weartronic

Special edition
Eurosatory 2024

EN VERSION
June 2024

TECH FOR VISIBILITY AND SAFETY

TECH FOR VISIBILITY AND SAFETY

WE ACT
FOR THE DEFENSE AND SECURITY PROFESSIONS

ABOUT

Expert in the design and integration of electronic components into textiles and non-woven films, Weartronic presents itself as a key player in the field of active security protection equipment for people.

The company is recognized for its expertise in the implementation of technology for directly placing a component on an electrical conductor, integrating this technology on various supports, and the electrical power supply of components.

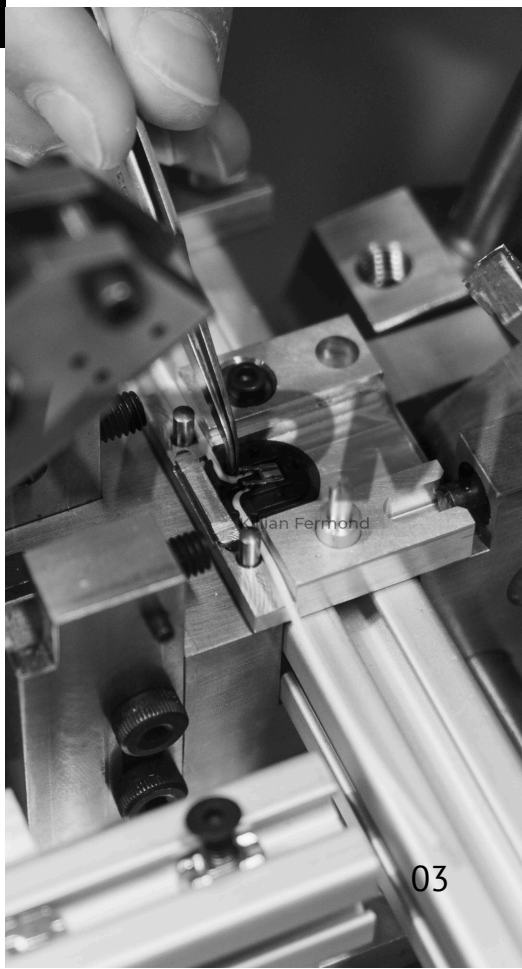
From the beginning of the design and development process, our approach is focused on industrialization. This ensures the creation of innovative solutions that are quickly operational and reliable.

Our technology meets your toughest operational requirements :

- Functioning in harsh environments (temperature up to 150°)
- Extremely high lighting power : up to 6000 lumens (to dazzle or be seen up to 8 meters in thick black smoke from a fire)
- Color change lighting based on situations
- Connected system (bluetooth signal, Lora or radio frequency)
- Water resistance, operates while submerged

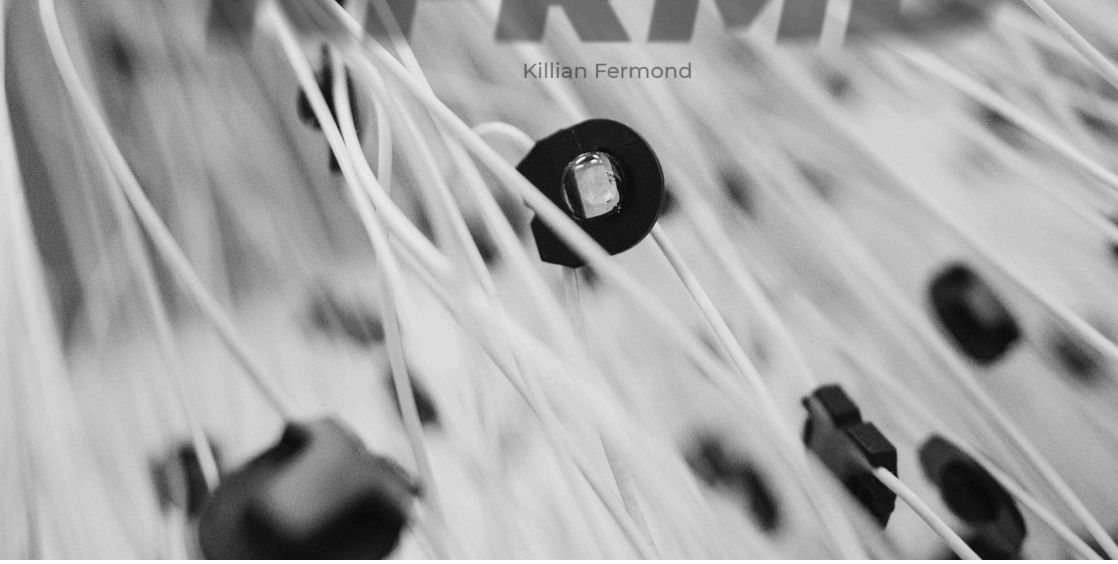
Innovate

To assist you in overcoming your challenges, we provide you with the expertise of our engineers in the fiels of mechanical engineering and connectivity.



TECH FOR VISIBILITY AND SAFETY

SUMMARY



OUR HISTORY

02

2015

Weartronic creation

Driven by a vision and conviction in the potential and future needs for smart and connected textiles. Patented technology IDled,

2021

Production automation

Development of industrial machines to automate production. France Relance Competition

2022

Weartronic Weet creation

Wearable Embedded Electronic Technologies
Fundraising with the strategic goal of establishing itself as the French leader in the design, manufacturing and integration of electronic systems into smart textiles garments.

2023

Contribution to the competitiveness cluster Techtera

Confidential project

2024

Partnership agreement with BSPP

Development of innovative solutions to enhance firefighters' operational efficiency.


La
FRENCH TECH

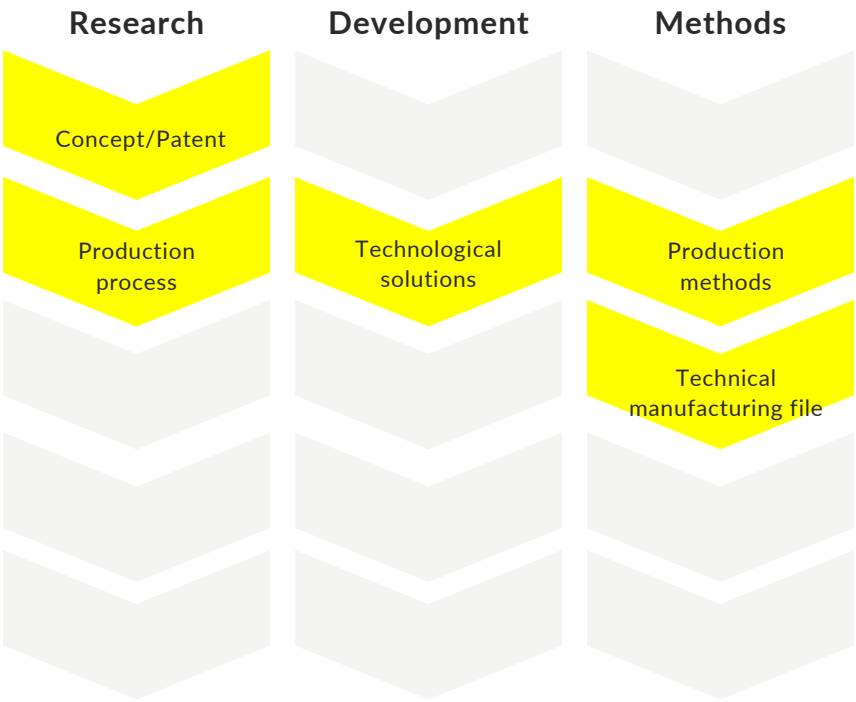

FRANCE
RELANCE


bpifrance

OUR EXPERTISE

02

FROM RESEARCH TO MANUFACTURING



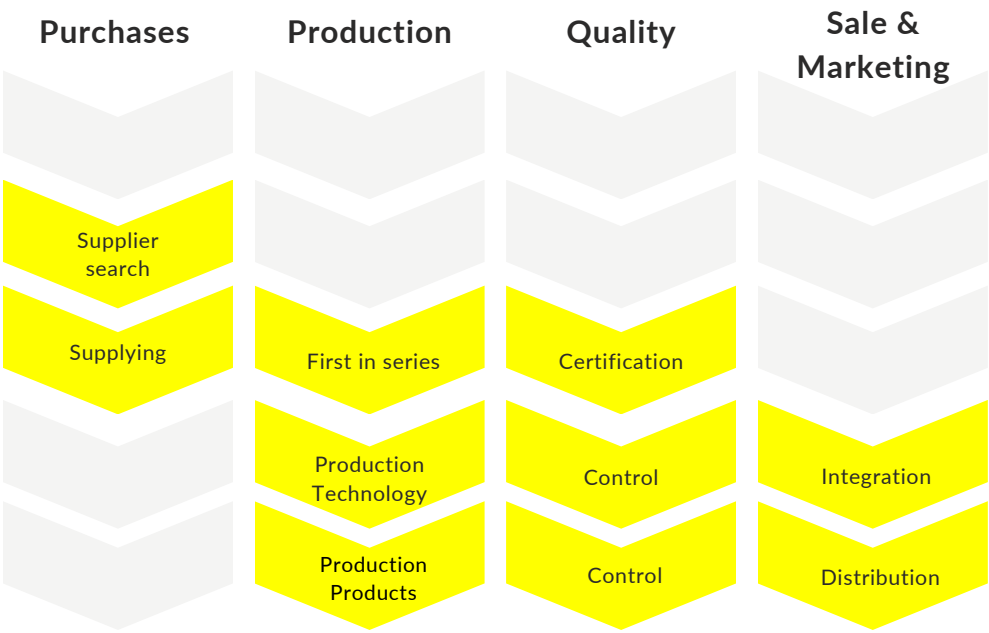
Expertise in product and machine design

David Zieder, CEO of Weartronic Weet, former Director of the **R&D** within Nicomatic, brings valuable expertise in product and industrial machine design. In 27 years of career in industry, he filed 15 patents. In addition, its academic proximity with HEPIA for 10 years has strengthened our research and development activities.

OUR KNOW-HOW

02

FROM OUR SUPPLIERS TO OUR CUSTOMERS



A team that listens and serves customers needs

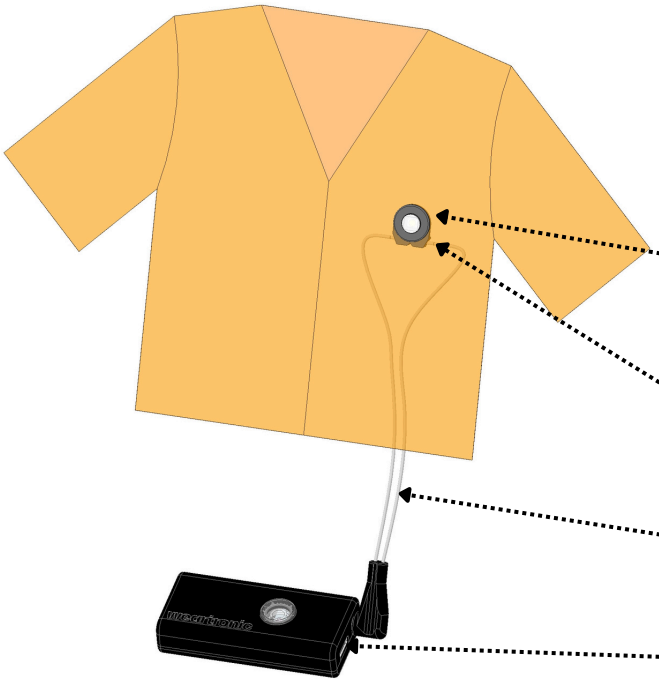
A controlled process :

- Working with quality suppliers allows us to be efficient and competitive on prices
- Prototype
- Validate the first parts with our customers
- Ensure quality with 100% control of our production
- Innovate and develop new technologies based on the needs of our customers

TECHNOLOGICAL BRICKS

03

TECH FOR VISIBILITY AND SAFETY



DISCOVER OUR TECHNOLOGICAL BRICKS BY CATEGORY

- **Electronics unit _ Lighting** : on-board electronic units for implementing electronic components. Discover our lighting units.
- **Integration** : patented assembly technology allowing our Electronic Units to be integrated onto thin supports up to 1mm thick.
- **Wiring** : different wiring methods to optimize the design of electrical harnesses and optimize the power supply.
- **Control Box** : different EU power supply, charging, human-machine interface and communication technologies to control and manage our solutions.

TECHNOLOGICAL BRICKS 03

TECH FOR VISIBILITY AND SAFETY

Electronic Unit _ Lighting
Uni

UE01	Medium Power
UE02	Harsh environment
UE03	High Power
UE04	Controlled Colors
UE05	Recto-verso / lighting 360°

Integration
An integration capacity on textile, non-woven film or textile sheath.

IN01	Assembly on textile or thin films
IN02	Mounting on textile sheath

TECHNOLOGICAL BRICKS 03

TECH FOR VISIBILITY AND SAFETY

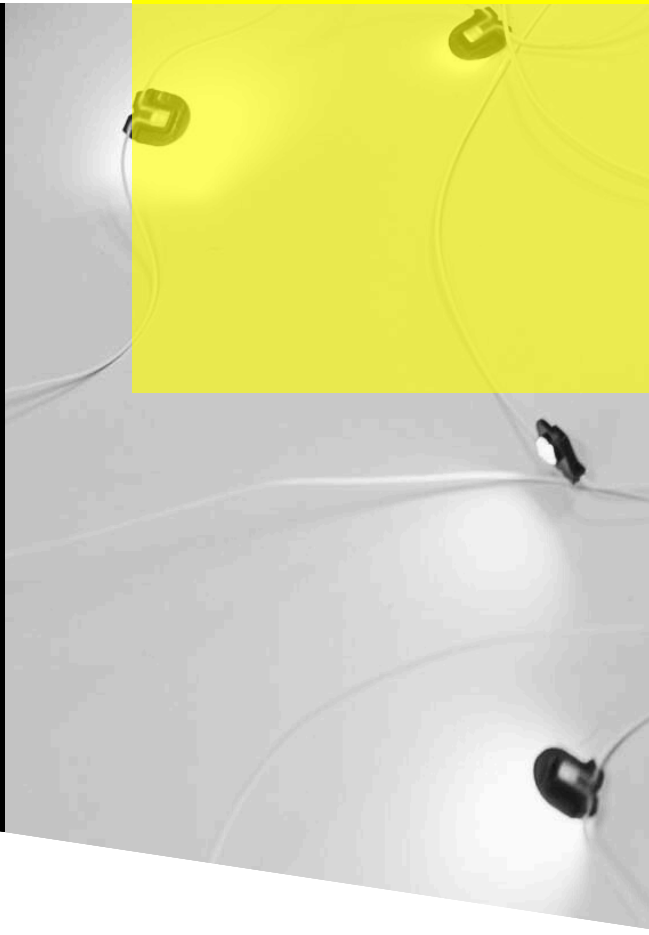
Wiring
a wiring adapted to each use of our EU

CG01	Serie _ voltage control
CG02	Parallel _ intensity control
CG03	Mixed _ controlled voltages and currents for long distances
CG04	Network _ communication protocol

Control Box
A box for each of our clients' need

BC01	High autonomy _ ideal for professionals
BC02	Compact _ designed for accessories
BC03	Power with dead man detection _ in addition to solutions PTI
BC04	Connected _ opening our solutions to the world of IoT
BC05	Network _ independently control each UE

ELECTRONIC UNIT LIGHTING



For each type of LED, an electronic lighting unit.

TECH FOR VISIBILITY AND SAFETY

UE01 MEDIUM POWER

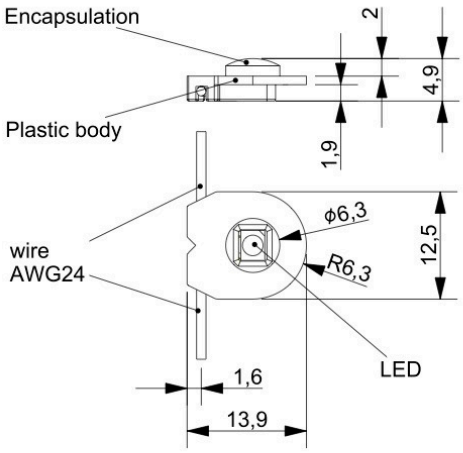
DESCRIPTION

Compact electronic unit allowing the implementation of a medium power LED. The power supply is carried out in series. The whole thing is completely waterproof thanks to encapsulation in resin.

APPLICATIONS

Active visibility for workers, cyclists, athletes, signage accessories, ...

DIMENSIONS



PERFORMANCES

- Aeronautical type connection guaranteeing the durability of electrical wiring
- Box and encapsulation allowing :
  - to guarantee shock resistance
  - to make the assembly completely airtight
  - to resist detergents, sweat, salty atmosphere,...
- Dedicated to textile assembly

COMPATIBILITY

IN	CG	BC
01	01	01
		02
		04

FEATURES

- Material :
  - Box : ABS UL90V2
  - Encapsulation : resin
  - Conductor : AWG24 FEP
- Light power per EU : from 1 to 7 lumens
- Temperature max. : 105°C
- IP 67
- Visibility distance (depending on weather conditions) = max. 600m
- LED Color : warm white, cold white, red, orange, blue, green

UE02 HARSH ENVIRONMENT

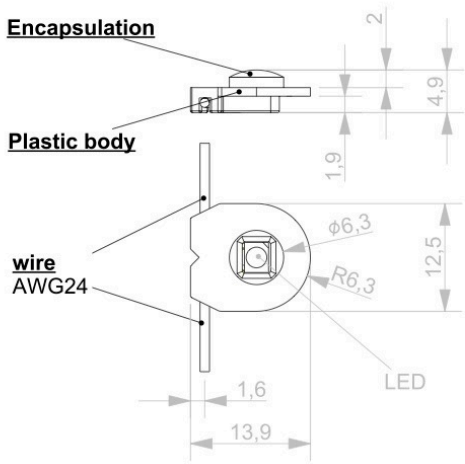
DESCRIPTION

Compact electronic unit geometrically and functionally identical to UE01. Materials are suitable to **resist high temperatures and exposure to flame.**

APPLICATIONS

Industrial washing, clothing or fire accessories, military equipment, ...

DIMENSIONS



PERFORMANCES

- Electrical connection, box / identical encapsulation and mounting area to UE01.
- Choice of materials ensuring great resistance to harsh environments.

COMPATIBILITÉ

IN	CG	BC
01	01	01
		02
		04

FEATURES

- Material :
  - Box : PPS UL90V0
  - Encapsulation : resin époxy
  - Conductor : AWG24 FEP
- Light power per UE : from 1 to 7 lumens
- Temperature max. : **200°C**
- IP 67
- LED color : warm white, cold white, red, orange, blue, green

UE03 HIGH POWER

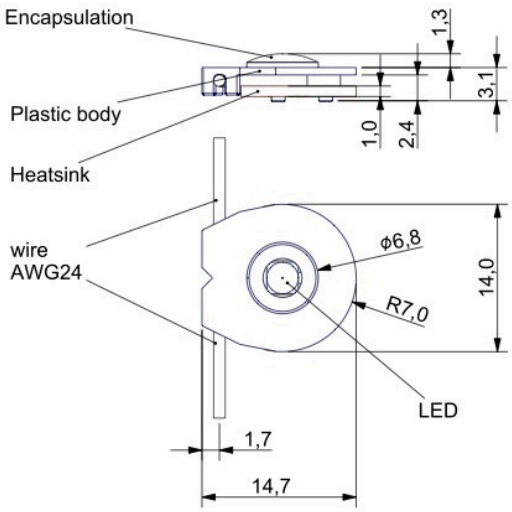
DESCRIPTION

Compact electronic unit allowing the implementation of a **high power LED**. The power supply is carried out in series. The whole thing is completely waterproof thanks to encapsulation in resin.

APPLICATIONS

Visual detection system, anti-aggression flash, hands-free work, headlamp replacement, ...

DIMENSIONS



PERFORMANCES

- Identical electrical connection, box / encapsulation, mounting area and severe environment resistance identical to UE01.
- Integration of a thermal dissipation zone allowing the implementation of power LEDs

COMPATIBILITY

IN	CG	BC
01	01	03

FEATURES

- Material :
  - Box : PPS UL90V0
  - Encapsulation : resin époxy
  - Conductor : AWG24 FEP
- Light power per UE : from **100 to 300 lumens**
- Temperature max. : 150°C
- IP 67
- Visibility distance (smoked box) = max. 8m
- LED color : warm white, cold white, red, orange, blue, green, infrared

UE04 CONTROLLED COLORS

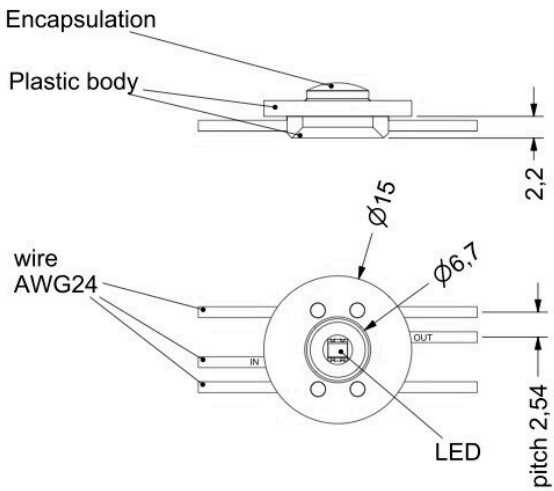
DESCRIPTION

Compact electronic unit allowing the implementation of a **type RGB communicating LED**. The power supply is carried out in parallel.
Data transfer is ensured by a communication bus. The whole thing is completely waterproof thanks to encapsulation in resin.

APPLICATIONS

Sorting system, identification system, road signs, design, ...

DIMENSIONS



PERFORMANCES

- Electrical connection, box / identical encapsulation and mounting area to UE01.
- Multiplication of electrical connection areas allowing wired communication with the unit to be added.

COMPATIBILITY

IN	CG	BC
01	04	05

FEATURES

- Material :
  - Box : ABS UL90V2
  - Encapsulation : resin
  - Conductor : AWG24 FEP
- LED type : "**addressable RGB**"
- Temperature max. : 105°C
- IP 65

UE05 RECTO-VERSO / LIGHTING 360°

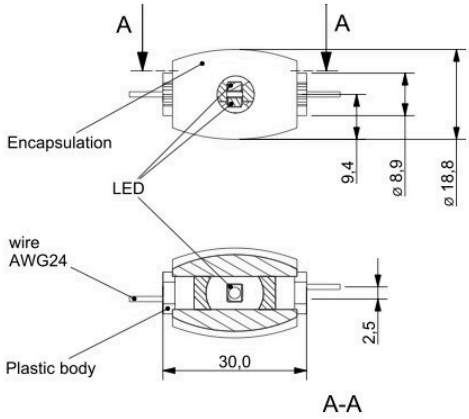
DESCRIPTION

Compact electronic unit allowing the implementation of two medium power LEDs back to back.
Ideal for long cable lengths thanks to the mixed type power supply (see CG03). The whole thing is completely waterproof thanks to encapsulation in resin.

APPLICATIONS

Evacuation signage, maintenance, path identification, ...

DIMENSIONS



PERFORMANCES

- Electrical connection and box / identical encapsulation UE01.
- Mounting on tubular sheath with internal diameter of 10mm.
- As for UE02, choice of materials ensuring great resistance to harsh environments.
- **360° lighting diffusion**.

COMPATIBILITY

IN	CG	BC
02	03	01

FEATURES

- Material :
  - Box : PPS UL90V0
  - Encapsulation : silicone
  - Conductor : AWG24 FEP
- Unit light power : from 1 to 7 lumens
- Temperature max. : **200°C**
- IP 65
- LED color : warm white, cold white, red, orange, blue, green

INTEGRATION

An integration capacity on textile, non-woven film or textile sheath.

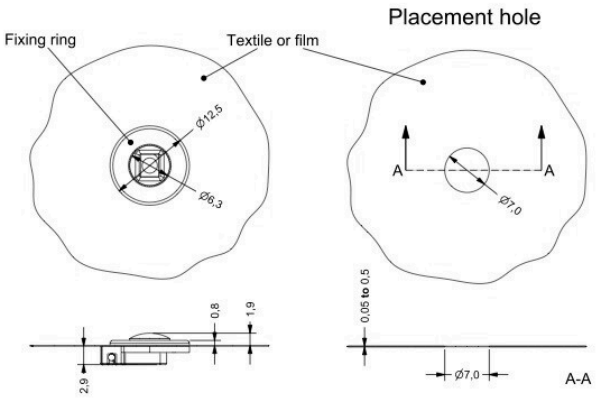
TECH FOR VISIBILITY AND SAFETY

IN01 ASSEMBLY ON TEXTILE OR THIN FILMS

DESCRIPTION

Our electronic units UE01,02,03 et U04 are designed to be assembled on textiles or thin films.
The assembly is robust and can resist machine washing.
The assembly operation is fast and reliable.

DIMENSIONS



APPLICATIONS

Assembly on :

- Clothing and accessories for :
  - work,
  - sport,
  - outdoor, ...
- Tent canvas, decoration, protection, ...
- Cargo bike cover, signage cones, ...
- ...

PERFORMANCES

- Assembly by welding, the support is trapped between the EU and a plastic washer.
- Only drilling in the support is necessary.
- Ultrasonic assembly is instantaneous and very robust.

FEATURES

- Material : ABS, PPS according to EU corresponding
- Max support thickness = 0,5mm
- Drilling diameter between 6,5 et 7mm

COMPATIBILITY

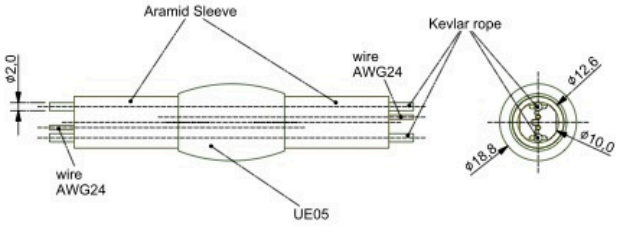
UE	CG
01	01
02	02
03	04
04	

IN02 MOUNTING ON TEXTILE SHEATH

DESCRIPTION

Electronic unit UE05 is designed to be assembled on a tubular textile sheath.
This assembly principle makes it possible to create luminous rope solutions.

DIMENSIONS



APPLICATIONS

- Guide line
- Light paths
- Luminous curtains

PERFORMANCES

- Crimping the sheath on the corresponding UE.
- Silicone encapsulation allowing light to be diffused 360°.
- Choice of materials ensuring great resistance to harsh environments. Specially designed for military or fire applications.

COMPATIBILITY

IN	CG
05	03

FEATURES

- Material : translucent silicone
- Inside diameter of the sheath = 10mm
- Tensile strength : Kevlar rope reinforcement

WIRING

Compromise between number of LEDs, weight, flexibility and implantation.

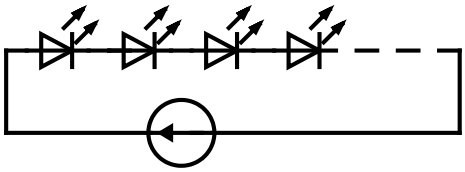
TECH FOR VISIBILITY AND SAFETY

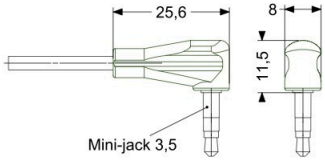
CG01 SERIAL WIRING

DESCRIPTION

Our electronic units are wired in series by default. We have been able to validate that the quality and robustness of the LEDs, as well as the performance of the technology, ensure the expected level of reliability. We use only one conductor for better comfort.

DIMENSIONS





PERFORMANCE

- Flexible (minimum bending radius = 5mm)
- Lightweight (e.g. : a bundle of 10 UE and 3,5m of cable = 20g)
- High mechanical resistance (tensile strength UE _ of cable = 30N)
- Very low linear electrical resistance

FEATURES

- AWG24 : outer diameter 1,1mm
- Material :
  - Insulating : FEP
  - Conductor : Cu
  - Surface finishing : Sn
- Standard electrical harness wiring UE01 :
  - V max. = 50 V **so 16 LED of 3V**
  - I max. = 20mA (LED medium power), 1,5A (LED power)

COMPATIBILITY

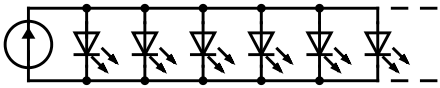
UE	IN	BC
01	01	01
02		02
03		03
		04

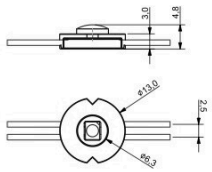
CG02 PARALLEL WIRING

DESCRIPTION

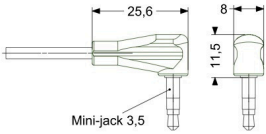
Parallel wiring can be implemented for specific applications requiring a large number of LEDs and/or high mechanical resistance. For this, we have developed a specific electronic unit UE06.

DIMENSIONS





UE06 : parallel medium power



PERFORMANCE

- Large number of LEDs possible with appropriate power supply
- Allows LED failure without compromising operation
- High mechanical resistance (tensile strength of cable = 100N)

FEATURES

- AWG24 : outer diameter 1,1mm
- Material :
  - Insulator : FEP
  - Conductor : Cu
  - Surface treatment : Sn
- Standard electrical wiring of bundles UE01 :
  - I max. = 2A **so 10 LED of 20mA**
  - V max. = 3V

COMPATIBILITY

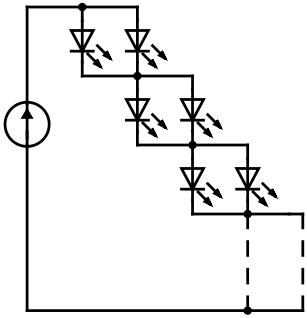
UE	IN	BC
06	01	NA

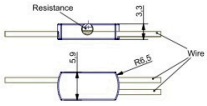
CG03 MIXED WIRING

DESCRIPTION

The objective is to optimize the wiring of our different UE by adapting the voltage and current of the LED bundles to achieve the maximum number of LEDs. Ideal solution for long cords or lengths.

DIMENSIONS





UE07 :
Serial bypass

Connector depending on applications

PERFORMANCE

- Flexible (minimum bending radius = 5mm)
- Lightweight : conductor mass = 4g/m (UE mass = 2g)
- High mechanical resistance (traction force UE _ cable = 30N)
- Very low linear electrical resistance

FEATURES

- AWG24 : outer diameter 1,1mm
- Material :
  - Insulation : FEP
  - Conductor : Cu
  - Surface treatment : Sn
- Standard electrical wiring of UE01 :
  - I max. = 80mA with V max. = 40V so **60 LED wired**

COMPATIBILITY

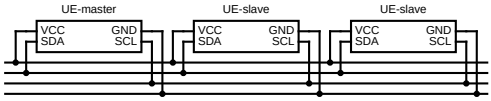
UE	IN	BC
05	02	01
		04

CG04 NETWORK

DESCRIPTION

Network wiring allows the connection of specific electronic units requiring a communication bus for information transfer. To maintain our characteristics of flexibility and lightness, we use only three conductors (see UE04).

DIMENSIONS



Connector depending on applications

PERFORMANCE

- Flexible (minimum bending radius = 10mm)
- Lightweight : conductor mass = 12g/m
- High mechanical resistance (traction force UE _ cable = 100N)

FEATURES

- AWG24 : outer diameter 1,1mm
- Material :
  - Insulation : FEP
  - Conductor : Cu
  - Surface treatment : Sn
- Standard electrical wiring of bundles :
  - I max. = 80mA with V max. = 40V so **60 LED câblées**

Communication protocol LAN, I2C

COMPATIBILITY

UE	IN	BC
04	01	05

CONTROL BOX

Autonomy adapted to your needs, neat ergonomics to fit into your clothing, sustainable design.

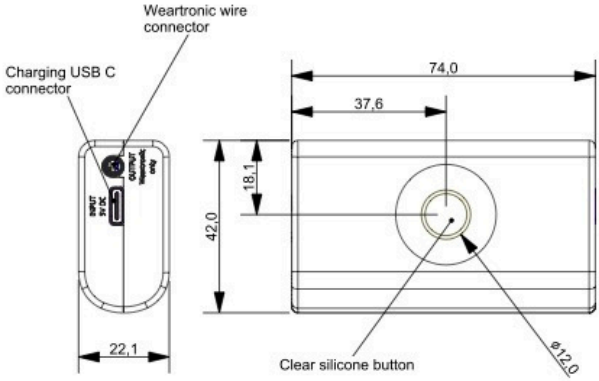
TECH FOR VISIBILITY AND SAFETY

BC01 GREAT AUTONOMY

DESCRIPTION

A design that optimizes size and weight for maximum autonomy corresponding to our clients' usage periods. Very easy to use, it fits perfectly in a small pocket of your clothes or accessories.

DIMENSIONS



PERFORMANCE

- Up to 10 hours of autonomy
- Charges with a USB C connector
- Programmable as desired.
- Standard program :
  Beam 1 : short press sequence : 1st = steady ON, 2nd = blinking, 3rd = OFF
  Beam 2 (depending on version) : long press sequence : 1st = steady ON, 2nd = OFF
- Charging indicator : orange 0 to 98%, green 100%
- Operation indicator : green 100 to 70%, red 70 to 0%

COMPATIBILITY

UE	CG
01	01
02	03
05	

FEATURES

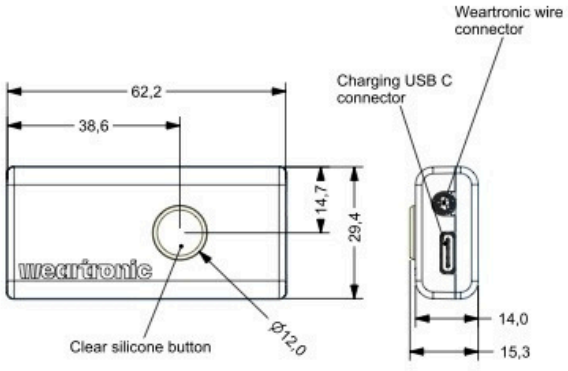
- Maximum number of LEDs per beam = 12 LEDs
- Number of beams = 1 or 2 beams (version of the electronic card)
- Charging time = 5 hours
- Total recharge cycles = 300
- Weight = 75g
- Material : ABS UL90 V2
- Battery Li-ion EN38.3

BC02 COMPACT

DESCRIPTION

Mainly developed for accessories, this box offers a very low size and weight. Very easy to use, it fits perfectly into a small pocket or lining of your clothes or accessories.

DIMENSIONS



PERFORMANCE

- Up to 5 hours of autonomy
- Charges with a USB C connector
- Programmable as desired.
- Standard program :
  Beam 1 : short press sequence : 1st = steady ON, 2nd = blinking, 3rd = OFF
- Charging indicator : orange 0 to 98%, green 100%
- Operation indicator : green 100 to 70%, red 70 to 0%

COMPATIBILITY

UE	CG
01	01
02	

FEATURES

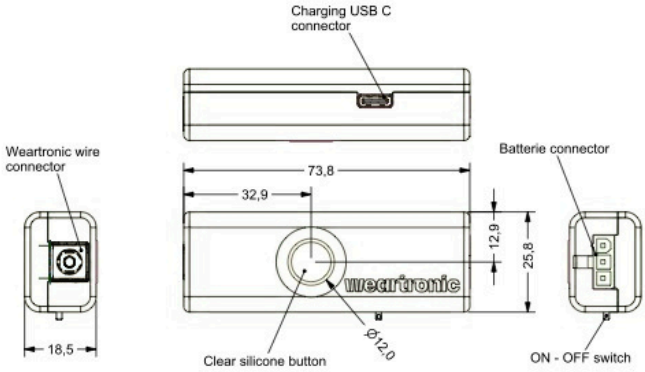
- Maximum number of LEDs per beam = 12 LEDs
- Number of beams = 1
- Charging time = 4 hours
- Total recharge cycles = 300
- Weight = 27g
- Material : ABS UL90 V2
- Battery Li-polymer EN38.3

BC03 PUISSANCE AVEC DÉTECTION HOMME MORT

DESCRIPTION

Mainly developed for power lighting technology, this box does not incorporate a battery. It uses an external battery which is adapted to each need for autonomy.
It is equipped with a switch allowing perfect control of electrical losses.
Optionally, it can be equipped with a buzzer, an accelerometer and/or the recharge function.

DIMENSIONS



PERFORMANCE

- Autonomy depending on battery choice
- With charger function recharges with a USB C connector
- Programmable as desired.
- Charging light : orange 0 to 98%, green 100%
- Operating light : green 100 to 70%, red 70 to 0%

COMPATIBILITY

UE	CG
03	01

FEATURES

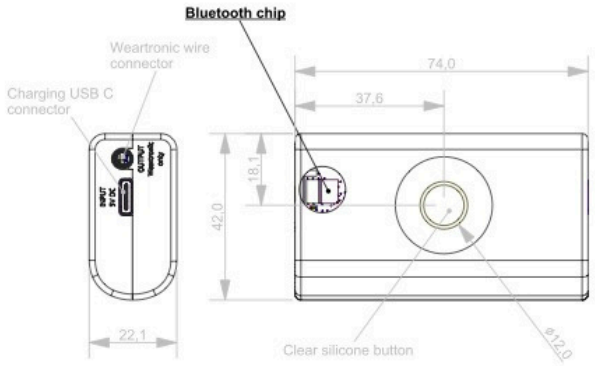
- Maximum number of LEDs per beam = 8 LEDs
- Number of beams = 1
- Weight = 30g
- Material : ABS UL90 V0

BC04 CONNECTED

DESCRIPTION

This control box is geometrically identical to the BC01 box.
For the “connected” function, we implement a card equipped with a Bluetooth chip making our box communicate.
The characteristics of the box remain unchanged.

DIMENSIONS



PERFORMANCE

- Up to 10 hours of autonomy
- Recharges with a USB C connector
- Programming according to application and need for Bluetooth data exchange. The case can be used normally like the BC01 model.
- Charging light : orange 0 to 98%, green 100%
- Operating light : green 100 to 70%, red 70 to 0%

COMPATIBILITY

UE	CG
01	01
02	03

FEATURES

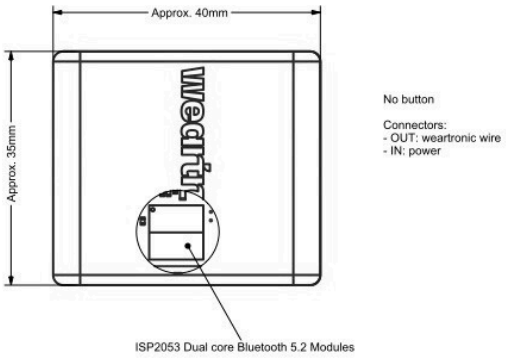
- Maximum number of LEDs per beam = 10 LED
- Number of beams = 2
- Recharging time = 4 heures
- Total recharge cycles = 300
- Weight = 75g
- Material : ABS UL90 V2
- Battery Li-ion EN38.3

BC05 NETWORK

DESCRIPTION

This control box is a first generation, allowing the way towards the implementation by communication protocol of all types of components.
In the case of RGB LEDs, it allows the LEDs to be powered and controlled independently.
The box also communicates via Bluetooth and can be controlled remotely. Equipped with the directional Bluetooth chip, the boxes can work in a network

DIMENSIONS



PERFORMANCE

- Autonomy depending on battery choice
- Programming according to application

All the following functions can be implemented according to specifications :

- Internal battery with charger
- Switch
- Buzzer
- Accelerometre
- ...

COMPATIBILITY

UE	CG
04	04

FEATURES

- Maximum number of LEDs per beam = 8 LED
- Number of beams = 1
- Weight = 30g
- Material : ABS UL90 V0

LET'S MEET

TECH FOR VISIBILITY AND SAFETY

Weartronic

weartronic.com

contact@weartronic.com

400 chemin des Crapons
74140 Sciez - France

SALES MANAGER

Maxime Doublet
maxime.doublet@weartronic.com
+33(0) 6 07 79 18 94

R&D

David Zieder (CEO)
david.zieder@weartronic.com
+33(0) 6 87 50 43 41

weartronic

TECH FOR VISIBILITY AND SAFETY