

ZigSense™

WIRELESS SENSING TECHNOLOGY



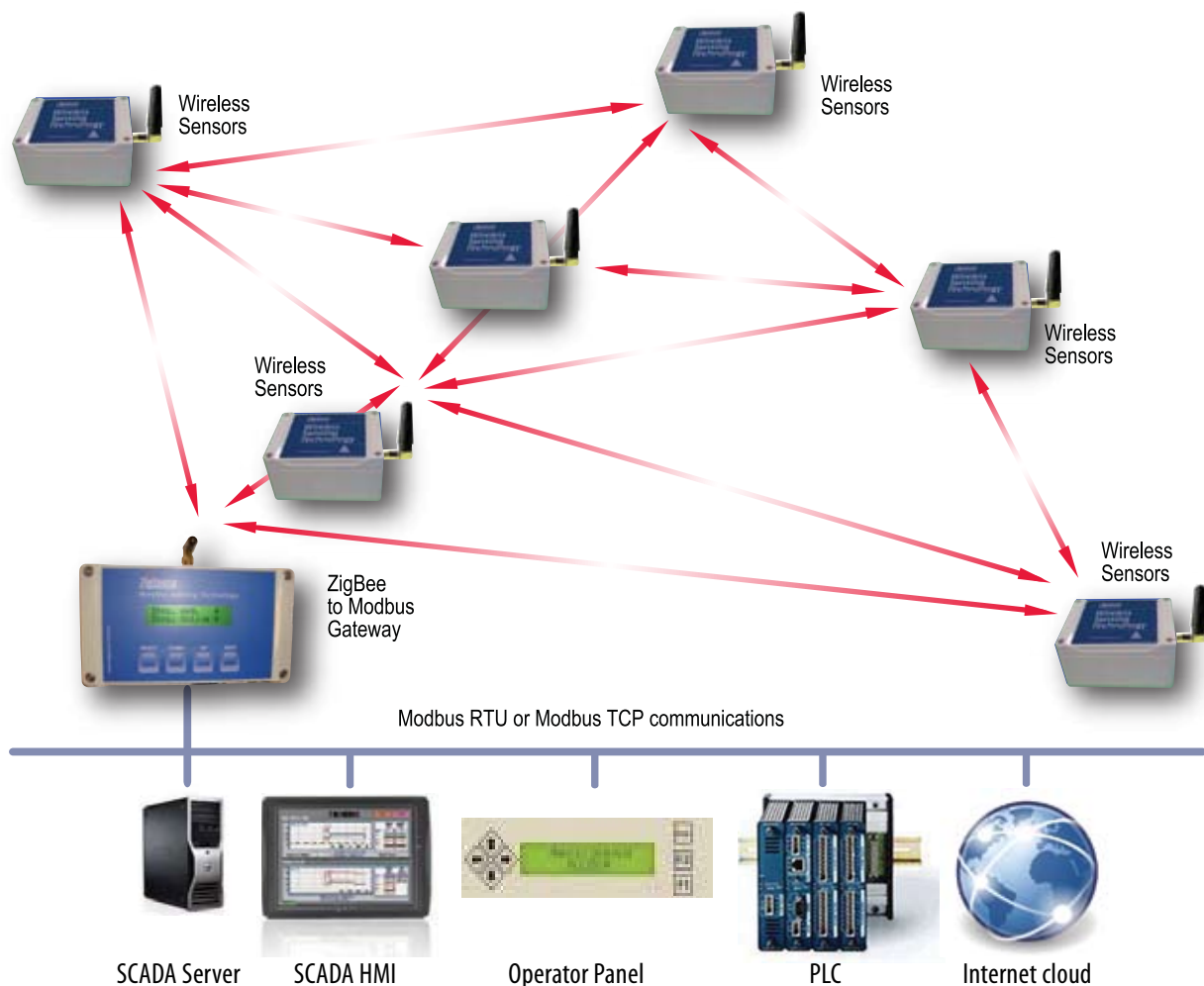
www.zigsense.com.au

ZigSense™ is a line of low power wireless sensors™ utilizing **ZigBee™** mesh network technology as its core communication channel. **ZigSense** systems contain a self healing network of wireless sensors designed for reliable monitoring and control functionality.

Designed for low energy consumption, **ZigSense** wireless sensing nodes offer exceptional flexibility and ease of operation, minimizing costs associated with installing hard wire systems. Data from wireless sensors can be integrated ad-hoc to existing or newly established supervisory control and data acquisition systems or published directly to web based cloud services.

A central **ZigSense** gateway coordinates the wireless network. A built-in Modbus communication port provides an interface layer between wireless sensing nodes and readily available industrial systems such as PLC, Data Logger, HMI and SCADA systems.

Advanced wireless technology and low energy consumption combined with standard communication protocols qualify **ZigSense** wireless sensing systems as a suitable solution for a broad range of SCADA applications



Sensing Options*

Voltage (DC)
Current (4-20mA)
Temperature
Relative Humidity
Light Level
Pressure
Flow
pH, EC, DO
Toxic gases
Pulse counting
Energy metering
Water metering
Soil moisture



**Design to specifications*

ZigSoft is a software program designed to assist system integrators and operators during the initial steps of wireless network setup and ongoing maintenance of the **ZigSense** system. The program communicates with the **ZigSense** central gateway through its USB port.

During network setup each wireless node credentials is inspected and authorized before it is allowed to join the network. Once authorized, details of each node are displayed in ZigSoft.

ZIGSOFT

Setup Setup loaded from Gateway at 8/09/2011 14:18:55

Modbus Gateway Device Number:

Location:

#	REU S/N	Base H. Req	Label	Model
1	67	40001	Cool Room	ZS-IO-003
2	69	40017	Big Freezer	ZS-IO-003
3	70	40033	New Freezer	ZS-IO-003
4	71	40049	Big Fridge	ZS-IO-003

Data sent by remote wireless nodes is displayed in ZigSoft Modbus table. Data can be displayed raw or scaled.

#	REU S/N	Label	H. Req	Holding Register Name	Value	Converted	Unit	User Label
1	67	Cool Room	40001	Fault Status	0			
		ZS-IO-003	40002	Status	1	Mains OK		
			40003	Battery Voltage	0	No Battery	V	
			40004	Int. Temperature	138	20.5	°C	
			40005	Digital Inputs	15	Door. CLOSED		
			40006	Digital Outputs	0			
			40007	AO1	0			
			40008	AO2	0			
			40009	AH1	1726	23.7	°C	Temp
			40010	A2	22			
			40011	A3	23			
			40012	A4	25			
			40013	C1	0	0		Door Open
			40014	C2	0			
			40015	C3	0			
			40016	C4	0			

Modbus data is accessible by external supervisory and control systems.

ZigSense Values

Item name	Value	Timestamp	Source
BATT Volt	N/A	N/A	GATEWAY
RH. In1	376.00	19/01/11 04:18:31 PM	GATEWAY
Temp. In1	294.00	19/01/11 04:18:32 PM	GATEWAY
Temp. In1	295.00	19/01/11 04:18:36 PM	GATEWAY
CPU Temp	141.00	19/01/11 04:18:36 PM	GATEWAY
RH. In1	377.00	19/01/11 04:18:36 PM	GATEWAY
CPU Temp	137.00	19/01/11 04:18:41 PM	GATEWAY
RH. In1	380.00	19/01/11 04:18:41 PM	GATEWAY
Temp. In1	292.00	19/01/11 04:18:41 PM	GATEWAY
...

Dream Report™ is a real time reporting generator. It is based on a configurable graphical user interface. **Dream Report** combines 5 key functions.

1. Data Sampling

Dream Report contains a robust communications kernel enabling it to sample sensors data and alarm conditions from a ZigSense gateway. Dream Report utilizes OPC, OLE and ODBC to connect, sample and collect data from other real time or historian systems suppliers.

2. Data Logging

Dream Report contains a powerful historian 'engine' enabling it to log accurate data into standard database formats such as SQL Server, Oracle, MySQL, MS Access.

3. Data Extraction & Analysis

Dream Report contains a user friendly object library. It analyses logged data and extracts statistical information displayed in multiple formats: Tables, Pie Charts, Bar Charts and more.

4. Report Design

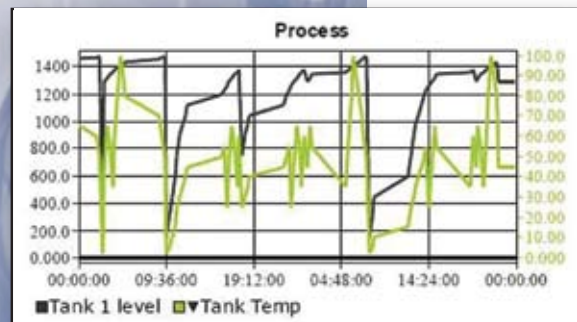
Dream Report contains an intuitive graphical reports editor enabling the user to create and save state of the art report templates.

5. Report Generation & Distribution

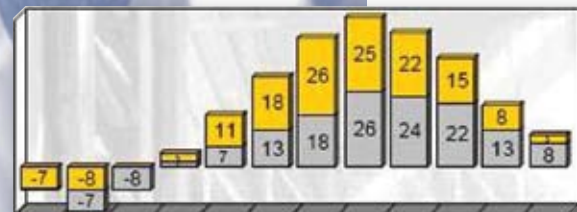
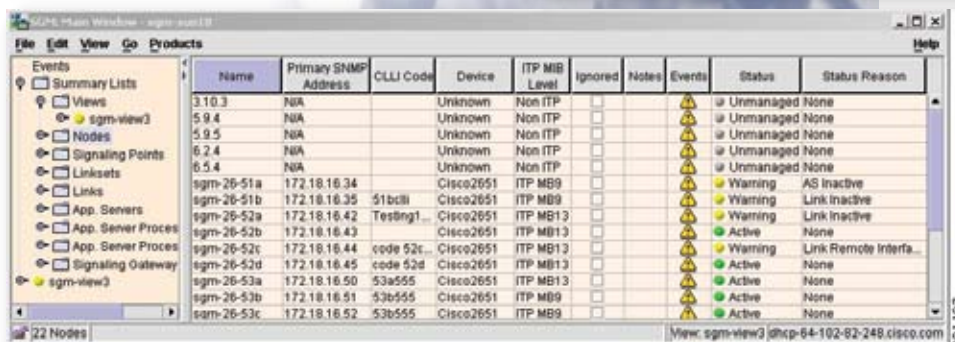
Dream Report can generate reports manually or automatically. Reports are generated automatically based on events or per schedule. Upon completion, reports can be stored, printed, emailed, or published to a web based cloud service.



DREAM REPORT



Minimum Temperature Comparison

Name	Primary SNMP Address	CLLI Code	Device	ITP MIB Level	Ignored	Notes	Events	Status	Status Reason
3.10.3	N/A		Unknown	Non ITP				Unmanaged	None
5.9.4	N/A		Unknown	Non ITP				Unmanaged	None
5.9.5	N/A		Unknown	Non ITP				Unmanaged	None
6.2.4	N/A		Unknown	Non ITP				Unmanaged	None
6.5.4	N/A		Unknown	Non ITP				Unmanaged	None
sgm-26-51a	172.18.16.34		Cisco2651	ITP MB9				Warning	AS inactive
sgm-26-51b	172.18.16.35	51bc8l	Cisco2651	ITP MB9				Warning	Link inactive
sgm-26-52a	172.18.16.42	TestBng1...	Cisco2651	ITP MB13				Warning	Link inactive
sgm-26-52b	172.18.16.43		Cisco2651	ITP MB13				Active	None
sgm-26-52c	172.18.16.44	code 52c	Cisco2651	ITP MB13				Warning	Link Remote Interfa...
sgm-26-52d	172.18.16.45	code 52d	Cisco2651	ITP MB13				Active	None
sgm-26-53a	172.18.16.50	53a555	Cisco2651	ITP MB13				Active	None
sgm-26-53b	172.18.16.51	53b555	Cisco2651	ITP MB9				Active	None
sgm-26-53c	172.18.16.52	53b555	Cisco2651	ITP MB9				Active	None

Wireless Node Specifications

Wireless Network building blocks

Gateway - Wireless network coordinator
 Router - Wireless network extender
 End node - Wireless remote end node

Network communications

Network topology: mesh
 Network ID: 64 bits
 Station ID: 16 bits

RF communications

Radio frequency: 2.4GHz
 RF technology: DSSS, ISM
 RF data rate: 250Kbps
 RF channels: 16 max

Main Board

Ultra low power CPU
 Flash memory
 Static memory – battery backed

Power Radio

TX Power Low: +3dBm
 RX Sensitivity: -96dBm
 TX Power High: +18dBm
 RX Sensitivity: -102dBm

RF Antenna

Internal or external

Radio Certification



Power Supply

External: 12 VDC
 Internal: 3.6VDC, 2.1A/hr
 Battery Type: Lithium, AA/C/D
 Battery Life: 1-3 year*
 Sleep mode: Built-In
 Power down: < 10 µA

Power Supply (Gateway)

External: 12 - 24VDC
 Internal: 7.2VDC, 2.1A/hr
 Battery type: Lithium rechargeable

General

Enclosure: UV stable IP65
 Material: Polycarbonate
 Wiring: Terminal Block (internal)
 Cable: via sealed glands
 Dimensions in mm:
 120L X 90W X 60H (STD)
 160L X 90W X 60H (Optional)
 Weight: 300 gram w/ battery (STD)

WIRELESS SENSING NODES

Standard IO (pre-calibrated)
 4 x Ain + 4 x Din + 4 x Dout + 2 x Aout

Optional IO combination - TBA***

Communication port

Modbus RTU: 1 x RS232/485
 + 4 x Dout + 2 x Aout

Input specifications

Ain: (V): 0-1/0-5/0-10VDC 12bits
 Ain: (I): 0 – 20mA 12 bits
 Din: Dry contact to GND 10mA max
 Counter: Pulse 5-10 Hz max

Output specifications

Aout: 0-10VDC PWM 12 bits**
 Dout: 0–30VDC 250mA max, NPN

WIRELESS CENTRAL GATEWAY

Communication ports

1 x Wireless port
 1 x USB port
 1 x RS232 / RS485 port
 1 x TCP port (optional)

* Combined sleep cycle and battery A/hr

** Requires 12VDC supply

*** Design to specifications

Signal Source	Range	Analog Inputs	Digital Inputs Dry Contact	Pulse Count Dry Contact 5Hz - 10Hz	Digital Outputs NPN	Analog Outputs
DC Voltage	0-1, 0-5, 0-10 VDC	4	4	4	4	2
DC current	0-20 mA	4	4	4	4	2
Temperature Sensor (V)	T: -40 to +128 C	4	4	4	4	2
Temperature Sensor (RTD) Pt1000	T: -44 to +128 C	4	4	4	4	2
Temperature + %Humidity	T: -50 to +150 C RH: 0 – 100%	2 + 2	4	4	4	2
Soil Moisture + Temperature	Soil: 0 to 3V T: -40 to +85 C	2 + 2	4	4	4	2
Modbus RTU Master	RS232 / RS485	0	0	0	4	2