Delivering Truth at Scale

Symbisa HY-000003-00

SYMBISA™

Making the Internet of Things Accessible to all

- Go from unboxing to live data in minutes
- No coding or engineering experience required
- Uses Hanhaa's Global Cellular Mobile Network
- Access your data via full integration with Microsoft Office 365™

What is Symbisa?

Symbisa, from Hanhaa, is a combined Internet of Things device and connectivity solution for those looking to quickly, easily and painlessly deploy their own IoT solutions.

Unlike complex proprietary systems, Symbisa is off-the-shelf and comes with a complete international GSM connectivity and 100 free credits that's ready to configure and go-live within minutes.

Symbisa's hardware carries multiple sensors enabling users to track everything from GPS location and altitude through to temperature, light, orientation and light. Data can be viewed via the Symbisa Portal, through an API or even directly into Excel cells through Microsoft Office 365.

Thanks to Symbisa, anyone with basic spreadsheet knowledge can start exploring the possibilities of IoT – from unboxing to live data streams in just minutes.

How can I access my data?

Each Symbisa sensor is associated with a number of custom functions in Microsoft Office 365 Excel, as are pre-configured events. Excel users can easily auto-complete data streams directly into worksheet cells.
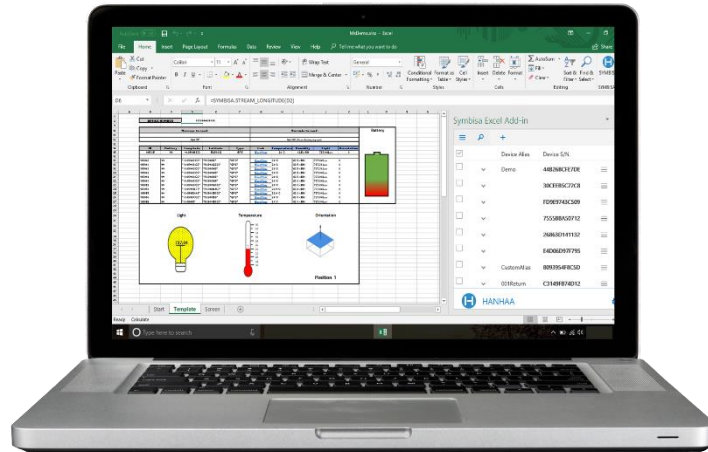
Anyone with basic spreadsheet knowledge can start exploring the possibilities of IoT, interpreting sensor data, developing dashboards, triggering events and auto creating charts or tables that require follow-on actions in a matter of minutes.

Symbisa also offers two way communication enabling you to send messages directly to the embedded Eink screen of your device straight from your spreadsheet. Messages can be relayed to display instructions, data readings or even barcodes.

How does it work?

Symbisa uses Hanhaa's own Mobile Network, Hanhaa Mobile, to ensure that your devices are connected seamlessly from almost anywhere in the world. Hanhaa Mobile is the world's first mobile network designed specifically for the unique and evolving needs of IoT applications. Connecting via GSM means that your data remains as secure as possible from sensor to spreadsheet and never touches the public internet.

Symbisas quick start guide will get you up and running in no time. Once you have installed Hanhaa's Microsoft Excel plug-in simply push the only button on your device- and you're live!

Activate your trackers	Place them wherever required	Watch the data pour in

1   Key Features:

The Symbisa Module

- Multiple sensing elements including:
    - Humidity
    - Temperature
    - Pressure
    - Light
    - Tilt
    - GPS Location/ Altitude
    - Freefall
    - Pedometer
- Global FCC certified GSM modem
- E-ink graphical display

The Symbisa Ecosystem:

- Secure GSM network connectivity
- Location agnostic fixed data costs at launch*
    - *At launch restricted to usage within USA, Canada and 28 EU Countries
- Sensor data can be accessed through the following interfaces:
    - Office 365/Excel add-in – taking advantage of new streamed data functions
    - Secure data dashboard
    - Restful API
- Symbisa Portal
    - Allows Symbisa Account management
    - Multiple Device registration
    - Single Account balance that is consumed by all your devices – making cost management easy and transparent
    - Two way communication – allowing messages and barcodes to be displayed on devices

 Video Link: https://youtu.be/k-TyTrUicGk

Reporting of Data:

Interval – This is the period between data uploads in minutes, defined by the Customer via Excel or the Symbisa Portal (Minimum value 5 minutes, maximum 24 hours).

1.1   Data Parameters

1.1.1 Environmental Sensors

PARAMETER	DESCRIPTION	Beta Version
Average Temperature	Average temperature value within the reporting interval in degree Celsius, formatted with 1 decimal value.	YES

PARAMETER	DESCRIPTION	Beta Version
	i.e. 19.5°C (Sampling frequency 1 acquisition per min)	
Maximum Temperature	Maximum temperature value within the reporting interval in degree Celsius, formatted with 1 decimal value. i.e. 25.5°C	YES
Minimum Temperature	Minimum temperature value within the reporting interval in degree Celsius, formatted with 1 decimal value. i.e. 16.5°C	YES
Average Humidity	Average humidity value within the reporting interval in RH percentage, formatted with 1 decimal value. i.e. 45.6 %RH (Sampling frequency 1 acquisition per min)	YES
Maximum Humidity	Maximum humidity value within the reporting interval in RH percentage, formatted with 1 decimal value. i.e. 76.6 %RH	YES
Minimum Humidity	Minimum humidity value within the reporting interval in RH percentage, formatted with 1 decimal value. i.e. 32.6 %RH	YES
Average Pressure	Average pressure value within the reporting interval expressed in hPa, formatted as integer. i.e. 997 hPa (Sampling frequency 1 acquisition per min)	YES
Maximum Pressure	Maximum pressure value within the reporting interval expressed in hPa, formatted as integer. i.e. 997 hPa	YES
Minimum Pressure	Minimum pressure value within the reporting interval expressed in hPa, formatted as integer. i.e. 997 hPa	YES
Average Light	Average light value within the reporting interval expressed in Lux, formatted as integer. i.e. 1400 lux (Sampling frequency 1 acquisition per min)	YES
Maximum Light	Maximum light value within the reporting interval expressed in Lux, formatted as integer. i.e. 1400 lux	YES
Min Light	Min Light value within the reporting interval expressed in Lux, formatted as integer. i.e. 1400 lux	YES

Table 1

1.1.2 Accelerometer & Gyroscope

PARAMETER	DESCRIPTION	Beta Version
Tilt	*Interrupt functionality* - Notify an angular variation of more than 35° in any direction. (this parameter could be the cumulative number of tilts)	YES (Accumulation)
Free fall	*Interrupt functionality* - Notify a freefall event of 50cm.	YES (Accumulation)
Orientation	*Interrupt functionality* - Notify the side of the device facing up.	YES (Report latest)
Step Counter	Number of steps accumulated since the start of the application. Integer number.	YES

Table 2

1.1.3 GSM / GPRS

PARAMETER	DESCRIPTION	Beta Version
Cell Info	Notify the Engineering parameter of the (CellID, MNC, MCC, LAC)	YES
Signal Quality	Notify the GSM signal quality (RSSI) according to Quectel scale.	YES

Table 3

1.1.4 GPS

PARAMETER	DESCRIPTION	Beta Version
Latitude & Longitude	NMEA format for GPS coordinates	YES
Altitude	- GGA	YES
Horizontal Dilution of Precision	- GGA	YES

Table 4

1.1.5 Others

PARAMETER	DESCRIPTION	Beta Version

USB plugged/unplugged	Interrupt functionality - Notify the status of the USB port	YES
Charging / Not Charging	Notify the status of the charging	YES
SOC (State of Charge)	Notify the battery percentage	YES
Button press	*Interrupt functionality* - Notify if the button has been pressed	YES (Accumulation)
Date & Time	Notify the RTC date and time based on GSM or GPS time	YES (If available)
Firmware Version	Firmware version (Mandatory*)	YES
Serial Number	Serial Number of the Device (Mandatory*)	YES
Interval	Interval expressed in minutes	YES
Message Counter	Incremental count of messages generated by device since last activated.	YES

Table 5

1.1.6 On Screen Display Functions

PARAMETER	DESCRIPTION	Beta Version
Message	Send a message to be displayed on the device screen, alpha-numeric message (max 26 characters)	YES
Barcode	Send a Barcode to be displayed on the device screen, Barcode format - Code39 (max 15 characters)	YES

Table 6

2　Specifications

2.1　General

Para	Parameter	Specification
1	Battery life	15 days cycle time based upon an hourly status reporting interval.
2	Location accuracy	Standard GNSS resolution, 3 to 300 meters (accuracy provided with PDOP Position Dilution of Precision parameter)
4	Shock detection	Up to ±16g
5	Ambient light detection wavelength	560nm
6	Ambient light detection light threshold	0.01 lux to 83k lux
7	Pressure sensing range	260 to 1260 hPa <absolute pressure range, need to validate against operating range>
8	Pressure sensing resolution	±1 hPascals RMS
9	Humidity sensing range	5 to 90% non-condensing
10	Humidity sensing accuracy	±3.5% rH, 20 to +80% rH, ±5% rH 0 to 100%
11	Temperature sensing accuracy	±1°C 10 to +50 °C
12	Temperature sensing resolution	± 0.5 °C
13	Display	2.9" low power consumption E-paper display

Table 7

2.2　Electrical Specification

2.2.1 GSM Radio Performance

Para	Parameter	Specification
1	Band Support	Quad Band, R99 BANDS: 　GSM 850, GSM 900, GSM 1800, GSM 1900
2	GPRS Class	Multi-slot class 12/10/8
3	Radio Standards Compliance	See Regulatory section for radio standards compliance.

Table 8

2.3　Device Physical Specification

2.3.1 Physical Design – General

Para	Parameter	Specification
1	Weight – unpackaged	

2	Weight – packaged	160g
3	Product dimensions	130 mm (W) x 100 (H) x 10.5 mm (D)
4	Flammability	Case meets UL94-HB75

Table 9

2.3.2 Package Contents

As standard the Symbisa comes with a quick start card in the box. The card will contain a URL that directs to symbisa.com/get-started.

The following accessories are recommended to be used with Symbisa.

2.3.2.1   AC Power Adaptor

If an AC power adaptor is to be used to power or charge the Symbisa device, then it is recommended that the power adapter complying with the specification shown in Table 10 is used.

Para	Parameter	Specification
1	Recommended power adapter manufacturer	PowerPax
2	Recommended power adapter model (UK)	SW4479B
3	Power supply input voltage	AC 90 to 264VAC at ~50/60Hz
4	Power supply input voltage	DC 5V @ 2.1A
5	AC plug type	To suit country of operation
6	DC plug type	USB micro B plug

Table 10

2.3.2.2   Connecting Cable

A USB cable with a standard A plug and micro B plug is required for connecting between the host PC or AC power adapter and the Symbisa device.

2.4   Environmental Specification

2.4.1 Operational

Para	Parameter	Specification
1	Temperature - operating	- 15 to +50 °C (limited by the operating temperature range of the lithium battery)
2	Humidity	5 to 90% non-condensing
3	Rate of change of temperature	Max 0.5 °C/min averaged over a period of 5 mins
4	Air Pressure	70 to 106 kPa

Table 11

2.4.2 Storage Transportation and Handling

Para	Parameter	Specification

1	Temperature - storage	-20 to + 60 °C (Storage at the extremes of this temperature range should not exceed more than 1 month)
2	Humidity	5 to 95% non-condensing
3	Rate of change of temperature	Max 0.5 °C/min averaged over a period of 5 mins
4	Air pressure	70 to 106 kPa

Table 12

2.5 Regulatory

2.5.1 FCC & EU Compliance

Para	Parameter	Specification
1	European RED (Radio Equipment) for CE (Conformité Europénne)	ETSI EN 301 511 V 12.5.1, ETSI EN 300 328 V 2.1.1, ETSI EN 303 413 V1.1.0 ETSI EN 301 489-1 V 2.2.0, ETSI EN 301 489-3 V2.1.0 ETSI EN 301 489-17 V 3.2.0, ETSI EN 301 489-19 V 2.1.0 ETSI EN 301 489-52 V1.1.0
2	FCC (US Federal Communications Commission) Regulations (EMC compliance)	Radiated emissions to FCC CFR47 Part 15b Clause 15.109 Class B table (a).
3	FCC Regulations (Radio/SAR Compliance)	The product will comply will the following parts of the FCC Code CFR Title 47 Telecommunications: Part 2 General rules and regulations. Part 15 Subpart C Part 22: Public Mobile Services; Subpart H: Cellular Radiotelephone Service; Part 24: Personal Communications Service; Subpart E: Broadband PCS. FCC 2.1091:2015 (SAR)

Table 13

2.5.2 Safety

Para	Parameter	Specification
1	Safety compliance global	UN/DOT Part 3, Section 38.3 6th Edition – "Recommendations on the Transport of Dangerous Goods" IEC 62133:2012 (2nd Edition) "Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications"

2	Safety compliance US	UL 60950-1 2nd Ed
3	Complete product safety compliance EU	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+A2:2013 EN 62311:2008 EN 50566:2013 / EN 62209-2: 2010 (SAR) – EU Directive 1999/519/EC

Table 14

2.5.3 Environmental

Para	Parameter	Specification
1	RoHS	European Directive 2002/95/EC (RoHS) - EN 50581:2012
2	WEEE	EC Directive on Waste Electrical and Electronic Equipment (WEEE) – 2012/19/EU

Table 15

2.6 Cellular Country Support

The Symbisa product has cellular support in the countries shown in Table 16.

	Country	Mobile Country Code
1	USA	310, 311, 312, 313, 314, 316
2	Canada	302
3	Austria	232
4	Belgium	206
5	Denmark	238
6	Finland	244
7	France	208
8	Germany	262
9	Greece	202
10	Ireland	272
11	Italy	222
12	Luxembourg	270
13	Netherlands	204
14	Portugal	268
15	Spain	214
16	Sweden	240
17	UK	234

18	Bulgaria	284
19	Cyprus	280
20	Czech Republic	230
21	Estonia	248
22	Hungary	216
23	Latvia	247
24	Lithuania	246
25	Malta	278
26	Poland	260
27	Romania	226
28	Slovenia	293
29	Slovakia	231
30	Gibraltar	266
31	Guadeloupe	340
32	Martinique	340
33	Reunion	647
34	French Guiana	340
35	Iceland	274
36	Liechtenstein	295
37	Norway	242
38	Croatia	219

Table 16