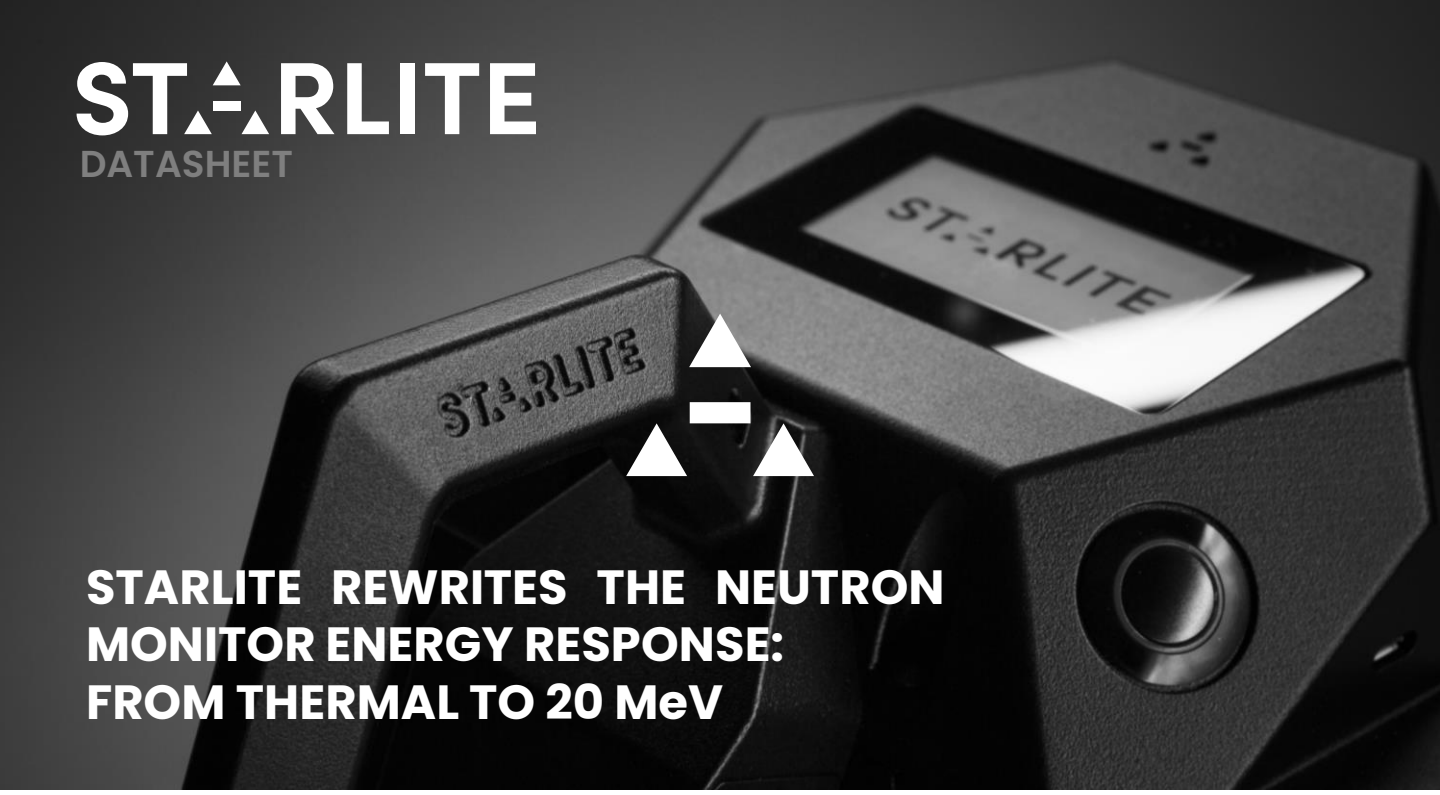
STARLITE
DATASHEET



STARLITE REWRITES THE NEUTRON MONITOR ENERGY RESPONSE: FROM THERMAL TO 20 MeV

STARLITE is the innovative **NEUTRON MONITOR** made by **RAYLAB**: Designed for industrial, research and medical environments.
A silicon-based system.
It runs an embedded software able to optimize the neutron response at all working energies.

LIGHT AND COMPACT
4 kg: easy to handle and move.

ESSENTIAL
Dosimetric values monitoring in real time with a history log for each measurement.

STRONG
Compact and bold design in a sleek black aluminum case.

ACCURATE
Ambient dose response linear at all working energies.

SMART
WI-FI or ethernet controlled: no app or external software needed.

DIRECTION
Real-time reconstruction of the main direction of the neutron field.

RAYLAB
DETECTING INNOVATION

CONTACTS
info@raylab.solutions
+39 334 1903887
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REGISTERED OFFICE
Via Monte di Pietà 2
24043 Caravaggio (BG) – ITALY
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SPECIFICATIONS

MEASURED QUANTITY	Ambient dose equivalent H*(10) according to ICRP-74 or Ambient dose H* according to ICRU-95 user settable
UNIT OF MEASURE	Sv or rem ($Sv \cdot h^{-1}$ or $rem \cdot h^{-1}$ for rate) user settable
NEUTRON ENERGY RANGE	From thermal neutron up to 20 MeV
H*(10) RATE RANGE	10 $nSv \cdot h^{-1}$ – 100 $mSv \cdot h^{-1}$
NEUTRON SENSITIVITY	0.29 cps per $uSv \cdot h^{-1}$ ($^{241}AmBe$)
GAMMA SENSITIVITY	< 1 $uSv \cdot h$ at 10 $mSv \cdot h^{-1}$ (^{137}Cs)
H*(10) CALIBRATION FACTOR	3.4 $uSv \cdot h^{-1}$ per cps ($^{241}AmBe$)
H*(10) RESPONSE	0.29 cps per $uSv \cdot h^{-1}$ ($^{241}AmBe$)
CALIBRATION	Unmoderated $^{241}AmBe$ neutron source with shadow cone technique*

*On demand

RELATIVE H*(10) RESPONSE**

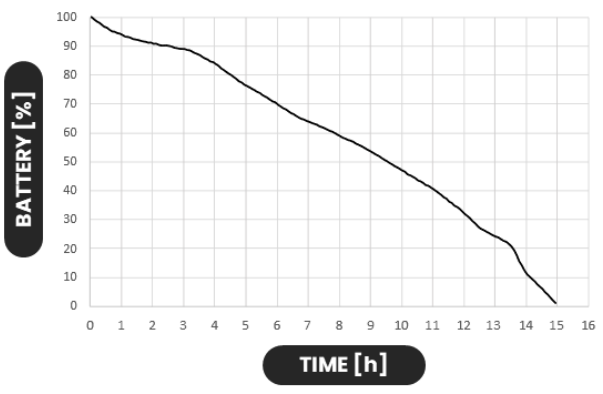
IRRADIATION FIELD	MAX ERROR
$^{241}AmBe$ source at 1 meter	< 2%
^{252}Cf source at 1 meter	< 2%
Moderated ^{252}Cf at 1 meter	< 12%
Thermal pile entrance position	< 10%

**Error with respect to CMI primary neutron facility in Prague

ANGULAR RESPONSE (over 4π)

IRRADIATION FIELD	VARIABILITY
Thermal neutron	< 8%
Neutrons from $^{241}AmBe$ source	< 4%

BATTERY DISCHARGE



POWER SUPPLY

OPERATING VOLTAGE	5 V DC
MAXIMUM POWER CONSUMPTION	< 15 W
RECHARGE CONNECTOR	Micro USB type B
BATTERY CHARGER INPUT	100/240 V~ 50/60 Hz 0.8 A
BATTERY CHARGER OUTPUT	5.0 V⎓ 3.0 A 15.0W
BATTERY	3.7 V LiPo, 6700 mAh

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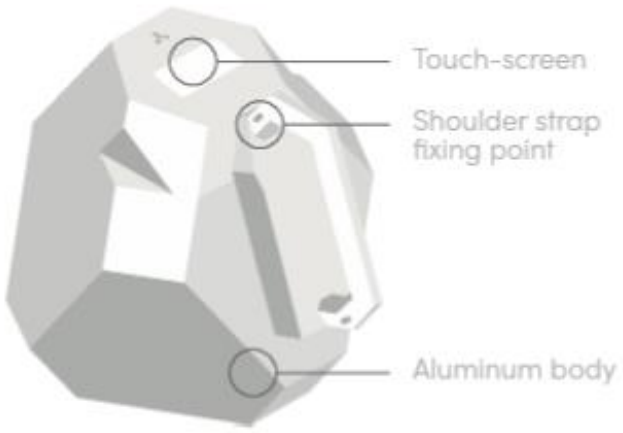
ADVANCED CONFIGURATION

PRESET TIME*	User can set a preset time after which the measure stops automatically
PRESET UNCERTAINTY*	User can set a preset data uncertainty after which the measure stops automatically
OUTPUT**	H*(10) or H* (ICRP-74 or ICRU-95)
UNIT OF MEASURE	Sv or rem
DOSE RATE ALARM**	A settable dose rate alarm (from 1 uSv·h^{-1} to 10 mSv·h^{-1})
INTEGRAL DOSE ALARM**	A settable integral dose alarm (from 10 uSv to 10 Sv)
AUTOSTART	When enable, the device automatically start to measure when powered on.
OPERATIONAL MODE	Can be used as standard neutron monitor or in a cumulative mode
CALIBRATION FACTOR	Advanced user can set a calibration factor to adjust the output in an easy way

* Only in cumulative mode
**Protected by password (configurable)

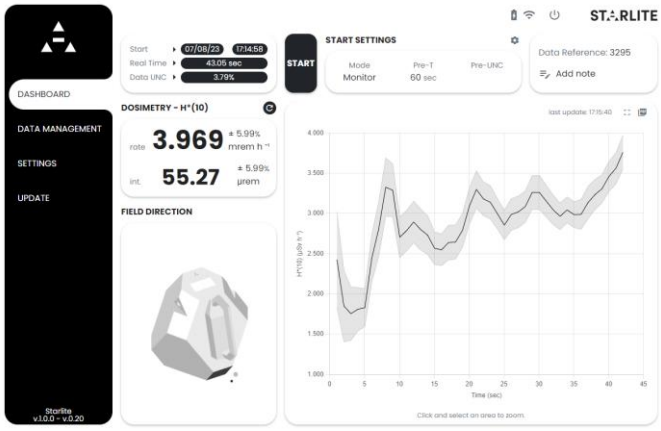


OUTPUT

- Ambient dose rate
- Integral dose rate
- Plot of the ambient dose rate during time
- Main neutron field direction

MEMORY

- Up to 9999 measures saved on the device
- Ablity to add notes for each measurement
- Ability to download locally the saved data
- Ability to check previous measurements



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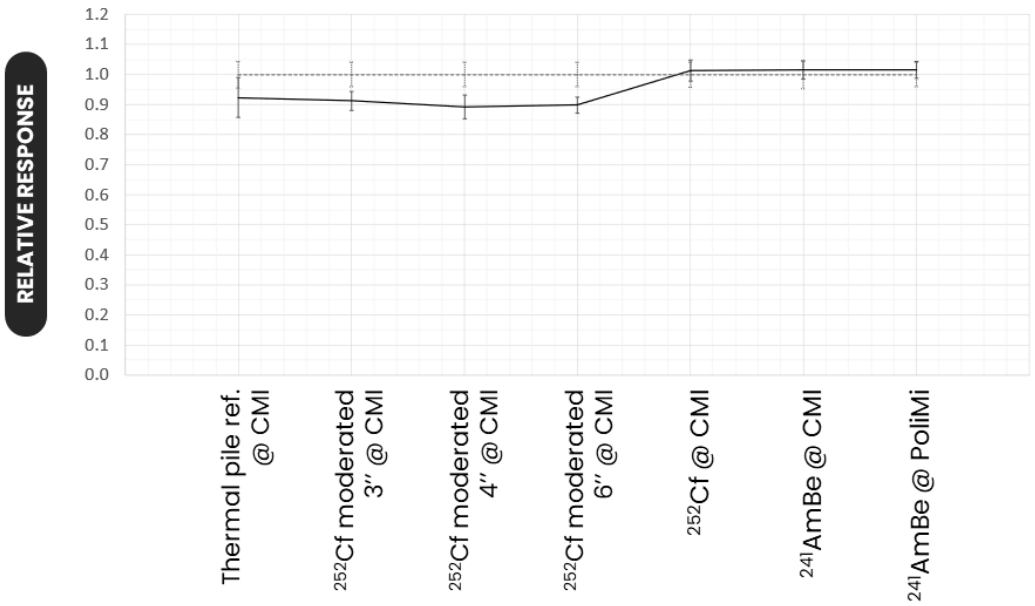
RELATIVE H*(10) RESPONSE



Starlite response in reference neutron fields. Characterization performed at the Czech primary metrology facility (CMI, Prague) and at the neutron facility of Poltecnico di Milano (PoliMi).

H*(10) INTERCOMPARISON

NEUTRON FIELD	STARLITE	REFERENCE
Thermal pile @ CMI	287.3 uSv·h^{-1} (±4.1%)	311.2 uSv·h^{-1} (±4.1%)
^{252}Cf moderated 6'' @ CMI	29.3 uSv·h^{-1} (±3.1%)	32.1 uSv·h^{-1} (±4.1%)
^{252}Cf moderated 4'' @ CMI	42.9 uSv·h^{-1} (±4.0%)	48.1 uSv·h^{-1} (±4.1%)
^{252}Cf moderated 3'' @ CMI	52.1 uSv·h^{-1} (±2.7%)	58.0 uSv·h^{-1} (±4.1%)
^{252}Cf CMI	90.7 uSv·h^{-1} (±3.5%)	89.5 uSv·h^{-1} (±4.2%)
^{241}AmBe @ CMI	283.7 uSv·h^{-1} (±3.1%)	279.4 uSv·h^{-1} (±4.1%)
^{241}AmBe @ PoliMi	24.8 uSv·h^{-1} (±2.8%)	24.4 uSv·h^{-1} (±4.1%)

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