

STANDBY ZERO BUILDING MANAGEMENT SYSTEM

Disruptive Innovation

Standby zero with advanced interaction dimming for building managements system
Tangible benefits for Reliability, Maintain free, Wire free, easy sensor's access by IoT

FIDES Smart Lighting
<http://jeongosc.wix.com/standbyzero>

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1. Introduction

1. SPECIAL CONSIDERATIONS

Standby power, also called **vampire power**, **vampire draw**, **phantom load**, or **leaking electricity** ("phantom load" and "[leaking electricity](#)" are defined technical terms with other meanings, adopted for this different purpose), refers to the [electric power](#) consumed by electronic and electrical appliances while they are switched off (but are designed to draw some power) or in a [standby mode](#). This only occurs because some devices claimed to be "switched off" on the electronic interface, but are in a different state from switching off from the plug, or disconnecting from the plug, which can solve the problem of standby power completely. In fact, switching off at the plug is effective enough, there is no need to disconnect all devices from the plug. Some such devices offer [remote controls](#) and [digital clock](#) features to the user, while other devices, such as [power adapters](#) for disconnected electronic devices, consume power without offering any features (sometimes called [no-load power](#)). All of the above examples, such as the remote control, digital clock functions and, in the case of adapters, no-load power, are switched off just by switching off at the plug. However, for some devices with built-in internal battery, such as the phone, the standby functions can be stopped by removing the battery instead. In July 2013 appliance standards came into effect, limiting external power supply standby power to 0.5 watts.

Now a day, realization of building management needs to daylight energy reduce and the some of sensing by low costs network system with substitution mechanical power switch for standby zero supports. FIDES-Dimmer are only one of solution of efficiency by full of requirements building managements system. Such as mechanical switches substitution to epoch-making novel standby zero circuits theory with flicker free constant voltage drive dimming technology employed. FIDES AC-DC Rectify technology can provide ideally makes very good cost effect an flicker free dimming with no data wire and AC switch for LED luminaire.

Operational Benefits

When a general lighting system try to dimming by ambient sensor. So, it could not provide dimming pleasant environment. This is approached in different ways. The daylight dimming can interactively reaction at any vicinity lighting environments to individually. Accurate execution on price quotes, and on-time, precise billing with avoid the blackout. In addition to Fides Wireless and standby zero efficiency benefits are killed all data lines and switches to makes a saving install fees. With the just plugging AC line installations makes easy to old building transformation to energy efficiency Building Automation System building.

1. Introduction

2. Patents : Jeong holding Patent list

- Method and apparatus for providing instant messaging service KR101094898 (2011.12.09)
- HIGH FREQUENCY OSCILLATOR KR1002262840000 19990726
- HIGH FREQUENCY OSCILLATION CIRCUIT WITH FEEDBACK LOOP KR1007595080000 , EP1314243, US6683507B2
- LED LIGHTING APPARATUS KR10-2015-0142403
- Hands free apparatus and working method of the same KR1007882810000 20071217
- LIGHTING SYSTEM AND A LIGHTING METHOD USING THE SAME, CAPABLE OF MAINTAINING A CONSTANT BRIGHTNESS KR1009953990000 20101112
- LED DRIVING DEVICE CAPABLE OF CONTROLLING THE ILLUMINATION OF AN LED KR1010205970000 20110302
- POWER SOURCE INTEGRATION CIRCUIT FOR LED LIGHTING IN WHICH AN ELECTROLYTIC CONDENSER AND A TRANSFORMER ARE ELIMINATED KR1011113870000 20120126
- AC-DC converter KR1015640040000 2015.10.22
- DEVICE FOR DIRECT CURRENT CONVERT 2013.02.05
- Circuit for saving standby power KR1014894420000 2015.01.28
- Power integrated circuit for LED lighting KR1015103100000 2015.04.02
- Standby Power Reduction Circuit PCT WO2015/190835 A1
- Power integrated Circuit for LED lighting PCT WO2015/064775 A1
- EP1314243 Title: HIGH FREQUENCY OSCILLATION CIRCUIT WO2002011277
- HIGH FREQUENCY OSCILLATION CIRCUIT US6683507 B2
- Lighting system and lighting method using the same PAT; KR100995399

More 20 patents...

2. Technology

1. Absolute Standby Zero Technology

- ❖ Only Fides Standby zero, Daylight dimming attuned to demand in IEC62301-2 and green building.
- ❖ Standby power of 1billion Lighting fixture save 100Giga/W Saving for Hours.

67% SAVE More then Ordinary LED



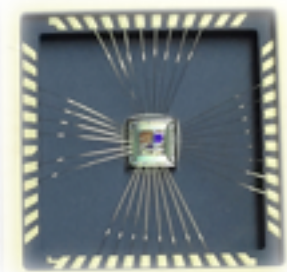
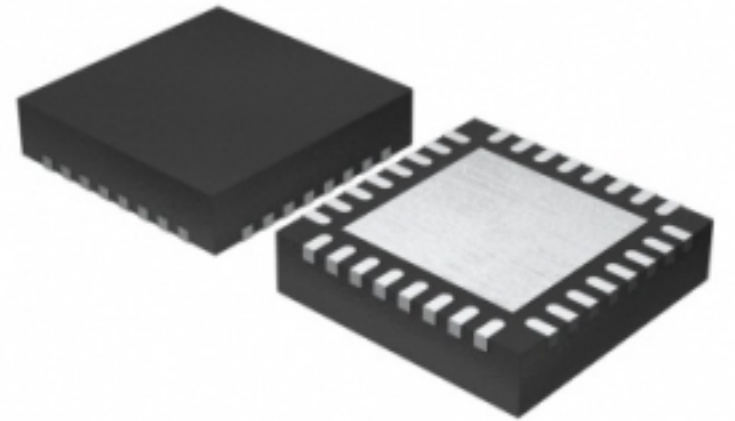
Example of standby power consumption : 1W/h standby power SMPS X 1K pcs in building = 1KW/h
Standby at 14h/day for year $\approx 0.5\text{MW/years}$
Same condition at Fides standby power consumption = **138W/years (0.5MW electric energy save!)**

2. Technology

2. AC-DC Digital Driver

❖ FIDES-P1 AC-DC Smart Power Device

The FIDES-P1 free voltage AC to DC rectify valley fill driver using patented FIDES's Adaptive DC dis-charge™ power device are smart power driving chipset for supports all the attractive features of ECO LED lighting products such as high efficiency 87% over with excellent PFC 0.95, ultra small package, low cost, design flexibility, and easy design-in, these parts are targeted to more sophisticated applications and offer several enhanced technology and features, including continuous AC and DC both of input voltage coverage from 10-300V wide ranges and output load up to 5 to 50Watts without chemical capacitor and transformer. The all power and LED switch transistors are external of main chipset. Also included built-in features likes thermal sensor, direct connection to external ambient sensor is automatic LED brightness control self-thermal controller and PLC communication makes smart grid network. The employed phase current detection technology is automatically current error corrections for each LED load current transition. This phase current driving technology is compensation to regulated AC input with LED loads to independently protection for over power and open or short circuits protection with over-temperature controls. The chip incorporates a high performance AC to DC in the LED lighting which performs phase slice switch with H bridge CV.CC accurate PWM modulation for constant current driving it ideal for configuration to multiple LED bulb applications. These features simplify the task of the LED monitor back light or LED bulb and QFN36 small package are supports the smart fixture design and allow for the use for lower-end Factories.



2. Technology

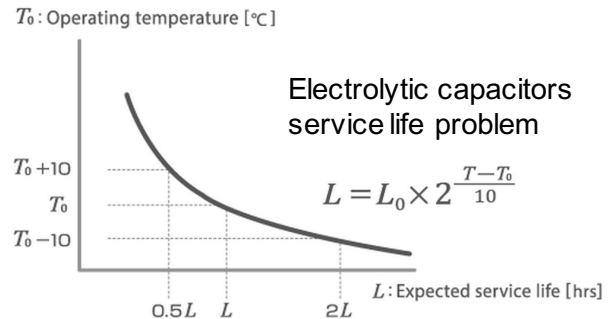
3. AC-DC CONVERTER

❖ MOVE OVER TO DIGITAL controlled solid CAPACITOR

Benefit :

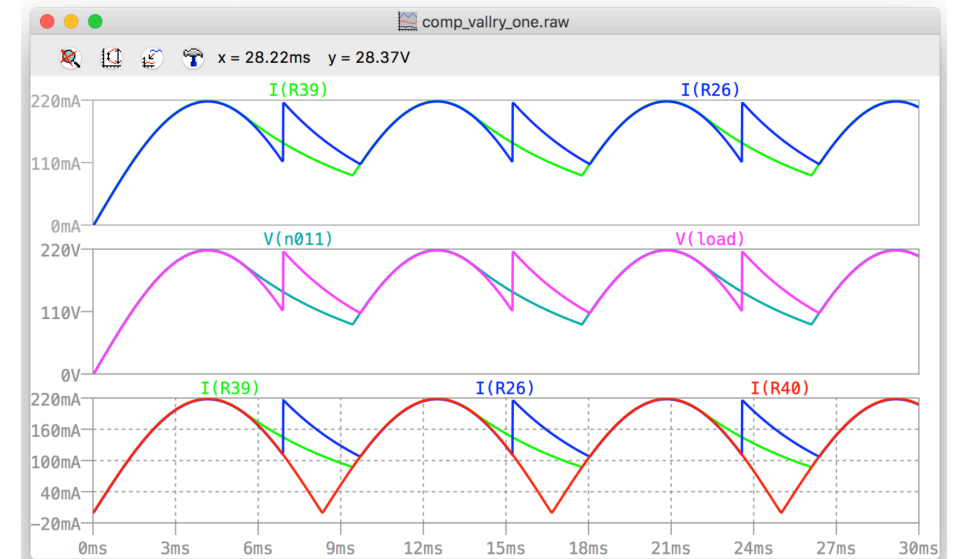
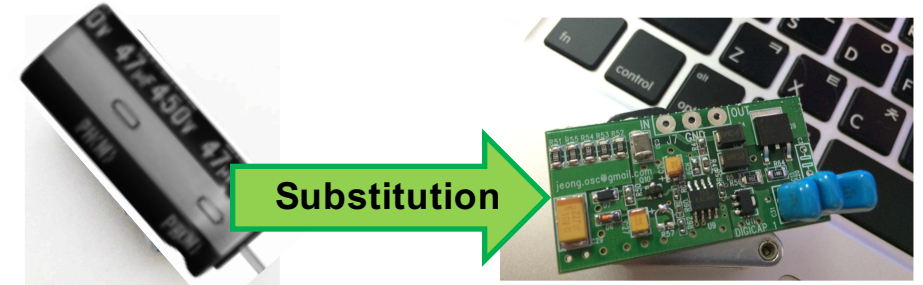
1. Long life MTBF 100K over
2. Good PFC effect without PFC (over 0.9)
3. Stable operating temperature (-40~+120°C)
4. Small size

http://media.wix.com/ugd/0ab234_e92f7ad40fb942a9976b43e9ef5a8634.pdf



For every rise in operating temperature by 10 degrees centigrade, the service life is shortened to one half, and double for every 10 degree drop (10 degree 2 fold rule). The aluminum electrolytic capacitor is commonly 10 years service life)

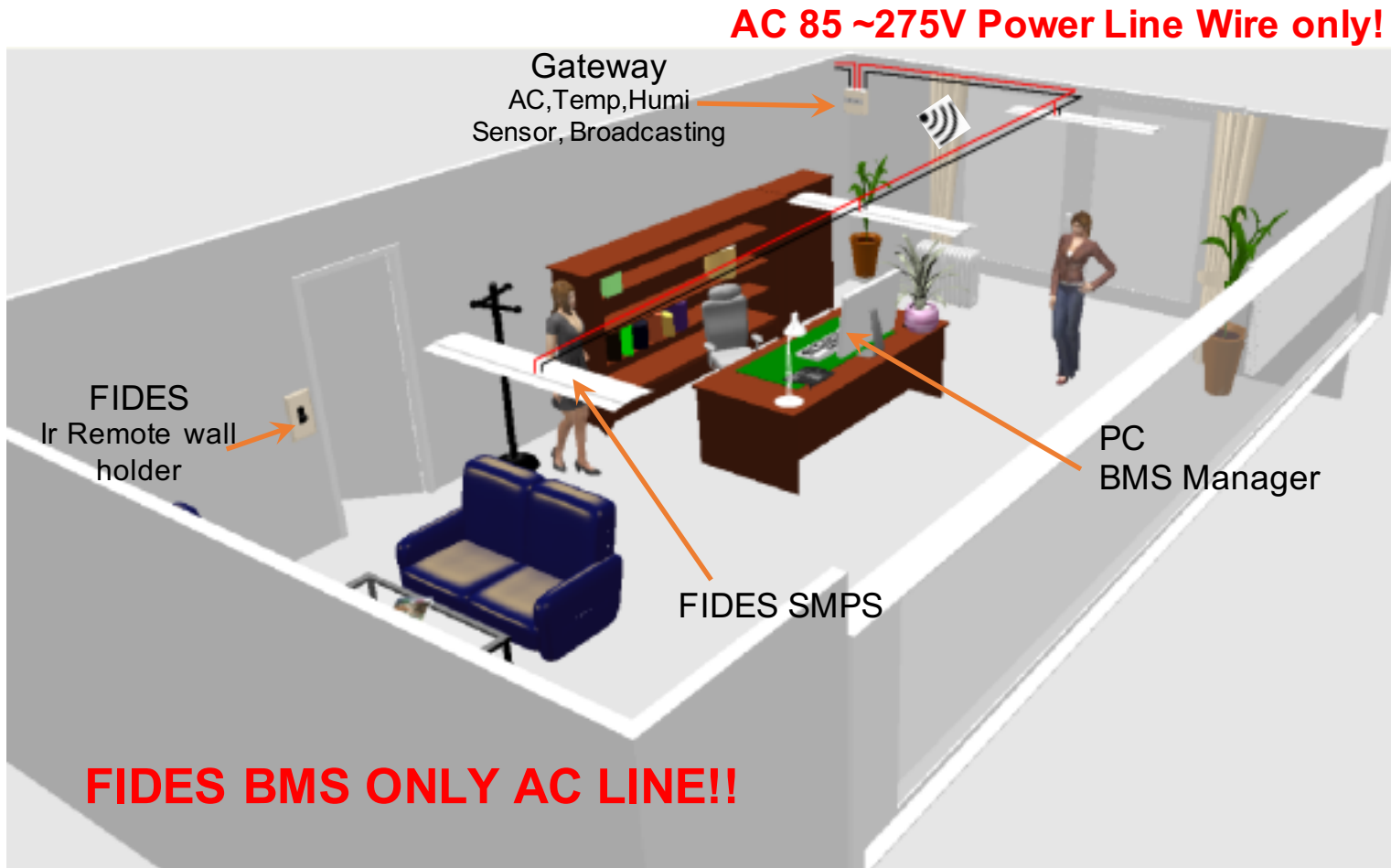
FIDES-P6



MTBF OVER 100K hours sustainable life cycles

2. Technology

4. Fides Building Lighting System

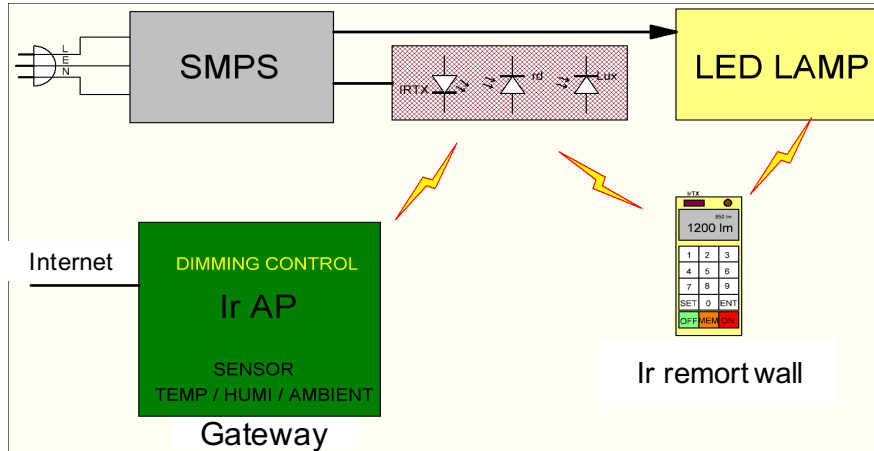


Fides BMS	Function
Gateway (AP)	<ul style="list-style-type: none"> ▪ AC power measurement ▪ AC power Switch ▪ Temperature, Humidity, Luminance ▪ Voice streaming, Broadcasting ▪ Ir network ▪ Internet web server ▪ Fire alarm
Charlotte Luminaire (Led Fixture)	<ul style="list-style-type: none"> ▪ Standby Zero SMPS ▪ Luminaire sensor ▪ Dimming control ▪ Ir network
Ir remote	<ul style="list-style-type: none"> ▪ Ir remote wall controller

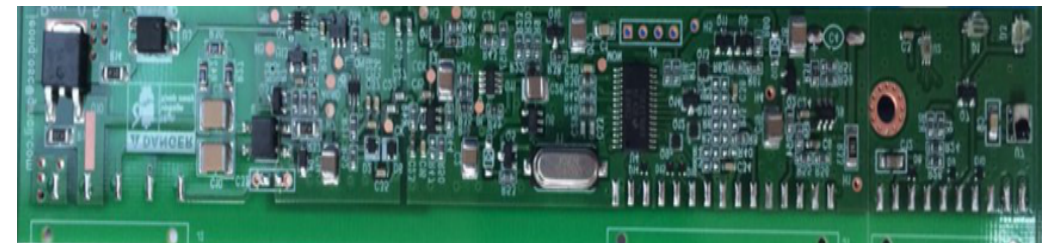
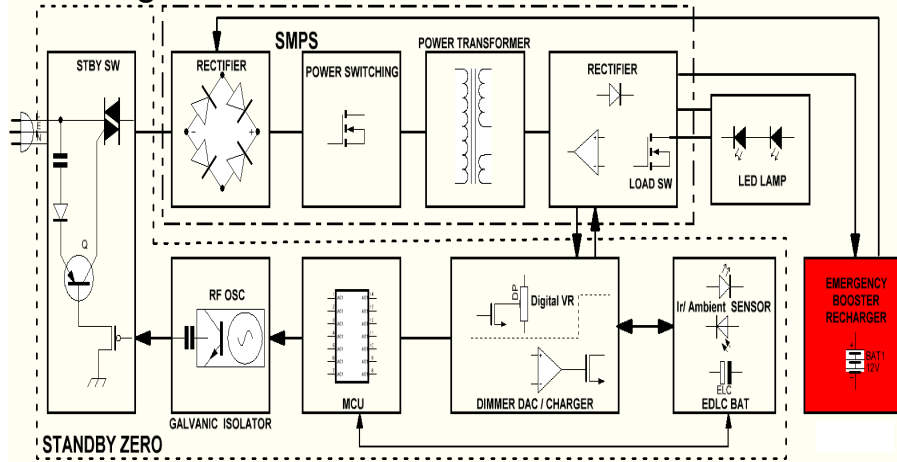
2. Technology

4. Fides Building Lighting System

Connection Diagram



Intelligence Fides SMPS



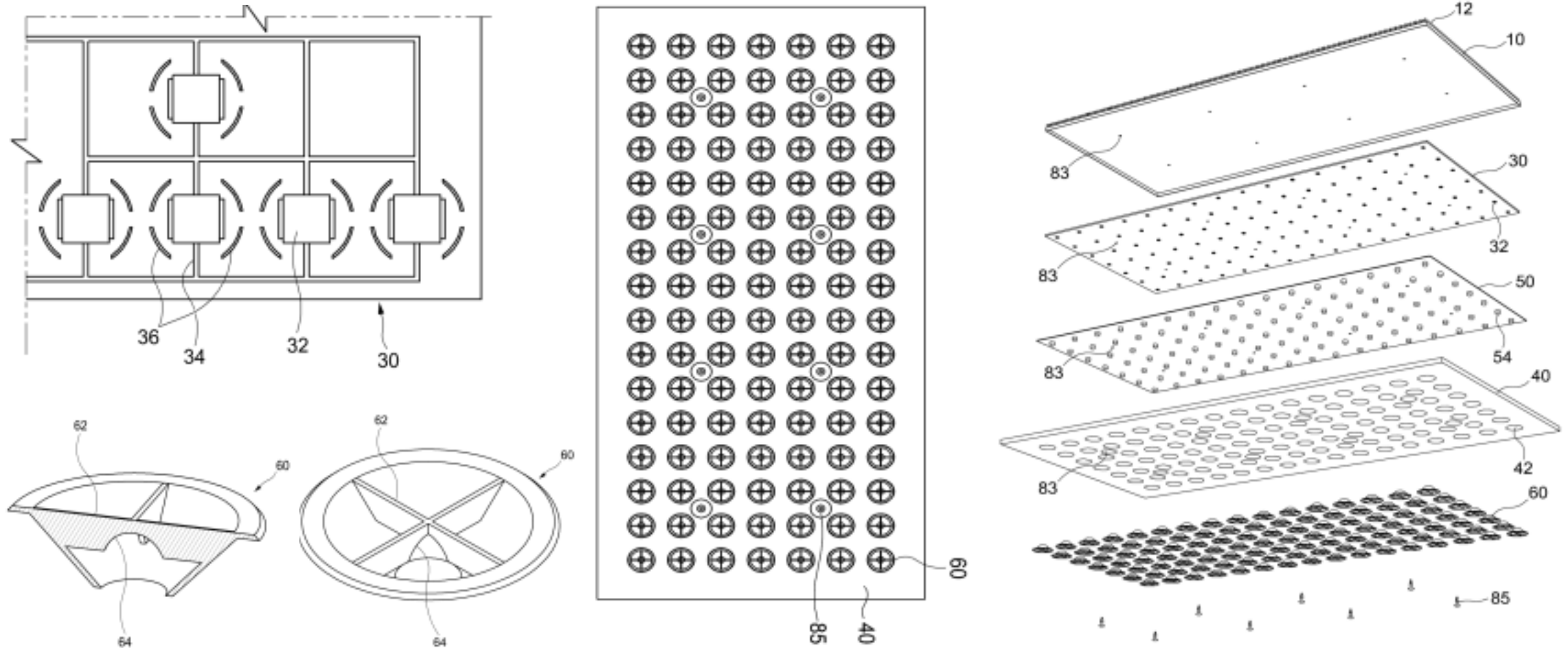
❖ Intelligence Fides SMPS Function

- Flicker free 0~100% full dimming
- Standby zero
- Luminance sensor
- Ir network

2. Technology

5. LED Fixture

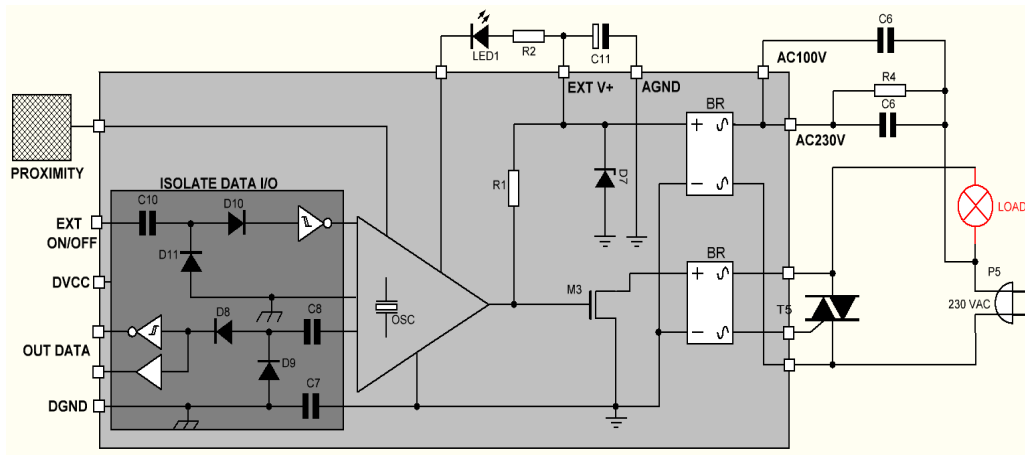
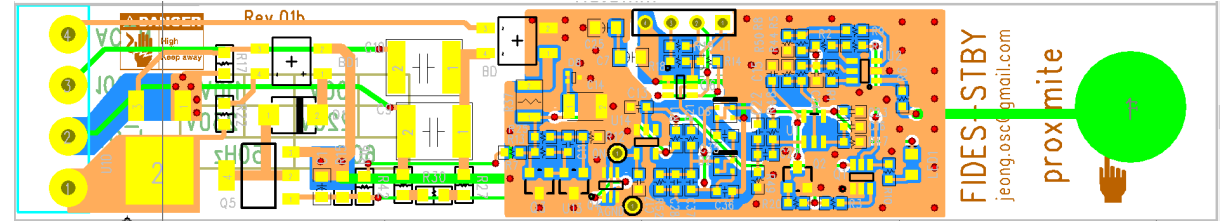
- Patent pending Gypsum with Tin plate metal circuit boards are Suitable for DIN 4102-1 A1



3. Products

1. Standby Module

- ❖ This is evaluation of absolute standby zero proximity sensor AC power switch of universal loads.
- ❖ Now it's works 0.04watts at standby mode with indicated LED.
- ❖ Also, status data and control In and out by RF isolation.



Function	Electrical Characteristics	AC 220V/60Hz
AC_P	0~300V	IT(rms)=~1A(Max 5A)**
AC_N1	0~300V	IT(rms)=~1A(Max 5A)**
AC_N2	0~300V	IT(rms)=~1A(Max 5A)**
AC_LOAD	0~300V	IT(rms)=~1A(Max 5A)**
OUT1	Normal ON status out of AC Switch	
OUT2	Normal OFF status out of AC Switch	
V+	Isolated Out pull up Bias +VCC (~10V / ~10mA)	
GND	Isolated Digital GND	

3. Products

2. Gypsum LED Lighting Fixture

❖ Fides Lighting Nonflammable gypsum luminaire

EASY

손쉬운 설치
•
3단계

1 식그로스에 그림자 내세울 용다

2 식그로스 잘 모양을 준비한다

3 반대편 부면에 호접을 1번과 같이 체결한다

SIMPLE

간단한 조립
•
ONE TOUCH 체결방식

DIVERSITY

다양성
•

MODULE

MATERIAL & COLOR

PC(폴리카보네이트)	SMC(섬유강화 플라스틱)	COLOR MCF
WHITE	IVORY	COOL GRAY
WARM GRAY	BABY GRAY	BLACK

ANTI GLARE

50°/45° 100°/45° 150°/45°

빛의 균형을 맞추기 위해 사물상에 눈부심 등의 기능은 의해 눈이 방해되는 조광기구

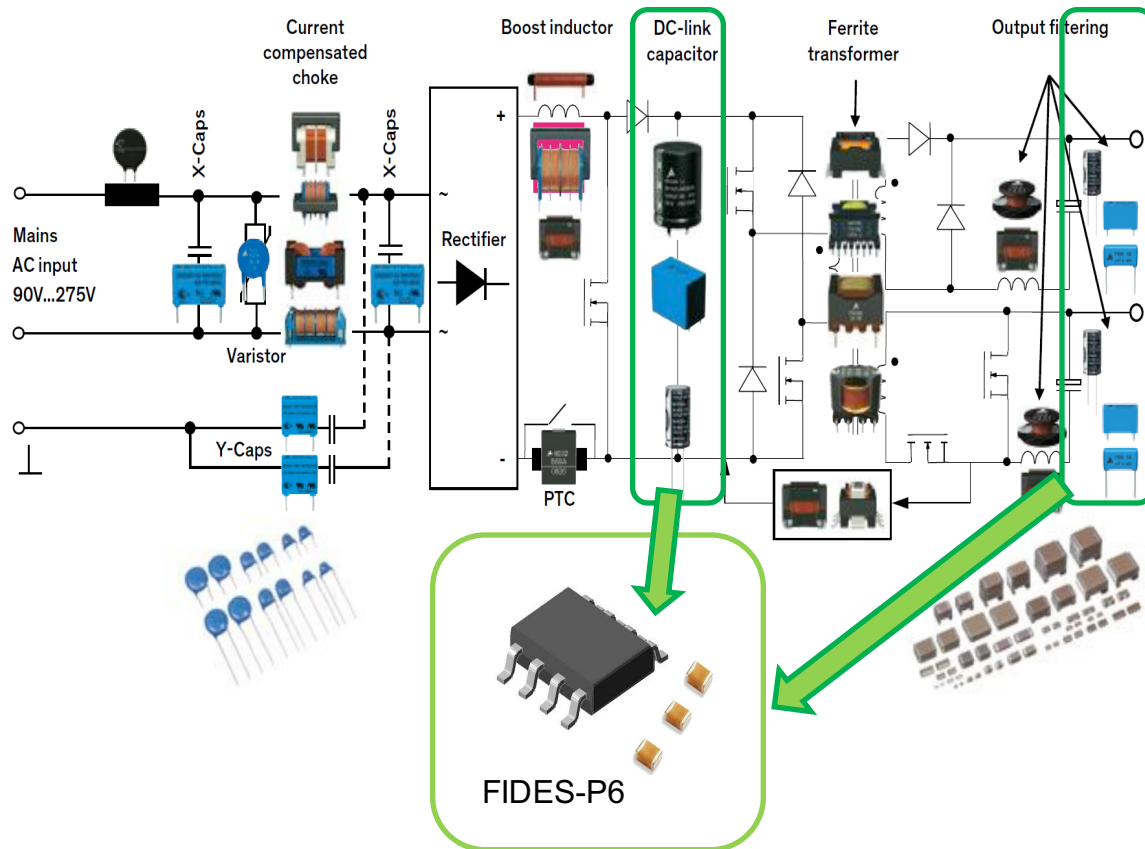
CEILING

3. Products

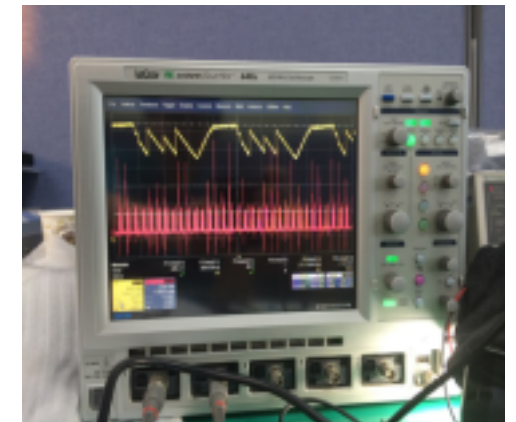
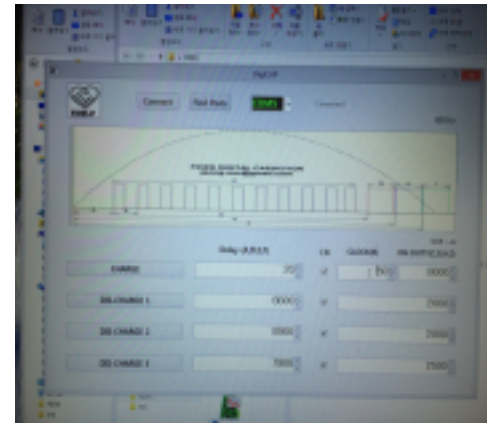
3. AC-DC Rectify Smooth Valley Fill AC-DC

❖ SMPS aluminum condenser substitution

❖ HV9910B + Silicon cap demo (Load Led 16Watts)



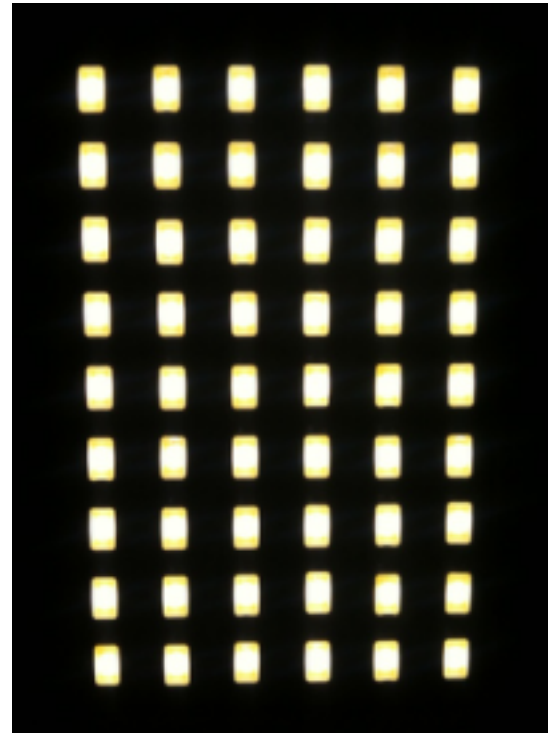
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3. Products

4. AC-DC Digital Driver

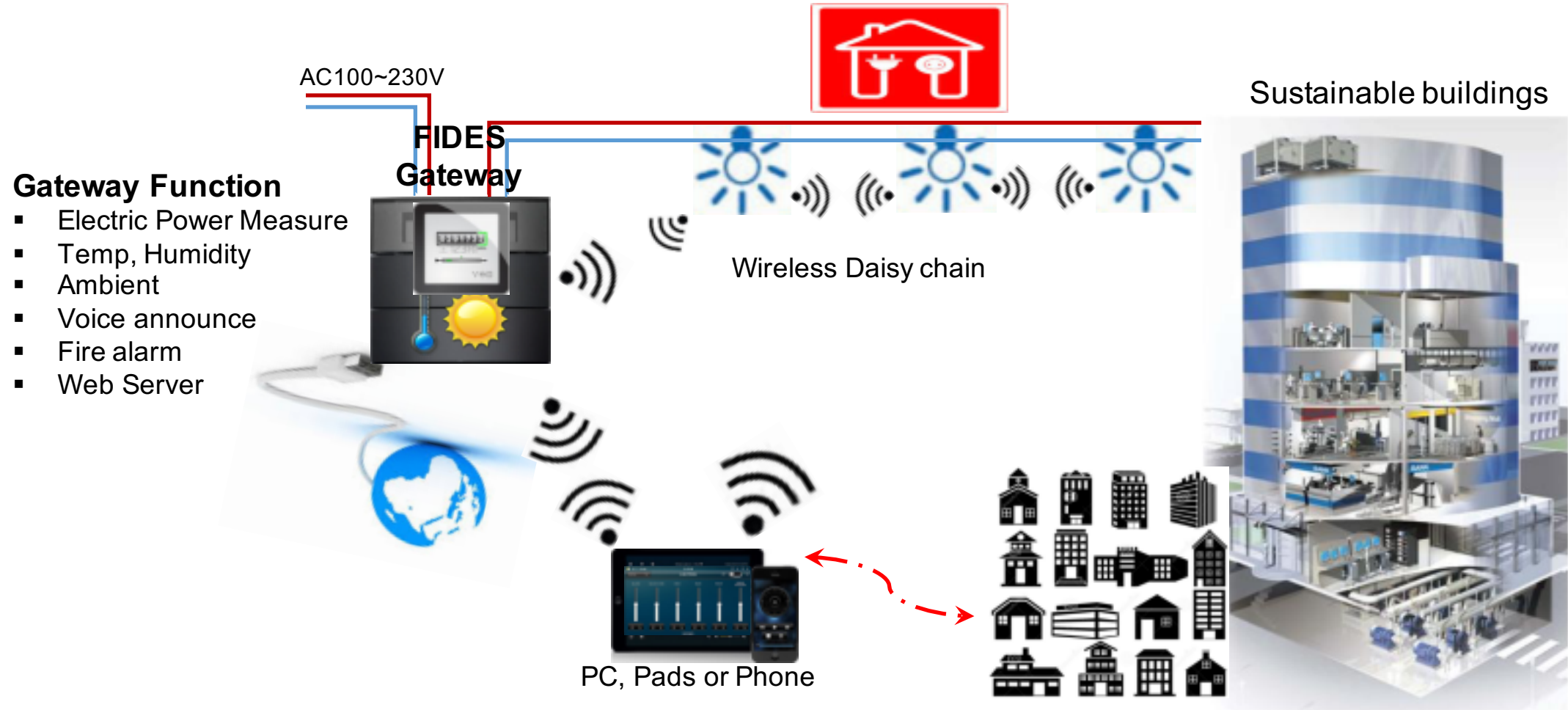
- ❖ Prototype test for non aluminum capacitor LED driver test
- ❖ AC 160 ~ 230V Input 84V 200mA LED load
- ❖ Flicker free
- ❖ Ripple : 200mV under at 100% load



4. Fides BMS

1. Fides Smart BMS Lighting Architecture

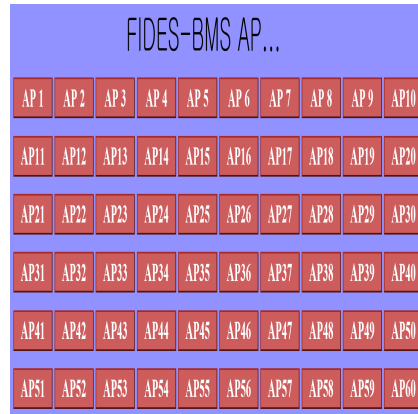
❖ FIDES-BMS ARCHITECTURE SUCCINCT GRID NETWORKS



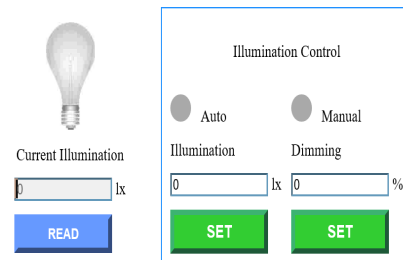
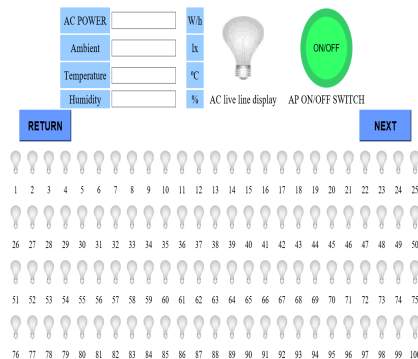
4. Fides BMS

1-1. Fides Smart BMS Lighting Web server

❖ Gateway web server lighting management

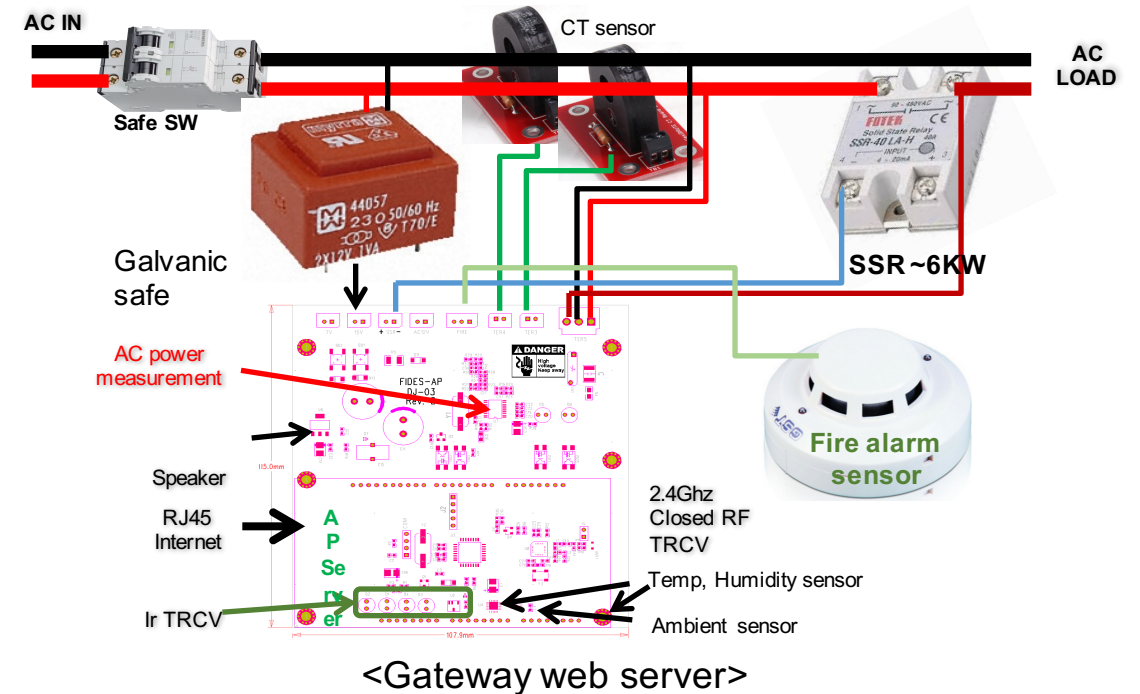


Charlotte Lamps of AP...



❖ Solid memory BMS web server Function

- Anti-Hacking H/W web server
- Aes128bits encryption
- Environment data gathering
- Broadcasting
- Dimming
- Dimming control
- Fire alarm detector



4. Fides BMS

2. Merit of FIDES BMS

❖ **FIDES-BMS merit are just one day to green building transformation**

- OLD BUILDING TO GREEN BUILDING -
ONE DAY INSTALLATION, LOW COST!



❖ **Fides Building Lighting Vs Ordinary Building Lighting Control System**

	Ordinary BMS system	Fides BMS system
IEC62031 Standby Zero	Not supports	Patent Technology
Individual dimmer	Option	Integrated
Wiring	Complicate	Just Plug AC Line(Ir,RF)
Temp, Humidity, Ambient	Option	Integrated
AC Power Line measure	Option	Integrated
Luminaire connection Limit	Limit	Unlimited
Fire alarm, Occupy Sensor, Voice Broadcasting	Option	Option(Just Plug in AP)
Management Software	Option	Default
Cost	High	Very Low
Easy Installation	Quit Difficult	Same likes Bulb Change
Web Base Control	Supports option	Integrated Gateway

4. Fides BMS

2. Merit of FIDES BMS

- ❖ Web style management program are serve the Fides Gateway.
- ❖ No dedicated user remote controller



Danke