

## **ANNEX II: TECHNICAL SPECIFICATIONS & ANNEX III: TECHNICAL OFFER**

### **SECTION 3: TECHNICAL DATA SCHEDULE**

#### **LOT 3: Development of remote supervision and control systems for the medium voltage distribution grid in the area of Elektrosrbija Kraljevo**

##### **REMOTE TERMINAL UNIT REMOTELY SUPERVISING AND CONTROLLING THE LINE DISCONNECTOR FOR THE MEDIUM VOLTAGE GRID REMOTE SUPERVISION AND CONTROL SYSTEM**

## SECTION 3: TECHNICAL DATA SCHEDULE 01

REMOTE TERMINAL UNIT REMOTELY SUPERVISING AND CONTROLLING THE LINE DISCONNECTOR

Item	Description	Unit	Required	Guaranteed
1	<b>GENERAL</b>			
1.1	Manufacturer			
1.2	name			
1.3	country of manufacturing			
2	<b>CASING</b>			
2.1	Control unit and electric actuator in a joint casing made of permanently stainless steel sheet metal		yes	
2.2	Casing protection class IP 64		yes	
2.3	Locking the casing with padlock		yes	
2.4	Outdoor mount		yes	
2.5	Maintaining the temperature hysteresis 5°C - 15°C		yes	
2.5.1	N connector for connected antennae		yes	
3	<b>ENVIRONMENT CONDITIONS</b>			
3.1	Outdoor mount declared;		yes	
3.2	Temperature range -25° C to + 60 ° C		yes	
4	<b>POWER</b>			
4.1	Main power 230 V $\pm$ 10% AC;		yes	
4.2	Overvoltage protection from the main power side by surge arresters mounted on a DIN rail		yes	
4.3	DC backup power, voltage 12V or 24V as selected by bidder		yes	
4.4	Battery capacity should provide:			
4.4.1	minimum 10 open/close switchgear device operations after interruption of the main power supply		yes	
4.4.2	be 12Ah minimum		yes	

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REMOTE TERMINAL UNIT REMOTELY SUPERVISING AND CONTROLLING THE LINE DISCONNECTOR

Item	Description	Unit	Required	Guaranteed
4.5	Battery protection against deep discharge and discharge under the level guaranteeing reliable equipment operation		yes	
5	<b>ACTUATOR</b>			
5.1.	Discreetly adjustable run of 125 – 200 mm;			
5.2.	Maneuver speed 150 mm/ 0,5 sec			
5.3.	Drive force min 2,3 kN at 175 mm;			
6	<b>DIGITAL RADIO COMMUNICATIONS MODULE</b>			
6.1.	Reserved space for installation of Radio module (as per S3_L3_03 TDS_DCRM 1 and S3_L3_04 TDS_DCRM 2)		yes	
7	<b>STANDARDS</b>			
7.1.	IEC 60099-4		yes	
7.2.	ETSI 300-220/UHF HIGH 300-113			
7.3.	ETS 300-683			
7.4.	EN 300 220-1			
7.5.	LVD72/23/EEC (93/68/EEC)		yes	
7.6.	Quality management system ISO 9001		yes	
8	<b>PANEL</b>			
8.1	Configuration port (RS232) on the front panel		yes	
8.2	Local/remote operation mode selection switch		yes	
9	<b>LED INDICATORS</b>			
9.1	Disconnecter close		yes	
9.2	Disconnecter open		yes	
9.3	Device blocked		yes	
9.4	Interruption of the main power supply		yes	
9.5	Battery charger malfunction		yes	
9.6	Fuse trip		yes	

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REMOTE TERMINAL UNIT REMOTELY SUPERVISING AND CONTROLLING THE  
LINE DISCONNECTOR

Item	Description	Unit	Required	Guaranteed
9.7	Low battery voltage (under configured value)		yes	
9.8	Ongoing battery test		yes	
9.9	Motor overload		yes	
9.10	Automatic sectioning activated		yes	
10	<b>PUSH BUTTONS</b>			
10.1	Command verification		yes	
10.2	Closing the disconnecter		yes	
10.3	Opening the disconnecter		yes	
10.4	Activate/Deactivate automatic sectioning		yes	
10.5	LED indicators testing		yes	
10.6	Battery testing		yes	
11	<b>PROTOCOLS</b>			
11.1	Supported DNP 3.0 protocol between remote terminal unit and radio modem.		yes	
11.2	Supported IEC 60870-5-103 protocol between remote terminal unit and radio modem (optional)			
11.3	Supported IEC 61850 protocol between remote terminal unit and radio modem (optional)			
12	<b>SOFTWARE PACKAGES SHALL BE DELIVERED WITH DEVICES</b>			
12.1	for RTU operation			
12.2	for control, parametrization and reading out RTUs on site via a mobile computer (without computer delivery)		Yes	
13	<b>DOCUMENTATION IN THE SERBIAN LANGUAGE SHALL BE DELIVERED WITH DEVICES</b>			
13.1	Technical properties (CD, printouts - 3 sets)		Yes	
13.2	Mounting instructions		Yes	
13.3	Software manual		Yes	
13.4	Maintenance instructions with milestones		Yes	

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## REMOTE TERMINAL UNIT REMOTELY SUPERVISING AND CONTROLLING THE LINE DISCONNECTOR

Item	Description	Unit	Required	Guaranteed
13.5	Complete certificate of compliance paperwork and factory test sheets		Yes	
14	<b>FUNCTIONS</b>			
14.1.	Protection against deep battery discharge;		yes	
14.2.	Motor protection against overload;		yes	
14.3.	Battery capacity and charging control;		yes	
14.4.	Local command blocking when remote operating mode selected;		yes	
14.5.	Remote command blocking when local operating mode selected;		yes	
14.6.	Option of simultaneous local and remote control block;		yes	
14.7.	Automatic sectioning with a software configuration option;		yes	
14.8.	Automatic sectioning algorithm based on voltage detection and predefined open/close times;		yes	
14.9.	Automatic sectioning algorithm based on implementation of fault current passage detectors;		yes	
14.10.	Software adjustment of time parameters and the sectioning sequence (algorithm);		yes	
14.11.	Blocking automatic sectioning when local control mode is selected;		yes	
14.12.	Software adjustment of delayed manipulation time in local control;		yes	
14.13.	Manual disconnector manipulation option;		yes	
14.14.	Option to lock disconnector positioning mechanism in open position;		yes	
14.15.	Option to connect the fault current passage detector inside the control module casing (earth fault and short circuit detection);		yes	
14.16.	Option of modular expansion in terms of increasing digital and analogue inputs;		yes	

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Item	Description	Unit	Required	Guaranteed
14.17.	Option of testing all LEDs on the panel and all status messages visible on the panel;		yes	
14.18.	Option of software adjustment of communication routes;		yes	
14.19.	Option to connect the fault current passage detector inside the control module casing (earth fault and short circuit detection);		yes	
14.20.	Transmission of all measurements, alarm signals and position signaling to the SCADA system;		yes	
14.21.	Communication link quality functions implemented (communications test);			
14.22.	Data transmission quality test function (Bit Error rate Test) on the command communication module;			
14.23	Option to measure RSSI factor in real time (measuring signal reception quality in real time);			
14.24.	Presence of Debounce filtering function, i.e. the option to define the digital input filtering time to eliminate possible digital signal peaks;		yes	
14.25.	Presence of software packs for the operation of RTUs and the software pack for the control, parametrization and reading of RTUs in site via a mobile computer (without computer delivery);		yes	
OVERALL COMPLIANCE WITH THE REQUIREMENTS (YES/NO)				

## NOTE:

It is required that the Terminal Remote Supervision and Control Unit be equipped and delivered with all required equipment, software packs, telecommunication protocols and supporting documentation so as to meet the technical requirements as stated in the technical properties and Mounting Requirements appendices.

All signals, measurements and commands shall be transferred to the SCADA system in the DC ED.