

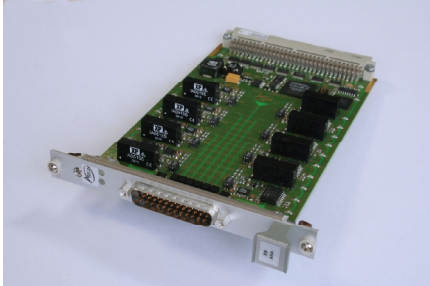


## Analog Inputs (x8) optically isolated

Ref: 5054-0608-1  
Ref: 5054-0608-2

Arion-IO  
Technical  
specification

### Features



- § 8 analog inputs (separated in 4 groups on the board)
- § Differential or non-differential inputs
- § Two versions of the board:

	Analog	Analog - E
Reference	5054-0608-1	5054-0608-2
Max. input current	34 $\mu$ A	35 $\mu$ A
Range	0V to 5V 0V to 10V -5V to +5V -10V to +10V	0V to 6V 0V to 12V -6V to +6V -12V to +12V

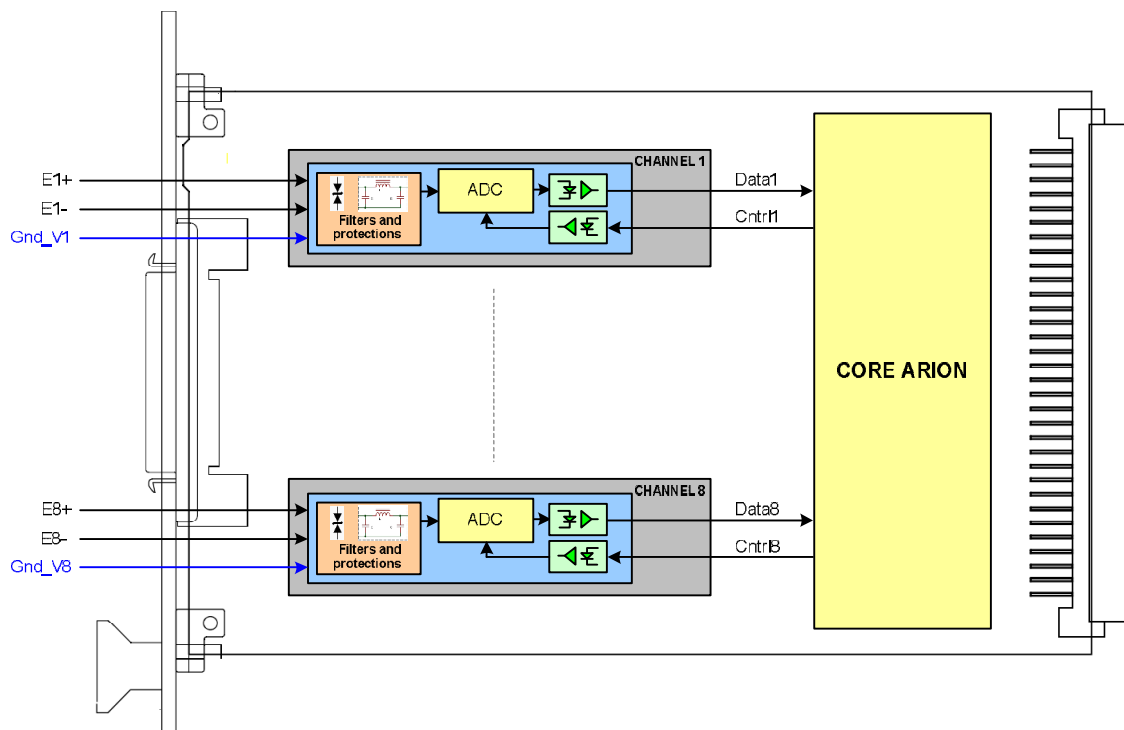


- § Optically isolated: provides a direct connection to industrial equipments
- § Common mode transient immunity of 100V/ $\mu$ s
- § All outputs are protected from transient voltage spikes, short-circuits and overvoltage

### Physical and environmental condition

Dimensions: 3U format (length 160mm) x 3T  
 Temperature: Industrial range temperature -40°C / +85°C  
 Weight: 300g  
 Consumption: 700mA for analogical 5V line and 100mA for numerical 3.3V line

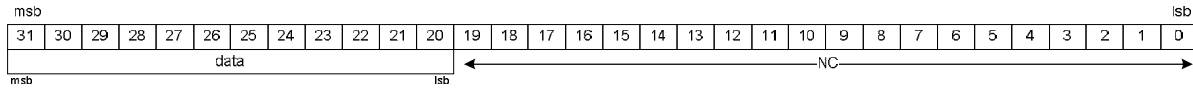
### Block diagram





**Data coding:**

Two's complement binary on 12 bits.



$$\text{lsb value} = \Delta V / 2^n$$

$$\text{data} = V_{in} / \text{lsb value}$$

	Mode	$\Delta V$	n	lsb value
ANA	0V to 5V	5V	12	1.22mV
	0V to 10V	10V	12	2.44mV
	-5V to +5V	10V	12	2.44mV
	-10V to +10V	20V	12	4.88mV
ANA-E	0V to 6V	6V	12	1.46mV
	0V to 12V	12V	12	2.93mV
	-6V to +6V	12V	12	2.93mV
	-12V to +12V	24V	12	5.86mV

**Arion operating modes**

Regarding the data acquisition of Arion-IO boards, 2 operating modes are available.  
These 2 modes can ONLY be used in 'Global Channel'; See Configuration documentation for more information.

**1. Cyclic mode: default mode**

On cyclic trigger, the data are acquired from the inputs of the board.

*Remark: The cyclic trigger is created by a configurable timer. This timer is set during the configuration step.*

**2. Up-Sampled mode: this mode works like cyclic mode but with N samples.**

On cyclic trigger, a sub-cycle is defined to acquire N data samples from the inputs of the board.

*Remark: The N number of samples has to be defined during the configuration step.*



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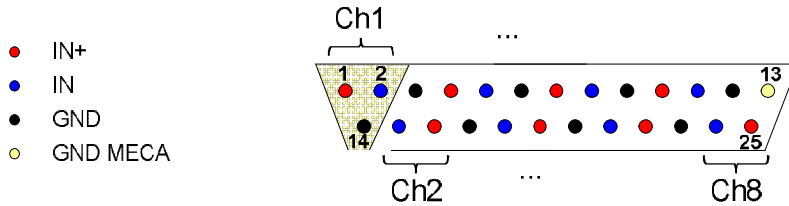


### Board installation

This board can be installed in any of the 11 slots of the Arion-IO rack. Each position gives a specific address to the board: addresses 3 to 13 are valid (See *Arion-IO Module installation documentation*)  
This address is used to define the configuration commands send to the boards. (See *configuration documentation*)

### Board Connector - Pin assignment

Front view board's connector:



	Pin No	Signal Name
Ch1	1	ANA_IN1+
	2	ANA_IN1-
	14	GND_LANE1
Ch2	16	ANA_IN2+
	15	ANA_IN2-
	3	GND_LANE2
Ch3	4	ANA_IN3+
	5	ANA_IN3-
	17	GND_LANE3
Ch4	19	ANA_IN4+
	18	ANA_IN4-
	6	GND_LANE4
Ch5	7	ANA_IN5+
	8	ANA_IN5-
	20	GND_LANE5
Ch6	22	ANA_IN6+
	21	ANA_IN6-
	9	GND_LANE6
Ch7	10	ANA_IN7+
	11	ANA_IN7-
	23	GND_LANE7
Ch8	25	ANA_IN8+
	24	ANA_IN8-
	12	GND_LANE8
	13	GND MECA



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Ref: 5051-0608-2

**Signals Modes**

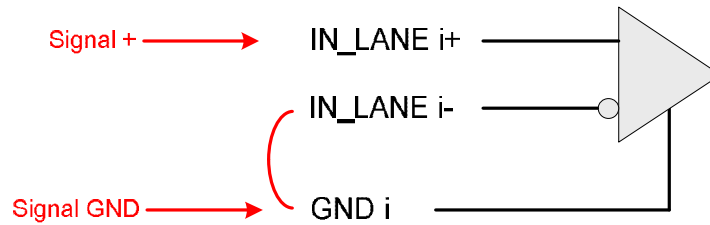
**Differential:**

Signal connected between IN\_LANE<sub>n</sub>+ and IN\_LANE<sub>n</sub>- with GND\_EXT<sub>n</sub>.



**Non-Differential:**

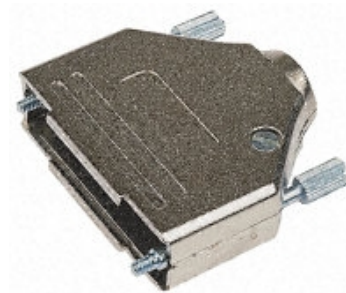
Signal connected between IN\_LANE<sub>n</sub>+ and GND\_EXT<sub>n</sub>.  
IN\_LANE<sub>n</sub>- must be connected to GND\_EXT<sub>n</sub>.



**Accessories**

Examples of female connector and cap lock to use to make a cable:

Harting products:		
§	Connector	: ref 09 67 025 4704
§	Metal cap lock	: ref 09 67 025 0348





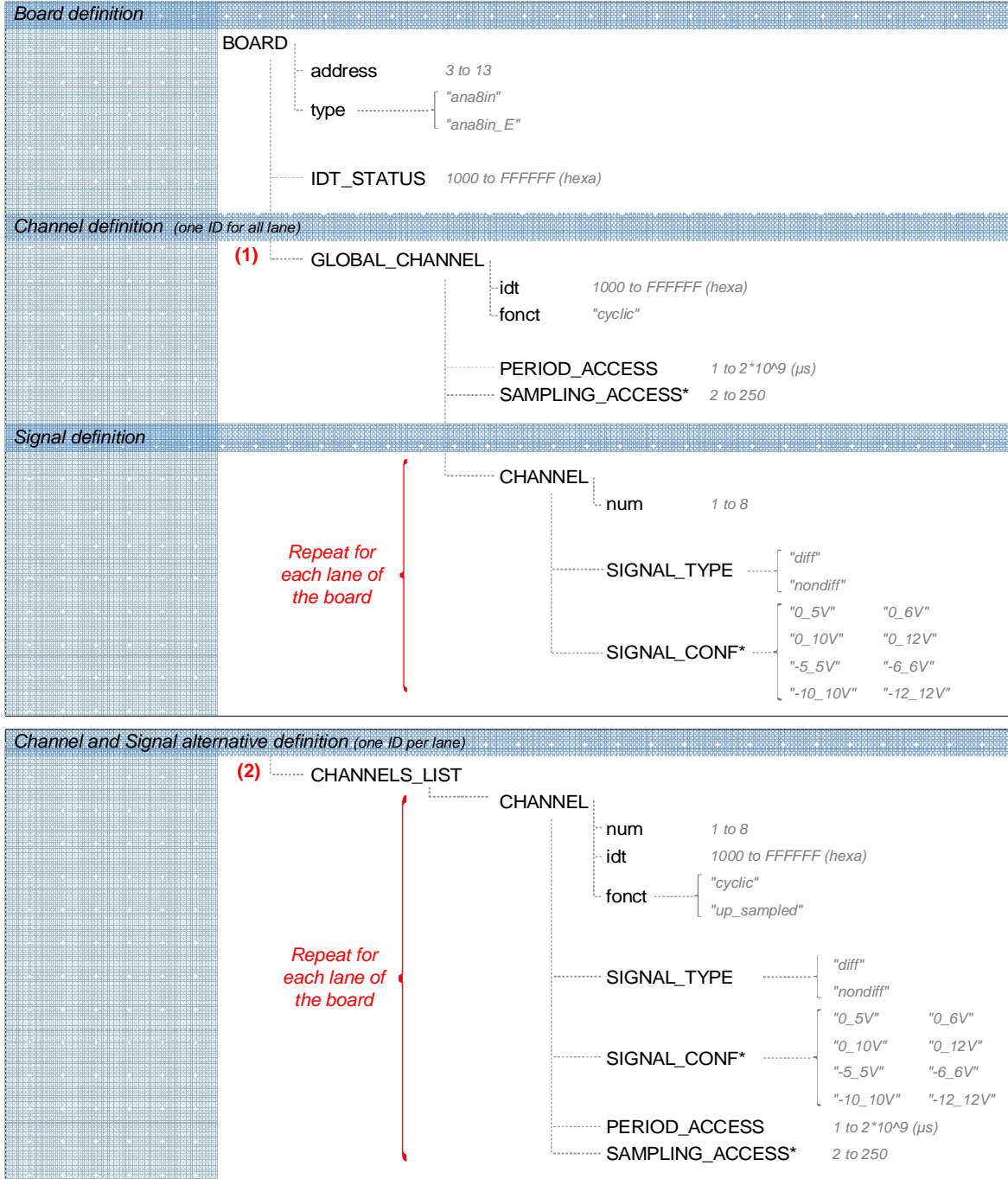
# Analog Inputs (x8) optically isolated

Ref: 5054-0608-1  
Ref: 5054-0608-2

Arion-IO  
Board  
configuration

## Configuration pattern

You must follow the tags and attributes order explained in this pattern to write your ArionIO.xml.



Uppercase = XML tag  
 Lowercase = XML attribute  
 Lowercase italic = value  
 (1) ... (2) = Alternative configuration  
 \* = Conditional configuration (see table below)



Parameters description

Name	Value	Fonction	Special condition
<i>Board definition (Tag: BOARD)</i>			
address	integer (3 to 13)	Address of the board	none
type	ana8in ana8in_E	Type of the board	none
IDT_STATUS	1000 to FFFFFFFF	Unique ID of the data status of the board in hexadecimal	none
<i>Channel definition (Tag: GLOBAL_CHANNEL, CHANNELS_LIST)</i>			
idt	1000 to FFFFFFFF	Unique ID of the data object in hexadecimal	none
fonct	cyclic up_sampled	Set the functional mode of the data object	none
PERIOD_ACCESS	integer (1 to 2*10^9)	LSB=1us (multiple of arion timer_x)	none
SAMPLING_ACCESS	integer (2 to 250)	Number of sample per period. LSB=1us (multiple of arion timer_x)	ONLY IF: up-sampled mode
<i>Signal definition (Tag: CHANNEL)</i>			
num	integer (1 to 8)	Lane number of the board	none
SIGNAL_TYPE	diff nondif	Configuration of the lane: differential or non-differential connexion	none
SIGNAL_CONF	0_5V 0_10V -5_5V -10_10V	Voltage level of the lane ONLY for a e-ana board	ONLY IF: ana8in
	0_6V 0_12V -6_6V -12_12V	Voltage level of the lane ONLY for a e-ana-E board	ONLY IF: ana8in_E

**Remarks:**

In GLOBAL\_CHANNEL configuration, only one ID is set for the 8 channels of the board. All the data are in the same ID.

In CHANNEL\_LIST configuration, each channel has a unique ID for its data.

In up-sampled mode PERIOD\_ACCESS / SAMPLING\_ACCESS must be:

- an integer value
- multiple of 2µs and greater than 10µs
- less than 2,097,151µs (2<sup>21</sup>µs)

The tag "IDT\_STATUS" and the attribute "idt" can be set as "auto" in the XML. In this case the IDs are created automatically:

idt format: "rack number"+"board number"+"channel number"

IDT\_STATUS format: "rack number"+"board number"+100

WARNING: The slots 3 to 13 are numbered from 1 to 11. For example, rack 2 / board in slot 7 / channel 3:

-idt: 25003  
-IDT\_STATUS: 25100