

PRESS RELEASE

DYNAFORCE – the ideal touch operation for metal fronts

Merenschwand, Switzerland, April 2019

We are already accustomed to using touch to trigger functions. The Algra Group's DYNAFORCE input technology, however, makes it possible to apply touch functionality to metal, wood or exotic materials such as ceramic. A gentle touch of the keys creates a slight deformation in the material layer, which is used by a sensor network made up of strain gauges together with intelligent software to determine the touch position and activate the key.

Touch operation is easier than ever thanks to strain gauge technology. Even hard, robust materials can be used as input fronts. The mechanic deformation caused by a gentle key touch is all it takes to trigger a function. Metals up to 1.2 mm thick can be used with no problems. Thanks to DYNAFORCE, keys that keep popping out have become a thing of the past. The system involves no moving parts. The keypad is waterproof, robust, durable, seamless and genuine.

'DYNAFORCE sensors are incredibly sensitive, yet unsusceptible to interference', says Dieter Matter, CEO, Algra Group. Each key features a strain gauge sensor on a PCB. A network of sensors detects the minutest mechanical deformations and filters out disruptive signals thanks to intelligent evaluation. Typical areas of application include products such as household goods, industry and outdoor devices with special aesthetic design and products that must be highly robust and waterproof.

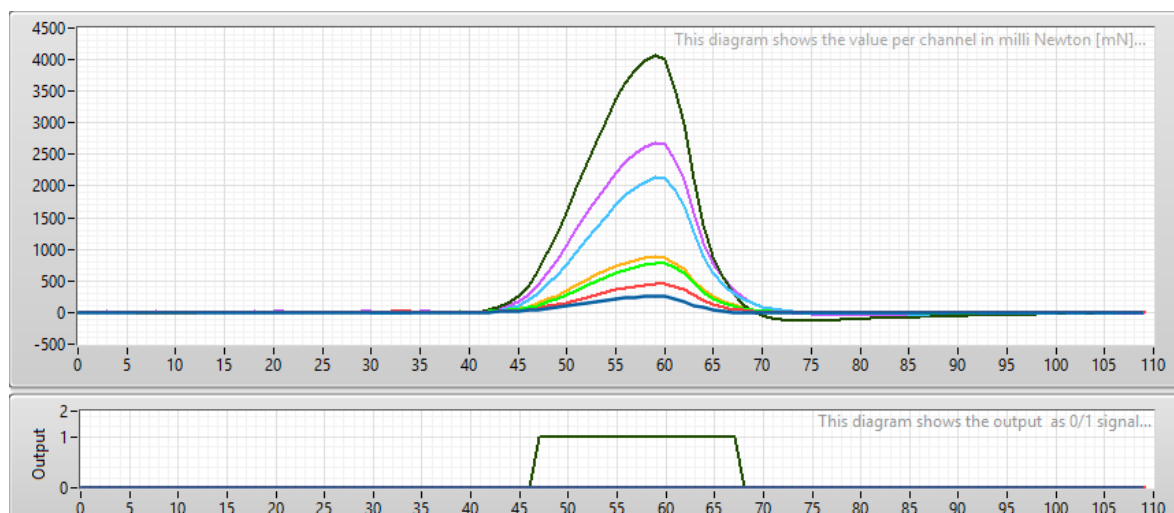


Diagram of a typical key press

The evaluation electronics measure the change in resistance of all the keys. The assessment software takes into account impact factors such as dynamics, temperature and the signal relationship of the keys. Depending on the arrangement of the keys, the material and the size of the input front, a different signal pattern is established that must be fulfilled to stably determine the key.

Several functions with a single key...

DYNAFORCE is a force sensor – it measures the force applied on a given key. A light, gentle key touch can be clearly differentiated from a hard, firm key press. This can be used to switch between different functions, such as to smoothly control the brightness of a lamp: hard press – light turns on fully; soft press – light switches to 50% brightness.

Tactile feedback thanks to vibration motor

It is very easy to implement visual feedback through an LED or display, and a tone can be selected as acoustic feedback. In addition, the integrated vibration motor generates tactile feedback that feels different depending on the material used. These possibilities can be combined as desired.

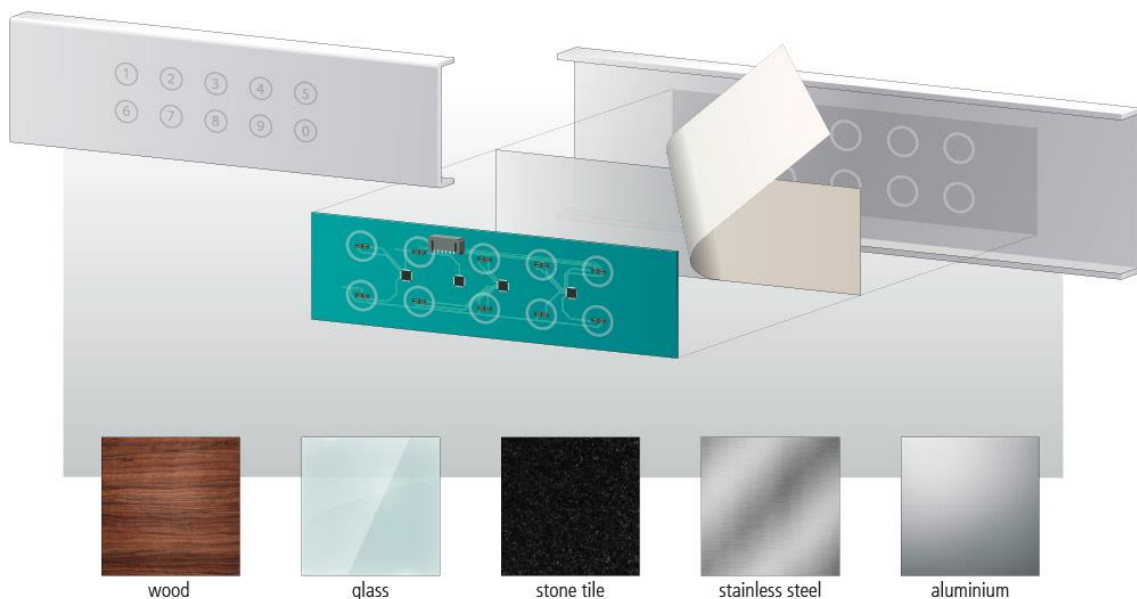
Benefits of the DYNAFORCE input technology:

- **High level of design exclusivity (any front materials including metal surfaces):** The control panel front is made using an integrated metal touch layer.
- **Glove-sensitive operation:** Operation is just as sensitive with gloves on as without.
- **Highest water protection rating:** Can be used to full capacity in wet conditions.
- **Very high vandalism protection:** Use of metal control panel fronts protects against vandalism.
- **Dynamic key sensitivity:** The key sensitivity can be set from 50 g.
- **High temperature operational capability:** Temperature range of -40°C to $+85^{\circ}\text{C}$
- **Long service life:** no moving parts and no wear and tear
- **Easy assembly:** Assembly using self-adhesive tape (peel-and-stick).
- **Each key layout possible:** The key arrangement is, taking into account the minimum distance, freely selectable.
- **Long-term key signals:** no restriction of the long-term signals
- **Visual, acoustic or tactile key feedback:** can be combined as needed

Materials	Material thickness at maximum sensitivity
Plastic:	1.0–2.0 mm
Aluminium:	0.3–1.2 mm
Stainless steel:	0.3–1.0 mm
Glass:	0.5–1.0 mm

Technical data	
Operating temperature / storage temperature:	-40°C to $+85^{\circ}\text{C}$ / -40°C to $+85^{\circ}\text{C}$
Supply voltage:	3.3 V (typically)
Power consumption:	600 μA /button
IP protection class:	all IP classes can be implemented
Key sensitivity:	50 g to 1000 g adjustable
Life cycles:	> 10 million
Minimum key spacing (centre to centre):	15–20 mm
Sensor size:	2 x 7 mm

Images:



ALGRA GROUP

The Algra Group has made the identification of contact on metal easier than ever before with DYNAFORCE input technology.

Video: <https://youtu.be/M27e09jBcNg>

Website: <https://www.algragroup.ch/en/technologies/dynaforce-metal-touch-input-technology/>

The Algra Group comprises the brands Algra, gravuretec, connect tec and Trimada and employs approximately 120 staff members at locations in Merenschwand, Erlach and Wohlen. It is an internationally leading manufacturer of input systems, high-quality fronts, enclosures and signs as well as software and hardware. These segments of our range are also supplemented by trade products.

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