




TECHNICAL NOTE

Current consumption in active & sleeping mode on BeanDevice® products (wireless sensors)


	BeanAir "Plug and Play" Wireless Sensor Network	Version : BeanDevice® SmartSensor TOR, SmartSensor® AX-3D and the EcoSensor® SUN-TIR Wireless range benchmarking
	Cergy Pontoise	

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	BeanAir “Plug and Play” Wireless Sensor Network	Version :
	Cergy Pontoise	BeanDevice® SmartSensor TOR, SmartSensor® AX-3D and the EcoSensor® SUN-TIR Wireless range benchmarking

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1. AIM OF THE DOCUMENT

The aim of this document is to estimate the current consumption of the BeanDevices®.

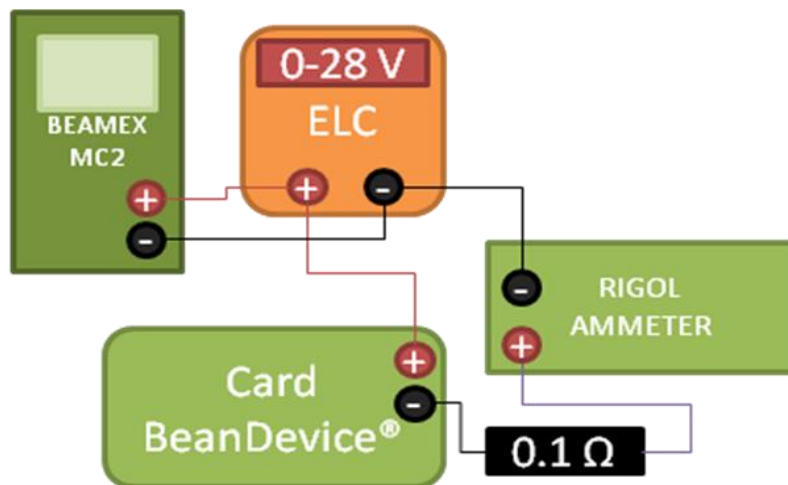
Please note that these computed values can change, depending strongly on your environment.

2. PRESENTATION OF THE TESTS

2.1 EQUIPEMENT USED

- BeanDevice® AX-3D
- BeanDevice® HI-INC – 1 axis
- BeanDevice® HI-INC – 2 axis
- BeanDevice® TOR
- ELC Power Supply – AL942
- RIGOL multimeter, used as an ammeter
- BEAMEX MC2 – used as a voltmeter
- A 0.1 Ω resistor – 1% - 3W

2.2 INSTALLATION DIAGRAM



2.3 TESTS CONDITIONS

- Room temperature : 24°C
- Humidity : 65%



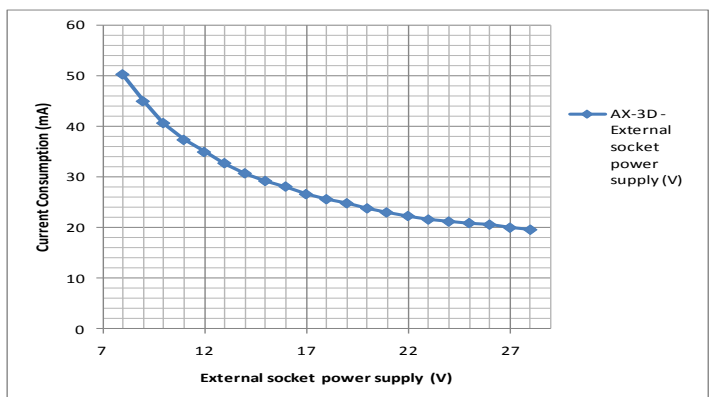
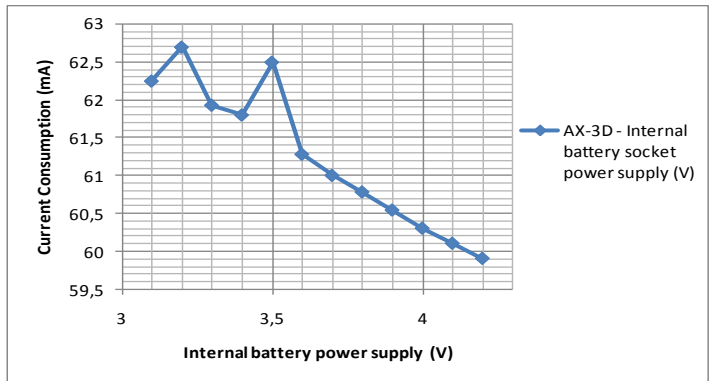
3. CURRENT CONSUMPTION

3.1 BEANDEVICE® AX-3D

The power consumption between the BeanDevice® AX-3D 10g and the BeanDevice® AX-3D 2g are identical.

3.1.1 Current consumption in active mode

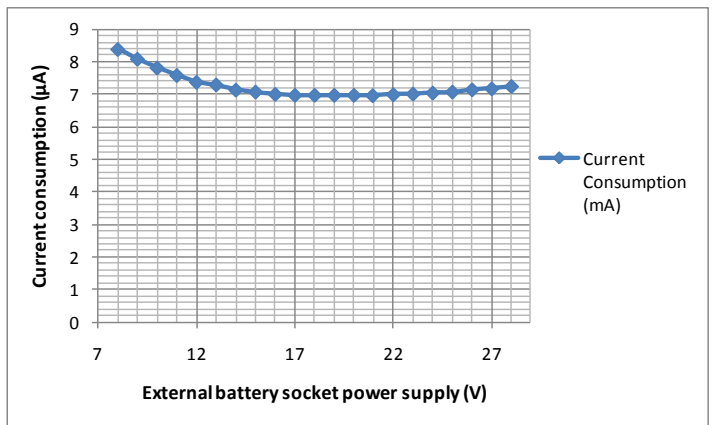
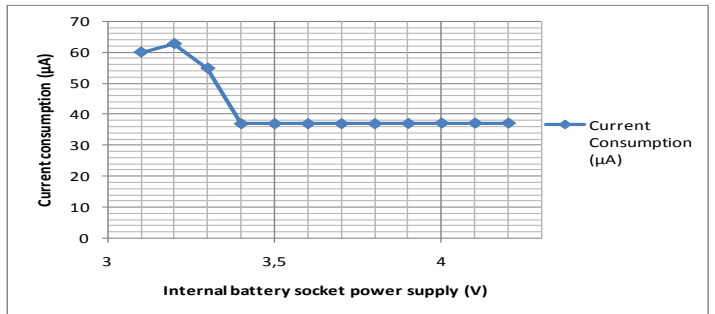
ACTIVE MODE	
AX-3D - Internal battery socket power supply (V)	Current Consumption (mA)
3,1	62,25
3,2	62,7
3,3	61,93
3,4	61,8
3,5	62,5
3,6	61,28
3,7	61
3,8	60,78
3,9	60,54
4	60,3
4,1	60,1
4,2	59,9
AX-3D - External socket power supply (V)	Current Consumption (mA)
8	50,2
9	44,9
10	40,6
11	37,3
12	34,9
13	32,7
14	30,7
15	29,2
16	28,1
17	26,6
18	25,6
19	24,8
20	23,8
20,95	23
22	22,3
23	21,6
24	21,2
25	20,9
26	20,6
27	20
28	19,6





3.1.1 Current consumption in sleeping mode

SLEEPING MODE	
AX-3D - Internal battery socket power supply (V)	Current Consumption (µA)
3,1	60
3,2	62,7
3,3	54,8
3,4	36,9
3,5	36,9
3,6	36,9
3,7	36,9
3,8	36,9
3,9	37
4	37,1
4,1	37,1
4,2	37,1
AX-3D - External socket power supply (V)	Current Consumption (mA)
8	8,38
9	8,08
10	7,81
11	7,58
12	7,37
13	7,29
14	7,13
15	7,07
16	7
17	6,97
18	6,97
19	6,97
20	6,97
20,95	6,96
22	6,99
23	7,01
24	7,04
25	7,07
26	7,14
27	7,17
28	7,24

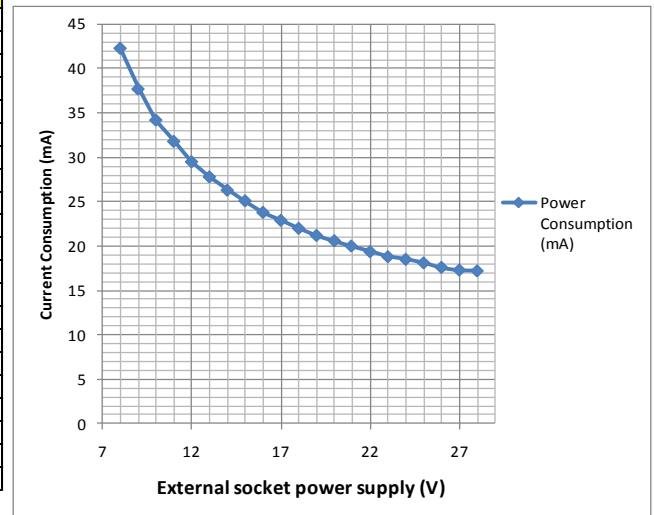
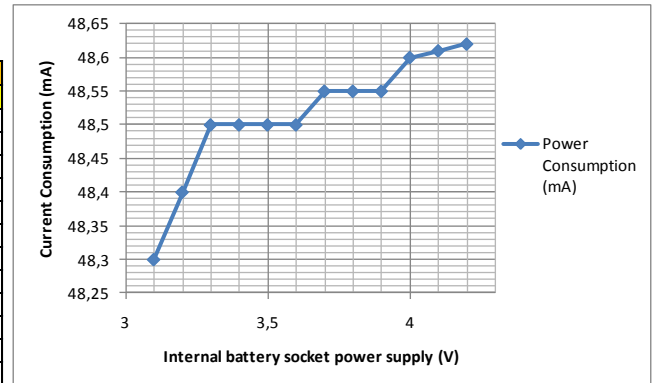




3.2 BEANDEVICE® TOR

3.2.1 Current consumption in active mode

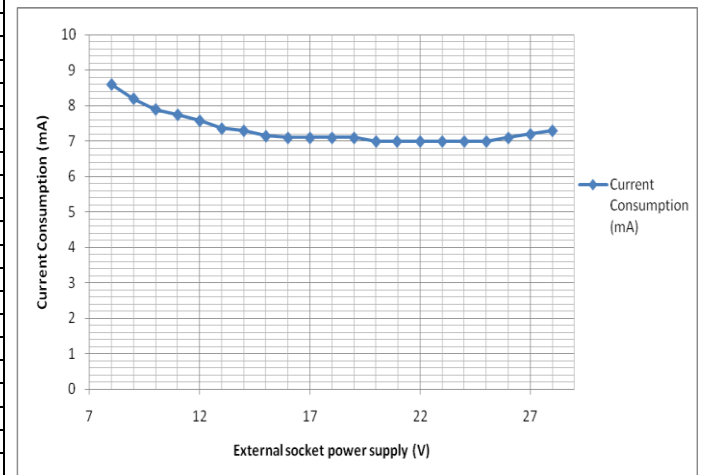
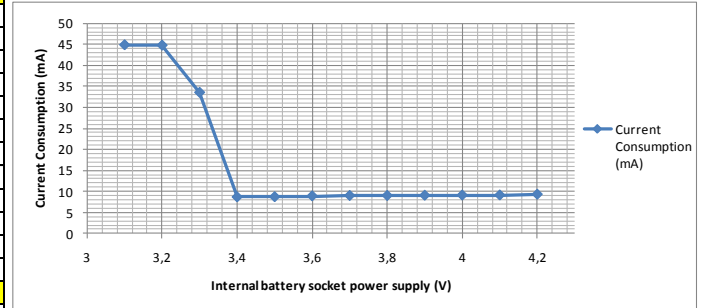
ACTIVE MODE	
TOR - Internal battery socket power supply (V)	Power Consumption (mA)
3,1	48,3
3,2	48,4
3,3	48,5
3,4	48,5
3,5	48,5
3,6	48,5
3,7	48,55
3,8	48,55
3,9	48,55
4	48,6
4,1	48,61
4,2	48,62
TOR - External socket power supply (V)	Power Consumption (mA)
8	42,3
9	37,7
10	34,2
11	31,8
12	29,5
13	27,8
14	26,3
15	25,1
16	23,8
17	22,9
18	22
19	21,2
20	20,6
20,95	20
22	19,37
23	18,8
24	18,5
25	18,1
26	17,6
27	17,3
28	17,2





3.2.1 Current consumption in sleeping mode

SLEEPING MODE	
TOR - Internal battery socket power supply (V)	Current Consumption (µA)
3,1	44,8
3,2	44,7
3,3	33,5
3,4	8,66
3,5	8,7
3,6	8,9
3,7	9
3,8	9
3,9	9,05
4	9,1
4,1	9,11
4,2	9,3
TOR - External socket power supply (V)	Current Consumption (mA)
8	8,6
9	8,2
10	7,9
11	7,75
12	7,58
13	7,36
14	7,3
15	7,15
16	7,1
17	7,1
18	7,1
19	7,1
20	7
20,95	7
22	7
23	7
24	7
25	7
26	7,1
27	7,2
28	7,3

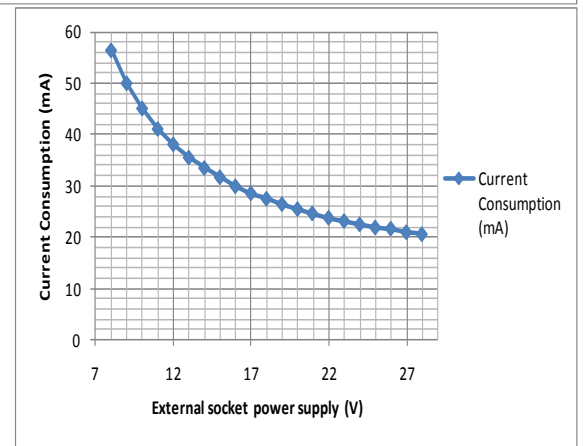
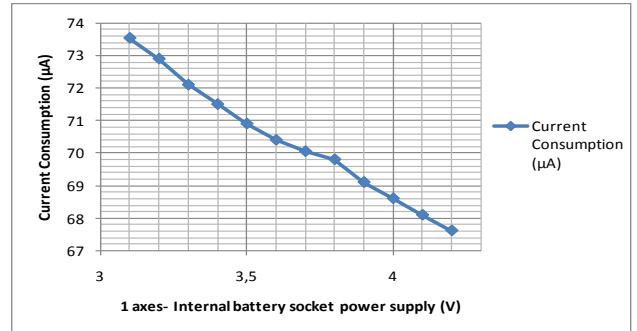




3.3 BEANDEVICE® HI-INC 1 AXIS

3.3.1 Current consumption in active mode

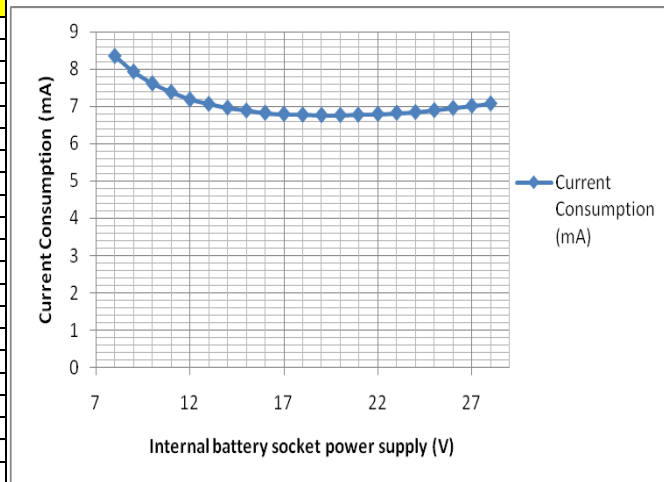
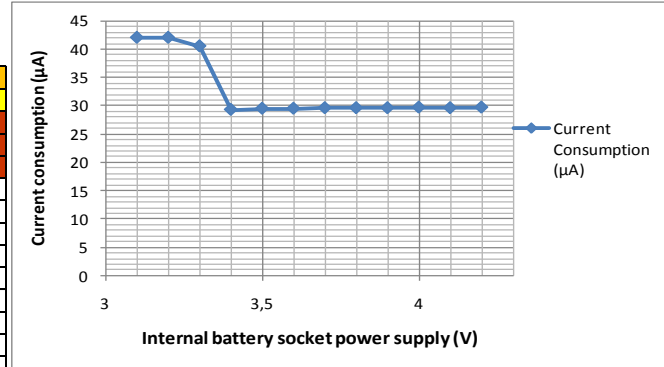
ACTIVE MODE	
HI-INC - 1 axis - Internal battery socket power supply (V)	Current Consumption (mA)
3,1	73,54
3,2	72,9
3,3	72,1
3,4	71,5
3,5	70,9
3,6	70,4
3,7	70,05
3,8	69,8
3,9	69,1
4	68,6
4,1	68,09
4,2	67,61
HI-INC - 1 axis - External socket power supply (V)	Current Consumption (mA)
8	56,5
9	50,07
10	45,15
11	41,14
12	38,15
13	35,56
14	33,51
15	31,73
16	29,96
17	28,59
18	27,51
19	26,46
20	25,5
20,95	24,66
22	23,81
23	23,17
24	22,51
25	21,9
26	21,67
27	20,98
28	20,59





3.3.1 Current consumption in sleeping mode

SLEEPING MODE	
HI-INC - 1 axis - Internal battery power supply	
	Current Consumption (µA)
3,1	42
3,2	42
3,3	40,5
3,4	29,3
3,5	29,5
3,6	29,5
3,7	29,6
3,8	29,6
3,9	29,6
4	29,7
4,1	29,6
4,2	29,7
HI-INC - 1 axis - External socket power supply	
	Current Consumption (mA)
8	8,35
9	7,93
10	7,61
11	7,38
12	7,18
13	7,06
14	6,96
15	6,88
16	6,82
17	6,79
18	6,77
19	6,76
20	6,76
20,95	6,77
22	6,79
23	6,82
24	6,84
25	6,89
26	6,95
27	7,01
28	7,07

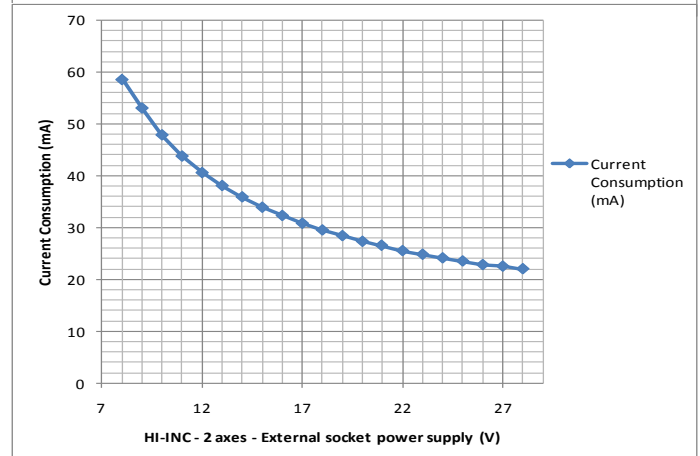
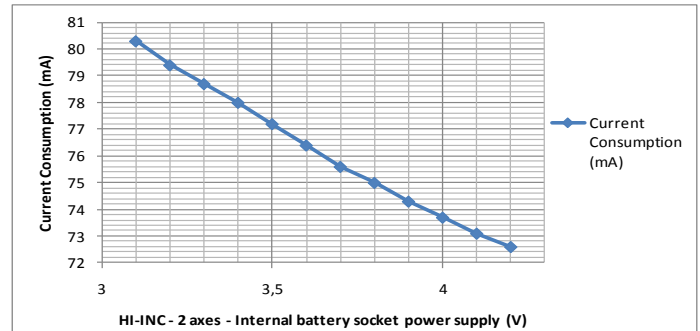




3.4 BEANDEVICE® HI-INC 2 AXIS

3.4.1 Current consumption in active mode

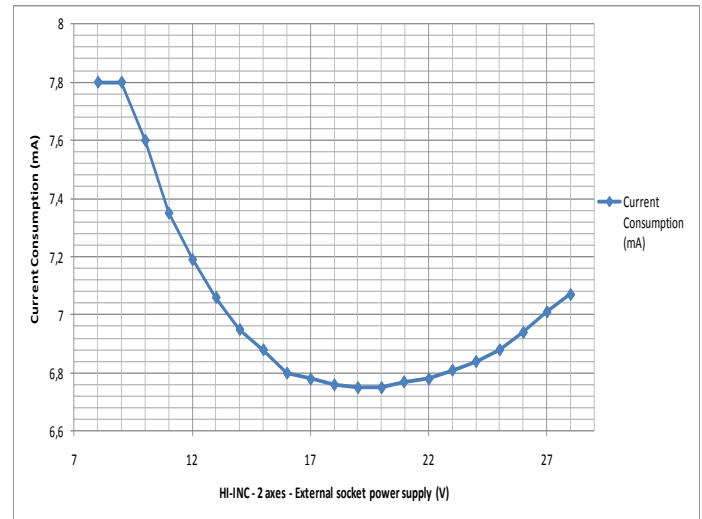
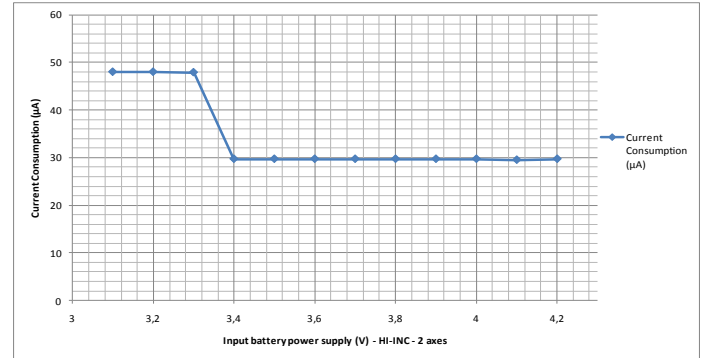
ACTIVE MODE	
HI-INC - 2 axis - Internal battery socket power supply (V)	Current Consumption (mA)
3,1	80,3
3,2	79,4
3,3	78,7
3,4	78
3,5	77,2
3,6	76,4
3,7	75,6
3,8	75
3,9	74,3
4	73,7
4,1	73,1
4,2	72,6
HI-INC - 2 axis - External socket power supply (V)	Current Consumption (mA)
8	58,6
9	53,1
10	47,9
11	43,8
12	40,6
13	38,1
14	35,9
15	33,9
16	32,3
17	30,8
18	29,5
19	28,4
20	27,3
20,95	26,54
22	25,5
23	24,8
24	24,1
25	23,5
26	22,8
27	22,5
28	22






3.4.1 Current consumption in sleeping mode

SLEEPING MODE	
Input battery power supply - HI-INC - 2 axis	Current Consumption (µA)
3,1	48
3,2	48
3,3	47,9
3,4	29,7
3,5	29,7
3,6	29,7
3,7	29,7
3,8	29,7
3,9	29,7
4	29,7
4,1	29,5
4,2	29,7
HI-INC - 2 axis - External socket power supply (V)	Current Consumption (mA)
8	7,8
9	7,8
10	7,6
11	7,35
12	7,19
13	7,06
14	6,95
15	6,88
16	6,8
17	6,78
18	6,76
19	6,75
20	6,75
20,95	6,77
22	6,78
23	6,81
24	6,84
25	6,88
26	6,94
27	7,01
28	7,07



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4. CONCLUSION

- These results are based on the specific weather conditions of the tests.

Battery power supply :

Type of BeanDevice®	Mode	Current consumption minimum value @ 25°C	Current consumption maximum value @ 25°C
HI-INC – 2 axis	ACTIVE	72.6 mA	80.3 mA
	SLEEPING	29.7 µA	< 40 µA
HI-INC – 1 axis	ACTIVE	67.6 mA	73.5 mA
	SLEEPING	29.7 µA	< 40 µA
TOR	ACTIVE	48.3 mA	48.6 mA
	SLEEPING	9.3 µA	< 40 µA
AX-3D	ACTIVE	59.9 mA	62.2 mA
	SLEEPING	37.1 µA	60 µA

External power supply :

Type of BeanDevice®	Mode	Current consumption minimum at 25°C	Current consumption maximum at 25°C
HI-INC – 2 axis	ACTIVE	22 mA	58.6 mA
	SLEEPING	7.1 mA	7.8 mA
HI-INC – 1 axis	ACTIVE	20.6 mA	56.5 mA
	SLEEPING	7.1 mA	8.35 mA
TOR	ACTIVE	17.2 mA	42.3 mA
	SLEEPING	7.3 mA	8.6 mA
AX-3D	ACTIVE	19.6 mA	50.2 mA
	SLEEPING	7.3 mA	8.4 mA

- The results which are presented above in the tables, give an idea of the current consumptions you can have at 25°C.
- The weather conditions affect the current consumption of the BeanDevices®.