

Englo LLC

Military Product Overview



We develop, design and manufacture quality products since 1991

Contents

Blasting Machines and Line Testers	3
Blasting Machines with Hand Generators	3
Battery Powered Blasting Machines	4
Blasting Machine Tester.....	5
Digital Line Testers	5
Metal Detectors	6
Dosimeters and Radiation Detectors.....	6
Handheld Dosimeters	7
Handheld Radiation Detectors.....	8
Stationary Radiation Detectors and Systems.....	9
Traffic Counting and Surveillance Systems	10
Vehicle Crossing Detectors with Output Relay	10
Traffic Counting Sensors	11
Digital Distance Measuring Devices.....	12
Material and Cable Length Measuring Devices	13
Water Level Meters	14

Blasting Machines and Line Testers

Englo develops, designs and manufactures a wide range of blasting machines and digital line testers for use in mining, military, civil and road construction and other applications.

Many Englo blasting machines come with built-in line testers that eliminate the need for a stand-alone ohmmeter, but stand-alone line testers are available as well.

Both integrated and separate line testers verify the detonator line resistance to identify short circuits, breaks in the blasting line or circuits with excessive resistance prior to the blast. This technology virtually eliminates misfires caused by detonator wiring problems, which is one of the leading causes of blast related injuries. For safety reasons, the line tester current is limited to 1mA.

Most of the products include output pulse tail cutting to limit the impulse to 4ms and quench the remaining capacitor charge. These safety features are necessary to eliminate potential secondary explosions of the flammable dust generated during the blast.

The blasting machines are portable, compact and lightweight, and can easily be operated by a single person.

The blasting machines can include hand generators or can be battery powered.

All Englo blasting machines are rated IP65 under the international IEC 60529 standard and are splash and dust proof.

Blasting Machines with Hand Generators

By using hand generators the operator does not have to consider the quality and shelf life of a battery.

The blasting machines with hand generators support various firing voltages and come with various feature sets.

As a new feature there is the digital ohmmeter used in ERNA-5.

PONGO: Push-Button Blasting Machine

- Low energy blasting machine
- Push-button immediate firing impulse generation
- Supports blasting of up to two Class 1 detonators in series, with up to 120m total line length
- Ultra-lightweight

ERNA-3: Hand Cranked Blasting Machine With Line Continuity Tester

- Medium energy blasting machine
- Built-in line tester with two color LED

ERNA-4: Hand Cranked Blasting Machine With Line Tester

- Medium energy blasting machine
- Built-in line tester with selectable Class 1, 2 or 3 line resistance settings
- 3 two color LEDs for line resistance
- Short 4ms output pulse

ERNA-5: Hand Cranked Blasting Machine With Digital Ohmmeter

- Medium energy blasting machine
- Built-in ohmmeter with digital 0-999 Ω reader
- Short 4ms output pulse

BART-1: Hand Cranked Blasting Machine With Line Continuity Tester

- Medium energy blasting machine
- Built-in line tester with two color LED
- Short 4ms output pulse
- Certified according to EN 13763-26

BART-2 and BART-2AS: Hand Cranked High Energy Blasting Machine

- High-energy blasting machine
- Mechanical safety block engaged during connecting and loading the line
- Plastic details manufactured from antistatic plastics to avoid static electrical charge accumulation (BART-2AS)
- Removable crank handle
- Certified according to EN 13763-26

Product	Weight (kg)	Voltage (V)	Energy (J)	Line (Ω)	Size (mm)
PONGO	0.15	11.5	0.03	11	\emptyset 32, L= 95
ERNA-3		440	6.6	380	
ERNA-4	0.8	560	12.8	500	142 x 125 x 45
ERNA-5		560	12.8	500	
BART-1	1.3	900	9.3	700	
BART-2	1.4	1250	88.0	1000	200 x 143 x 55
BART-2AS	1.4	1250	88.0	1000	

Battery Powered Blasting Machines

Englo's battery powered blasting machines are compact and ultra-lightweight and come with built-in line testers.

GUERRILLA: Blasting Machine With Line Continuity Tester

- Lightweight
- Medium energy blasting machine
- Built-in line tester with two color LED
- Battery level indicator LED

MARS-3: Blasting Machine With Digital Line Tester

- Built-in line tester with digital 0-999 Ω reader
- Capacity level indicator LED
- Short 4ms output pulse

MARS-2: Blasting Machine with Digital Line Tester

- Lightweight
- Medium energy blasting machine
- Built-in line tester with digital 0-1999 Ω reader
- Battery level indicator LED
- Short 4ms output pulse

Product	Weight (kg)	Voltage (V)	Energy (J)	Line (Ω)	Size (mm)
GUERRILLA	0.3	250	2.1	150	170 x 82 x 34
MARS-2	0.5	440	6.6	380	200 x 100 x 50
MARS-3	0,34	500	8,5	450/180/36	170 x 88 x 33

Blasting Machine Testers

The blasting machine tester VIGOR is designed for testing the impulse energy of Englo's blasting machines. The tester can be used in both indoor and outdoor conditions.

VIGOR can be customized for the specific blasting machine or blasting machine family that is being tested.

VIGOR doesn't need any batteries and is ready for immediate operation.

Product	Weight (kg)	Power supply	Protection level of tester case	Operating temperature (°C)	Size (mm)
VIGOR	0.26	No batteries needed	IP67	-15 to +50, at 100 % relative humidity	170 x 88 x 33

Digital Line Testers

Englo's digital line testers can be used in conjunction with the blasting machines that do not already include a built-in line tester. The line testers are designed for safe testing of electric detonator lines or sections and the connecting cables.

The line tester accurately measures the line resistance over the full range between 0 to 1999 Ω and includes an LCD screen that displays the readout. Momentary and also continuous measurement modes are available.

The continuous mode is initiated releasing the TEST button after 10 seconds and it lasts indefinitely. This is useful in situations where the detonator line can be affected for some time prior to the actual blasting moment, such as intentional covering of blasting charges.

For safety reasons, the line tester current is limited to 1mA. The products are battery powered.

Englo's digital line testers are rated IP65 under the international IEC 60529 standard and are splash and dust proof.

OOM-4: Digital Line Tester

- Highly accurate
- Full-range numeric line resistance measurement with display
- Continuous and button-based measurement modes

Product	Weight (kg)	Range (Ω)	Resolution (%)	Max line resistance current (mA)	Size (mm)
OOM-4	0.23	0-1999	+/-0.5	1	140 x 69 x 34

Metal Detectors

Englo develops, designs and manufactures lightweight handheld metal detectors.

These detectors can be used as metal detectors for accurate search of people and hand luggage control in the airports, ports and other public institutions. They can also be used for precise positioning of cables, wires and pipes in walls and concrete, or to search for metal objects lost in sand and other materials. Different types of metals can be detected.

All Englo metal detectors are rated IP65 under the international IEC 60529 standard and are splash and dust proof.

MINION-1 and MINION-2: All-Purpose Handheld Metal Detector

- Handheld
- Highly accurate
- Lightweight
- 3 sensitivity ranges with automatic adjust
- LED, vibration or sound-based detection indicator
- LED-based battery charge indicator

METO-7: Ground Search Handheld Metal Detector

- Handheld
- 3 sensitivity ranges with range regulator
- LED, vibration or sound-based detection indicator
- Coil to cover larger surface area
- Short or long handle

Product	Weight (g)	Detection distance for 3g gold ring (cm)	Detection distance for 8x8cm metal plate (cm)	Metals Detected	Size (mm)
MINION-1 MINION-2	319 300	9.5	19	Magnetic and non-magnetic	375 x 55 x 30
METO-7	720	8	31	Magnetic and non-magnetic	Ø 250 coil diameter

Dosimeters and Radiation Detectors

Englo develops, designs and manufactures a wide range of digital dosimeters and radiation detectors that can be used to detect alpha (α) and beta (β) particles, gamma (γ) rays and X-rays and radon (Rn).

Even though γ rays can be most prevalent in the contaminated environment, as they have tremendous penetrating power and would require several inches of dense material (like lead) to shield them, α and β particles can be equally, or even more, harmful to the human body, especially when inhaled or taken in with food and water. Therefore, depending on the situation and source of the radioactivity, the capability to measure all three types of radiation is important and lifesaving.

Englo radiation detectors can also detect radon (Rn). Rn is gaseous under normal conditions and can easily be inhaled. It is often the single largest contributor to an individual's background radiation dose.

Englo dosimeters and radiation detectors can be used in professional applications for survey and monitoring, including construction, mining, military, oil and gas exploration, nuclear sites and hospital radiology departments, and they are also ideal for personal use to determine whether there are hazardous materials in cellars, walls, or anywhere in the surrounding environment.

Englo products are easy to use and are highly radiation sensitive. Depending on the product, different types of radiation can be monitored and detected. Clip-on and handheld devices, or systems that can be mounted to doorframes, indoor/outdoor walls or vehicles are available.

The versatility of the product portfolio makes them suitable for different customer requirements. For instance, Englo products were widely used in Japan after the 2011 Fukushima nuclear disaster, but they can also be used by civilians or professionals to determine levels of radioactivity in user's everyday or work environment.

Handheld Dosimeters

Englo handheld personal dosimeters include a clip to fasten the device to the user's clothing and allow the measurement to be taken over a longer period of time, for instance for a duration of the time spent in a potentially hazardous environment.

The dose equivalent (dose) and dose equivalent rate (dose rate) with corresponding time and date are displayed on the device's LCD display. A silent and/or audible alarm alerts the user if the radiation dose or rate exceeds the programmable threshold level. An additional alarm indicates if the device battery is running low.

The measurement data is stored in the device memory and can later be transferred to a computer via Bluetooth interface.

NOVA-3b: Personal Gamma, X-Ray Radiation

Dosimeter and Radiation Detector

- Handheld or clip-on
- Lightweight
- Monitors and detects γ or X-Ray dose equivalent and dose equivalent rate
- Audible alarm with adjustable radiation dose and level threshold
- Stores data separately for individual users
- Data displayed as easy to read graphs
- Bluetooth interface

Product	Weight (g)	Type of Radiation	Max Dose (μSv)	Dose Accuracy (μSv)	Max Dose Rate ($\mu\text{Sv/h}$)	Dose Rate Accuracy ($\mu\text{Sv/h}$)	Size (mm)
NOVA-3b	105	γ	9,999,999	1	99,999.9	0.1	195 x 58 x 18

Handheld Radiation Detectors

Englo handheld radiation detectors are lightweight and easy to use. They are good companions when visiting areas with possible threat of radiation. The devices are very sensitive and can detect even small sources of radiation.

Visual and audible alarms alert the user immediately if the radiation dose rate exceeds the programmable threshold level. Each detected event is accompanied by a beep sound; a full alarm is sound for higher radiation levels. An LCD display is programmed to display the dose equivalent rate or number of radiation pulses in CPM.

The handheld radiation detectors have a precision mode for longer and more accurate measurement per location.

For some devices the collected data is stored in the device memory and can later be transferred to a computer via USB interface.

Both personal and professional devices are available.

RADON-3: Handheld Alpha, Beta, Gamma, X-Ray Radiation Detector

- Highly accurate
- Lightweight
- Measures and detects α , β , γ and X-ray radiation
- LCD displays alarms and dose equivalent rate ($\mu\text{Sv}/\text{h}$) or pulse frequency (CPM)
- Audible beeps for radiation detection events with full alarm for $>10 \mu\text{Sv}/\text{h}$ dose equivalent rate
- Precision measurement mode
- Setup and control by a single button

RADON-4: Handheld Alpha, Beta, Gamma, X-Ray Radiation and Radon Detector

- Highly accurate
- Lightweight
- Measures and detects α , β , γ and X-Ray radiation and Rn
- LCD displays alarms and equivalent dose rate ($\mu\text{Sv}/\text{h}$) or number of pulse frequency (CPM)
- Audible beeps for radiation detection events with full alarm for $>10 \mu\text{Sv}/\text{h}$ dose equivalent rate
- Precision measurement mode
- Setup and control by a single button

PAKRI-E and PAKRI-EM: Professional Handheld Alpha, Beta, Gamma, X-Ray Radiation and Radon Detector

- Highly accurate
- Very fast radiation detection time
- Measures and detects α , β , γ and X-Ray radiation and Rn
- Large active area helps determine source of α and β radiation
- LCD displays alarms and equivalent dose rate ($\mu\text{Sv}/\text{h}$) or pulse frequency (CPM)
- Audible beeps for radiation detection events with full alarm for $>10 \mu\text{Sv}/\text{h}$ dose equivalent rate
- Precision measurement mode
- Data can be stored (PAKRI-EM only)
- USB interface (PAKRI-EM)

Product	Weight (g)	Type of Radiation	Max Dose Rate ($\mu\text{Sv}/\text{h}$)	Dose Rate Resolution ($\mu\text{Sv}/\text{h}$)	Size (mm)
RADON-3	122	α , β , γ , X-ray	999	0.01	96 x 60 x 26
RADON-4	122	α , β , γ , Rn, X-ray	999	0.01	96 x 60 x 26
PAKRI-E PAKRI-EM	1,060	α , β , γ , Rn, X-ray	99.99	0.01	240 x 128 x 80

Stationary Radiation Detectors and Systems

Englo stationary radiation detectors and radiation detection systems can be mounted to doorframes, indoor/outdoor walls or vehicles.

These products are ideal in institutions to prevent individuals from bringing radioactive elements in or out of buildings, in hospital radiation therapy units to ensure that patients don't leave the area until it's safe to do so, in vehicles transporting hazardous materials, and in other applications.

The radiation detection systems come with radiation detectors that can be fastened to the doors, walls or used inside a vehicle, and a control module that is placed near the security operator. For door-mounted units the system includes panels that are placed on either side of the doorframe and houses the radiation detectors. If the detection system is installed on multiple doors, the control unit displays the exact door or entrance where the radiation event was detected. The alarm light stays on until it's cleared by the operator.

The radiation detectors and systems have relay outputs that can be used to trigger an immediate action after radiation is detected, such as turn on a ventilation system in a room or raise a general alarm.

RADON-2: Wall or Vehicle Mounted Alpha, Beta, Gamma, X-Ray Radiation Detector

- Wall or vehicle mountable unit
- Measure and detect α , β , γ and X-ray radiation
- Audible beeps for radiation detection events with full alarm for equivalent dose rate $>10 \mu\text{Sv}/\text{h}$
- 3 different color LEDs for different radiation levels

RADMONITOR: Door Mounted Gamma, X-Ray Radiation Detector System

- Door mounted system with separate control unit
- Highly accurate
- Measure and detect γ and X-ray radiation
- Audible beeps for radiation detection events with full alarm for $>10 \mu\text{Sv}/\text{h}$ dose equivalent rate
- LED alarm indicator
- Detects individual door with radiation event
- Can detect area of radiation (i.e. general radiating location on a person)

Product	Weight (g)	Type of Radiation	Sensitivity (Co60) (CPS/mR/h)	Size (mm)
RADON-2	n/a	α , β , γ , X-ray	18 for 9.1 mm eff. diameter 55 for 44.5 mm eff. diameter	80 x 80 x 50
RADMONITOR	4.4	γ , X-ray	480	1600 x 45 x 80 (detector panel)

Traffic Counting and Surveillance Systems

Englo designs and manufactures vehicle crossing detectors and traffic monitoring sensors that can be used in civil and military applications for traffic monitoring and area surveillance. These products allow the user to determine the number or type of vehicles that cross a section of a road or an entrance to an area or building, and take necessary action.

Vehicle Crossing Detectors with Output Relay

Englo vehicle crossing detectors are ideal in civil and military applications to detect unwanted vehicular traffic near a road, parking lot, building or other object. The detectors do not react to nearby humans or animals.

Two types of vehicle crossing detectors are available – single point and continuous line detectors. Both detectors are buried into the ground near the area of interest. Whereas single point detectors use a single electronic sensor, continuous line detectors can form a long line or a loop around the surveyed area.

The detectors count passing vehicles and, by using the integrated output relay, FET or current loop, can trigger a pre-determined action to approaching or departing vehicles, such as set off a light or sound signal, open or close gates or doors, switch traffic and street lights on and off, etc.

If equipped with an additional module, the sensors can send SMS notifications to up to 4 different users, alerting them of the location where a sensor was activated.

The vehicle crossing detectors are rated IP67 under the international IEC 60529 standard.

SCYLLA-2: Single Point Vehicle Crossing Detector with Output Relay

- Rod type sensor
- Counts crossing vehicles
- Output relay, FET or current loop to trigger an action upon a crossing vehicle
- Optional module for SMS for up to 4 people
- Does not react to nearby humans or animals

COBRA-2: Continuous Line Vehicle Crossing Detector with Output Relay

- Can be placed in a long line or loop
- Counts crossing vehicles
- Output relay, FET or current loop to trigger an action upon a crossing vehicle
- Optional module for SMS for up to 4 people
- Does not react to nearby humans or animals

Product	Loop Length (m)	Min vehicle weight (t)	Min vehicle speed (km/h)	Output	Size of sensor (cm)
SCYLLA-2	-	0.8	10	Relay, FET or current loop	Ø2.2 x 15
COBRA-2	6 - 200				

Traffic Counting Sensors

Englo traffic counters are vehicle traffic monitoring sensors that are targeted to be used on 2-way roads to determine traffic loading and volume. The devices are easy to install and do not need any external wiring.

The traffic counting sensors are self-contained units that can be used to count number of vehicles that pass a section of a road real time, and categorize these vehicles to Classes 1, 2 and 3, which includes motorcycles, cars, vans, buses, small and large trucks and cars with trailers. In addition, KLL-2 also measures the vehicle speed and distance between two consecutive vehicles.

The traffic counting sensors include a built-in memory that stores the measured data. The information can be accessed through the device's USB port. Software GUI is provided that displays the data and exports it to an Excel file as needed. The USB port is also used to charge the internal battery.

KLL-2 includes an optional wireless module for convenient transfer of data from the traffic sensor to a computer or server.

The vehicle crossing detectors are rated IP68 under the international IEC 60529 standard.

LL-1: Traffic Counting Sensor

- Stores total number of vehicles and vehicle class in minimum time interval of 5 minutes
- Data can be viewed through GUI or converted to Excel
- Internal battery, charged through USB
- Comes with 1 sensor

KLL-2: Traffic Counting Sensor

- Stores data for individual vehicles and vehicle class, vehicle speed and distance between vehicles
- Data can be viewed through GUI or converted to Excel
- Data transfer through USB, wireless module available upon demand
- Long lasting internal battery, charged through USB
- Comes with 2 sensors

Product	Sensor Weight (g)	# Vehicles	Vehicle Class	Vehicle Speed	Distance Between Vehicles	Average charge of internal battery (days)	Sensor Size (mm)
LL-1	580	✓	✓	-	-	14	Ø60 x 138
KLL-2	580	✓	✓	✓	✓	60	Ø60 x 130

Digital Distance Measuring Devices

Englo develops, designs and manufactures various high precision digital distance measuring devices that are perfect for use in civil and road construction, land surveys and many other personal and professional applications.

The distance measuring instruments include handheld distance measuring wheels or surveyor's wheels and bicycle-mounted distance measuring devices. The products are easy to use and provide quick and accurate results.

The distance meters can be used to measure the total covered distance and view length of individual segments by including both odometer and segment length readings. Rectangular area can be calculated by a simple push of a button. When the user has exceeded the intended target endpoint, and wants to remove part of the recently covered distance from the measurements, he or she simply has to walk the digital distance measuring device backwards, and the reversed distance will be subtracted from the original results.

The measurement results can be viewed on the LCD screen of the product's electronic unit. The measurement data is stored in the device memory and can later be transferred to a computer via Bluetooth interface.

The electronic unit of the distance meters is very energy efficient and one battery will generally last the user through a whole season, which reduces need for regular maintenance of the device. To further save energy, the electronic unit will automatically turn off after the device has not been used for a certain amount of time.

Englo digital distance measuring devices are rated IP65 under the international IEC 60529 standard and are splash and dust proof, and as such can be used in rainy weather or go through puddles.

MR-3MT and MR-4MT: Digital Measuring Wheel

- Handheld with wheel
- Lightweight
- Segment length and odometer readings
- Area calculation for rectangular surfaces
- Correction for exceeded target measurement endpoints
- Energy efficient
- Electronic unit with LCD screen
- Computer connection via Bluetooth

BR-1: Bicycle-Mounted Digital Distance Measuring Device

- Bicycle-mounted
- Lightweight
- Segment length and odometer readings
- Area calculation for rectangular surfaces
- Correction for exceeded target measurement endpoints
- Energy efficient
- Electronic unit with LCD screen
- Computer connection via Bluetooth

Product	Weight (kg)	Wheel Diameter (cm)	Measuring Unit (cm)	Accuracy (%)	Max Distance or Area (m)	Max Speed (km/h)	Height (cm)
MR-3MT	2.2	54	5	+/-1	19,999	10	760 – 1135
MR-4MT	2	34	5	+/-1	19,999	10	690 – 1035
BR-1	n/a	–	5	n/a	19,999	50	n/a

Material and Cable Length Measuring Devices

Englo product portfolio includes high precision mechanical material and cable length measuring devices for the measurement of length of cable, rubber and plastic pipes or fabric and ribbons. These devices are highly accurate and greatly speed up the measurement process.

The material and cable length meters are handheld or stationary that can be mounted to tables or other support structures. Stationary digital length measuring system KMS-1 also includes a work desk and coil winder to measure out the required length of cable or wire and loop it for easy handling or shipment.

The length meters include both segment and odometer reading, and can be used to measure the material total length and/or view length of individual segments. When the user has exceeded the intended material length endpoint, and wants to remove part of the recently measured length from the measurements, he or she simply has to pull the measured material through the digital length measuring device backwards, and the reversed length will be subtracted from the original results.

The measurement results can be viewed on the product's digital mechanical display.

Englo's digital length measuring devices are rated IP65 under the international IEC 60529 standard. MS-2, MS-5 and KMS-1 include type certificates.

MS-1: Digital Material Length Measuring Module

- Fabric and ribbon length meter
- Highly accurate and lightweight
- Correction for exceeded target measurement endpoints
- Narrow wheel with rubber coating or wide rifled surface aluminum wheel

MS-2: Handheld Digital Cable Length Meter

- Wire and cable length meter
- Highly accurate and lightweight
- Correction for exceeded target measurement endpoints
- Lever for reset to zero
- Type certificate # SI 14-01-003 MID

MS-5: Stationary Digital Cable Length Meter

- Fastened to table or support leg
- Wire and cable length meter
- Correction for exceeded target measurement endpoints
- Lever for reset to zero
- Type certificate # SI 14-01-004 MID

KMS-1: Stationary Digital Cable Length Measuring Device with Work Desk and Coil Winder

- Comes with a working table, coil winder and MS-5
- Wire and cable length meter
- Correction for exceeded target measurement endpoints
- Lever for reset to zero
- MS-5 type certificate # SI 14-01-004 MID

Product	Weight (g)	Measuring unit (cm)	Counter Accuracy (%)	Max Distance Range (m)	Max Measuring Speed (m/min)
MS-1	153	1	+/-1	999.99	60
MS-2	673	1	+/-1	999.99	60
MS-5	689	1	+/-1	999.99	60
KMS-1	n/a	1	+/-1	999.99	60

Water Level Meters

Englo provides portable groundwater level meters to determine the groundwater level in bores and wells.

The water level meters are compact, lightweight and easy to use. The body of the device includes the electronics. The body is fastened to a measuring tape with a connector. A 30m measuring tape is included with the product but any measuring tape or cable can be used. Once the sensor reaches the water level, it sounds a signal to notify the user.

The groundwater level measuring devices are rated IP65 under the international IEC 60529 standard and are splash and dust proof.

SOND-2M: Groundwater Level Meter

- Compact
- Measures any groundwater level depth (for >30m a different measuring tape is needed)
- Audible notification signal

Product	Weight (g)	Measurement Unit (cm)	Measurement Accuracy (cm)	Dimensions (mm)
SOND-2M	151	1	+/-1	32 x 235



Akadeemia tee 21/1, Tallinn 12618, Estonia * phone +372 670 2444

Englo reserves the rights to make changes to, or discontinue any products described in this document without further notice.