

DATA MODUL

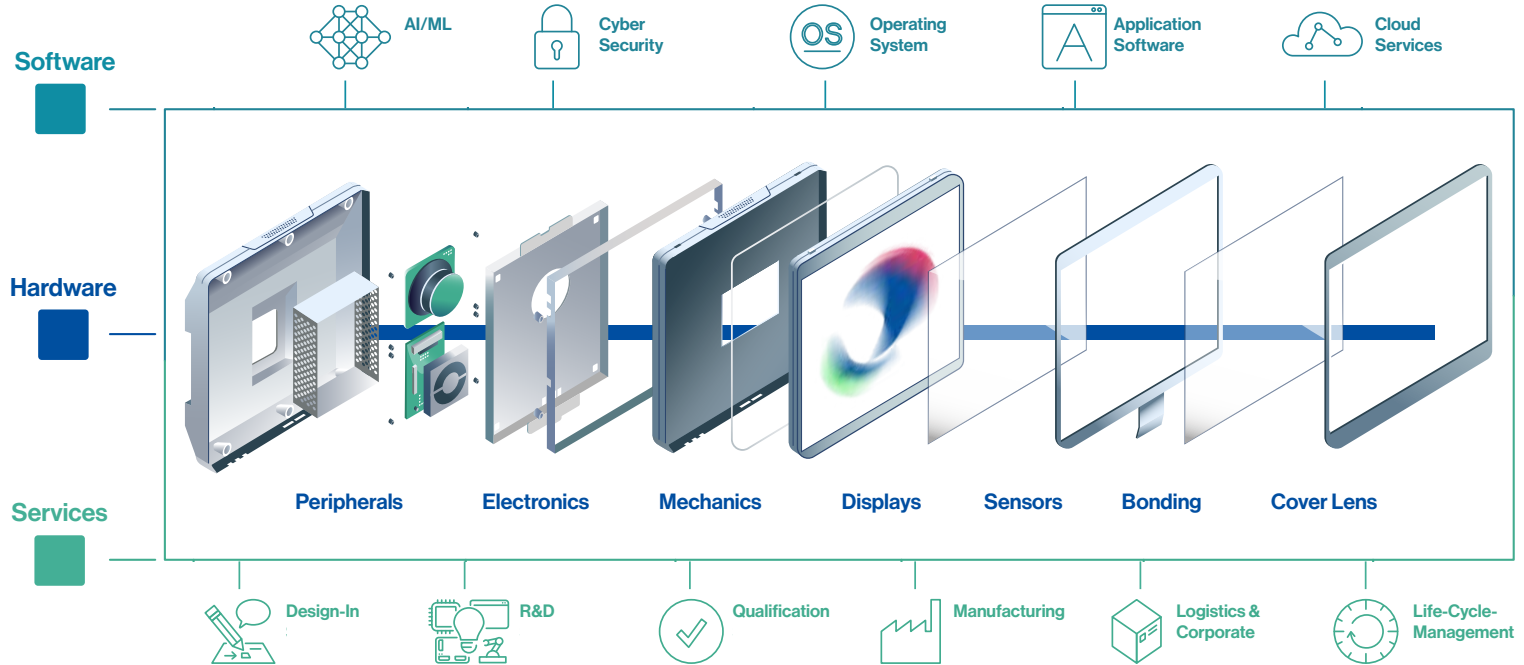
Our Spectrum

The basis for your success

Passion Displayed

Our business model at a glance

With Hardware, Software and Services, we realise unique display solutions that turn your ideas into reality



Displays

We provide a strong supplier portfolio to realise your state-of-the-art display system



TFT

- ▶ IPS, VA, TN, FALD (miniLED), MIP etc.
- ▶ Diagonals from < 1" to >100"
- ▶ Temperature ranges from -40 up to +85°C
- ▶ Standard & special formats such as round, square, stretched, curved, free shape
- ▶ Various specifications: resolution, brightness, interface, power consumption, ruggedness etc.



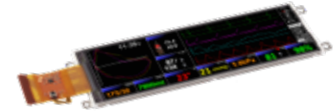
OLED

- ▶ Outstanding optical performance
- ▶ Low power
- ▶ Extremely slim
- ▶ Active & passive matrix
- ▶ Monochrome or coloured
- ▶ Free of viewing angles
- ▶ <1" up to 55"
- ▶ Standard, transparent, flexible



E-Paper

- ▶ Sunlight readable
- ▶ Extremely low power consumption
- ▶ Excellent visibility
- ▶ "Always on" (even without power)
- ▶ Monochrome & colours
- ▶ Sizes from around 1" up to 42"
- ▶ Displays & monitors



Customised displays

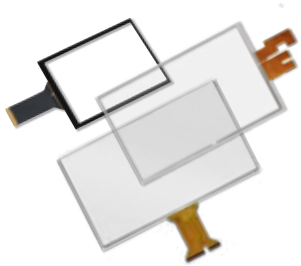
- ▶ Semi- & full custom displays
- ▶ Mechanical changes (size, shape, resolution), FPC
- ▶ Electrical adaptations (interface, special circuitry)
- ▶ Changes in optical specifications (brightness, colour etc.)
- ▶ Improved reliability (temperature range, vibration, EMC)

Our Partners



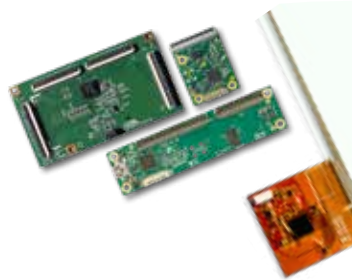
Sensors

Outstanding touch experiences based on inhouse developed sensors and controller boards



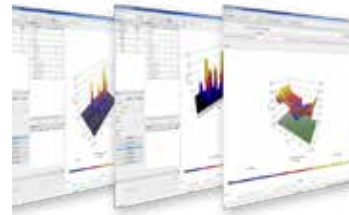
Touch sensors

- ▶ Glass or film sensors
- ▶ PCAP sensors up to 86"
- ▶ Resistive sensors up to 21.5"
- ▶ Temperature ranges from -40 up to +85°C
- ▶ Customised sensors on demand



Touch controller

- ▶ Latest PCAP controller
- ▶ I²C & USB protocol
- ▶ Chip-on-board or Chip-on-flex
- ▶ Multi-touch function up to 10 fingers



Tuning

- ▶ FAE on-site support
- ▶ EMI & ESD immunity
- ▶ Glove- & water-operation
- ▶ Tools for analysis & customisation (easyANALYZER)



Additional features

- ▶ RFID / NFC
- ▶ Bluetooth / WiFi
- ▶ Proximity sensor
- ▶ Audio & camera integration
- ▶ Barcode scanner
- ▶ Ambient light sensor
- ▶ Face detection

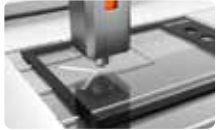
Our Partners



Bonding

Our inhouse state-of-the-art bonding methods enable us to offer customised touch display solutions directly from a single source

Optical Bonding (Focus on optical performance)



LOCA / OCR Bonding

Dam & fill process with dispensing of liquid adhesive to bond TFT/SITO/cover lens



OCA Lamination

Automatic joining of film sensors to cover lenses via lamination



Hybrid Optical Bonding

Hybrid process (between LOCA and Gel) for high-volume touch solutions with cover lens or display



E-Field

Cost-effective touch solutions with cover lens or display using an electric field in the joining process

Structural Bonding (Focus on mechanical structures)



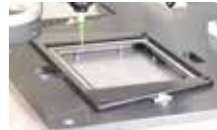
Structural Bonding

Process with Hot Melt, MS-Polymer or PSA to create adhesive joints with high mechanical resilience



Air Bonding

Use of structural bonding adhesives to successfully bond displays with cover lenses and touch sensors



Gap Filling

Automatic measurement and filling of gaps between cover lens and housing



Plasma

Supporting process for cleaning and activation of plastic surfaces to reach sufficient adhesion

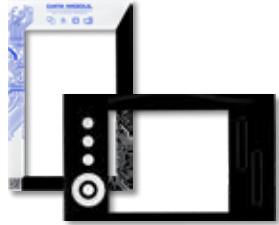
Cover Lens

Device protection & enabler for aesthetic design requirements



Material

- ▶ Float glass in different shapes
- ▶ Plastic (PMMA/PC)
- ▶ Aluminosilicate
- ▶ Chemical & thermal strengthening



Treatments

- ▶ Passepartouts & logo
- ▶ Edge & corner finishing
- ▶ Polishing for camera windows
- ▶ Cutouts or irregular shapes
- ▶ AR (anti-reflective), AG (anti-glare) and AF (anti-fingerprint)



Additional features

- ▶ Smart surface with woodlike structures
- ▶ Pol+ (Polarisation filter) for readability even with sunglasses
- ▶ Curved or 3D shapes

Peripherals

Make it work - we adapt & provide your relevant components



Cables & adaptors



Memory



Peripherals



Cooling solutions

Electronics

From pre-configured kits to customised baseboard designs, we offer a variety of embedded solutions



eMotion LCD controller boards

- ▶ Ideal for industrial applications
- ▶ Different interfaces, e.g. HDMI, VGA, DisplayPort & DVI
- ▶ Kit with all necessary components, e.g. cables, converter, power supply unit



COM / SBC solutions

- ▶ Equipped with the latest processor technology
- ▶ Numerous form factors
- ▶ Wide range of COMs (computer-on-module) & SBCs (single board computer)
- ▶ Individual software support



Customised board design

- ▶ Various individualisation options
- ▶ Suitable embedded computing solutions
- ▶ Advice on defining requirements
- ▶ Optimal cost design & lifecycle management

Our Partners



Mechanics

The key for system engineering



easyTOUCH display

- ▶ 3.5" to 55"
- ▶ Chip-on-flex or separate touch controller
- ▶ USB or I²C interface
- ▶ Various cover lenses
- ▶ Quick & easy integration



Monitors

- ▶ 10" to 75" monitors
- ▶ Up to 4K / high resolution,
- ▶ DVI, DP1.4, HDMI 2.0
- ▶ Open frame or desktop version
- ▶ Curved solution



Panel PCs

- ▶ 7" to 75" panel PCs
- ▶ PCAP touch integration
- ▶ Latest x86- & ARM-platforms
- ▶ Open frame & Stand-alone panel PCs for plug & play use



Box-PCs

- ▶ x86-platform
- ▶ Latest Intel technology
- ▶ Different performance levels
- ▶ Wide temperature range
- ▶ Various interfaces

All sorts of finishing methods



Die castings



Injection moulding



Integration of lighting elements



Sealing solutions

System design for

- ▶ Harsh environmental conditions
- ▶ Tight installation spaces
- ▶ Optimum optics & haptics
- ▶ Optimised user experience
- ▶ EMI & ESD immunity

Software

Customised software solutions - tailored to your needs



Operating systems

- ▶ Embedded Linux, YOCTO based Board-Support Packages (BSP)
- ▶ Bootloader development (U-Boot & Barebox)
- ▶ Hardware driver development & upstreaming
- ▶ Real-time operating systems
- ▶ MCU bare metal programming



Application software

- ▶ Application software development in C++, Qt or C#
- ▶ Database applications on embedded platforms
- ▶ UI/UX Design with qualified partners



Cyber security

- ▶ Linux Yocto BSP Maintenance
- ▶ Vulnerability assessment using CVE database
- ▶ Embedded system hardening
- ▶ Customised service contracts



Cloud services

- ▶ Content Management Systems
- ▶ Cloud SDK integration in Embedded Linux BSPs
- ▶ Over-the-air update concepts



AI & Machine Learning

- ▶ Machine vision systems
- ▶ AI/ML enabled embedded platforms
- ▶ Solution design & 3rd party products

Services

Your reliable partner along the product development process



Design-In

- ▶ Technical consulting
- ▶ Project management
- ▶ 1st level application & 2nd level R&D support



R&D

- ▶ Process development
- ▶ Prototyping & mock-up
- ▶ Proof-of-concepts



Qualification

- ▶ Approvals CE, UL, FCC
- ▶ Medical standards ISO 13485
- ▶ Automotive standards IATF 16949



Manufacturing

- ▶ Global assembly and manufacturing
- ▶ Quality assurance with world wide standards
- ▶ Manufacturing as a service



Logistics & Corporate

- ▶ Logistics for customers (buffer & consignment stocks)
- ▶ Various financial services
- ▶ Order tracking



Lifecycle Management

- ▶ Obsolescence management with successor models
- ▶ Traceability
- ▶ After sales support

Our markets & sectors

Demanding requirements? We find the right fit for your application



Industrial Automation

- ▶ Industrial HMI
- ▶ Robotics
- ▶ Logistics & portable devices
- ▶ Food industry
- ▶ OEM services (EMS)



Mobility

- ▶ EV-Charging & refuel
- ▶ Automotive
- ▶ Marine
- ▶ Avionics
- ▶ Military & defense
- ▶ Public transportation



Smart Building & White Goods

- ▶ Smart building
- ▶ Home appliances
- ▶ White goods
- ▶ Office & conference systems
- ▶ Professional kitchen



Medical & Healthcare

- ▶ Patient care
- ▶ Laboratory diagnostics
- ▶ Fitness & rehabilitation



Entertainment

- ▶ Gaming
- ▶ Infotainment



Smart Retail & Signage

- ▶ Measuring & weighing systems
- ▶ Point of Sales (POS)
- ▶ Digital signage (POI)

DATA MODUL

Passion Displayed



All good things come in threes:

With **Hardware**, **Software** and **Services**, we realise unique display solutions that turn your ideas into reality

www.data-modul.com

