

**Annex A – Technical Schedules A/B for alarm system**

TECHNICAL SCHEDULES A AND B FOR Specification for Integrated security alarm system 240-86738968

Schedule B: Guarantees, compliance, and technical particulars of equipment offered

- The clauses and numbering in this table are not necessarily the verbatim clauses as per 240-86738968. Therefore it is OBLIGATORY on the TENDERER to review the applicable clauses in 240-86738968 in order to provide an informed response.
- When completing the Schedule B and the References section, The Tenderer is required to state clearly, for each clause that requires a statement of compliance, with one of the following options:
  - Comply – Confirmation of FULL Compliance to all clauses of the applicable section of the Technical Standard. No deviations
  - Partially Comply – Confirmation of PARTIAL Compliance and that FULL Compliance is not possible. Deviations taken.
  - Do Not Comply - Confirmation of Non-Compliance to ALL requirements in the applicable section
- Reference to evidence in the form of datasheets, equipment manuals, drawings, hyperlinks shall be included in the References section
- Where there are any deviations taken from the clauses in the applicable section, these should be indicated under the References and Deviations section

	Description	Schedule A	Schedule B	References/Statement (supporting evidence) & Deviations	Comments
3	<b>General</b>				
3.1	<b>General requirements</b>  The system shall comply with the following general requirements:				
a)	Comply with requirements of SANS 2220-1-1.	comply			
b)	Comply with the requirements of SANS 2220-2-2.	comply			
c	Still operate in the event of a main power failure.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **14 of 138**

d)	Be either fail safe or fail secure, as required.	comply			
e)	Incorporate a management reporting function.	comply			
f)	have visual and/or audible indicating equipment.	comply			
g)	Be capable of accommodating traffic data flow even at peak data traffic periods.	comply			
h)	Be capable of distinguishing between a specified number of different geographic areas and be capable of maintaining the validity of specific time zones.	comply			
i)	Be able to generate alarms for any type of hazard to which the protected area or its occupants may be subjected.	Comply			
j)	Allow entry to the system parameters by password only and there shall be at least three levels of password to allow three levels of access	comply			
<b>3.2</b>	<b>Operating conditions</b>				
<b>3.2.1</b>	<b>General operating conditions</b>				
a)	All the elements of the alarm system shall be able to function in all climatic conditions prevailing in South Africa with the minimum environmental conditions below, without the performance being out of limits or the life cycle being shortened:	comply			
b)	Altitude: 0 – 2500 meters	comply			
c)	Ambient temperature: -10 to + 55 °C	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **15 of 138**

d)	Relative humidity: 0 to 100 % outdoors, 5 to 95% indoors in the specified temperature range.	comply			
<b>3.2.2</b>	<b>Resistance to corrosion</b>				
a)	The components of the system shall be inherently corrosion resistant.	comply			
<b>3.2.3</b>	<b>Environmental tests</b>				
a)	Environmental tests on the alarm system detector shall be conducted in accordance with 5.4 of SANS2220-1-1, during and after the test the detector shall not be adversely affected, it shall not be damaged and it shall not generate an alarm.	comply			
<b>4</b>	<b>Operational requirements</b>				
<b>4.1</b>	<b>System integration</b>				
a)	The alarm system shall be able to integrate with all Eskom's electronic security systems.	comply			
<b>4.1.2</b>	<b>Alarm triggers</b>				
a)	Alarm triggers of the integrated alarm system shall occur as a result of the following triggers (but not limited to:-  i. Due to Camera video analytics alarm detection on the site zone(s);  ii. Noise in the guarded zones;  iii. Alarm inputs from electric fence;	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **16 of 138**

	iv. Alarm inputs from infrared sensors;  v. Alarm inputs from microwave beams;  vi. Alarm inputs from panic buttons;  vii. Alarm input from fibre optic sensors(s);  viii. Alarm inputs from access control points.				
<b>4.1.3</b>	<b>Integration with CCTV cameras</b>				
a)	For effective alarm monitoring and proactive accurate response, the alarm system shall be interoperable with the following camera functionalities and triggers:  i. Built-in video motion analytics detection  ii. Audio detection  iii. Active tampering  iv. I/O connections  v. Alarm and event management.	comply			
<b>4.1.4</b>	<b>Integration with PA system</b>				
a)	To ensure Interoperability with the PA system, the alarm system shall trigger the automated voice recordings of the PA system and enable operators to speak to intruders.	comply			
<b>4.1.5</b>	<b>Integration with pre-detection sensors</b>				

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **17 of 138**

a)	The alarm system shall be interoperable with the pre-detection sensors and shall be triggered by the following sensors (at minimum):-  i. Infrared beams along the site perimeter and in the strategic places of the protected site.  ii. Microwave beams in the selected strategic place of the protected site.  iii. Fibre optic sensors at strategic places of the projected site.	comply			
<b>4.1.6</b>	<b>Integration with panic buttons</b>				
a)	A panic button may be installed to alert the security control room operators with a distress signal should an incident occur at a protected site.	Comply			
b)	There may be an option for both portable wireless panic buttons and fixed panic buttons installed at strategic areas.	comply			
c)	The alarm condition or status shall continue until the panic button is manually reset.	comply			
<b>4.1.7</b>	<b>Integration with security lighting</b>				
a)	When an alarm is triggered, the security lighting of the zone that triggered the alarm shall immediately be switched on.	comply			
<b>4.1.8</b>	<b>Integration with other electronic security systems</b>				

**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **18 of 138**

a)	The system shall be able to integrate with any other electronic security system not mentioned above	comply			
<b>4.1.9</b>	<b>Arming and Disarming system</b>				
a)	The system should be able to arm and disarm on presentation of a valid access control medium.	comply			
b)	System should be able to be armed both manually and via a remote control.	comply			
c)	<p>The remote shall have a minimum of four buttons / key combinations below:</p> <ol style="list-style-type: none"> <li>1) Alarm system activation / deactivation;</li> <li>2) Open electric gate (When installed);</li> <li>3) Open the maglock to the relay house door (Where implemented);</li> <li>4) Panic Button to alert the security control room operators with a distress signal when an incident occurs</li> </ol>	comply			
d)	It shall be possible to arm and disarm the intruder detection system from inside a vehicle outside the gate of the protected site.	comply			
e)	There shall be high brightness LEDs to indicate alarm status (armed or disarmed). An LED should be mounted at each entry point in such a way that it is clearly visible even in bright sunlight.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**

Unique Identifier: **240-170000257**

Revision: **4**

Page: **19 of 138**

f)	It shall be possible to detect the following scenarios when the system is armed:  1) Unauthorised access to protected site;  2) A panic button (if installed) is pressed;  3) AC fail;  4) Periodic test signals to confirm system is operational.	comply			
<b>4.1.10</b>	<b>Unauthorized access</b>				
a)	The alarm system shall be triggered by either of the following which could indicate unauthorised access:  1) Unrecognised card being used at the card reader;  2) Panic button being pressed;  3) Control centre issuing an alarm instruction;  4) Cameras and pre-detection sensors detecting violation.	comply			
<b>4.1.11</b>	<b>False or Nuisance alarm</b>				
a)	The system should be designed in such a way that nuisance alarms are minimised, by using the following methods at minimum:-  1) Use high quality sensors;  2) Place sensors strategically;				

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	3) Use 'double knock' design.				
4.1.12	<b>Integrated Alarm management</b>				
a)	During the alarm situation(s) the actions listed in section 4.1.12 of 240-86738968 shall take place	comply			
4.2	<b>The integrating system / controller shall:</b>				
a)	Collect information from intrusion detection systems, access control and video surveillance devices (at a minimum).	comply			
b)	Contain circuitry that provides interface with the peripheral devices by means of industry standard open communications protocol.	comply			
c)	Maintain a real-time sequential record of reader events, alarm events and all operator programming events that are date and time stamped to the nearest second.	comply			
d)	Have a transaction memory and shall be able to store information over a three month period or 10000 transactions.	comply			
e)	Have a transaction memory to store information at an offsite central server over a longer period (over 6 months).	comply			
f)	Have the output capability to send information to the intruder detector systems, tamper protection devices and power supply unit to reset once an alarm has been acknowledged by the security control centre.	comply			



**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**Unique Identifier: **240-170000257**Revision: **4**Page: **21 of 138**

g)	Have input capability to monitor intruder detector alarm signals, tamper protection devices and power supply unit alarms.	comply			
h)	Have interface capability with the communication unit in order to send alarm signals to the security control room and receive instructions to reset the alarm condition.	comply			
i)	Provide an interface for connection to access control devices such as a reader controller and access control controller.	comply			
j)	The system shall be configurable to have a decision making process at the controller so that controller transaction time does not exceed 1s.	comply			
k)	The controller shall be menu driven and display status of all monitored points simultaneously.	comply			
l)	To change settings on the controller the operator shall use a unique username and password. Each operator's transaction on the controller shall be recorded together with the date and time.	comply			
m)	Where access control and intruder alarm monitoring is on the same central processor, the controller shall simultaneously handle message traffic from the readers, intruder alarm system and operational functions such as file maintenance, time updating and real time output control updating, and the output capability to send information to the access control system.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **22 of 138**

n)	The system shall have the input capability to monitor access control system signals. The alarm signal shall have the highest priority and shall override other activities. It shall be possible to recall and execute the last transaction prior to the alarm condition.	comply			
4.3	Comply to alarms and indications requirements listed in section 4.3 of 240-86738968	comply			
<b>4.4</b>	<b>Monitoring and Control</b>				
a)	The alarm system shall be able to receive alarming instruction from security controller and sensors such as security lights, PA systems, Doors, CCTV, panic buttons or any other electronic security system at site.	comply			
b)	The security control centre shall be able to remotely issue alarming instructions to the alarming system.	comply			
c)	It shall be possible for the security control centre to monitor and control the system both locally and remotely.	comply			
d)	The local and remote controllers shall be able to schedule equipment operation.	comply			
<b>5</b>	<b>Electrical requirements</b>				
<b>5.1</b>	<b>Power Supply</b>				

**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **23 of 138**

a)	All system equipment shall be housed in 19-inch equipment cabinets as specified in the Eskom standard 240-60725641. This specification covers the earthing requirements in the cabinet as well.	comply			
b)	The existing standby power systems at site shall be used as the primary standby power source, provided that the standby time (autonomy) requirements of the site are not adversely affected.	comply			
c)	Standby power systems requirements shall comply to requirements listed in section 5.1 (c) of 240-86738968	comply			
d)	The system shall have an additional power failure alarm indication that shall be sent through to the Eskom control room via SCADA should the power supply be interrupted.	comply			
<b>5.2</b>	<b>Communication</b>				
a)	The integrated alarm system shall be an IP based smart solution with capability to integrate with other security systems through industry open communication protocols.	comply			
b)	The alarm system shall be designed and constructed to accommodate a communication module that allows for communication between site where the system is installed and the remote security control centre (Zero control or Regional security control centre).	comply			
<b>5.3</b>	<b>Electrical safety</b>				

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **24 of 138**

a)	Any container for batteries shall be so constructed that the battery terminals are protected against inadvertent contact with metal parts.	comply			
b)	A power unit for the alarm system shall be so constructed that electronics and electrical circuits are protected against hazards caused by battery charging, accidental electrolyte spillage, fumes or explosive gas.	comply			
c)	All electrical components shall be protected against excess current and short-circuit by adequately rated overload protective devices.	comply			
d)	In combined systems, alarm signalling and actions relating to safety of life shall be given priority.	comply			
e)	The system shall be protected against transients and lightning surges.	comply			
f)	The electrical installation shall comply with SANS 10142.	comply			
<b>6</b>	<b>Physical requirements</b>				
6.1	Comply to general construction requirements listed in section 6.1 of 240-86738968	comply			
6.2	Comply to tamper protection requirements listed in section 6.2 of 240-86738968	comply			
6.3	Comply to physical safety requirements listed in section 6.3 of 240-86738968	comply			
<b>7</b>	<b>EMC</b>				
a)	The alarm system shall comply with the relevant EMC standards regulated by ICASA.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **25 of 138**

b)	The alarm systems shall comply to the requirements for limits of electromagnetic interference given in the regulations published in terms of the Telecommunications Act, 1996 (Act No. 103 of 1996).	comply			
c)	Signal, voltage and electromagnetic radiation levels in readily accessible areas shall not be dangerous.	comply			
<b>8</b>	<b>Noise</b>				
a)	Noise levels for power unit of the alarm system shall comply with 3.4 of SANS 2220-1-7.				
<b>9</b>	<b>Cyber security</b>				
a)	The system shall comply with all the requirements of Eskom's Cyber Security Standard for operational technology (document number 240-55410927).	comply			
b)	The system shall not be susceptible to cyber-attacks and unauthorised remote access.	comply			
<b>10</b>	<b>Earthing</b>				
a)	The system shall be earthed as per Eskom's earthing standards	comply			
<b>11</b>	<b>Functional requirements for pre-detection sensors</b>				
a)	Alarms shall be generated by a perimeter detection system.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **26 of 138**

b)	The perimeter detection system shall create an 'invisible wall' which encapsulates the entire perimeter of the yard, so that there are no areas where an intruder may enter the site undetected	comply			
c)	There shall be no 'dead spots' in the invisible wall. Where a method of detection has an inherent dead spot, the dead spot of each device shall be covered by another device (e.g. Cameras with overlapping fields of view).	comply			
d)	The perimeter detection method should be divided into zones matching the areas covered by the perimeter cameras and fence zones.	comply			
e)	Pre-detection sensors shall be triggered by vibration detection of the following:  1) beneath the site barrier fences and walls to sense digging;  2) on the site barrier fences and walls to sense breaking through the barriers/walls;  3) on top of the site barrier fences and walls to detect climbing	comply			
f)	The sensitivity of the pre-detection system shall be configurable/tunable to limit nuisance alarms. The supplier shall provide details of how the system limits the nuisance alarms.	comply			
g)	The system shall comply with the requirements of integrated alarm management listed in 240-86738968	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **27 of 138**

<b>12</b>	<b>System life-cycle</b>				
a)	The minimum system life-cycle of the proposed product must be ten (10) years.	comply			
b)	The life-cycle of the product must be further supported in terms of spares availability for a minimum period of seven (7) years after discontinuation of the product	comply			
<b>13</b>	<b>Warranty and support</b>				
a)	The system shall carry a minimum local (South African) warranty of 36 months with on-site as well as telephonic support from date of the system being commissioned. Eskom shall thereafter have the option to access on-going support in terms of a subsequent agreement.	comply			
b)	The supplier must have a technician on call on a 24-hour basis for purposes of telephonic support.	comply			
c)	Supplier spares holding should include minimum replacement spares to restore service of the system in its entirety.	comply			
d)	All support shall also include all firmware upgrades of the initial system version installed over the operational life of the system.	comply			
e)	The support shall include first line maintenance	comply			
f)	The supplier shall also provide operator training to enable the installation, calibration and maintenance of the equipment by Eskom personnel or appointed contractors.	comply			

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**TECHNICAL EVALUATION CRITERIA FOR THE  
INTEGRATED PHYSICAL SECURITY SYSTEM**
Unique Identifier: **240-170000257**Revision: **4**Page: **28 of 138**

g)	Product support must include national as well as international support through the local branch.	comply			
h)	The supplier shall be willing to enter into an SLA with Eskom	comply			
i)	The supplier should have a history of supplying products of this nature in South Africa for at least a minimum period of five (5) years.	Comply			
j)	The supplier to provide a list of reference sites where the product on offer has been installed and the year of implementation.	comply			
<b>14</b>	<b>Markings, Labelling and packaging</b>				
a)	<p>The alarm system components shall be marked with the following information:</p> <ol style="list-style-type: none"> <li>1) The manufacture's name;</li> <li>2) The model identification;</li> <li>3) The rated supply voltage and frequency and the rated current;</li> <li>4) Identification of terminals and leads by means of numbers, colours or other.</li> </ol>	comply			
<b>15</b>	<b>Documentation and drawings</b>				
a)	The system shall be supplied with documentation and drawings listed in section 15 of 240-86738968	comply			
<b>16</b>	<b>Testing</b>				

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a)	The supplier shall avail themselves for Site Acceptance Testing at site after installation.	comply			
b)	All test procedures required to ensure the correct functioning shall be specified with a list of required test equipment and tools.	comply			