

Product Datasheet SensFloor® Underlay

sensor-based underlay for capturing movement and gait data

Function & Applications

SensFloor® is an approximately 3 mm thick, textile-based large-area underlay, which is equipped with 16 (LR), 32 (HR) or 64 (GR) **capacitive proximity sensors** per square meter. The underlay can be installed under flexible and rigid floor coverings like carpet, PVC, parquet, laminate and tiles.

People walking across the floor generate sensor signals, which are sent wirelessly (868,3 MHz or 920 MHz) to a receiver. **The receiver is able to distinguish standing persons from laying persons and can calculate speed and direction.** The possibility of static signal recognition and self-test capability are important features for safety and security applications.

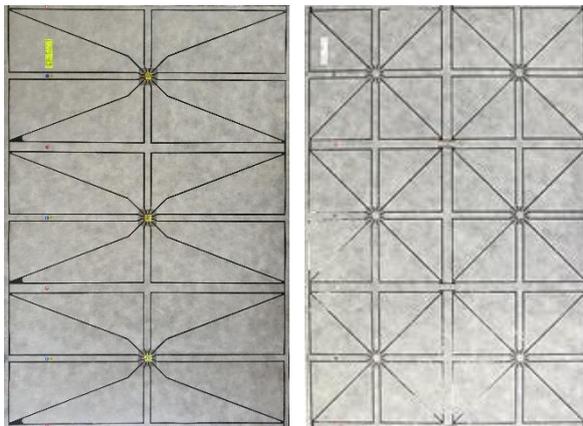


Fig. 1: Type A Patch LR (left) and HR (right)

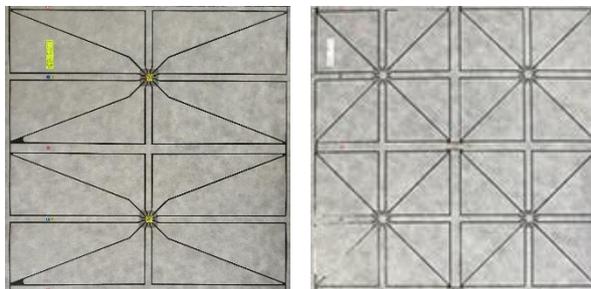


Fig 2: Type B Patch LR (left) and HR (right)

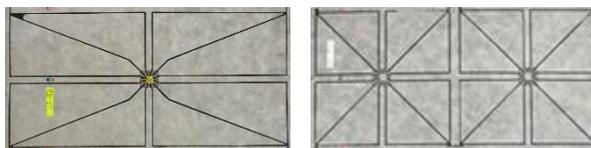


Fig 3: Type C Patch LR (left) and HR (right)

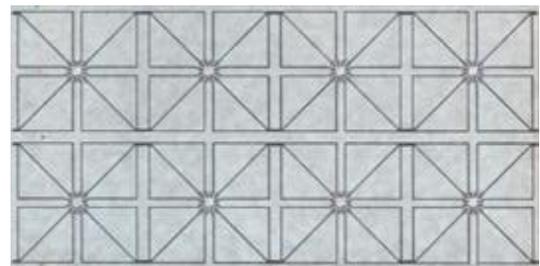


Fig 4: GR Patch

Composition

class of material	multilayer composite
composite method	lamination
base material	100% polyester fleece
adhesive layer	polyamide hotmelt
electrically conductive layer	polyester fleece coated with Cu and Sn specific electrical resistance < 10 mOhm/square
shielding layer	pure aluminium, adhesive: transparent synthetic adhesive
electronic radio module	RoHS compliant, halogen free, lead-free adhesive: 1K-PU-adhesive, polyurethane prepolymers with isocyanat groups

Technical Data

form of delivery	patches
sizes of delivery (width x length)	type A: 1000 +/- 5 mm x 1500 +/- 5 mm type B: 1000 +/- 5 mm x 1000 +/- 5 mm type C: 1000 +/- 5 mm x 500 +/- 5 mm GR: 760 +/- 5 mm x 1520 +/- 5 mm
thickness	2.8 +/- 0.4 mm
weight per unit area	700 +/- 40 g/m ²
thermal resistance	R = (0.0536 +/- 0.0016) m ² K/W
storage conditions	dry
temperature during installation	15 – 25 °C, floor temperature above 15°C
electronic radio module	operating temperature: -10°C - +40°C measurement frequency: 10 Hz radio frequency: 868,3 MHz (RED), 920,0 MHz (FCC/IC) radio range: 20 m free-field
power supply	5-12 VDC with functional ground power consumption 25 mA max. per radio module for power connection use Future-Shape power connection pad and power spines to connect patches mutually use Future-Shape power connection stripes
certified quality	



behaviour in fire tests according to EN 13501-1: E/E_{FI}, tested for emissions

Installation

The SensFloor® underlay does not originally replace any layers or functions in the regular floor structure, but serves exclusively as a sensor system. For SensFloor® installation under various floor coverings, information on floor preparation, installation instructions and installation recommendations are available from Future-Shape. Deviations from these recommendations require testing of the electrical and mechanical suitability of the entire floor assembly as well as the fire behaviour. The mechanical suitability as well as the fire behaviour depend on the floor structure and the floor covering and have to be tested by the floor covering manufacturer. Test values are available for a number of floor coverings that have already been tested.

Example: The residual indentation according to EN 433 for SensFloor® in combination with the Mondo Everlay® stabilisation layer, which is obligatory according to the construction recommendation, and the Tarkett PVC floor covering IQ Granit® or IQ Granit Acousticfloor® is 0.2 mm. The fire class of this construction according to EN 13501-1 is Bfl-s1 for IQ Granit and Cfl-s1 for IQ Granit Acousticfloor.

Supplementary notes

In case of using building products, e.g. adhesives or floor coverings, which deviate from the installation recommendation, no functional warranty can be given.

SensFloor® is compatible with underfloor heating systems. Please note the changed thermal resistance of the floor structure due to the use of SensFloor®.

SensFloor® can improve the impact sound properties of the floor covering used. To determine a possible impact sound improvement, a measurement or evaluation under real conditions is recommended.

For the use of SensFloor® in applications with very high point loads, e.g. from hospital beds, a special construction recommendation is available from Future-Shape.

Recommendations for safety, occupational health and environmental protection

The product itself does not require any special occupational safety measures. The instructions for processing the other materials and tools required for installation, which are enclosed with the respective products, must be observed. To protect the underlay from damage, overshoes must be worn during installation.

The packaging material on delivery (plastic sleeves) is commercially available PE for which no special disposal measures are required.