INSPECTOR™

BioBusiness

INSPECTOR V4™ 24/7 Real Time Monitoring System

Can You Afford To Risk Lose Your Investment?

Inspector V4 ™ monitors environmental conditions, electrical parameters and any critical parameters needed by customers, suitable for any sophisticated systems, modalities, environment or facilities.

Applications:

- Medical Equipment
- Industrial Facilities
- Data Centers
- Renewable Energy
- Telecom
- IT Infrastructure
- Building Management Systems

Inspector V4™ is the first step

INSPECTOR™

Inspector V4 Standard Specifications

Main Unit Specifications		
Processor	Quad-core ARM Cortex-A72- 1.5 GHz	
Flash Memory	16 GB	
RAM	2 GB	
Internal Power Supply Specifications		
Input Voltage source	Powered from Separate L-N	
Input Voltage Range	90 ~ 264 VAC	
Input Frequency	47 ~ 63 Hz	
RATED POWER	60 Watt	
Power Supply standard	IEC60601-1, TUV BS EN/EN60601-1, UL ANSI / AAMI ES60601-1 (3.1 version), EAC TP TC 004 CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 approved; Design refer to BS EN/EN60335 1	
Battery Specification		
Type	Lithium-ion 4S2P	
Back up time	6 hours	
The battery voltage	14.5 VDC	
Nominal capacity	6700mAh	
Protection type	Over voltage, Under voltage, Over Temperature, Under Temperature, Over Current, Cell balancing	
Battery certificates	UN38.3, IEC62133, UL [CU 72405569]	
Main Unit Interfaces		
SD Memory Card	32 Giga (Externally access)	
	Ability to add up to 256 GB	
Ethernet	RJ45 Connectors	10/100/1000Base-T
	Number of port (2)	1 for internet connection 1 for local monitoring and configuration
RS 485	Number of port (6)	RJ45 interface
USB	Number of port (2)	USB 2.0
HDMI	Number of port (1)	HDMI 2.0
Communication Protocols		
HTTP/HTTPS - DNP3 - BACnet - ModBus - IEC 61850 - MQTT - SNMP - Emails - IEC 62056		
Main Unit Environmental& Mechanical Specifications		
Indicators	Five LEDs (Running, Internet, Error, AC, Battery)	
Enclosure	IPx1 (Indoor use only).	
Operating Temperature	0 - 50 °C	
Storage Temperature	-20 - 60°C	
Relative Humidity	10-85% RH	
Weight	5 kg with battery	
Dimensions	278 mm x 222 mm x 114 mm	

Main Unit Power Quality Specifications Measurement			
Power Quality Channels	Two Isolated Power Quality Channel		
Number of input/channel	Voltage: 5 / Current: 5 per channel		
Configuration/Connection	Single phase 2 wire - 1P2W		
	3-phase/3-wire (Delta connection)-3P3W		
	3-phase/4-wire (stare connection)-3P4W		
	Range	**Resolution**	**Accuracy**
Voltage	0 - 1000 VRMS	0.1 VRMS	± 0.5%
Current	0 - 1000 A	0.1 A	± 2%
Maximum input voltage	Voltage input: 1000 V AC		
Maximum rated terminal to-ground voltage	1000 V AC (CAT III) or 600 V AC (CAT IV)		
Input Voltage Frequency	40 – 70 HZ		
Sampling rate	32 KSPS for each input		
ADC Resolution	24-Bits		

Measurement parameters

Voltage Parameters

RMS Voltage L-L, RMS Voltage L-N, Voltage Crest Factor, Active Power Demand Value, Reactive Power Demand Value, Apparent Power Demand Value, Voltage Total Harmonic Distortion, Voltage Harmonic Amplitude, Harmonics Voltage Phase Angle, Harmonics Voltage-Current Phase Difference, Voltage Waveform Peak (+, -), Voltage Unbalance Factor (Negative-Phase, Zero-Phase)

Current Parameters

RMS Current, Current Crest Factor, Active Power Demand Quantity, Reactive Power Demand Quantity, Apparent Power Demand Quantity, Current Total Harmonic Distortion, Current Harmonic Amplitude, Harmonics Current Phase Angle, Current Waveform Peak (+, -), Current Unbalance Factor (Negative-Phase, Zero-Phase)

Power Parameters

Active Power, Reactive Power, Apparent Power, True Power Factor, Displacement Power Factor, Demand Power Factor, Active Energy, Reactive Energy, Apparent Energy, Interharmonics Power

Frequency Parameters

Frequency (10/12 cycle), Frequency (10 sec)

Flicker Parameters

Instantaneous Flicker Value, Short Term Voltage Flicker, Long Term Voltage Flicker

Harmonics and Interharmonics

Harmonics Power, Interharmonics Voltage, Interharmonics Current

Other Parameters

K-Factor, Phase Sequence Detection

Power Events Detection According to IEC classifications Of Power Quality (IEC61000-4-30).	
Types of events Detected	Voltage Dips, Voltages Swells, Interruption, Voltage Transients, Total harmonics distortion, RVC, Frequency variation, Inrush Current
Other Types of Events	Phase Sequence Detection
Event Details Saving	Start and End of event is captured and reported accurately with 5 cycles before and after.

Grounding Measurement Specifications:			
Measurement Methods			
Triping		Non Triping	
One Earth Resistance Channel phase L1,N,E	**Range**	**Resolution**	**Accuracy**
Earth Current Measurements	0 - 10 Amp	1 mA	± 2%
Earth Resistance Measurements	0 - 200 Ω Max	0.1 Ω	±3 %

Main Unit Environmental Measurements Specifications			
Temperature sensors ATMP "3 sensors"			
Specification of sensors	**Range**	**Resolution**	**Accuracy**
	0 - 85 °C	0.1 °C	± 0.5 °C
HTC sensors (optional) "2 sensors"			
Specification of sensors	**Range**	**Resolution**	**Accuracy**
Temperature	0 - 85 °C	0.1 °C	± 0.5°C
Humidity	0 to 100 %RH	0. 1 RH	± 2% RH
(4-20 mA) Interface "2 slots"			
Type of Sensor	Any type of analog sensor:(pressure, flow, temperature…….)		

Attached Unit

THPAQ Unit

THPAQ measures the Temperature, Humidity, pressure, Air Quality and Vibration parameters

The THPAQ is designed to monitor the air quality and continuously monitor carbon dioxide (CO2), total volatile organic compounds (TVOC), and oxidizing gases such as (NOx or O3), Particulate Matter (PM), Temperature, Relative Humidity, Barometric Pressure.

Specifications		
Humidity Sensor Measurement Range	**Resolution**	**Accuracy**
0 – 100 % RH	1% RH	±3 %RH
Temperature Sensor Measurement Range	**Resolution**	**Accuracy**
(0)°C - (+85)°C	0.1 °C	±1 °C
Pressure Sensor Measurement Range	**Resolution**	**Accuracy**
300 - 1100 mbar	1 mbar	±2mba
TVOC – Total Volatile Organic Component Rang	**Resolution**	**Accuracy**
0 – 1000 ppm	1 ppb	±15 %
NOx – Mono Nitrogen Oxides Range	**Resolution**	**Accuracy**
0 – 10 ppm	1 ppb	±15 %
CO2 – Mono Carbon Dioxide Rang	**Resolution**	**Accuracy**
0 to 1000 ppm	1 ppb	± (40 ppm + 5%)
PM – Particulate Matter Rang	**Resolution**	**Accuracy**

0 to 1000 µg /m3	11 µg /m3	(PM2.5) ± 10 µg /m3
Vibration Sensor Specification		
Measurement Range	Up to ±8 g	
Sensitivity	4 mg/digit	
Accelerometer Type	Three-axis “Nano” accelerometer	
Sampling Rates (Output Data Rate)	1-400 Hz (Sample Per Second)	
Other Monitoring beside the vibration	Free-fall detection & shock and Impact	
Interface & Powering of THPAQ Unit		
Interface to Main Board	RS-485	
WIFI	Optional	
Power	24 volt – internally form Main Board using RS485	
Indicators	Two LED (online, Alarm)	
Selectable address	7 Dip switches	
USB type C	Transfer instantaneous data using Jason format to PC	
	Powering unit using USB	
Environmental& Mechanical Specifications		
Enclosure	ABS Plastic	
Operating Temperature	0 - 50 °C	
Storage Temperature	-20 - 60°C	
Relative Humidity	0-95% RH	
Dimensions	104 mm x 92 mm x 42 mm	
Weight	120 g	

MMU - Motor Measure Unit

Measure any motors current consumption Ex (Helium compressor, Chiller pump...). MMU connected non-invasively without any interference with the equipment using the Split core current transformer.

MMU measures: The efficacy of any pump or compressor. (Using current coils - noninvasive).		
Measurements Specifications (Current Coil Per phase) -Three Channels.		
Measurement Range	**Resolution**	**Accuracy**
0-100 A Max	0.1 A	± 1A
Current Coils Specifications		
Inner diameter	24mm	
Dielectric Withstanding Voltage(Hi-pot)	2.5KV/1mA/1min	
Impulse Withstand Voltage	5KV Peak	
Insulation Resistance	DC500V/100MΩ min	
Approx. Weight	85 gm	

Interface & Powering of MMU Specifications	
Interface to Main Board	RS-485
WIFI	Optional
Power	24 volt – internally form Main Board using RS485
Indicators	Two LED (online, Alarm)
Selectable address	7 Dip switches
USB type C	Transfer instantaneous data using Jason format to PC
	Powering unit using USB
Environmental& Mechanical Specifications	
Enclosure	ABS Plastic
Operating Temperature	0 - 50 °C
Storage Temperature	-20 - 60°C
Relative Humidity	0-95% RH
Dimensions	104 mm x 92 mm x 42 mm
Weight	100 g + (85/coil)

SIB – Sensor Interface Board

SIB module is designed to integrate any sensor (4-20) mA to the Inspector™ monitoring system such as fluid temperature, fluid flow, fluid pressure and PH.

Sensor Interface Board can interface UP to 8 Sensor: (Flow, Pressure, Temperature, PH……)	
Interface	(4-20mA) for the 8 Sensor
Unit address	Dip switch 5 bit
Number of cascaded unit	Up to 32 unit
Configuration	Configurable from main unit
Interface & Powering of SIB specifications	
Interface to Main Board	RS-485
WIFI	Optional
Power	24 volt – internally form Main Board using RS485
Indicators	Two LED (online, Alarm)
Selectable address	7 Dip switches
USB type C	Transfer instantaneous data using Jason format to PC
	Powering unit using USB
Environmental& Mechanical Specifications	
Enclosure	ABS Plastic
Operating Temperature	0 - 50 °C
Storage Temperature	-20 - 60°C
Relative Humidity	0-95% RH
Dimensions	200 mm x 120 mm x 60 mm
Weight	500 gram

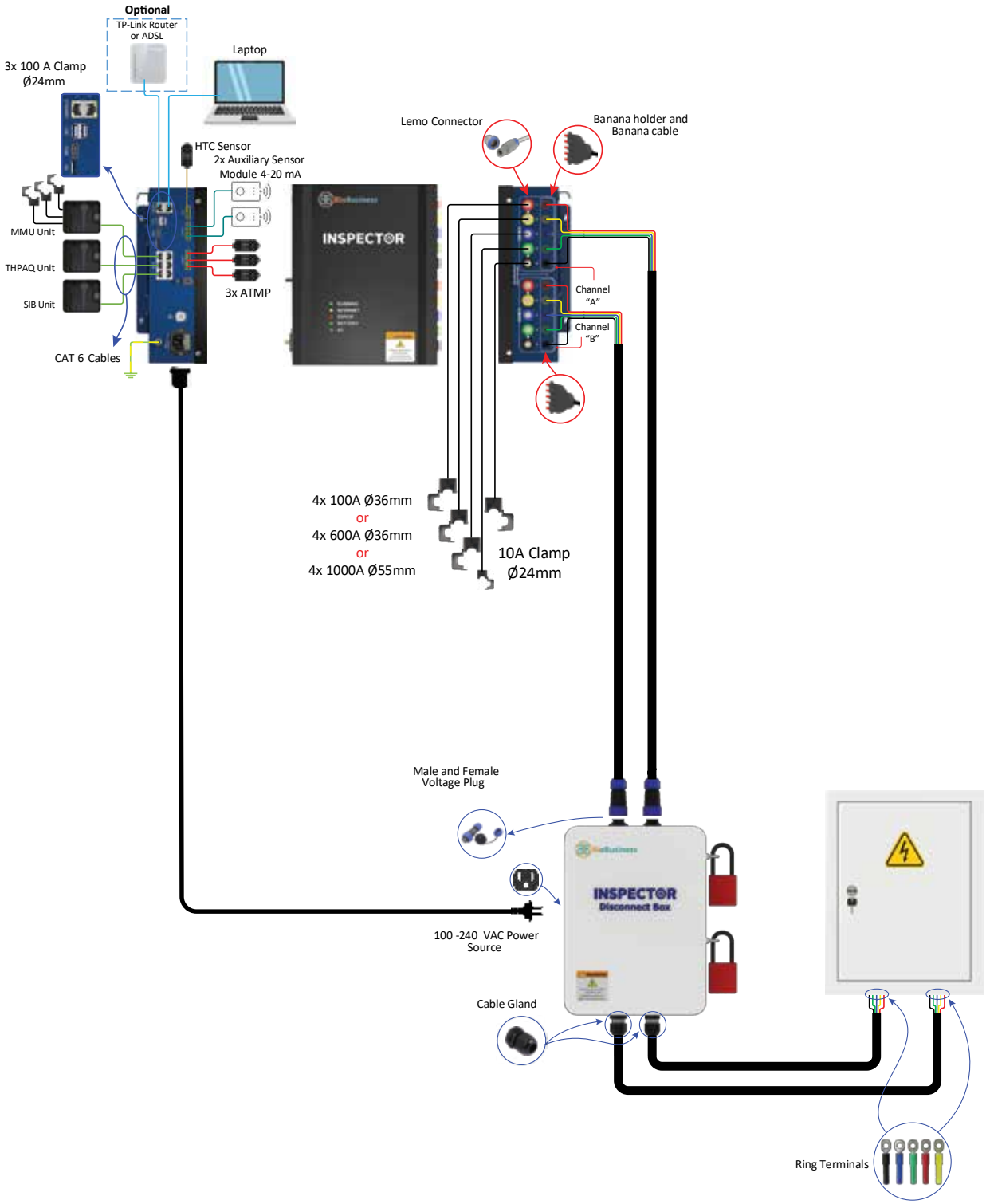
SMU

Sulfur Measurement unit used to quantify the amount of sulfur ampiant, often used in industries. It measures H2S (Hydrogen Sulfide) and SO2 (Sulfur Dioxide).

SMU measurement Specifications	
Gas Measure H2S	Range 0 - 50 Parts Per Million
Gas Measure SO2	Range 0 - 20 Parts Per Million
Interface & Powering of SMU specifications	
Interface to Main Board	RS-485
WIFI module	optional
Power	24 volt – internally form Main Board using RS485
Indicators	Two LED (online, Alarm)
Selectable address	7 Dip switches
USB type C	Transfer instantaneous data using Jason format to PC
	Powering unit using USB
Environmental& Mechanical Specifications	
Enclosure	ABS Plastic
Operating Temperature	0 - 50 °C
Storage Temperature	-20 - 60°C
Relative Humidity	0-95% RH
Dimensions	103 mm x 92 mm x 42 mm

Inspector Standard Package Content Part No. BB0203010			
Type	**Contents**	**Qty**	**Picture**
	Main Unit	1	
ATMP Kit	ATMP (External temperature sensor)	3	
	ATMPs Cable 0.5mm2 - 22 AWG - 2 conductors (Roll 50 meters)	1	
	ATMPs TERM BLOCK PLUG 2POS connector	3	
	3M Scotchlok UY2 connector	10	
MMU Kit	MMU (Motor Monitoring Unit)	1	
	Split Core Current Coils- 100 Amp range	3	
THPAQ	THPAQ (T/H/P + Co2+ Air quality unit)	1	
Installation Kit	Voltage cables 5 wires banana connector + 5 croco-diles	1	
	CAT6 Network Cable (5 m)	3	
	CAT6 Network Cable (1.8 m)	1	
	Extra Fischer Expansion plug SX 6 x 30	4	
	Extra Self-tapping screw - ST 3.5mm X 38	4	
	Delta/Star bridge cable	1	
Current kit	Split Core Current Coil -10 Amp range for Earth cur-rent	1	
	Split Core Current Coils - 600 Amp range for 3phases+N	4	

Inspector System Installation Layout



Additional Items And Accessories:

Disconnect Box	Part No.	
The electrical disconnect box is a crucial component that safely isolates power to connected devices. It has two isolation stages to protect the user and equipment. Safety features include two LOTO (Lockout/ Tagout) sets and an IP65-rated ABS enclosure. The box can be configured for delta or star electrical connections.	MODB07A010	

Current Clamp

Felexible Rogowski Coil Up to 4000A	EM5	
Split Core Current Coil -10 Amp range for Earth current 1	EM6	
Split Core Current Coils- 100 Amp range	EM7	
Split Core Current Coils - 600 Amp range for 3phases+N	EM8	

Clamp ON Current Coil- 10 Amp range for Earth current	EM9	
Clamp ON Current Coil- 100 Amp range for 3phases+N	EM10	
Clamp ON Current Coil- 600 Amp range for 3phases+N	EM11	
HTC Kit (External humidity and temperature sensor) with Cable	EM12	
SF6 Sensor Unit	EM13	
Pressure Sensor 4-20 mA	EM14	
Flow Sensor 4-20 mA	EM15	

Product Certificates

TÜVRheinland C US

CE

RoHS COMPLIANT

WEEE compliant

REACH COMPLIANCE

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