



## Arinc 429 ER (x8) optically isolated

Ref: 5059-0608-1-ER

Arion-IO  
Technical  
specification

### Features



§ 8 individual channels with 2 speed modes:

- Ø High Speed: 100KHz
- Ø Low Speed: 12KHz to 14.5KHz

§ Input voltage:  $\pm 40V$  max,  $I_{max}$  : 20 $\mu A$

§ Output voltage:  $\pm 5V$  max,  $I_{max}$  : 60mA

§ Optically isolated: provides a direct connection to industrial sensors and actuators

§ Common mode transient immunity of 100V/ $\mu s$

§ All inputs are protected from transient voltage spikes, short-circuits and overvoltage

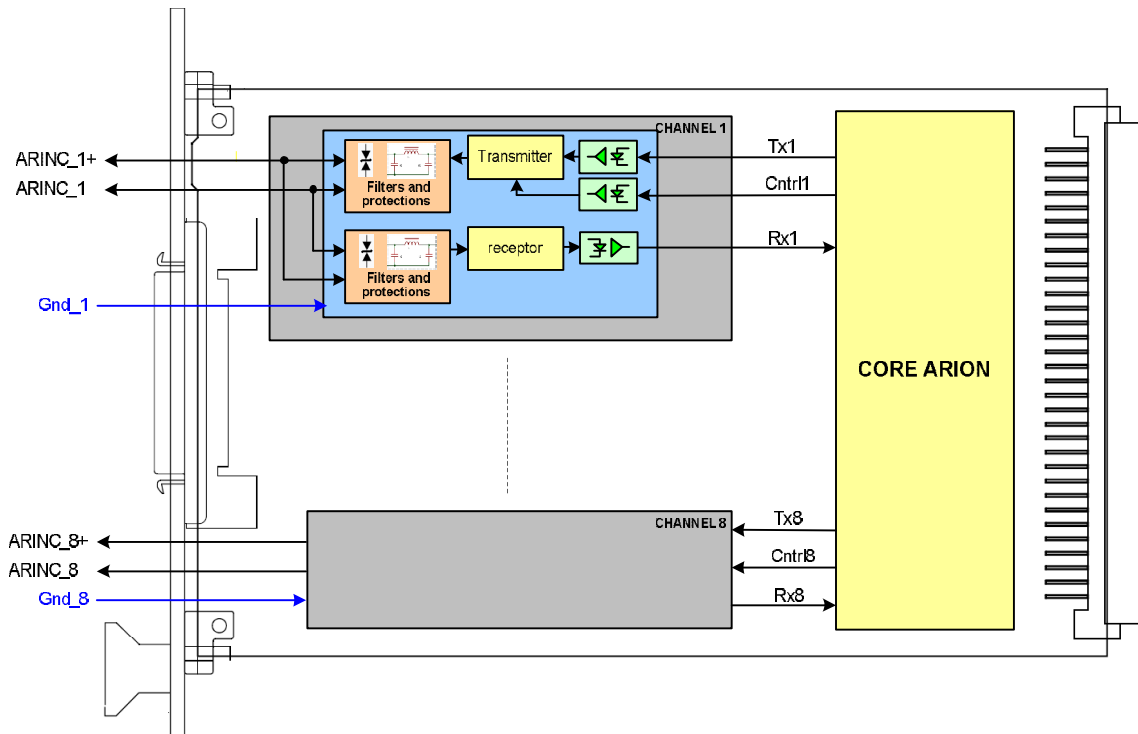
§ Input filters eliminate glitches and remove noise



### Physical and environmental condition

Dimensions: 3U format (length 160mm) x 3T  
Temperature: Industrial range temperature -40°C / +85°C  
Weight: 300g  
Consumption: 800mA for analogical 5V line and 2A for numerical 3.3V line

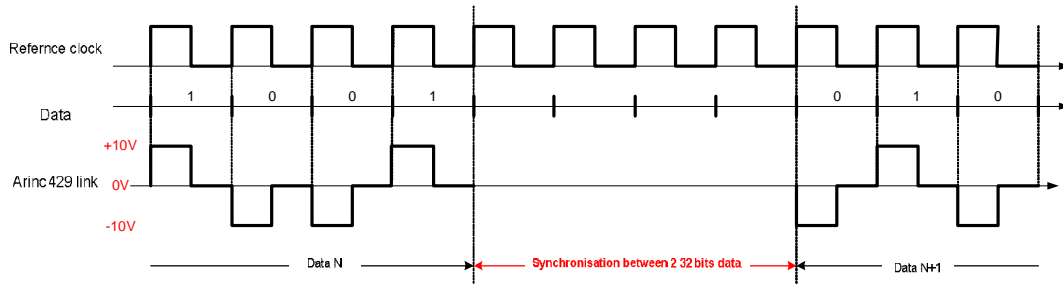
### Block diagram





**Principle**

This board realizes the transmission of data according to the Arinc 429 protocol (NZ bipolar):



The data is encoded on 23 bits + 1 bit of parity (can be set as odd or even parity bit. See Configuration documentation for more information).

**Data coding:**

msb															lsb																
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
P	data																						label								
															lsb																

**Arion operating modes**

Regarding the data of Arion-IO boards, the following operating modes are available :  
*These modes can be used in 'Global Channel' or 'Channel List' ; See Configuration documentation for more information.*

1. **Input mode:** *Two modes can be used*
  - When the input buffer is full, data acquired are sent to the system.
  - When a time-out appends, the input buffer is sent to the system.
  
2. **Output mode:**  
 The data are set to the outputs of the board when the user writes data.



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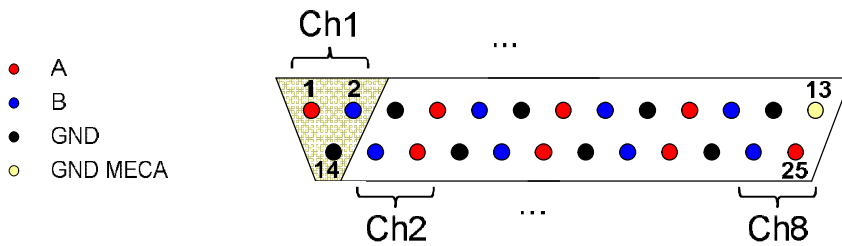
Arion-IO  
Board  
installation

## 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	LANE1_A
	2	LANE1_B
	14	GND_LANE1
Ch2	16	LANE2_A
	15	LANE2_B
	3	GND_LANE2
Ch3	4	LANE3_A
	5	LANE3_B
	17	GND_LANE3
Ch4	19	LANE4_A
	18	LANE4_B
	6	GND_LANE4
Ch5	7	LANE5_A
	8	LANE5_B
	20	GND_LANE5
Ch6	22	LANE6_A
	21	LANE6_B
	9	GND_LANE6
Ch7	10	LANE7_A
	11	LANE7_B
	23	GND_LANE7
Ch8	25	LANE8_A
	24	LANE8_B
	12	GND_LANE8
	13	GND_MECA



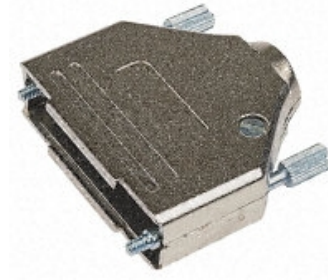
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### Accessories

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





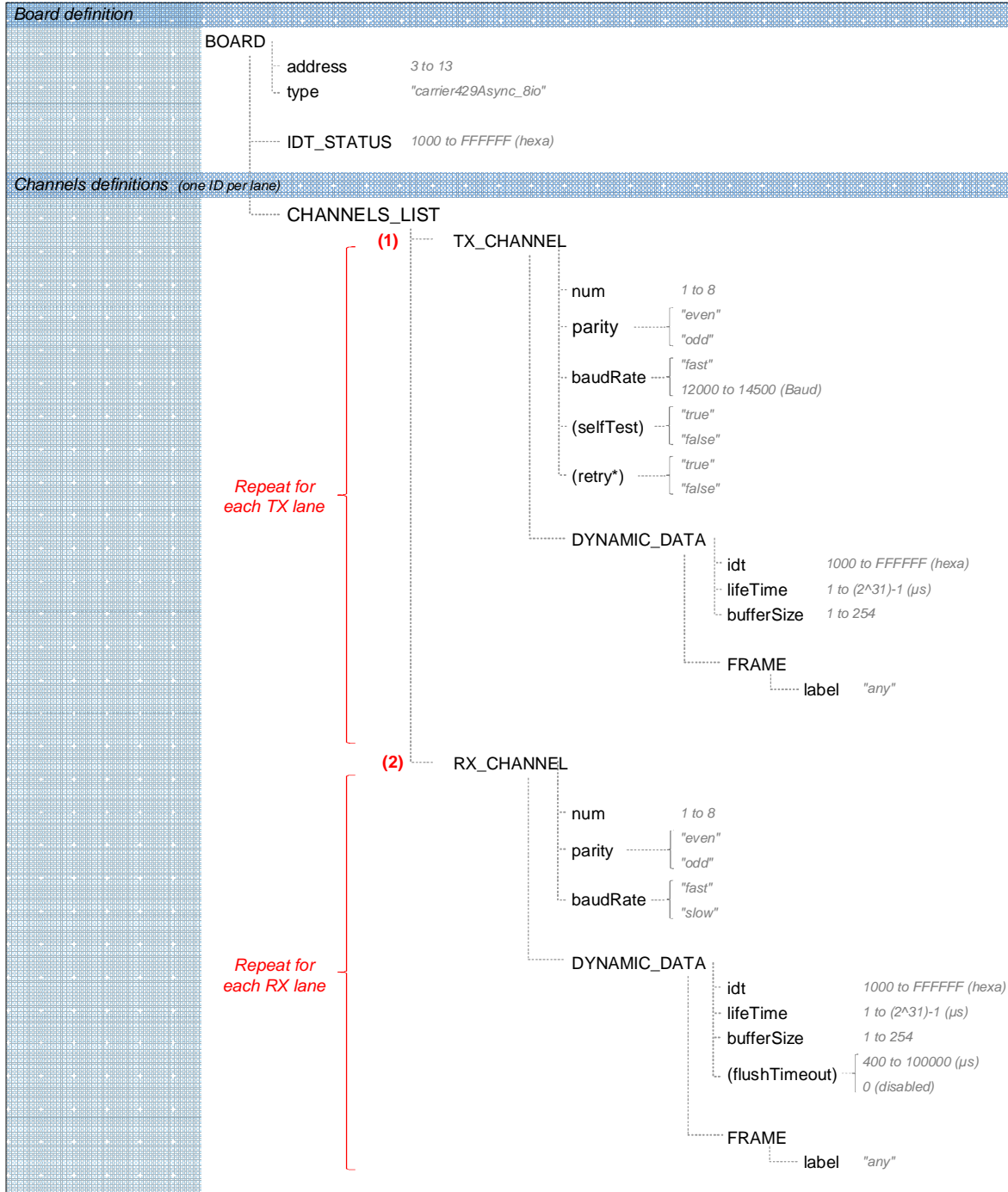
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Arion-IO  
Board  
configuration

## 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)  
( ) = Optional 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	carrier429Async_8io	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: CHANNELS_LIST)</i>			
idt	1000 to FFFFFFFF	Unique ID of the data object in hexadecimal	none
num	integer (1 to 8)	Lane number of the board	none
baudRate	slow	Transmission BaudRate	ONLY RX
	fast		Both
	12000 to 14500	in Baud (step=100ns)	ONLY TX
parity	even	Data parity	none
	odd		
selfTest	true	The transmitted data are checked when selfTest is "true"	ONLY TX
	false		
retry	true	If the emission fails the data are transmitted again	ONLY if "selfTest"=true
	false		
bufferSize	integer (1 to 254)	Transmission buffer size	none
lifeTime	integer (1 to (2^31)-1)	Time validity of data object (LSB=1us)	none
flushTimeout	400 to 100000	Timeout Timer. When a time-out appends, the input buffer is sent to the system	ONLY RX
<i>Virtual Link definition (Tag: FRAME)</i>			
label	any	No data filter	none

**Remarks:**

The board can ONLY be configured in CHANNEL\_LIST mode. Each channel is defined by a unique ID for its data.

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