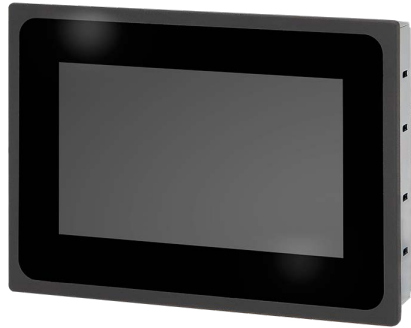# Touch Operating Panel
ETT 412

The ETT 412 is used to visualize automated process-es. Process diagnostics as well as operating and monitoring automated procedures are simplified using this control. A projected capacitive touch screen serves as the input medium for process data and parameters. The output is shown on a 4.3" TFT color display.

With a LASAL visualization tool, graphics can be cre-ated on the PC, then stored and displayed on the ter-minal. Data is exchanged with the CPU via the CAN bus.

The display is constructed with a black anodized aluminum front.

Performance Data

	Interfaces	1x CAN bus Data rate maximum 1 MBit/s

Electrical Requirements

	Supply voltage	typically +24 V (+18-30 V DC)	
	Current consumption at +24 V DC	typically 75 mA	maximum 130 mA
	Inrush current	typically 0.8 A für 10 ms	maximum 1.2 A für 20 ms

Controller

	Controller	Cortex M3
	Internal data memory for visualization (SDRAM)	8-Mbyte
	Internal data memory for visualization (flash)	8-Mbyte

Terminal

	Operating unit dimensions	132 x 94 x 35.5 mm (W x H x D) (with opposing connector)
	Material	front: 0.7 mm glass (touch screen) in black anodized 3 mm aluminum frame cover: 0.8 mm chromed sheet steel
	Weight	300 g

Environmental Conditions

	Storage temperature	-10 ... +70 °C	
	Environmental temperature	0 ... +55 °C	
	Humidity	10-90 %, non-condensing	
	Installation altitude above sea level	0-2000 m without derating, > 2000 m with derating of the maximum environment temperature by 0.5°C per 100 m	
	Operating conditions	pollution degree 2 indoor use	
	EMC resistance	in accordance with EN 61000-6-2:2007 (industrial area)	
	EMC noise generation	in accordance with EN 61000-6-4 (industrial area)	
	Vibration resistance	EN 60068-2-6	3.5 mm von 5-8.4 Hz 1 g von 8.4-150 Hz
	Shock resistance	EN 60068-2-27	15 g
	Protection type	EN 60529	front: IP65 cover: IP20

Display

	Type	4.3" TFT-LCD color display
	Resolution	480 x 272
	Pixel size	0.198 x 0.198 mm
	Number of pixels	480*3 (RGB) x 272 pixels
	Active surface	95.04 x 53.86 mm
	Color depth	24-bit
	Backlighting	10x LED, white, adjustable
	Contrast	600:1
	Touch	projective capacitive
	Brightness	typically 400 cd/m²
	Visible field	left, right 80, above 70° and below 60°

Article Number and Miscellaneous

	Article number	01-230-412
	Standard	CE