
| From 1 to 240 | Synchronous - cyclic |
| 255 | Asynchronous |



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## *CANOpen PDOs mapping*

| OBJECTS FOR DEFAULT MAPPING | | | | |
|---|---|---|---|---|
| **PDO NR** | **COB-ID** | **MAPPED OBJECTS** | **INDEX** | **SUBINDEX** |
| TPDO2 | 0x40000280 + NodeId | Value CH1 16 bit | 0x6401 | 1 |
| | | Value CH2 16 bit | 0x6401 | 2 |
| | | Value CH3 16 bit | 0x6401 | 3 |
| | | Value CH4 16 bit | 0x6401 | 4 |
| TPDO3 | 0x40000380 + NodeId | Value CH5 16 bit | 0x6401 | 5 |
| | | Value CH6 16 bit | 0x6401 | 6 |
| | | Value CH7 16 bit | 0x6401 | 7 |
| | | Value CH8 16 bit | 0x6401 | 8 |

Note that TPDO COB-ID must start with 0x4.

## *CANOpen emergency message*

The Emergency message is composed by:

2 bytes of EEC (Emergency error code)

1 bytes of ER (Error register)

Max of 4 bytes of MEF (Manufacturer error filled)

For EEC code 0xFF10, the emergency message is:

| EMERGENCY MESSAGE | | | | |
|---|---|---|---|---|
| BYTE 0 | BYTE 1 | BYTE 2 | BYTE 3 | BYTE 4 |
| 0xFF10 | | 0x81 | MEF | |



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With this MEF:

| MEF (Manufacturer-specific Error Field) for EEC 0xFF10 | | |
|---|---|---|
| **BIT** | **DESCRIPTION** | **OBJECT FOR ERROR DETAILS** |
| 15 | Channel 1/2 fail | 0x2120 subindex 1 |
| 14 | Channel 3/4 fail | 0x2120 subindex 2 |
| 13 | Channel 5/6 fail | 0x2120 subindex 3 |
| 12 | Channel 7/8 fail | 0x2120 subindex 4 |
| 11 | Channel 1 fail | 0x2120 subindex 1 |
| 10 | Channel 2 fail | 0x2120 subindex 1 |
| 9 | Channel 3 fail | 0x2120 subindex 2 |
| 8 | Channel 4 fail | 0x2120 subindex 2 |
| 7 | Channel 5 fail | 0x2120 subindex 3 |
| 6 | Channel 6 fail | 0x2120 subindex 3 |
| 5 | Channel 7 fail | 0x2120 subindex 4 |
| 4 | Channel 8 fail | 0x2120 subindex 4 |
| 3 | Channel 1/2 communication fail | 0x2121 subindex 1 |
| 2 | Channel 3/4 communication fail | 0x2121 subindex 2 |
| 1 | Channel 5/6 communication fail | 0x2121 subindex 3 |
| 0 | Channel 7/8 communication fail | 0x2121 subindex 4 |

For “voltage error”, the emergency message is:

| EMERGENCY MESSAGE | | | | |
|---|---|---|---|---|
| BYTE 0 | BYTE 1 | BYTE 2 | BYTE 3 | BYTE 4 |
| 0xFF10 | | 0x85 | Object 0x2100 | |

For a “timeout command” or “error command”, the emergency message is:

| EMERGENCY MESSAGE | | | | | |
|---|---|---|---|---|---|
| BYTE 0 | BYTE 1 | BYTE 2 | BYTE 3 | BYTE 4 | BYTE 5 |
| 0xFF11 | | 0x81 | Channel ID | Object 0x2103 subindex channelID | |

Where the meaning of CHANNEL ID is:

| CHANNEL ID | |
|---|---|
| **CHANNEL ID** | **DESCRIPTION** |
| 0x01 | Channel 1/2 |
| 0x02 | Channel 3/4 |
| 0x03 | Channel 5/6 |
| 0x04 | Channel 7/8 |

For “CPU ERROR” the Emergency message will be:

| EMERGENCY MESSAGE | | | | | | |
|---|---|---|---|---|---|---|
| BYTE 0 | BYTE 1 | BYTE 2 | BYTE 3 | BYTE 4 | BYTE 5 | BYTE 6 |
| 0xFF20 | | 0x81 | Object 0x1002 | | | |



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| EEC | |
|---|---|
| **CODE** | **DESCRIPTION** |
| 0x0000 | No error |
| 0x1000 | Generic error |
| 0x4201 | CPU temperature over HOT STOP ERROR |
| 0x4202 | CPU temperature over HOT STOP |
| 0x4203 | CPU temperature under COLD ERROR |
| 0x8110 | Communication Can Overrun |
| 0x8120 | Error passive |
| 0x8130 | Life Guard error |
| 0x8140 | Recovered from bus off |
| 0xFF10 | General input channels error |
| 0xFF11 | Command for input channel error |
| 0xFF20 | CPU error |

| ER | | | | | | | |
|---|---|---|---|---|---|---|---|
| **BIT 7** | **BIT 6** | **BIT 5** | **BIT 4** | **BIT 3** | **BIT 2** | **BIT 1** | **BIT 0** |
| Generic | 0 | Voltage | temperature | communication | 0 | 0 | Manufacture |

Where bit equal to “0” means “no error”.

## *Object 0x1002: manufacturer status register*

**Object 0x1002** is the CPU status.

| OBJECT 1002 | |
|---|---|
| **BIT** | **DESCRIPTION** |
| 31..18 | NA |
| 17 | Channel 8 saturation error |
| 16 | Channel 7 saturation error |
| 15 | Channel 6 saturation error |
| 14 | Channel 5 saturation error |
| 13 | Channel 4 saturation error |
| 12 | Channel 3 saturation error |
| 11 | Channel 2 saturation error |
| 10 | Channel 1 saturation error |
| 9 | Good data value |
| 8 | Precision data value |
| 7..1 | NA |
| 0 | CPU EEPROM CRC ERROR |

## *Object 0x1006: communication window lenght*

| OBJECT 1006 | |
|---|---|
| **MIN VAL [ms]** | **MAX VAL [ms]** |
| 10 | 10000 |



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### *Object 0x1007: synchronous window lenght*

| OBJECT 1007 | |
|---|---|
| **MIN VAL [ms]** | **MAX VAL [ms]** |
| 2 | 2000 |

### *CANOpen manufacturer specific profile*

If dip-switches are in “from memory” mode, the node address is selectable by **Object 0x2001**.

| NODE ADDRESS (Object 0x2001) | |
|---|---|
| **Object value** | **Description** |
| 0..127 | Node address |

If dip-switches are in “from memory” mode, the baud rate is selectable by **Object 0x2002**.

| BAUDRATE (Object 0x2002) | |
|---|---|
| **Object value** | **Description** |
| 1 | 20 kbit/s |
| 2 | 50 kbit/s |
| 3 | 125 kbit/s |
| 4 | 250 kbit/s |
| 5 | 500 kbit/s |
| 6 | 800 kbit/s |
| 7 | 1 Mbit/s |

**Object 0x2030** can be used to monitor the CPU temperature.

| CPU TEMPERATURE (Object 0x2030) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Actual temperature [°C/10] |
| 2 | Temperature for HOT STOP ERROR [°C/10] 95.0°C |
| 3 | Temperature for HOT ERROR [°C/10] 90.0°C |
| 4 | Temperature for COLD ERROR [°C/10] -25.0°C |

The HOT STOP temperature sends in pre-operational the station.

The HOT ERROR and the COLD ERROR temperature sends the Emergency Object.

The Object is Read Only.



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**Object 0x2100** contains the channel status:

| CHANNEL STATUS (Object 0x2100) | | |
|---|---|---|
| **BIT** | **Description** | **Object for error details** |
| 15 | Channel 1/2 fail | 0x2120 subindex 1 |
| 14 | Channel 3/4 fail | 0x2120 subindex 2 |
| 13 | Channel 5/6 fail | 0x2120 subindex 3 |
| 12 | Channel 7/8 fail | 0x2120 subindex 4 |
| 11 | Channel 1 fail | 0x2120 subindex 1 |
| 10 | Channel 2 fail | 0x2120 subindex 1 |
| 9 | Channel 3 fail | 0x2120 subindex 2 |
| 8 | Channel 4 fail | 0x2120 subindex 2 |
| 7 | Channel 5 fail | 0x2120 subindex 3 |
| 6 | Channel 6 fail | 0x2120 subindex 3 |
| 5 | Channel 7 fail | 0x2120 subindex 4 |
| 4 | Channel 8 fail | 0x2120 subindex 4 |
| 3 | Channel 1/2 communication fail | 0x2121 subindex 1 |
| 2 | Channel 3/4 communication fail | 0x2121 subindex 2 |
| 1 | Channel 5/6 communication fail | 0x2121 subindex 3 |
| 0 | Channel 7/8 communication fail | 0x2121 subindex 4 |

**Object 0x2106**, **0x2107**, **0x2108**, **0x2109** contain the channels configuration:

| CHANNELS CONFIGURATION | |
|---|---|
| **Subindex** | **Description** |
| 0x2106 | Channel 1/2 configuration |
| 0x2107 | Channel 3/4 configuration |
| 0x2108 | Channel 5/6 configuration |
| 0x2109 | Channel 7/8 configuration |

| SUBINDEX CHANNELS CONFIGURATION | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel A enable (1=enable, 0=disable) |
| 2 | Channel B enable (1=enable, 0=disable) |
| 3 | Channel A type (1=current, 0=voltage) |
| 4 | Channel B type (1=current, 0=voltage) |
| 5 | Frequency rejection (1=60 Hz, 0=50 Hz) |
| 6 | Filter |

| FILTER | |
|---|---|
| **Value** | **Filter type** |
| 0 | disabled |
| 1 | Average filter |
| 2 | Hires+average filter |
| 3 | Hires+average+exponential (level1) filter |
| .. | .. |
| 7 | Hires+average+exponential (level5) filter |



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## *INTEGER SCALE PROCESS*

Integer input objects can be scaled by a BEGIN (referred to 0 mV or 0 µA) for a 0 integer value and a END (referred to 10000mV or 20000 µA) for a 10000 integer value.

The formula is: Int16=((VAL-BGN)/(END-BGN))*10000

## *BEGIN FOR INTEGER SCALE: Object 0x2700*

The object sets the customization of the associated mV or µA input value to the 0 integer value.

| BEGIN FOR INTEGER SCALE (Object 0x2700) | |
|---|---|
| **SUBINDEX** | **Description** |
| 1 | Begin value for channel 1 [mV] or [µA] |
| 2 | Begin value for channel 2 [mV] or [µA] |
| 3 | Begin value for channel 3 [mV] or [µA] |
| 4 | Begin value for channel 4 [mV] or [µA] |
| 5 | Begin value for channel 5 [mV] or [µA] |
| 6 | Begin value for channel 6 [mV] or [µA] |
| 7 | Begin value for channel 7 [mV] or [µA] |
| 8 | Begin value for channel 8 [mV] or [µA] |

## *END FOR INTEGER SCALE: Object 0x2701*

The object sets the customization of the associated mV or µA input value to the 10000 integer value.

| BEGIN FOR INTEGER SCALE (Object 0x2700) | |
|---|---|
| **SUBINDEX** | **Description** |
| 1 | End value for channel 1 [mV] or [µA] |
| 2 | End value for channel 2 [mV] or [µA] |
| 3 | End value for channel 3 [mV] or [µA] |
| 4 | End value for channel 4 [mV] or [µA] |
| 5 | End value for channel 5 [mV] or [µA] |
| 6 | End value for channel 6 [mV] or [µA] |
| 7 | End value for channel 7 [mV] or [µA] |
| 8 | End value for channel 8 [mV] or [µA] |



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## *DIP-SWITCH configuration*

| **BAUD-RATE (Dip-Switches: SW1)** | | | |
|---|---|---|---|
| 1 | 2 | 3 | Meaning |
| | | | **Only Baud-Rate is acquired from memory(EEPROM)** |
| | | ● | 20 kbps |
| | ● | | 50 kbps |
| | ● | ● | 125 kbps |
| ● | | | 250 kbps |
| ● | | ● | 500 kbps |
| ● | ● | | 800 kbps |
| ● | ● | ● | 1 Mbps |

| **ADDRESS (Dip-Switches: SW1)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | Meaning |
| | | | | | | | **Only address is acquired from memory(EEPROM)** |
| | | | | | | ● | Address=1 |
| | | | | | ● | | Address=2 |
| | | | | | ● | ● | Address=3 |
| | | | | ● | | | Address=4 |
| | | | | ● | | ● | Address=5 |
| X | X | X | X | X | X | X | …… |
| ● | ● | ● | ● | ● | ● | ● | Address=127 |

## *CANOpen LED description*

| **SERVICE (DIAGNOSTIC) LED DESCRIPTION** | | |
|---|---|---|
| **LED** | **LED status** | **Meaning** |
| RUN | Blinking light | Pre-operational mode |
| | Single flash | Stop mode |
| | ON | Operational mode |
| ERROR | Single flash | At least one error counter has reached or exceed the warning level |
| | Double flash | Guard event |
| | Triple flash | The SYNC has not received within the configurated communication cycle timeout period |
| | ON | The CAN controller is bus off |
| | OFF | No error |
| FAIL | Blinking | Data receiving from RS232 |
| | ON | At least one channel is in error mode |
| POWER | ON | Power supply |



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## *Object for analog data*

**Object 0x6401** contains the 16 bit (signed) values for channels 1..8.

| 16 BIT INTEGER INPUT (Object 0x6411) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 16 bit input value |
| 2 | Channel 2 16 bit input value |
| 3 | Channel 3 16 bit input value |
| 4 | Channel 4 16 bit input value |
| 5 | Channel 5 16 bit input value |
| 6 | Channel 6 16 bit input value |
| 7 | Channel 7 16 bit input value |
| 8 | Channel 8 16 bit input value |

**Object 0x6403** contains the floating point (32 bit) values for channel 1..8.

| 32 BIT REAL INPUT (Object 0x6403) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 floating point value |
| 2 | Channel 2 floating point value |
| 3 | Channel 3 floating point value |
| 4 | Channel 4 floating point value |
| 5 | Channel 5 floating point value |
| 6 | Channel 6 floating point value |
| 7 | Channel 7 floating point value |
| 8 | Channel 8 floating point value |

**Object 0x6423** interrupt enable:

If the value is “1”, the station can generate asynchronous TxPDO.

If the value is “0”, the station can not generate asynchronous TxPDO.

**Object 0x6430** assigns the measure unit for the analogic input measure. Subindex 1 is referred to input 1…subindex 8 is referred to input 8.

| SI UNIT (Object 0x6430) | |
|---|---|
| **Measure unit** | **Value** |
| mV | 0xFD260000 |
| µA | 0xFA040000 |



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### *Object 0x6424 interrupt upper limit integer*

If enabled (see object 0x6423), an interrupt is triggered when the analogue input is equal or rises above the given value.

As long as the trigger condition is met, every change of the analogue input data generates a new interrupt.

| INTERRUPT UPPER LIMIT 16 BIT INTEGER (OBJECT 0X6424) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 upper limit integer [mV] or [µA] |
| 2 | Channel 2 upper limit integer [mV] or [µA] |
| 3 | Channel 3 upper limit integer [mV] or [µA] |
| 4 | Channel 4 upper limit integer [mV] or [µA] |
| 5 | Channel 5 upper limit integer [mV] or [µA] |
| 6 | Channel 6 upper limit integer [mV] or [µA] |
| 7 | Channel 7 upper limit integer [mV] or [µA] |
| 8 | Channel 8 upper limit integer [mV] or [µA] |

### *Object 0x6425 interrupt lower limit integer*

If enabled (see object 0x6423), an interrupt is triggered when the analogue input falls below the given value.

As long as the trigger condition is met, every change of the analogue input data generates a new interrupt.

| INTERRUPT LOWER LIMIT 16 BIT INTEGER (OBJECT 0X6425) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 lower limit integer [mV] or [µA] |
| 2 | Channel 2 lower limit integer [mV] or [µA] |
| 3 | Channel 3 lower limit integer [mV] or [µA] |
| 4 | Channel 4 lower limit integer [mV] or [µA] |
| 5 | Channel 5 lower limit integer [mV] or [µA] |
| 6 | Channel 6 lower limit integer [mV] or [µA] |
| 7 | Channel 7 lower limit integer [mV] or [µA] |
| 8 | Channel 8 lower limit integer [mV] or [µA] |

### *Object 0x6426 interrupt delta unsigned*

The object sets the delta value (rising or falling above or below the last communicated value) for interrupt-enabled analogue inputs (if object 0x6423 enables the interrupt).

| INTERRUPT DELTA UNSIGNED INTEGER 16 BIT (OBJECT 0X6426) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 delta unsigned [mV] or [µA] |
| 2 | Channel 2 delta unsigned [mV] or [µA] |
| 3 | Channel 3 delta unsigned [mV] or [µA] |
| 4 | Channel 4 delta unsigned [mV] or [µA] |
| 5 | Channel 5 delta unsigned [mV] or [µA] |
| 6 | Channel 6 delta unsigned [mV] or [µA] |
| 7 | Channel 7 delta unsigned [mV] or [µA] |
| 8 | Channel 8 delta unsigned [mV] or [µA] |



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### *Object 0x6429 interrupt upper limit float*

This object sets the converted upper limits for interrupt-enabled analogue inputs (see 0x6423 object). As long as the trigger condition is met, every change of the analogue input data generates a new interrupt.

| INTERRUPT UPPER LIMIT 32BIT FLOAT (OBJECT 0X6429) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 upper limit float [mV] or [µA] |
| 2 | Channel 2 upper limit float [mV] or [µA] |
| 3 | Channel 3 upper limit float [mV] or [µA] |
| 4 | Channel 4 upper limit float [mV] or [µA] |
| 5 | Channel 5 upper limit float [mV] or [µA] |
| 6 | Channel 6 upper limit float [mV] or [µA] |
| 7 | Channel 7 upper limit float [mV] or [µA] |
| 8 | Channel 8 upper limit float [mV] or [µA] |

### *Object 0x642A interrupt lower limit float*

This object sets the lower limits for interrupt-enabled analogue inputs (see 0x6423 object). As long as the trigger condition is met, every change of the analogue input data generates a new interrupt.

| INTERRUPT LOWER LIMIT 32BIT FLOAT (OBJECT 0X6425) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 lower limit float [mV] or [µA] |
| 2 | Channel 2 lower limit float [mV] or [µA] |
| 3 | Channel 3 lower limit float [mV] or [µA] |
| 4 | Channel 4 lower limit float [mV] or [µA] |
| 5 | Channel 5 lower limit float [mV] or [µA] |
| 6 | Channel 6 lower limit float [mV] or [µA] |
| 7 | Channel 7 lower limit float [mV] or [µA] |
| 8 | Channel 8 lower limit float [mV] or [µA] |

### *Object 0x642B interrupt delta float*

The object sets the delta value (rising or falling above or below the last sample) in float format for interrupt-enabled analogue inputs (if object 0x6423 enables the interrupt).

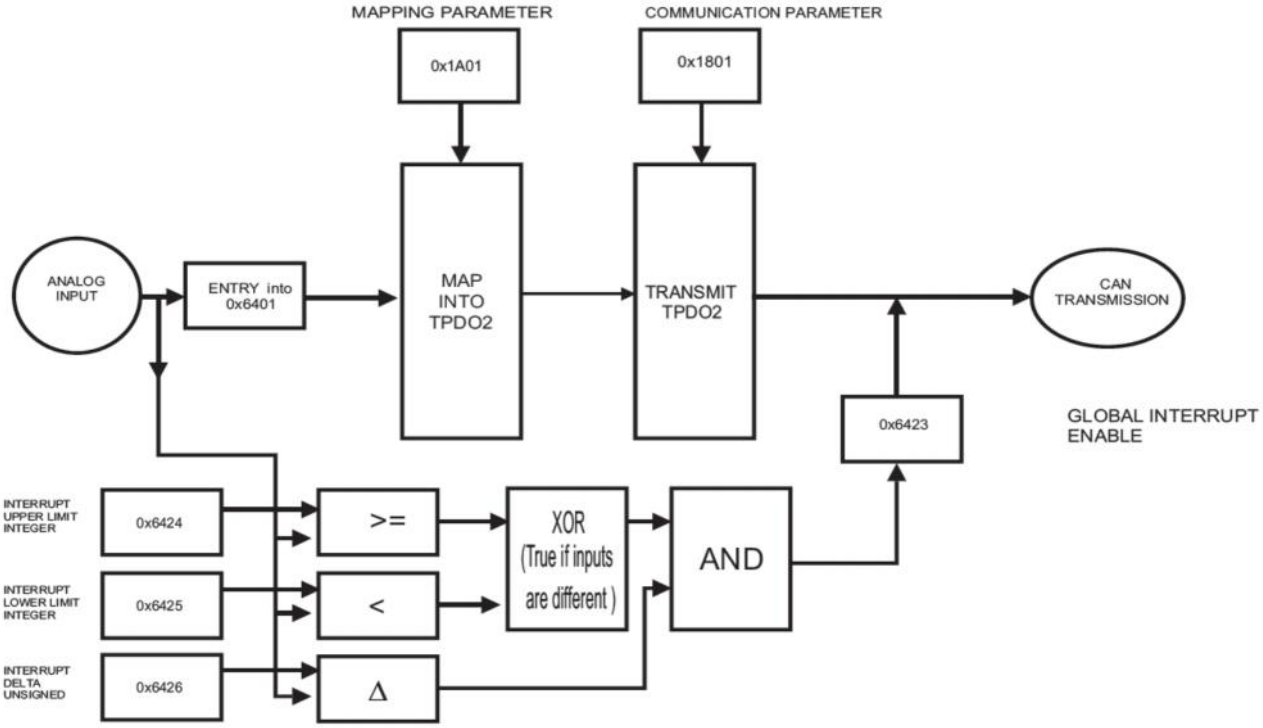
| INTERRUPT DELTA 323 BIT FLOAT (OBJECT 0X6426) | |
|---|---|
| **Subindex** | **Description** |
| 1 | Channel 1 delta float [mV] or [µA] |
| 2 | Channel 2 delta float [mV] or [µA] |
| 3 | Channel 3 delta float [mV] or [µA] |
| 4 | Channel 4 delta float [mV] or [µA] |
| 5 | Channel 5 delta float [mV] or [µA] |
| 6 | Channel 6 delta float [mV] or [µA] |
| 7 | Channel 7 delta float [mV] or [µA] |
| 8 | Channel 8 delta float [mV] or [µA] |



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### *CANOpen functional diagram*

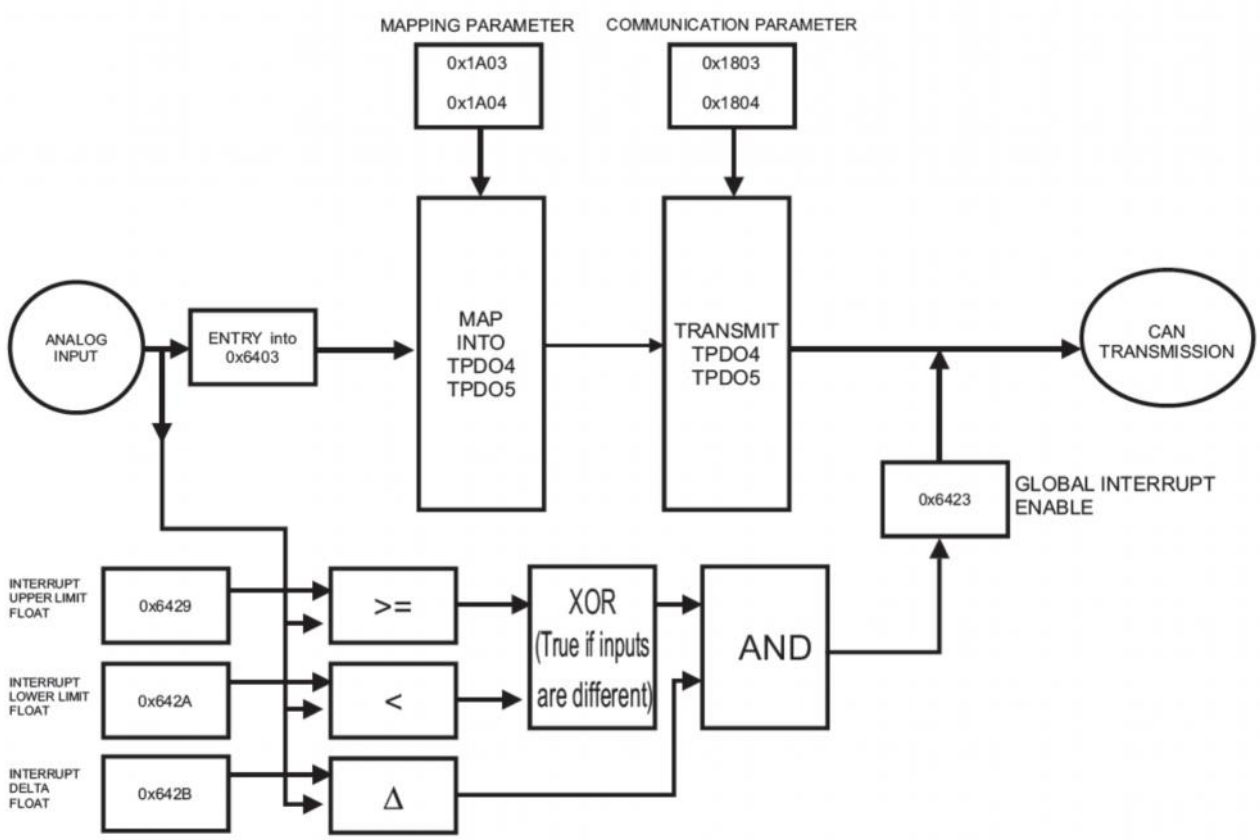
### *For integer values*






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### *For float values*






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### *CANOpen Object dictionary*

| COMMUNICATION PROFILE AREA | | | | | | |
|---|---|---|---|---|---|---|
| **INDEX** | **SUB INDEX** | **NAME** | **DESCRIPTION** | **TYPE** | **ACCESS** | **DEFAULT** |
| 0x1000 | 0 | Device type | Profile 401=0x191 | UNSIGNED 32 | RO | 0x00040191 |
| 0x1001 | 0 | Error register | Error register (DS401) | UNSIGNED 8 | RO | 0 |
| 0x1002 | 0 | Manufacturer Status register | Status register | UNSIGNED 32 | RO | |
| 0x1005 | 0 | SYNC COB-ID | The device consumes the SYNC message | UNSIGNED 32 | RW | 0x00000080 |
| 0x1006 | 0 | Comm. window lenght | Sync interval [us] | UNSIGNED 32 | RW | 0 |
| 0x1007 | 0 | Synchronous window lenght | The window [us] for the PDO transmission after the SYNC | UNSIGNED 32 | RW | 0 |
| 0x1008 | 0 | Manufacturer Device name | Device name | VISIBLE STRING | RO | “ZC-8AI” |
| 0x1009 | 0 | Manufacturer HW version | Hardware version | VISIBLE STRING | RO | “SC000000” |
| 0x100A | 0 | Manufacturer SW version | Software version | VISIBLE STRING | RO | “SW001142” |
| 0x100C | 0 | Guard Time | [ms] | UNSIGNED 16 | RW | 0 |
| 0x100D | 0 | Life time factor | Max delay between two guarding telegrams= Guard_Time · Life_Time_Factor | UNSIGNED 8 | RW | 0 |
| 0x1010 | 0 | Store parameters/ number of mapped object | Max subindex number | UNSIGNED 8 | RO | 8 |
| | 1 | Save all parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 2 | Save communication parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 3 | Save application parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 4 | Save manufacturer parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 5 | Save CH1-2 parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| | 6 | Save CH3-4 parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 7 | Save CH5-6 parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| | 8 | Save CH7-8 parameters | Store not volatile parameters (write in ASCII “save” for store process MSB 0x65766173 LSB) | UNSIGNED 32 | RW | 1 |
| 0x1011 | 0 | Restore default/ number of mapped object | Max subindex number | UNSIGNED 8 | RO | 8 |
| | 1 | Restore all parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 2 | Restore communication parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 3 | Restore application parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 4 | Restore Manufacturer parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 5 | Restore CH1-2 parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 6 | Restore CH3-4 parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 7 | Restore CH5-6 parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |
| | 8 | Restore CH7-8 parameters | Restore not volatile parameters (write in ASCII “load” for store process MSB 0x64616F6C LSB) | UNSIGNED 32 | RW | 0 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| 0x1014 | 0 | COB-ID emergency Object | | UNSIGNED 32 | RO | $NODEID+ 0x80 |
| 0x1017 | 0 | Heartbeat producer time | Time (ms) 0x0000=there is not heartbeat service | UNSIGNED 16 | RW | 0 |
| 0x1018 | 0 | Identity object/ number of mapped object | Max subindex number | UNSIGNED 8 | RO | 4 |
| | 1 | Vendor ID | Seneca srl | UNSIGNED 32 | RO | 0x00000249 |
| | 2 | Product code | ZC-8AI Machine ID Code | UNSIGNED 32 | RO | 0x00001D00 |
| | 3 | Revision number | | UNSIGNED 32 | RO | 0 |
| | 4 | Serial number | | UNSIGNED 32 | RO | 0 |
| 0x1200 | 0 | 1st SDO port/ number of mapped object | Max subindex number | UNSIGNED 8 | RO | 2 |
| | 1 | COB-ID SDO Client-> Server | COB-ID of receive SDO | UNSIGNED 32 | RO | $NODEID+ 0x600 |
| | 2 | COB-ID SDO Server-> Client | COB-ID of transmit SDO | UNSIGNED 32 | RO | $NODEID+ 0x580 |
| 0x1801 | 0 | 2nd transmit PDO parameters | Number of mapped objects | UNSIGNED 8 | RO | 3 |
| | 1 | COB-ID used by PDO | COB-ID of TxPDO2 | UNSIGNED 32 | RW | $NODEID+ 0x40000280 |
| | 2 | Transmission type | Transmission type for TxPDO2 0x00=synchronous – acyclic 0x01 to 0xF0=synchronous – cyclic 0xFF=asynchronous | UNSIGNED 8 | RW | 0xFF |
| | 3 | Inhibit time | Min delay for the next PDO (ms/10) | UNSIGNED 16 | RW | 0x0000 |
| 0x1802 | 0 | 3rd transmit PDO parameters | Max subindex number | UNSIGNED 8 | RO | 3 |
| | 1 | COB-ID used by PDO | COB-ID of TxPDO3 | UNSIGNED 32 | RW | $NODEID+ 0x40000380 |
| | 2 | Transmission type | Transmission type for TxPDO3 0x00=synchronous – acyclic 0x01 to 0xF0=synchronous – cyclic 0xFF=asynchronous | UNSIGNED 8 | RW | 0xFF |
| | 3 | Inhibit time | Min delay for the next PDO (ms/10) | UNSIGNED 16 | RW | 0x0000 |
| 0x1803 | 0 | 4th transmit PDO parameters | Max subindex number | UNSIGNED 8 | RO | 3 |



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|---|---|---|---|---|---|---|
| | 1 | COB-ID used by PDO | COB-ID of TxPDO4 | UNSIGNED 32 | RW | $NODEID+ 0x40000480 |
| | 2 | Transmission type | Transmission type for TxPDO4<br>0x00=synchronous – acyclic<br>0x01 to 0xF0=synchronous – cyclic<br>0xFF=asynchronous | UNSIGNED 8 | RW | 0xFF |
| | 3 | Inhibit time | Min delay for the next PDO (ms/10) | UNSIGNED 16 | RW | 0x0000 |
| 0x1804 | 0 | 5th transmit PDO parameters | Max subindex number | UNSIGNED 8 | RO | 3 |
| | 1 | COB-ID used by PDO | COB-ID of TxPDO5 | UNSIGNED 32 | RW | 0x80000000 |
| | 2 | Transmission type | Transmission type for TxPDO5<br>0x00=synchronous – acyclic<br>0x01 to 0xF0=synchronous – cyclic<br>0xFF=asynchronous | UNSIGNED 8 | RW | 0xFF |
| | 3 | Inhibit time | Min delay for the next PDO (ms/10) | UNSIGNED 16 | RW | 0x0000 |
| 0x1A01 | 0 | 2nd transmit PDO mapping parameter | Number of mapped objects | UNSIGNED 8 | RW | 4 |
| | 1 | 1st object to be mapped | First object (default: CHANNEL 1 16 bits input) | UNSIGNED 32 | RW | 0x64010110<br>Object=0x6401<br>Subindex=1<br>Length=16bit |
| | 2 | 2nd object to be mapped | Second object (default: CHANNEL 2 16 bits input) | UNSIGNED 32 | RW | 0x64010210<br>Object=0x6401<br>Subindex=2<br>Length=16bit |
| | 3 | 3rd object to be mapped | Third object (default: CHANNEL 3 16 bits input) | UNSIGNED 32 | RW | 0x64010310<br>Object=0x6401<br>Subindex=3<br>Length=16bit |
| | 4 | 4th object to be mapped | Fourth object (default: CHANNEL 4 16 bits input) | UNSIGNED 32 | RW | 0x64010410<br>Object=0x6401<br>Subindex=4<br>Length=16bit |
| 0x1A02 | 0 | 3rd transmit PDO mapping parameter | Number of mapped objects | UNSIGNED 8 | RW | 4 |
| | 1 | 1st object to be mapped | First object (default: CHANNEL 5 16 bits input) | UNSIGNED 32 | RW | 0x64010510<br>Object=0x6401<br>Subindex=5<br>Length=16bit |
| | 2 | 2nd object to be mapped | Second object (default: CHANNEL 6 16 bits input) | UNSIGNED 32 | RW | 0x64010610<br>Object=0x6401<br>Subindex=6<br>Length=16bit |



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|---|---|---|---|---|---|---|
| | 3 | 3rd object to be mapped | Third object (default: CHANNEL 7 16 bits input) | UNSIGNED 32 | RW | 0x64010710 Object=0x6401 Subindex=7 Length=16bit |
| | 4 | 4th object to be mapped | Fourth object (default: CHANNEL 8 16 bits input) | UNSIGNED 32 | RW | 0x64010810 Object=0x6401 Subindex=8 Length=16bit |
| 0x1A03 | 0 | 4th transmit PDO mapping parameter | Number of mapped object | UNSIGNED 8 | RW | 4 |
| | 1 | 1st object to be mapped | First object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 2 | 2nd object to be mapped | Second object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 3 | 3rd object to be mapped | Third object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 4 | 4th object to be mapped | Fourth object (default: NONE) | UNSIGNED 32 | RW | 0 |
| 0x1A04 | 0 | 5th transmit PDO mapping parameter | Number of mapped object | UNSIGNED 8 | RW | 4 |
| | 1 | 1st object to be mapped | First object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 2 | 2nd object to be mapped | Second object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 3 | 3rd object to be mapped | Third object (default: NONE) | UNSIGNED 32 | RW | 0 |
| | 4 | 4th object to be mapped | Fourth object (default: NONE) | UNSIGNED 32 | RW | 0 |

# MANUFACTURER PROFILE AREA

| INDEX | SUB INDEX | NAME | DESCRIPTION | TYPE | ACCESS | DEFAULT |
|---|---|---|---|---|---|---|
| 0x2001 | 0 | Module address | Station address (only if dip switch 4,5,6,7,8,9,10 are OFF) | UNSIGNED 8 | RW | 0x7F=127 |
| 0x2002 | 0 | Baudrate | Station Baudrate (only if dip switch 1,2,3 are OFF)<br>1=20kbps<br>2=50kbps<br>3=125kbps<br>4=250kbps<br>5=500kbps<br>6=800kbps<br>7=1Mbps | UNSIGNED 8 | RW | 0x01 |
| 0x2003 | 0 | Firmware release | | UNSIGNED 16 | RO | |
| 0x2030 | 0 | Device temperature/ number of parameters | Max subindex number | UNSIGNED 8 | RO | 4 |
| | 1 | Internal temperature | Station internal temperature [°C/10] | INTEGER 16 | RO | 0 |
| | 2 | Hi Hi temperature | Critical hot temperature (all operations stop) | INTEGER 16 | RO | 950 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| | | | [°C/10] | | | |
| | 3 | Hi temperature | Warning for too hot temperature [°C/10] | INTEGER 16 | RO | 900 |
| | 4 | Low temperature | Critical low temperature (all operations stop) [°C/10] | INTEGER 16 | RO | -250 |
| 0x2100 | 0 | Channel 1..8 global status | | UNSIGNED 16 | RO | |
| 0x2106 | 0 | Channel 1-2 configuration | Number of parameters | UNSIGNED 8 | RO | 6 |
| | 1 | CH1 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 2 | CH2 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 3 | CH1 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 4 | CH2 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 5 | CH1-2 line frequency rejection | 0=50 Hz, 1=60 Hz | UNSIGNED 8 | RW | 0 |
| | 6 | Filter | 0=disable, 1=average, 2=hires+average, 3=exp lev1,...7=exp lev5 | UNSIGNED 8 | RW | 2 |
| 0x2107 | 0 | Channel 3-4 configuration | Number of parameters | UNSIGNED 8 | RO | 6 |
| | 1 | CH3 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 2 | CH4 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 3 | CH3 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 4 | CH4 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 5 | CH3-4 line frequency rejection | 0=50 Hz, 1=60 Hz | UNSIGNED 8 | RW | 0 |
| | 6 | Filter | 0=disable, 1=average, 2=hires+average, 3=exp lev1,...7=exp lev5 | UNSIGNED 8 | RW | 2 |
| 0x2108 | 0 | Channel 5-6 configuration | Number of parameters | UNSIGNED 8 | RO | 6 |
| | 1 | CH5 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 2 | CH6 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 3 | CH5 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 4 | CH6 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 5 | CH5-6 line frequency rejection | 0=50 Hz, 1=60 Hz | UNSIGNED 8 | RW | 0 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| | 6 | Filter | 0=disable, 1=average, 2=hires+average, 3=exp lev1,...7=exp lev5 | UNSIGNED 8 | RW | 2 |
| 0x2109 | 0 | Channel 7-8 configuration | Number of parameters | UNSIGNED 8 | RO | 6 |
| | 1 | CH7 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 2 | CH8 enable | 0=disable 1=enable | UNSIGNED 8 | RW | 1 |
| | 3 | CH7 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 4 | CH8 – type | 0=V 1=mA | UNSIGNED 8 | RW | 0 |
| | 5 | CH7-8 line frequency rejection | 0=50 Hz, 1=60 Hz | UNSIGNED 8 | RW | 0 |
| | 6 | Filter | 0=disable, 1=average, 2=hires+average, 3=exp lev1,...7=exp lev5 | UNSIGNED 8 | RW | 2 |
| 0x2700 | 0 | Begin integer scale | Begin value nr | UNSIGNED 8 | RO | 8 |
| | 1 | Begin scale CH1 | Channel 1 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 2 | Begin scale CH2 | Channel 2 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 3 | Begin scale CH3 | Channel 3 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 4 | Begin scale CH4 | Channel 4 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 5 | Begin scale CH5 | Channel 5 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 6 | Begin scale CH6 | Channel 6 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 7 | Begin scale CH7 | Channel 7 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| | 8 | Begin scale CH8 | Channel 8 begin integer scale [mV] or [µA] | INTEGER 16 | RW | 0 |
| 0x2701 | 0 | End scale integer | | UNSIGNED 8 | RO | 8 |
| | 1 | End scale CH1 | Channel 1 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 2 | End scale CH2 | Channel 2 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 3 | End scale CH3 | Channel 3 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |



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|---|---|---|---|---|---|---|
| | 4 | End scale CH4 | Channel 4 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 5 | End scale CH5 | Channel 5 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 6 | End scale CH6 | Channel 6 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 7 | End scale CH7 | Channel 7 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |
| | 8 | End scale CH8 | Channel 8 end integer scale [mV] or [µA] | INTEGER 16 | RW | 10000 |

# STANDARD DEVICE PROFILE AREA

| INDEX | SUB INDEX | NAME | DESCRIPTION | TYPE | ACCESS | DEFAULT |
|---|---|---|---|---|---|---|
| 0x6401 | 0 | 16 bit input | Number of input float | UNSIGNED 8 | RO | 8 |
| | 1 | CH1 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 2 | CH2 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 3 | CH3 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 4 | CH4 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 5 | CH5 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 6 | CH6 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 7 | CH7 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| | 8 | CH8 value 16 bits | [mV] or [µA] | INTEGER 16 | RO | |
| 0x6403 | 0 | Float input | Number of input float | UNSIGNED 8 | RO | 8 |
| | 1 | CH1 value real | [mV] or [µA] | REAL 32 | RO | |
| | 2 | CH2 value real | [mV] or [µA] | REAL 32 | RO | |
| | 3 | CH3 value real | [mV] or [µA] | REAL 32 | RO | |
| | 4 | CH4 value real | [mV] or [µA] | REAL 32 | RO | |
| | 5 | CH5 value real | [mV] or [µA] | REAL 32 | RO | |
| | 6 | CH6 value real | [mV] or [µA] | REAL 32 | RO | |
| | 7 | CH7 value real | [mV] or [µA] | REAL 32 | RO | |
| | 8 | CH8 value real | [mV] or [µA] | REAL 32 | RO | |
| 0x6423 | 0 | Analogue input interrupt global enable | 0=disable asynchronous TxPDO 1=enable asynchronous TxPDO | BOOLEAN | RW | 0 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| 0x6424 | 0 | analogue interrupt upper limit – 16bit | | UNSIGNED 8 | RO | 8 |
| | 1 | Analogue interrupt upper limit CH1 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 2 | Analogue interrupt upper limit CH2 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 3 | Analogue interrupt upper limit CH3 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 4 | Analogue interrupt upper limit CH4 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 5 | Analogue interrupt upper limit CH5 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 6 | Analogue interrupt upper limit CH6 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 7 | Analogue interrupt upper limit CH7 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 8 | Analogue interrupt upper limit CH8 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| 0x6425 | 0 | Analogue interrupt lower limit – 16bit | | UNSIGNED 8 | RO | 8 |
| | 1 | Analogue interrupt lower limit CH1 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 2 | Analogue interrupt lower limit CH2 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 3 | Analogue interrupt lower limit CH3 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 4 | Analogue interrupt lower limit CH4 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 5 | Analogue interrupt lower limit CH5 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 6 | Analogue interrupt lower limit CH6 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 7 | Analogue interrupt lower limit CH7 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 8 | Analogue interrupt lower limit CH8 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| 0x6426 | 0 | Analogue interrupt delta limit – 16bit | | UNSIGNED 8 | RO | 8 |
| | 1 | Analogue interrupt delta limit CH1 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 2 | Analogue interrupt delta limit CH2 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 3 | Analogue interrupt delta limit CH3 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 4 | Analogue interrupt delta limit CH4 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 5 | Analogue interrupt delta limit CH5 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 6 | Analogue interrupt delta limit CH6 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 7 | Analogue interrupt delta limit CH7 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| | 8 | Analogue interrupt delta limit CH8 – 16bit | [mV] or [µA] | UNSIGNED 16 | RW | 0 |
| 0x6429 | 0 | analogue interrupt upper limit – float | | UNSIGNED 8 | RO | 8 |
| | 1 | Analogue interrupt upper limit CH1 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 2 | Analogue interrupt upper limit CH2 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 3 | Analogue interrupt upper limit CH3 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 4 | Analogue interrupt upper limit CH4 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 5 | Analogue interrupt upper limit CH5 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 6 | Analogue interrupt upper limit CH6 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 7 | Analogue interrupt upper limit CH7 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 8 | Analogue interrupt upper limit CH8 – float | [mV] or [µA] | REAL 32 | RW | 0 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| 0x642A | 0 | Analogue interrupt lower limit – float | | REAL 32 | RO | 8 |
| | 1 | Analogue interrupt lower limit CH1 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 2 | Analogue interrupt lower limit CH2 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 3 | Analogue interrupt lower limit CH3 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 4 | Analogue interrupt lower limit CH4 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 5 | Analogue interrupt lower limit CH5 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 6 | Analogue interrupt lower limit CH6 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 7 | Analogue interrupt lower limit CH7 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 8 | Analogue interrupt lower limit CH8 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| 0x642B | 0 | Analogue interrupt delta limit – float | | UNSIGNED 8 | RO | 8 |
| | 1 | Analogue interrupt delta limit CH1 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 2 | Analogue interrupt delta limit CH2 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 3 | Analogue interrupt delta limit CH3 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 4 | Analogue interrupt delta limit CH4 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 5 | Analogue interrupt delta limit CH5 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 6 | Analogue interrupt delta limit CH6 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 7 | Analogue interrupt delta limit CH7 – float | [mV] or [µA] | REAL 32 | RW | 0 |
| | 8 | Analogue interrupt delta limit CH8 – float | [mV] or [µA] | REAL 32 | RW | 0 |



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|---|---|---|---|---|---|---|
| 0x6430 | 0 | SI unit | | UNSIGNED 8 | RO | 8 |
| | 1 | SI unit CH1 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 2 | SI unit CH2 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 3 | SI unit CH3 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 4 | SI unit CH4 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 5 | SI unit CH5 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 6 | SI unit CH6 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 7 | SI unit CH7 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |
| | 8 | SI unit CH8 | 0xFD260000=mV<br>0xFD040000=µA | UNSIGNED 32 | RW | 0xFD260000 |

## *Easy-SETUP*

To configure the Seneca Z-PC Line modules, it is possible to use Easy-SETUP software, free-downloadable from the www.seneca.it; the configuration can be performed by RS232 or RS485 bus communication.



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