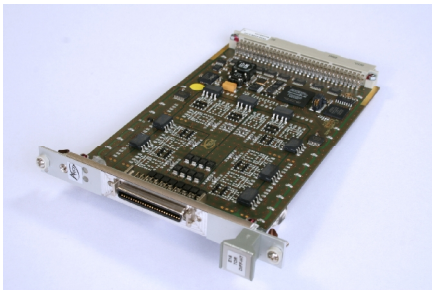
Differential Digital Inputs (x16) optically isolated

Ref: 5051-0608-2-BT
Ref: 5051-0608-2-HT

Arion-IO Technical specification

Features



§ 16 Differential numeric inputs (separated in 4 groups on the board)
§ Two versions of the board :

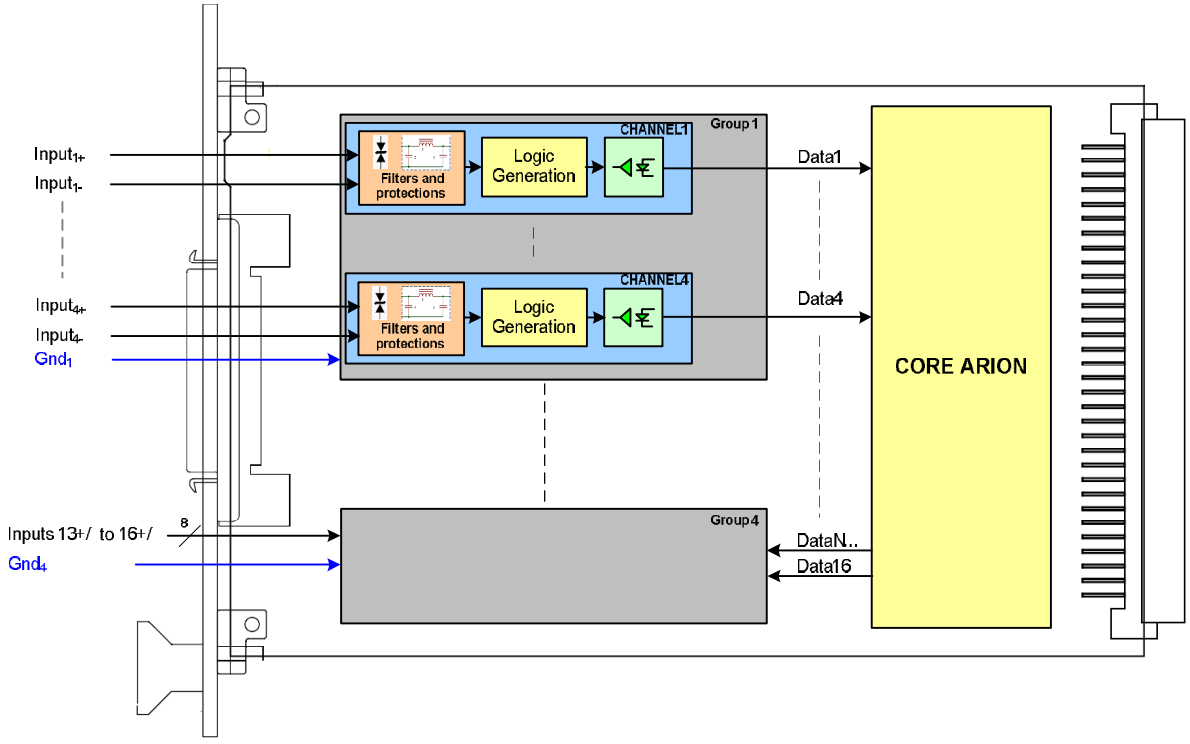
	Low voltage	High voltage
Reference	5050-0608-2-BT	5050-0608-2-HT
Low level	0V to 0,8V	0V to 1V
High level	3V to 6,5V	10V to 60V
Inom	5mA	5mA
Fmax	100KHz	100KHz

§ Optically isolated: provides a direct connection to industrial equipments
§ Common mode transient immunity of 100V/µs
§ 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:	200mA for analogical 5V line and 300mA for numerical 3.3V line

Block diagram



Remark: Each channel of a group shares the same ground but is isolated from the other groups.

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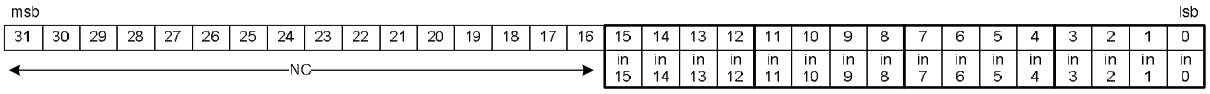
Principle

Data coding:



Arion operating modes

Regarding the data acquisition of Arion-IO boards, three operating modes are available.
These 3 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.

3. **Event:** *this mode is only available on Numeric Input Boards.*

   When the values of the inputs change, the data are acquired and available on the system.

   Remark: A filter on the inputs can be set during the configuration step.

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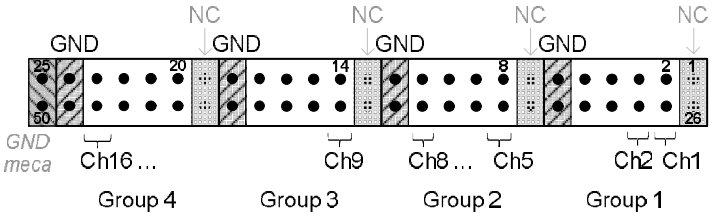
Board installation

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
		1	NC
		26	NC
Group 1	IN 1	2	IN_LANE1+
		27	IN_LANE1-
	IN 2	3	IN_LANE2+
		28	IN_LANE2-
	IN 3	4	IN_LANE3+
		29	IN_LANE3-
	IN 4	5	IN_LANE4+
		30	IN_LANE4-
	Both	6	GND_EXT1
		31	GND_EXT1
		13	NC
		38	NC
Group 3	IN 9	14	IN_LANE9+
		39	IN_LANE9-
	IN10	15	IN_LANE10+
		40	IN_LANE10-
	IN11	16	IN_LANE11+
		41	IN_LANE11-
	IN12	17	IN_LANE12+
		42	IN_LANE12-
	Both	18	GND_EXT3
		43	GND_EXT3

		Pin No	Signal Name
		7	NC
		32	NC
Group 2	IN 5	8	IN_LANE5+
		33	IN_LANE5-
	IN 6	9	IN_LANE6+
		34	IN_LANE6-
	IN 7	10	IN_LANE7+
		35	IN_LANE7-
	IN 8	11	IN_LANE8+
		36	IN_LANE8-
	Both	12	GND_EXT2
		37	GND_EXT2
		19	NC
		44	NC
Group 4	IN13	20	IN_LANE13+
		45	IN_LANE13-
	IN14	21	IN_LANE14+
		46	IN_LANE14-
	IN15	22	IN_LANE15+
		47	IN_LANE15-
	IN16	23	IN_LANE16+
		48	IN_LANE16-
	Both	24	GND_EXT4
		49	GND_EXT4
		25	*GND MECA*
		50	*GND MECA*

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Signal Mode

Differential:

Signal connected between IN_LANEn+ and IN_LANEn- with GND_EXTn.

Accessories

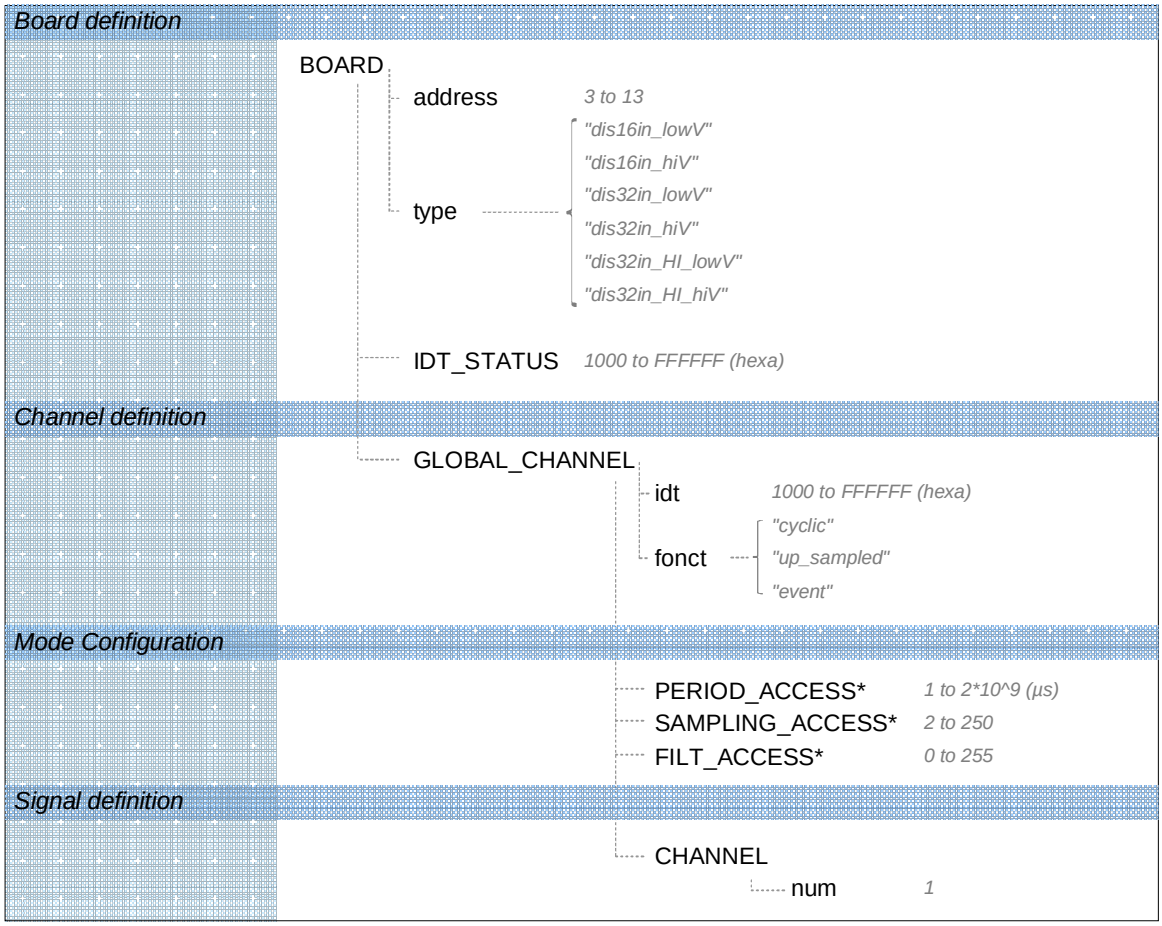
The female connector to use is: N10150-3000PE from 3M.

There are several versions of caps lock

§	Plastic	: ref 10350-3210-00
§	Metal	: ref 10350-A200-00
§	Plastic 2 shells	: ref 10350-52F0-008

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
* = Conditional configuration (see table below)

Parameters description

Name	Value	Fonction	Special condition
Board definition (Tag: BOARD)			
address	integer (3 to 13)	Address of the board	*none*
type	dis16in_lowV dis16in_hiV dis32in_lowV dis32in_hiV dis32in_HI_lowV dis32in_HI_hiV	Type of the board	*none*
IDT_STATUS	1000 to FFFFFF	Unique ID of the data status of the board in hexadecimal	*none*
Channel definition (Tag: GLOBAL_CHANNEL)			
idt	1000 to FFFFFF	Unique ID of the data object in hexadecimal	*none*
fonct	cyclic up_sampled event	Set the fonctional mode of the data object	*none*
PERIOD_ACCESS	integer (1 to 2*10^9)	LSB=1us (multiple of arion timer_x)	ONLY IF: cyclique or up-sampled mode
SAMPLING_ACCESS	integer (2 to 250)	Number of sample per period. LSB=1us (multiple of arion timer_x)	ONLY IF: up-sampled mode
FILT_ACCESS	integer (0 to 255)	Inputs inhibition filter (LSB=10us)	ONLY IF: event mode but Optional
Signal definition (Tag: CHANNEL)			
num	1	Number of channel. Always '1' for global_channel.	*none*

Remarks:

Digital Inputs board can only by configured in GLOBAL_CHANNEL configuration. One unique ID is set for the all 32 channels of the board. All the data are in the same ID.
With this configuration the tag CHANNEL needs to be configured to set the channels parameters.

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^{21}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