

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: EU support for street lightning project in the City of Bihac

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Publication reference: EuropeAid/140252/DH/SUP/BA

Columns 1-2 should be completed by the contracting authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words 'compliant' or 'yes' are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specification.

The following characterises are mandatory for the Items 1.1-1.6.

Functional LED luminaire with LED light source, fully equipped.

The upper and lower part of the lamp casing made of aluminum alloy under pressure, with an anti-corrosion coating, painted by electrostatic powder coating, RAL 9006 or equivalent.

Lower part of the case with profiled silicone gasket providing the appropriate degree of protection of the part of the lamp with the ballast device.

Protector made of ultra-durable, tempered glass, resistant to UV rays, atmospheric impacts and temperature dilation.

For the purpose of verifying compliance with the light technical requirements for each of the lamp types offered, it is necessary to indicate the name of the manufacturer, the exact name and type / model of the product.

In order to confirm the satisfaction of the required characteristics, the following must be provided for each of the lamp types offered:

- Declaration of Conformity with the CE Mark, issued by the Manufacturer.

Declaration of Conformity with the RAOHS and WEEE Directives issued by the Manufacturer.

- ENEC certificate,
- Report on impact test (IK test) according to EN 62262
- An IP test according to EN 60598-1.
- Photometric manufacturer's report for the lamps according to LM79-08, CIE 121-1996 and EN 13032-1 or certificates issued by the accredited laboratory to demonstrate the required photometric characteristics of the lamp.
- LED manufacturer or LED lamp manufacturer's report on projected life expectancy and light flux maintenance according to LM80 / TM21 standards.

LOT 1: Supply of LED lights and posts

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.1 QTY:203p cs	<p>Procurement and installation of LED lights of total capacity not exceeding 82W with connecting cable, joined to the grid by adequate terminal. Cable pulled into a flexible, hard, corrugated PVC hose. To be fully operational</p> <p>Minimum technical characteristics:</p> <ul style="list-style-type: none"> • Optical block design: Fully cutoff with ULOR = 0%. • Total lamp power not exceeding 82W. • The luminous flux of the lamp is not less than 8,500 lumens (Ta = 25 ° C). • Light color temperature: 3700K-4300K (NW-neutral white). • Playback index of color: Ra ≥ 80. • Class of beam min. G4. • Lamp efficiency ≥ 120 lm / W. • Power factor: 100% load min. cos φ ≥ 0.90. • Durability of the LEDs of the presenter units: ≥ 100,000 hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). • The emergency unit must have the ability to create an autonomous multi-step smoke scenario, the ability to control the brightness level (or power) via the DALI or 1 - 10V protocols. • Easy mounting lamp system, horizontally on Ø 42-60mm diameter bracket, with angle adjustment angle of 10 ° to + 15 °, in steps of 5 °. 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. • Operating voltage 230V \pm 10%, Insulation class II, Operating temperature: -30 ° C to + 35 ° C. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			
1.2. QTY 83 pcs	<p>Procurement and installation of LED lights of total capacity not exceeding 58W with connecting cable, joined to the grid by adequate terminals. Cable pulled into a flexible, hard, corrugated PVC hose. To be fully operational.</p> <p>Minimum technical characteristics:</p> <ul style="list-style-type: none"> • Optical block design: Fully cutoff with ULOR = 0%. • Total lamp power: not exceeding 58W. • Light flux of lamps: not less than 6,600 lumens (at Ta = 25 ° C). • Light color temperature: 3700K-4300K (NW-neutral white). • Playback index of color: Ra \geq 80. • Class of beam min. G4. 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Lamp efficiency $\geq 120 \text{ lm / W}$. • Power factor: 100% load min. $\cos \varphi \geq 0.90$. • Durability of the LEDs of the presenter units: $\geq 100,000$ hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). • The emergency unit must have the ability to create an autonomous multi-step smoke scenario, the ability to control the brightness level (or power) via the DALI or 1 - 10V protocols. • Easy mounting lamp system, horizontally on $\varnothing 42\text{-}60\text{mm}$ diameter bracket, with angle adjustment angle of 10° to $+15^\circ$, in steps of 5°. • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. • Operating voltage $230\text{V} \pm 10\%$, Insulation class II, Operating temperature: -30°C to $+35^\circ \text{C}$. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			
1.3. QTY 601 pcs	<p>Procurement and installation of LED lights of total capacity not exceeding 43W with connecting cable, joined to the grid by adequate terminals. Cable pulled into a flexible, hard, corrugated PVC hose. To be fully operational.</p> <p>Minimum technical characteristics:</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Optical block design: Fully cutoff with ULOR = 0%. • Total lamp power: not exceeding 43W. • Light flux of lamps: not less than 5,100 lumens (at Ta = 25 ° C). • Light color temperature: 3700K-4300K (NW-neutral white). • Playback index of color: Ra ≥ 80. • Class of beam min. G4. • Lamp efficiency ≥ 120 lm / W. • Power factor: 100% load min. cos φ ≥ 0.90. • Durability of the LEDs of the presenter units: ≥ 100,000 hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). • The emergency unit must have the ability to create an autonomous multi-step smoke scenario, the ability to control the brightness level (or power) via the DALI or 1 - 10V protocols. • Easy mounting lamp system, horizontally on Ø 42-60mm diameter bracket, with angle adjustment angle of 10 ° to + 15 °, in steps of 5 °. • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Operating voltage 230V \pm 10%, Insulation class II, Operating temperature: -30 ° C to + 35 ° C. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			
1.4. QTY 700 pcs	<p>Procurement and installation of LED lights of total capacity not exceeding 32 W with connecting cable, joined to the grid by adequate terminal. Cable pulled into a flexible, hard, corrugated PVC hose. To be fully operational.</p> <p>Minimum technical characteristics:</p> <ul style="list-style-type: none"> Optical block design: Fully cutoff with ULOR = 0%. Total lamp power not exceeding 32W. The luminous flux of the lamp is not less than 2,900 lumens at Ta = 25°C. Light color temperature: 3700K-4300K (NW-neutral white). Playback index of color: Ra \geq 80. Class of beam min. G4. Lamp efficiency \geq 120 lm / W. Power factor: 100% load min. $\cos \varphi \geq 0.90$. Durability of the LEDs of the preamplifier units: \geq 100,000 hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • The emergency unit must have the ability to create an autonomous multi-step smoke scenario, the ability to control the brightness level (or power) via the DALI or 1 - 10V protocols. • Easy mounting lamp system, horizontally on Ø 42-60mm diameter bracket, with angle adjustment angle of 10 ° to + 15 °, in steps of 5 °. • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. • Operating voltage 230V ± 10%, Insulation class II, Operating temperature: -30 ° C to + 35 ° C. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			
1.5. QTY 1800 pcs	<p>Procurement and installation of LED lights of total capacity not exceeding 25W with connecting cable, joined to the grid by adequate terminal. To be fully operational.</p> <p>Minimum technical characteristics:</p> <ul style="list-style-type: none"> • Optical block design: Fully cutoff with ULOR = 0%. • Total lamp power not exceeding 25W. • The luminous flux of the lamp is not less than 2.300 lumen at Ta = 25°C. • Light color temperature: 3700K-4300K (NW-neutral white). 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Playback index of color: $R_a \geq 80$. • Lamp efficiency $\geq 120 \text{ lm / W}$. • Power factor: 100% load min. $\cos \varphi \geq 0.90$. • Durability of the LEDs of the presenter units: $\geq 100,000$ hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). • The emergency unit must have the ability to create an autonomous multi-step smoke scenario, the ability to control the brightness level (or power) via the DALI or 1 - 10V protocols. • Easy mounting lamp system, horizontally on $\varnothing 42\text{-}60\text{mm}$ diameter bracket, with angle adjustment angle of 10° to $+15^\circ$, in steps of 5°. • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. • Operating voltage $230\text{V} \pm 10\%$, Insulation class II, Operating temperature: -30°C to $+35^\circ \text{C}$. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			
1.6. QTY 50 pcs	<p>Procurement and installation of LED lights of total capacity not exceeding 44W with connecting cable, joined to the grid by adequate terminal. To be fully operational.</p> <p>Minimum technical characteristics:</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Optical block design: Fully cutoff with ULOR = 0%. • Total lamp power not exceeding 44W. • The luminous flux of the lamp is not less than 4400 lumens (at Ta = 25°C). • Light color temperature: 3700K-4300K (NW-neutral white). • Playback index of color: Ra ≥ 80. • Class of beam min. G4. • Lamp efficiency ≥ 120 lm / W. • Power factor: 100% load min. $\cos \varphi \geq 0.90$. • Durability of the LEDs of the presenter units: ≥ 100,000 hours. Light flux at 100% load after 100,000 hours min. 80% of the initial (L80 / B10). The supercomputer should have the ability to create an autonomous multi-step smoke scenario, the ability to control the lighting level (or power) via the DALI or 1 - 10V protocols. • Direct mounting system on the end piece F 48-60mm, vertically, centrally, symmetrically in relation to the stub. • Mechanical resistance of impact lamp IK10, in accordance with IEC-EN 62262. • Clamping rate of the lamp (optical part and part of the preamplifier) min. IP66, in accordance with IEC-EN 60598. • The lamp should be equipped with 10kV surge protection equipment. • Operating voltage 230V ± 10%, Insulation class II, Operating temperature: -30 ° C to + 35 ° C. <p>The offer must also include the entire small assembly material (screws, power cable for the lamp, etc.)</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.7. QTY 20000m	Connecting cable SKS 4x16 mm ² The remaining uninstalled material should be stored at a warehouse of the beneficiary.			
1.8. QTY 600 pcs	Procurement and installation of hot galvanized single arch console. L=0,50M and L=1,0M. Upon completion of works, all uninstalled consoles should be stored within a warehouse of the beneficiary.			
1.9. QTY 40 pcs	Procurement and installation of hot galvanized double arch console. L=0,50M and L=1,0M. Upon completion of works, all uninstalled consoles should be stored within a warehouse of the beneficiary.			
1.10. QTY 3000 pcs	Procurement and installation of waterproof (IOS) insulated extruded terminals.			
1.11 QTY 3000 pcs	Procurement and installation of tensioning terminals.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.12. QTY 13 pcs	<p>Procurement and installation of ROR (lighting distribution box such as MO-1T), equipped according to the single-line diagram together with network connection and installation onto the RC post. The distribution box has own addition – clamps for installation onto the RC post. Earthing of the ROR distribution box must be done with excavation – backfilling and placement of the band FeZn 25x4 mm.</p> <p>The box should be made from the insulation material called Polycarbonate (PC), the characteristic of which is resistance to the UV radiation and aging within the UV class, non-combustion/self-extinguishing within V-0 class, also owing the necessary characteristics in terms of satisfaction of the necessary mechanical, thermal, electrical, physical and chemical features.</p> <p>Protection from the penetration of foreign bodies and liquids into the distribution box should be within the range of protection of IP54 according to EN 60529. The colour of the distribution box base is RAL 7047 and the box has the door window for meter reading. It has a standard lock with a key No. 52.</p> <p>Certification and attestation documentation must be provided after the delivery.</p>			
1.13. QTY 22pcs	Procurement and installation of concrete pillar, type 315/9, including installation with foundation and final concrete hat.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.14. QTY 51 pcs	Supply and installation of lighting poles on already laid bases. Octogonal or segmental cylindrical candelabers, hot zinc; the height 8 m with the console L = 1m. Put the old posts to be dismantled and deposited at the dump that the investor determines. Compulsory attestation documentation for lighting pylons. Cots protected by a tricot of 0.6m from the ground. The offer must also include the mounting of a lamp with a new connecting cable and small mounting material.			
1.15. QTY 49 pcs	Supply and installation of lighting poles on already laid bases. Octogonal or segmental cylindrical candelabers, hot zinc; the height 6 m with the console L = 1m. Put the old posts to be dismantled and deposited at the dump that the investor determines. Compulsory attestation documentation for lighting pylons. Cots protected by a tricot of 0.6m from the ground. The offer must also include the mounting of a lamp with a new connecting cable and small mounting material.			
1.16. QTY 3050 pcs	Dismantling of the current lights. Dismantled material should be stored at the beneficiary's warehouse.			
1.17. QTY 14 pcs	Supply, delivery and installation of water-based luminaires with LED light source in plexiglas lighting fixtures. Watertight lamps must have the following minimal technical characteristics:			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	color temperature 4000 K degree of IP65 protection mechanical resistance min IK08 light flux 4000 lm luminous efficiency 100 lm / m angle of 120 degrees dimensions 1200x30x45 (lxwxh) electric power max 40 W			
1.18. QTY 230 m	Supply, delivery and installation of LED strips on the underside of the handle. LED strips must have the following minimum technical characteristics: color temperature 4000 K degree of IP65 protection working voltage 24 V DC light flux 1200 lm / m light efficiency 120 lm / m nominal power 12 W / m color reproduction index > 80 angle of 100 degrees light number of LEDs per meter - 60 max tape dimensions 5000x11x5 mm			
1.19. QTY 230 m	Supply, delivery and installation of embedded aluminium profile for LED strip.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.20. QTY 16 pcs	Supply, delivery, and installation of a LED strip driver together with a watertight housing with the following minimum technical characteristics: nominal power 250 W input voltage 230 V AC output voltage 24 V DC degree of IP66 protection integrated overvoltage protection			
1.21. QTY 20 pcs	Supply, delivery and installation of LED line lights to be mounted on the underside of the bridge over the slats. Minimum technical characteristics: color temperature 4000 K degree of IP65 protection mechanical resistance min IK08 light flux 4000 lm luminous efficiency 100 lm / m angle of 120 degrees electric power max 50 W Dimensions 1500x30x45 (lxwxh)			
1.22. QTY 200 m	Supply, delivery and installation of NYY-J 5 x 1.5 mm ² power supply cable, partially in PVC and partly in perforated cable ducts. All together with flexible PVC pipes.			
1.23. QTY 200 m	Supply, delivery and installation of NYY-J 3x2.5 mm ² power supply cable partly in the ground, partly in PVC shielding and partly in perforated cable channels. All together with flexible PVC pipes.			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.24. QTY 200 m	Supply, delivery and installation of NYY-J 5x2.5mm ² power supply cable partly in the ground, partly in PVC shielding and partly in perforated cable channels. All together with flexible PVC pipes.			
1.25. QTY 200 m	Supply, delivery and laying of P / F type cable 1x6 mm ² partly in the ground, to equalize the potential of metal masses. All together with threadbars, screws and other tiny mounting material.			
1.26 QTY 50 m	Supply, delivery and laying of P / F type cable 1x16 mm ² partly in the ground, to equalize the potential of metal masses. All together with threadbars, screws and other tiny mounting material.			

LOT 2: Pedestrian crossings signalling and lighting system

<p>2.1</p> <p>QTY 10</p> <p>pcs</p>	<p>Supply, delivery and installation of signalling and lighting system for pedestrian crossings designed to achieve the highest levels of safety for pedestrians.</p> <p>1. SAFETY KIT FOR PEDESTRIAN CROSSING</p> <p>The set is consisted of a LED lamp, a cantilever girder carrying a LED traffic sign and a LED spot lamp which illuminates the pedestrian crossing made of white bitumen strip, affixed to the asphalt by the gas welding machine.</p> <p>TRAFFIC SIGNS</p> <p>The light traffic sign is mounted on a console column which positions the light traffic sign above the centre of the road.</p> <p>Two-sided sign for pedestrian crossing, casing size of 100 x 100 cm, delivery, installation and mounting on column, i.e. cantilever girder above the road.</p> <ul style="list-style-type: none"> - The casing and front mask must be coated with a protective coating. - Blinking (Light / Darkness ratio) 50/50 in two seconds. Signal word "pedestrian crossing" or just a "pedestrian" on pedestrian crossing. - The symbol on the "pedestrian crossing" sign is made of white LEDs (Light Emitting Diode) in one row. - The symbol on the "motion speed" sign is made of white LEDs in one row. The angle of light exposure of 30 ° and of a high light intensity. - The lamps illuminating the pedestrian crossings must be of LED technology i.e. high luminosity diodes, to meet the requirements: <ul style="list-style-type: none"> - Yellow LEDs of at least 7440 cd / m2 with illumination of 40,000 lx - White and yellow LEDs of at least 10540 cd / m2, with illumination of 40000 lx 			
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	<ul style="list-style-type: none"> - Red LED of light intensity of at least 3100 cd / m², with illumination of 40 000 lx, diameter of 20 mA optical fibre ø 5 mm, 23 ° flicker angle, - The mark on the traffic sign, such as a sign of danger, command or prohibition, must be clearly seen from the distance of minimum 150 meters, - The intensity of the light of the optical system must be adjusted to the ambient light (e.g. reduced visibility at night) - The mark must be positioned and constructed in a way that it is vertically close to the high angle of view, e.g. at a distance of minimum 35 meters, - Must be clearly visible under the conditions of reduced visibility and to be controlled at all times from the operational centre for the remote control of the pedestrian crossing system. - The pedestrian crossing lighting system must reliably operate in a temperature range of - 40 to + 70 ° C with a relative humidity of 95% and IP 54 degree of protection. - Good visibility of the picture depends on the contrast of the sign, in regards to its background and surrounding light. Therefore, while designing a traffic sign, it is desirable to display the sign on a black background. <p>The lower edge of the light traffic sign must be at least 5.0 m from the road level. On each side of the sign there is a pair of halogen flashlights which blink alternately as a blinking signal. Blinking ratio dark / light is 50/50 in two seconds.</p> <p>The light traffic sign must have its own power source (solar panel kit).</p>			
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	<p>PILLAR AND CANTILEVER GIRDER SYSTEM The traffic sign is mounted on a column with a cantilever girder, the length of the console is 5.0 m. The column is mounted at a distance of 1.25 m from the edge of the road. All elements must be made of corrosion-resistant material or have an anti-corrosion coating. The height of the sign is at least 5 meters from the lower edge of the sign to the level of the road.</p> <p>LED LIGHTING As part of the pedestrian crossing lighting system, there are signs and a LED lamp that illuminates the pedestrian crossing, i.e. to make the pedestrian crossing safe for the pedestrians and visible to the drivers of the motor vehicles. The directional light is located on the pillar of the console on which it is to be mounted in a way to be able to illuminate the complete pedestrian crossing. LED lamp that illuminates the pedestrian crossing is to be connected to public lighting.</p> <p>WHITE STRIPS OF PEDESTRIAN CROSSING White strips or "Pedestrian crossing" are made of a white bituminous layer affixed to the asphalt by the gas welding machine.</p> <p>All of these products make the pedestrian crossing kit and cannot be placed separately, but only in the set. The base of the pillar – carrier of the traffic sign, must be of minimum dimensions 80 * 80 * 80 cm with all elements, i.e. anchor bolts for the fixation of the metal pillar.</p>			
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