INFRASTRUCTURE · EQUIPMENT PROTECTION · SENSING BOLT

D-Bolt

L5 Layer · Critical assets

A strain-gauge sensor built into the nut: any attempt to loosen, bend or cut the bolt raises an alarm with its location.



KEY BENEFITS

01 **Invisible to the thief**
The sensing nut looks like every other nut on the structure, so there is nothing to spot.

02 **One bolt per asset**
A single D-Bolt protects a generator, pump, valve or cabinet, which keeps large deployments cost-effective.

03 **Alarm with location, anywhere**
Wireless, GPRS, SMS or GSM, or dry contact and RS485 into your control room.

HOW IT WORKS

01 **Sensing nut fitted**
A D-Bolt replaces a standard nut (M14–M22) on the asset.

02 **Tamper detected**
Opening, loosening, bending or cutting changes the pressure on the strain gauge.

03 **Control card acts**
It switches on CCTV, a siren or a floodlight on site and fires its transmitter.

SPECIFICATIONS

Sensor dimensions	40 × 18 mm (diameter × height)
Sensor weight	130 g
Nut sizes	M14–M22
System unit dimensions	124 × 67 × 24 mm, 60 g
Bolts per control card	Up to 2
Trigger force	Custom set per project (spec sheet: alarm at 10 kg and above)
Dry contact	N.O. & N.C.
Power supply	12 VDC
Current consumption	23.333 mA
Communication output	RS485; wireless, GPRS, SMS or GSM transmitter
Operating temperature	–25 °C to +72 °C
Storage temperature	–55 °C to +80 °C
Humidity / protection	95 %, IP65 / IP68
Corrosion	Anti-corrosion treatment per MIL-T-152; all parts stainless steel or aluminium
EMI & RFI	According to MIL-STD-461, 462

04 **Instant notification**
The alarm and its location reach the control room, D-Command Control or a mobile app.

False alarm rate (catalogue specification)	Less than 1 per km per 3 months
MTBF (sensor)	4.7×10^8 h
MTTR	30 min
Warranty	10 years on the sensors

TENDER SPECIFICATION TEXT

1. GENERAL

The system shall be D-Bolt by D-FENCE Electronic Fencing and Security Systems Ltd. (ISO 9001:2015 certified quality management), or an approved equivalent that meets every requirement in this section.

2. FUNCTION

A strain-gauge sensor built into the nut: any attempt to loosen, bend or cut the bolt raises an alarm with its location.

3. THE SYSTEM SHALL PROVIDE

- **Sensor inside the nut:** Strain gauge integrated into nuts of different calibres, M14–M22.
- **Invisible and tamper-proof:** Looks like any other nut on the structure; water resistant.
- **Detects loosening, bending, cutting:** Any attempt on the bolt changes the pressure and raises the alarm.
- **Alarm with location:** Wireless, GPRS, SMS or GSM transmitter on the control card.
- **Local activation:** Switches on CCTV, a siren or a floodlight at the asset.
- **One bolt per asset:** A single sensing bolt protects each unit, keeping large sites cost-effective.

4. TECHNICAL REQUIREMENTS

- **Sensor dimensions:** 40 × 18 mm (diameter × height)
- **Sensor weight:** 130 g
- **Nut sizes:** M14–M22
- **System unit dimensions:** 124 × 67 × 24 mm, 60 g
- **Bolts per control card:** Up to 2
- **Trigger force:** Custom set per project (spec sheet: alarm at 10 kg and above)
- **Dry contact:** N.O. & N.C.
- **Power supply:** 12 VDC
- **Current consumption:** 23.333 mA
- **Communication output:** RS485; wireless, GPRS, SMS or GSM transmitter
- **Operating temperature:** –25 °C to +72 °C
- **Storage temperature:** –55 °C to +80 °C
- **Humidity / protection:** 95 %, IP65 / IP68
- **Corrosion:** Anti-corrosion treatment per MIL-T-152; all parts stainless steel or aluminium
- **EMI & RFI:** According to MIL-STD-461, 462
- **False alarm rate (catalogue specification):** Less than 1 per km per 3 months
- **MTBF (sensor):** 4.7×10^8 h
- **MTTR:** 30 min
- **Warranty:** 10 years on the sensors

5. DETECTION SEQUENCE

1. **Sensing nut fitted:** A D-Bolt replaces a standard nut (M14–M22) on the asset.
2. **Tamper detected:** Opening, loosening, bending or cutting changes the pressure on the strain gauge.
3. **Control card acts:** It switches on CCTV, a siren or a floodlight on site and fires its transmitter.
4. **Instant notification:** The alarm and its location reach the control room, D-Command Control or a mobile app.

6. SUBMITTALS

Before installation, the contractor shall submit the manufacturer's datasheet, the installation instructions and the zone layout for approval.