# PATLITE®

New Frontiers in Safety, Security and Comfort.

# AirGRID®

Wireless Data Acquisition System

# AirGRID

## Signal Tower and Data Tracking in One

AirGRID, a term that describes the PATLITE data acquisition system, wirelessly forwards machine status information from various locations and collects it on a centrally designated computer.※

Data can be simultaneously trasmitted securely, using internationally stardardized wireless communication. User's need for various pieces of information is collected during production, so that quicker action can be taken to improve productivity.  The stored data can be later analyzed to improve production and find ways to decrease downtime.

※ PATLITE's Signal Towers can be easily adapted to the AirGrid system by simply adding a transmitter on top by removing the cap and attaching the Signal Tower.

# Just Mount It!!

## Operating status data is transmitted wirelessly.

AirGRID

Transmitter for LME Series

## WDT-6M-Z2

Signal Tower + AirGRID = Wireless Communication
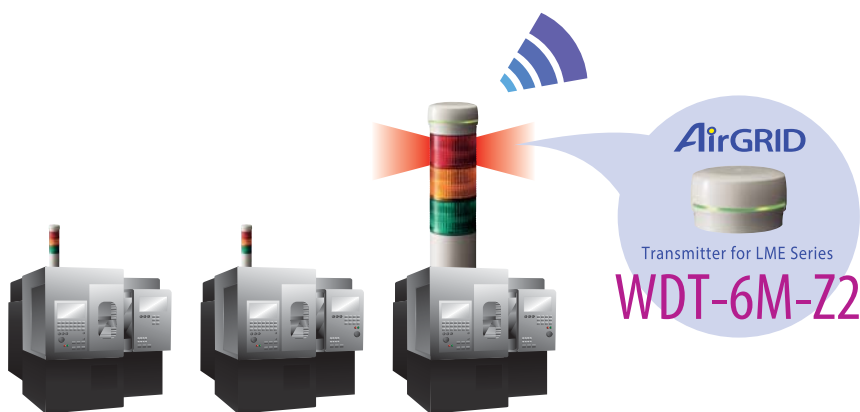
# ■ Wireless Communications System

## ■ Multihopping wireless networking for accurate and reliable communication

Transmitter C
Transmitter B
Transmitter A
Transmitter D
Transmitter G
Transmitter E
Transmitter F
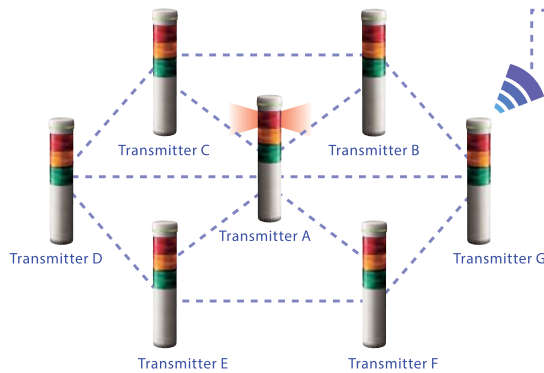
AirGrid automatically selects the best route when modifications have been made to the floor layout, so data communication starts automatically from power-up.

The multi-hop mesh network communication is flexible enough to respond to varying conditions.*

*Note:
1. Signal can hop a maximium of five times.
2. Distance between transmitters is no more than 30 meters.
3. Linear Hopping may not work.

Receiver

| Wireless Network | - - - Stable Wireless Route | Unstable Wireless Route |

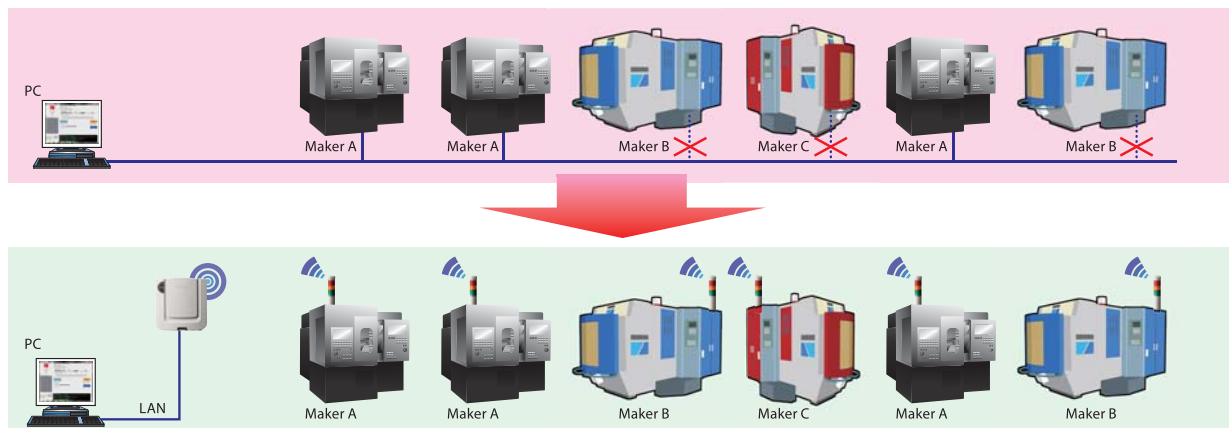## ■ Automatic Routing function selects optimum communication

The AirGrid doesn't need complicated wireless or network settings.  It automatic selects the best route to carry data communication as soon as the power source is connected.  In addition, when an obstacle impares data transmission, the transmitter automatically searches for a different route to re-connect.

Transmitter C
Transmitter A
Transmitter E
Transmitter B
Transmitter D
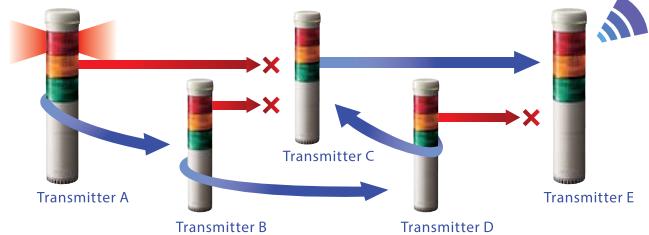
## ■ Application Example

### ■ Problem

It's necessary to identify the operating condition of machines and workflow in our factory, where improvement is necessary.  However, installation of effective networking systems is rather difficult because old and new machines are independently working on the same plant floor.

PC
Maker A    Maker A    Maker B    Maker C    Maker A    Maker B

PC
LAN
Maker A    Maker A    Maker B    Maker C    Maker A    Maker B

### ■ Solution

Monitoring machine status is very easy by adding a Signal Tower with communication, just by adding one transmitter unit to the machine's signal tower.

## Transmitter

Signal Tower LME Transmitter
### WDT-6M-Z2
Open Price

| Corresponding Model LME Series ※1 | Current Consumption 35mA |
|---|---|
| Maximum Links 30 units ※1 | Transmission Distance 30m ※2 |

Signal Tower LE Transmitter
### WDT-5E-Z2
Open Price

| Corresponding Model LE Series ※1 | Current Consumption 20mA |
|---|---|
| Maximum Links 30 units ※1 | Transmission Distance 30m ※2 |

## Receiver

Stationary Reciever
### WDR-LE-Z2
Open Price

| Connection Type LAN/USB | Current Consumption 65mA |
|---|---|

Multiple Units ※2

※1   The radio reception depends on the environment and installed location.  20 units represents the recommended number of links.
※2    Multiple LAN connections can be simultaneously linked. (Please inquire for more details)

### Network Connection Condition

RED Illumination → GREEN Illumination

Not Connected          Connected
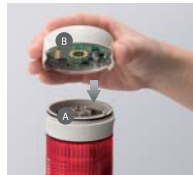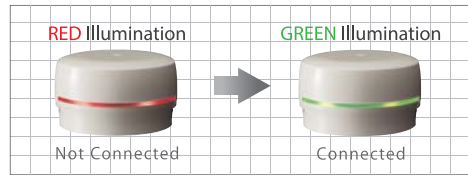
### Transmitter Installation
Affix the transmitter adaptor  on the Signal Tower  A  and fasten it with  the  center  screw.  Then simply attach the transmitter B to the bracket.   (Some applications don't require additional wiring.)

## ■ General Specifications

| Item | Specifications | |
|---|---|---|
| Model Name | WDT-6M-Z2 | WDT-5E-Z2 |
| Corresponding Signal Tower | LME Series | LE Series |
| Rated Voltage | DC24V (Non-polar) | |
| Operating Voltage Range | DC21.6V - DC26.4V | |
| Current Consumption | 20mA ±10mA | |
| Operating Temperature Range | -10  to 60°C | |
| Relative Humidity | RH 85% or less (No Condensation) | |
| Storage Temperature Range | -20 to 70°C (No Freezing) | |
| Mounting Direction (Indoor Only) | Upright Only | |
| Protection Rating | Conforms to installed Signal Tower | |
| Mass | 52g±5g | |

## ■ General Specifications

| Item | Specifications |
|---|---|
| Model Name | WDR-LE-Z2 |
| Rated Voltage | DC24V |
| Operating Voltage Range | DC21.6V - DC26.4V |
| Current Consumption | 65mA ±15mA |
| Operating Temperature Range | -10 - 60°C 0 - 40°C (When AC Adaptor is used) |
| Relative Humidity | No more than 85% RH (No condensation) |
| Storage Temperature Range | -20 - 70°C -10 - 70°C (When AC Adaptor is used) (No Freezing) |
| Mounting Direction (Indoor Only) | Upright (Wall Mount) or Sideways (Level Surface Mounting) for Indoors Only |
| Protection Rating | IP20 |
| Mass | 170g ±10g |

## ■ Wireless Specification

| Item | Specifications |
|---|---|
| Wireless Communication Standard | IEEE 802.15.4 |
| Wireless Communication Frequency | 2405MHz - 2480MHz (16 Channels) |
| Wireless Transmission Method | Direct Spread (DS-SS) System)*1 |
| Wireless Transmission Standard | ZigBee2007 Conformity ZigbeePRO Stack Loading (Unique Profile Implementation) |
| Wireless Transmission Speed | Maximum Theoretical Speed of 250k-bps*2 |
| Wireless Transmission Output | Maximum  3 mW (From Antenna Source) |
| Radio Frequency Range | Direct Sight of about 60m (Reference Value) *3 |
| Number of Relays | Maximum 30 Relays |
| Compliances | North America: FCC, UL (For WDT) Europe: RoHS Japan: Radio law, Electrical Appliance and Material Safety Law (WDR-LE-Z2) |

## ■ Function

| Item | | Specifications |
|---|---|---|
| Model Name | | WDR-LE-Z2 |
| Transmission Specifications | ETHERNET | 10BASE-T/100BASE-TX (Full/Half Duplex) |
| | USB | USB1.1/USB2.0 - Supports Full-speed (Not supported for USB Hub connections) |
| Output Specification | | Non-voltage Contact: 1 Output (DC24V 500mA) Connection |

*1 : DS-SS = Direct Sequence-Spread Spectrum
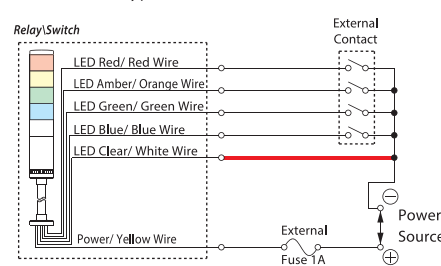*2 : The radio transmission is dependent upon the environment and installed location.
*3 : The radio transmission is dependent upon the environment, installed location and number of communications.
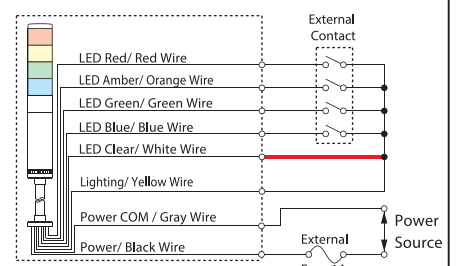
## ■ Wiring Diagram

As shown in the following figure, always supply power from one open signal line to be used as the power supply※.
(The example shows the white signal line as a supply for power)

※   Be sure to consult with, or hire a professional contractor when wiring is required.

■ AC/DC 24V Type

Relay\Switch
LED Red/ Red Wire
LED Amber/ Orange Wire
LED Green/ Green Wire
LED Blue/ Blue Wire
LED Clear/ White Wire
Power/ Yellow Wire

External Contact
External Fuse 1A
Power Source

■ AC 100/120/220/230 -240V Type

LED Red/ Red Wire
LED Amber/ Orange Wire
LED Green/ Green Wire
LED Blue/ Blue Wire
LED Clear/ White Wire
Lighting/ Yellow Wire
Power COM / Gray Wire
Power/ Black Wire

External Contact
External Fuse 1A
Power Source

The signal line (the figure indicates the white line) is assigned as the power supply source and the power supply is the source line (Yellow) to supply power to the unit.
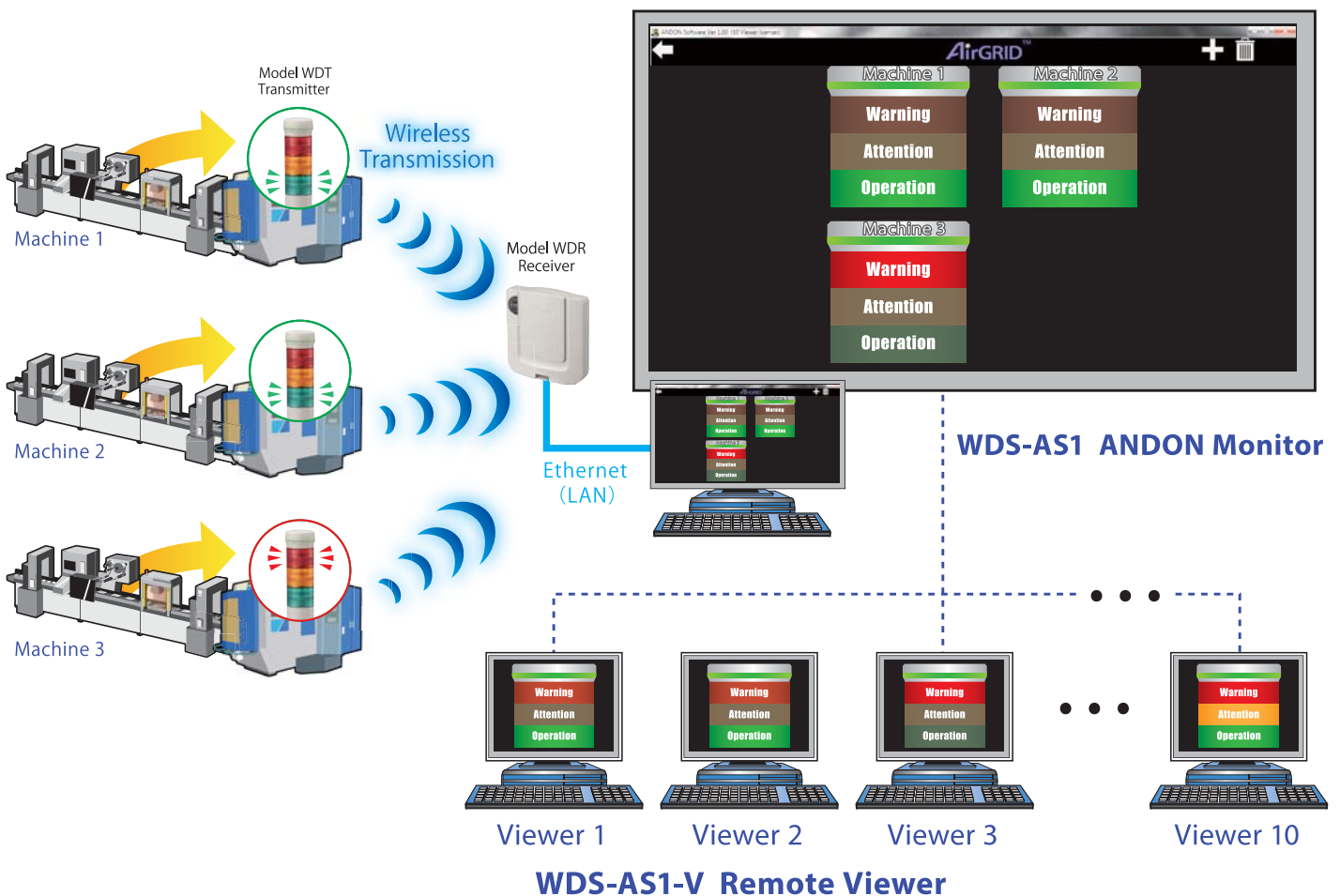
# AirANDON

**ANDON Monitoring Software**

## WDS-AS1

**Remote Viewer Software**

## WDS-AS1-V

Monitor information from all equipment anywhere in the factory.
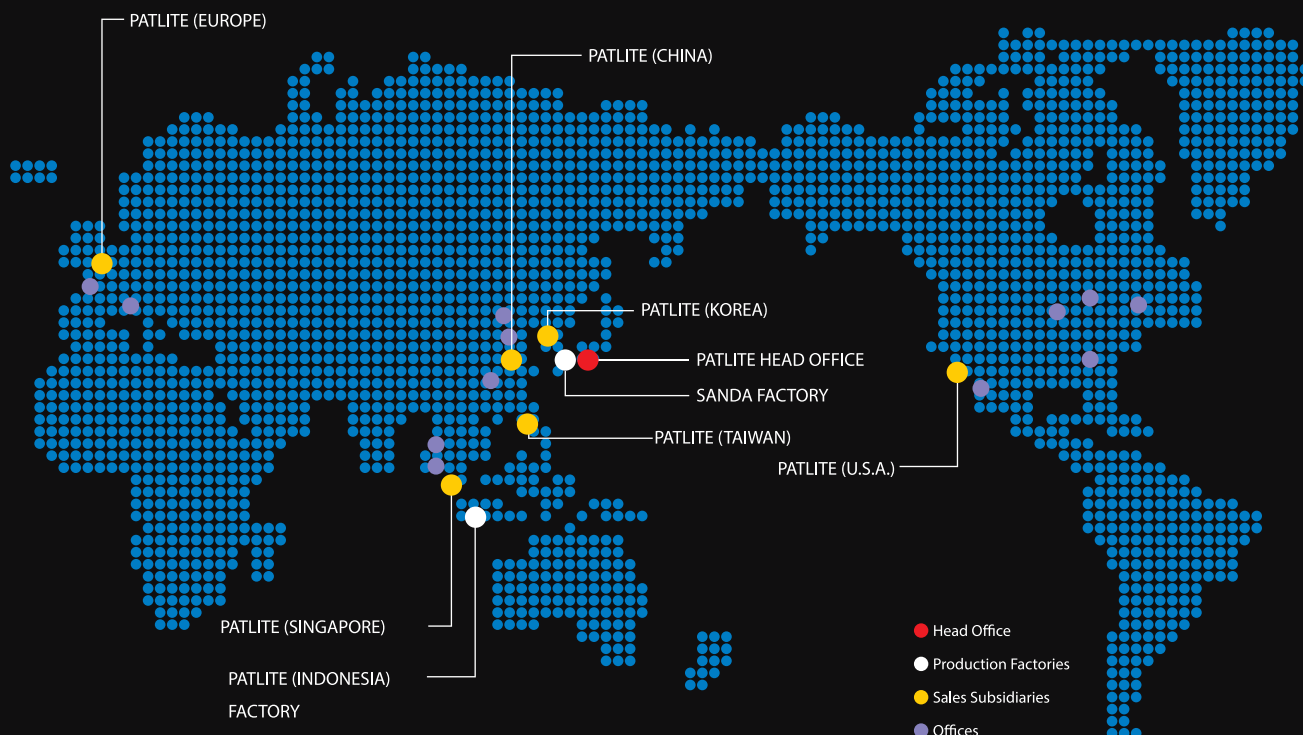


■ Interfacing the WDS-AS1 ANDON Monitor Software is easy to set up to wirelessly collect all the information of signal towers.

■ Using the WDS-AS1-V Remote Viewer Software can allow closer viewing of the important data from the factory lines.



Model WDT Transmitter

Wireless Transmission

Machine 1

Machine 2

Machine 3

Model WDR Receiver

Ethernet （LAN）

**WDS-AS1 ANDON Monitor**

Viewer 1　　Viewer 2　　Viewer 3　　Viewer 10

**WDS-AS1-V Remote Viewer**

Up to 10 Monitors can be connected via LAN Hub or Wireless/LAN Router

Map labels:
- PATLITE (EUROPE)
- PATLITE (CHINA)
- PATLITE (KOREA)
- PATLITE HEAD OFFICE
- SANDA FACTORY
- PATLITE (TAIWAN)
- PATLITE (U.S.A.)
- PATLITE (SINGAPORE)
- PATLITE (INDONESIA) FACTORY

- 🔴 Head Office
- ⚪ Production Factories
- 🟡 Sales Subsidiaries
- 🟣 Offices

# PATLITE Corporation

Inaba Bldg 4-11-14 Itachibori, Nishi-ku, Osaka, Japan 550-0012
International Division, Sales and Marketing Department
TEL: +81-6-7688-5400   FAX: +81-6-7688-5401          E-mail: overseas@patlite.co.jp

## PATLITE (U.S.A.) Corporation
20130 S. Western Ave. Torrance, CA 90501, U.S.A.
TEL: +1-310-328-3222   FAX: +1-310-328-2676          E-mail: sales@patlite.com

## PATLITE (SINGAPORE) PTE LTD
No.2 Leng Kee Road, #05-01 Thye Hong Centre, Singapore 159086
TEL: +65-6226-1111   FAX: +65-6324-1411          E-mail: sales@patlite.com.sg

## PATLITE (CHINA) Corporation
Room 512, Jufeng Business Building, No.697-3 Lingshi Road, Shanghai China 200072
TEL: +86-21-6630-8969   FAX: +86-21-6630-8938          E-mail: sales@patlite.cn

## PATLITE Europe GmbH
Am Soeldnermoos 8, D-85399 Hallbergmoos, Germany
TEL.+49 -811 9981 9770-0   FAX.+49-811 9981 9770-9          E-mail: info@patlite.eu

## PATLITE KOREA CO., LTD.
A-2603, Daesung-D-POLIS, 543-1 Gasan-dong, Geumcheon-gu, Seoul, 153-719
TEL.+82-2-523-6636   FAX.+82-2-861-9919          E-mail : sales@patlite.co.kr

## PATLITE TAIWAN CO., LTD.
7F. No. 91, Huayin St, Datong District Taipei, Taiwan R.O.C      E-mail: info@patlite.tw
TEL.+886-(0)2-2555-1611   FAX.+886-(0)2-2555-1621

## P T PATLITE INDONESIA (FACTORY)
LOT 321 Batamindo Industrial Park, Jalan Beringin Mukakuning, Batam 29433 Indonesia
TEL: +62-770-61-1123   FAX: +62-770-61-2444

**http://www.patlite.com**

---

MOODY INTERNATIONAL
UKAS MANAGEMENT SYSTEMS
014

ISO9001:2008 Authentication
ISO14001:2008 Authentication

Standard for Quality Control and Quality Assurance) and ISO 14001 (Environmental Management System Standard) authentication which is defined by the International Organization for Standardization.

⚠ CAUTION

To ensure correct use of these products, read the "Instruction Manual" prior to use.  Failure to follow all safeguards can result in fire, electric shock, or other accidents.
Specifications are subject to change without notice.

PATLITE ECO PROJECT

Catalog No.