



Catalog TFT-Monitors



2012 / 09



Ruggedized Customer Specific
6,5" XGA-TFT-Video-Display

type number 00774



Ruggedized 6,5" Display Unit
for Vehicle, Day- and Night-Vision Application

type numbers: 00741 | 01077



6,5" TFT-Display for Use in Helicopters
Custom Designed Flight Displays

type number 00715



Multi Functional 6,5" TFT-Display
for Landing – Navigation – Support

type number 00893



Rugged 6.5" Video Display for Dashboard Mounting

type number 00645



Rugged 6.5" Flip-Down Video Display
for Overhead Mounting

type number 00843



Ruggedized Customer Specific 6,5" VGA-TFT-Display-Module
for Outdoor Operation

type number 00705



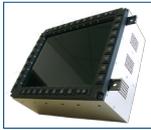
Ruggedized Customer Specific 6,5" VGA-TFT-Display

type number 00608



Ruggedized 10" Video-LCD-Display Rack Mounting

type number 00675



10,4" TFT Map Display
Custom Designed Flight Displays

type number 00817



10,4" EL-Display with Computer, Milled Housing,
18 Vdc - 36 Vdc, Army Application

type number 00634



10,4" TFT-Display with Computer Power,
Milled Housing, Chain Vehicle

type number 00665



Rugged 10,4" Multi Function Display
with Picture In Picture Video Input

type number 00407



Dual-Input 10,4" or 12,1" XGA Video-Display
for Wheel and Chain Driven Vehicles

type numbers: 00658 | 00659



15" TFT-Display, Touch Screen, Heater, 2 LVDS
Inputs, Milled Housing, 18 Vdc - 36 Vdc, Chain Vehicle

type number 00676



15" TFT-Display with Picture In Picture Function

type number 00833



Display with Integrated Keyboard and 4x KVM Switch

type number 00731



Rugged 15" Multi-Functional Display
with Integrated Mouse Function

type number 00964



Ruggedized Customer Specific 15" XGA-TFT-Video-Display

type number 00761



15" XGA-TFT-Display for Vehicle and Industrial Application

type number 00727



15" XGA-LCD 32 kHz / 50 Hz Video-Monitor

type number 00143



HPC 2000 Ruggedized 15" XGA-Display

type number 00725



18" (46 cm) SXGA-TFT-Rack Mounting
Display Unit for Rough Industrial and Vehicle Applications

type number 00156



Rugged 19" Multifunctional Display
with Picture in Picture Function

type number 00979



21" (53 cm) UXGA-TFT-Rack Mounting
Display Unit for Rough Industrial and Vehicle Applications

type number 00170

TFT-Controller:



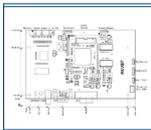
TFT-LCD Controller Card AKV 02

type number 00668



TFT-Controller-Card AKV 03

type number 00711



TFT- Controller- Card AKV 06 serie for Connection
of LCD-Panels to DVI, RGB Analogue (CRT)
and PAL/NTSC Video Sources

type number 46618



TFT- Controller- Card AKV 07 series
for Connection of LCD-Panels to DVI,
RGB-Analogue & PAL/NTSC Video Sources

type number 00989

Ruggedized Customer Specific 6,5" XGA-TFT-Video-Display

type number 00774



- External display for thermal imager
- Water protected transportation and operational box for outdoor use, compliant to IP 65 requirements
- Option: Integrated batteries

Technical Data:

Display type:	6,5" TFT with LED backlight
Resolution:	XGA 1024 x 768 pixels
Standard:	CCIR
Colours:	16 million 24 bit
Grey scales:	256, 8 bit
Power supply	24 Vdc (18 Vdc to 32 Vdc) < 15 W according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 65 according to EN 60529
Operating temperature:	-25 °C to +50 °C
Dimensions:	270 x 248 x 178 mm (W x H x D)
Controls:	On/Off/Battery; brightness and contrast
Special features:	mounted into Pelican® Case 1300 battery pack optional

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Ruggedized 6,5" Display Unit for Vehicle, Day- and Night-Vision Application

type number 00741 | 01077



Description:

The video displays of the RDU06 series have been designed for rough military environment. Colour or monochrome cameras, compliant with PAL- or NTSC- standard, can be connected. Due to the high resolution, the RDU06 provides photo realistic picture quality of almost 16 million colours and excellent contrast with night vision pictures. The tight and extremely stable enclosure of the RDU06 series complies with IP 65 requirements. Improved thermal design guarantees operation at high ambient temperatures.

Technical Data:

Display type:	6,5" TFT W.LED backlight
Resolution:	XGA 1024 x 768 pixels
Standard:	PAL; NTSC
Colours:	16 millions
Grey scales:	256, 8 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) according to VG 96916-5
Environmental conditions:	according to MIL-STD-810F
Protection:	IP 65 according to EN 60529
Operating temperature:	-20 °C to +55 °C
Dimensions:	226 x150 x 65 mm (W x H x D)
Controls:	brightness and contrast
Special features:	built for mobile ground applications



type number 01077 Option with:

- Internal heater for -32 °C operation
- Buffered video output
- On / Off push button
- EMI front filter plate
- Pressure differential valve
- Paint finish RAL1013 or TBD.

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	6,5" TFT W.LED backlight
Resolution:	XGA 1024 x 768 pixels
Standard:	PAL; NTSC
Colours:	16 millions, 24 bit
Grey scales:	256, 8 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) <15 W / <50 W with heating according to VG 96916-5
Environmental conditions:	according to MIL-STD-810F
Protection:	IP 65 according to EN 60529
Operating temperature:	-32 °C to +55 °C with integrated heating
Dimensions:	226 x150 x 65 mm (W x H x D)
Controls:	On/Off; brightness and contrast

6,5" TFT-Display for Use in Helicopters Custom Designed Flight Displays

type number 00715



- Provides flight map display
- Input Signal: RGB, VGA
- Mounting at rear side with VESA fixation
- Aluminium housing, milled front panel

Technical Data:

Display type:	6,5" TFT
Resolution:	VGA 640 x 480 pixels
Standard:	VGA
Colours:	256k, 18 bit
Grey scales:	64, 6 bit
Power supply:	12 Vdc 10 W (9 Vdc to 18 Vdc)
Environmental conditions:	TBD
Protection:	IP 54 according to EN 60529
Operating temperature:	-20 °C to +50 °C
Dimensions:	214 x 132 x 55 mm (W x H x D)
Controls:	On/Off; eight customer specific keys
Special features:	build for flight map data display

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Multi Functional 6,5" TFT-Display for Landing – Navigation – Support

type number 00893



Main features:

- Rugged LCD-TFT colour video monitor for use under harsh environmental conditions as in small or medium aircraft for safe landing support on small airfields under bad weather and low visibility conditions. It displays information needed for approaching-, tunnelling- and runway phase.
- USB Keyboard controller with eight functional keys
- Two port USB HUB to connect external pointing devices and PC-Keyboards.
- LED illuminated keys on front bezel. Illumination depending on screen brightness.

Options:

- Touch screen

Accessories:

- External distribution box

Technical Data:

Display type:	6,5" TFT LCD W.LED backlight
Resolution:	1024 x 768 pixels
Active display:	132 x 99 mm
Contrast ratio:	500:1 typ.
Brightness:	600 cd/m ² without protection glass
Viewing angle:	160° l/r, 80°/60° up/down
Response time:	25 ms typ. (ton/toff)
Display standards:	VGA, SVGA, XGA max. 60Hz
Audio:	2,8 W stereo amplifier with two speakers
Power input:	24 Vdc nominal (12 Vdc to 32 Vdc) < 25 W
Input:	DVI 1.0 on DVI connector USB 2.0, current ratio max. 500 mA per downstream port
Frontal control keys:	-on / standby -brightness up / down -function keys F1 to F8
Humidity:	88 %, 40°C, non condensing
Altitude:	15000 ft (4572 m)
Vibration:	2 g, 5 Hz to 100 Hz (non operating)
Shock:	55 g, 11 ms, 5 per direction (non operating)
EMI:	EN 55022 Class B
Protection:	IP 44 / EN 60529
Temperature:	-20 °C to +60 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	200 x 146 x 37,5 mm (W x H x D)
Weight:	approx. 1Kg
Colour:	deep black, RAL 9005, half matt or TBD

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Rugged 6.5" Video Display for Dashboard Mounting

type number 00645



Main features:

- Rugged LCD-TFT colour video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for drivers rear, front and side view
- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Two video inputs for colour and monochrome cameras or thermal imaging devices

Options:

- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Night vision goggles compatibility
- RS485 data link (Can be delivered instead of discrete control inputs / outputs)
- CAN Version 2.0B (SAE J1939), protocol CANOpen or CUP for advanced camera control and build in test

Optional accessories:

- various ruggedized cameras
- Mounting adapters and wiring harness for various vehicles
- Video distribution box
- Digital video recorder

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	6,5" TFT LCD
Resolution:	1200 x 234 pixels (H x V)
Active display:	145 x 80 mm
Contrast ratio:	350:1
Brightness:	300 cd/m ²
Viewing angle:	50° horizontal / 35° vertical
Display windows:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Video inputs:	2 x CVBS according to CCIR / STANAG 3350B and NTSC / STANAG 3350C
Power inputs:	<ul style="list-style-type: none"> • 24 Vdc / 10 W for display itself and camera power supply • 24 Vdc /12 W for camera heating both ref. to VG96916-5 (12 Vdc Version available on request)
Power outputs:	<ul style="list-style-type: none"> • 12 Vdc / 5 W for camera power supply • 24 Vdc /12 W loop through for camera heating
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signal for camera washer pump or brush cleaning
Controls:	contrast, brightness, camera selection, camera cleaning
Connectors:	VG 96912
EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 65
Temperature:	-32 °C to +85 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	248 x 119 x 49 mm (W x H x D)
Weight:	approx. 1,5 Kg
Colour:	RAL6031 HR bronze green or RAL 1013 oyster white

Rugged 6.5" Flip-Down Video Display for Overhead Mounting

type number 00843



Main features:

- Rugged LCD-TFT colour video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for drivers rear, front and side view
- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Two video inputs for colour and monochrome cameras or thermal imaging devices

Options:

- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Night vision goggles compatibility
- RS485 data link (Can be delivered instead of discrete control inputs / outputs)
- CAN Version 2.0B (SAE J1939), protocol CANopen or CUP for advanced camera control and build in test

Optional accessories:

- various ruggedized cameras
- Wiring harness for various vehicles
- Video distribution box
- Digital video recorder

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	6,5" TFT LCD
Resolution:	1200 x 234 pixels (H x V)
Active display:	145 x 80 mm
Contrast ratio:	350:1
Brightness:	300 cd/m ²
Viewing angle:	50° horizontal / 35° vertical
Display windows:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Video inputs:	2 x CVBS according to CCIR / STANAG 3350B and NTSC / STANAG 3350C
Power inputs:	<ul style="list-style-type: none"> • 24 Vdc / 10 W for display itself and camera power supply • 24 Vdc /12 W for camera heating both ref. to VG96916, (12 Vdc Version available on request)
Power outputs:	<ul style="list-style-type: none"> • 12 Vdc / 5 W for camera power supply • 24 Vdc /12 W loop through for camera heating
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signal for camera washer pump or brush cleaning
Controls:	contrast, brightness, camera selection, camera cleaning
Connectors:	VG 96912
EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 54
Temperature:	-32 °C to +85 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	280 x 55 (160 if open) x 162 mm (W x H x D)
Weight:	approx. 2 Kg
Colour:	Titan silver

Ruggedized Customer Specific 6,5" VGA-TFT-Display-Module for Outdoor Operation

type number 00705



Description:

- Customer specific display module for outdoor operation even under the influence of caustic substances
- LASER-welded stainless steel housing, fulfils IP 65 requirements
- vibration and shock resistant

Technical Data:

Display type:	6,5" TFT
Resolution:	VGA 640 x 480 pixels
Standard:	VGA
Colours:	256k, 18 bit
Grey scales:	64, 6 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 65 according to EN 60529
Operating temperature:	-25 °C to +50 °C (with integrated heating)
Dimensions:	192 x 283 x 70 mm (W x H x D) without overlaying parts
Controls:	TBD
Special features:	two integrated photoelectric barriers built for mobile ground applications

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Ruggedized Customer Specific 6,5" VGA-TFT-Display

type number 00608



Description:

5,5" TFT-analogue display for night vision / IR-camera

- Mounting at rear side with VESA fixation

Technical Data:

Display type:	5,5" TFT
Resolution:	QVGA 320 x 240 pixels
Standard:	PAL; NTSC
Colours:	16 millions, 24 bit
Grey scales:	256, 8 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 65 according to EN 60529
Operating temperature:	-30 °C to +63 °C without heating
Dimensions:	197 x 165 x 76 mm (W x H x D) without overlaying parts
Controls:	On/Off: brightness and contrast
Special features:	For Night Vision / IR-Camera built for mobile ground applications

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Ruggedized 10" Video-LCD-Display Rack Mounting

type number 00675



Description

This rack mounting video display has been designed for military environment. It is based on the Siemens ISFT 50 i.M LCD display module.

Colour or monochrome cameras, compliant with PAL or NTSC- standard, are connected to a BNC video input connector.

All connectors are placed on the rear side.

Due to its tight and stable construction, the front panel of the video display complies with IP 65 requirements.

The use of an automotive LCD allows a lowest operating temperature without heater at -40 °C .

The maximum brightness of the display is 500 cd/m² for daylight applications (measured in front of the LCD without contrast enhancement glass).

This system has an internal brightness sensor for back-light reduction when the environmental light goes down.

Option:

Housing: dimensions 290 x 225 x 70 mm
(W x H x D)

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Resolution:	640 x 480 pixels VGA
Brightness:	max. 500 cd/m ² (without anti-glare filter) Automatic Brightness Control
Timing:	CCIR / RS170
Signals:	PAL / NTSC 1 Vpp, 75 R
Connectors:	1 x BNC, video in Power supply TBD
Power supply:	9 Vdc to 36 Vdc, other voltages on request
Temperature:	-40 °C until +85 °C (operation) -46 °C until +85 °C (storage)
Dimensions:	Front panel 330 x 240 x 8 mm (W x H x D)

10,4" TFT Map Display Custom Designed Flight Displays

type number 00817



NVIS illuminated keys & keyboard

Technical Data:

Display type:	10,4" TFT
Resolution:	XGA 1024 x 768 pixels
Standard:	XGA
Colours:	16 millions 24 bit
Grey scales:	256, 8 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) < 30 W without heating according to MIL-STD-704D
Environmental conditions:	according to MIL-STD-810
Protection:	IP 54 for filter plate according to EN 60529
Operating temperature:	-25 °C to +55 °C with integra- ted heating below -10 °C)
Dimensions:	263 x 220 x 109 mm (W x H x D) without overlaying parts
Controls:	On/Off, display brightness, key brightness and 32 user programmable illuminated keys
Special features:	NVIS compatible display and bezel build for helicopter map data display customer specific computer system integrated

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.

**10,4" EL-Display with Computer, Milled Housing,
18 Vdc - 36 Vdc, Army Application**

type number 00634



Technical Data:

Display type:	10,4" EL monochrome
Resolution:	VGA 640 x 480 pixels
Standard:	VGA
Colours:	TBD
Grey scales:	TBD
Power supply:	24 Vdc (18 V to 32 V) 45 W / 75 W with heating according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 65 according to EN 60529
Operating temperature:	-30 °C to +55 °C with integrated heating below 0 °C
Dimensions:	320 x 245 x 70 mm (W x H x D) without overlaying parts
Controls:	On/Off; brightness
Special features:	built for mobile ground applications (tracked vehicles) customer specific computer system integrated PC/104 slot

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

By courtesy of our customer

**10,4" TFT-Display with Computer Power,
Milled Housing, Chain Vehicle**

type number 00665



Technical Data:

Display type:	10,4" TFT
Resolution:	800 x 600 pixels
Standard:	SVGA
Colours:	64k
Grey scales:	--
Power supply:	24 Vdc (18 V to 32 V) 30 W / 50 W with heating according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP according to MIL-STD-810
Operating temperature:	-20 °C to +50 °C with integrated heating below 0 °C
Dimensions:	320 x 250 x 85 mm (W x H x D) without overlaying parts
Controls:	On/Off; brightness; 22 illuminated keys, 2 push-buttons; key lock
Special features:	built for mobile ground applications customer specific computer system integrated 2 PC/104 slots

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Rugged 10,4" Multi Function Display with Picture In Picture Video Input

type number 00407



Main features:

- Rugged MFD for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Integrated heating for temperatures below 0°C
- Front panel controls are backlit foil keys. Keydimming depends on screen brightness.
- Resistive touch system with daylight readable circular polarizer
- USB-Keyboard function keys F1 - F13
- Two port USB hub for external keyboard / mouse
- RS232 interface for initialising size and position of the camera picture
- User programmable brightness for night-vision backlight

The CCIR-camera picture can be displayed as an overlay within the DVI or RGB-analogue screen.

Options:

- RS232 feature via USB upstream

Optional accessories:

- Mounting adapters and wiring harness for various vehicles
- Video distribution box
- Digital video recorder

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	10,4" XGA LED LCD
Resolution:	1024 x 768 pixels (H x V) 16,7 Mio. colours / 256 shades of grey
Display standards:	VGA, SVGA, XGA max. 60 Hz
Contrast ratio:	400:1 (typ.)
Brightness:	300 cd/m ² (typ.) at LCD-screen
Viewing angle:	170° horizontal / vertical
Response Time:	25 ms (typ.) ton+toff
Power supply:	24 Vdc (18 Vdc - 32 Vdc) according to VG 96916-5 without interruptions
Inputs:	<ul style="list-style-type: none"> ■ RGB analogue on 75 Ω ■ CVBS on 75 Ω ■ DVI 1.0 (cable length ≤4,5 m) ■ 2 x USB downstream port
Consumption:	<30 W (<80 W heated)
Controls:	<ul style="list-style-type: none"> ■ On / Off button ■ Brightness up / down ■ Backlight On / Off ■ Two Speaker Volume keys ■ Four On Screen Display keys
Connectors:	according to VG 96912
Shock:	25 g / 6 ms 100 g / 0,5 ms
EMI:	MIL-STD-461E
Protection:	IP 65 according to EN 60529
Temperature:	-32 °C to +55 °C (operating) -25 °C to +60 °C (storage)
Dimensions:	293 x 235 x 62 mm (W x H x D)
Weight:	approx. 3 Kg
Colour:	RAL6031 HR bronze green or TBD

By courtesy of our customer

Dual-Input 10,4" or 12,1" XGA Video-Display for Wheel and Chain Driven Vehicles

type number: 00658 | 00659



Description:

This very rugged XGA automotive video monitor has especially been developed for operating under very harsh environmental conditions as in wheel and chain driven military vehicles.

The tight and very stable housing construction combines IP 65 water protection and operation at increased ambient temperatures.

It provides 2 TNC video-inputs with buffered outputs to connect colour or monochrome cameras complying with PAL- or NTSC-standard. The video signal of the chosen camera is available at an additional TNC connector.

Optional the video information may be overlaid with customer defined positioning marks, symbols or cross hair sights.

The video-display can be mounted on a VESA Tripod via 4 shock mounts on upper and lower sides or on the rear.

All adjustments like contrast, brightness, signal sources, picture positions, etc. can be done by 4 keys located at the front or via RS232 interface.

Options:

- CVBS and/or Y/C signal input for PAL/NTSC compatible video signals
- Analogue RGB-input for standard PC signals from VGA to SXGA or
- Digital DVI input for direct connection of DVI TMDS transmitter compatible graphic cards.
- Resistive touch screen
- Wire-Mesh front glass to fulfil higher EMI requirements.
- Increased operating temperature range down up to -40 °C with internal heater.

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Timing:	CCIR / RS170
Display standards:	PAL, NTSC, VGA, SVGA, XGA, (SXGA downscaling)
Resolution:	XGA 1024 x 768; 8-Bit (16,7 mill. colours/ 256 grey levels)
Power supply:	18 Vdc - 36 Vdc according to VG96916-5
Signals:	CVBS, Y / C, RGB, TDMS Rx up to 160 MHz
Synchronization:	up to 85 Hz at SXGA (analogue RGB- input)
Connectors:	5 x TNC: <ul style="list-style-type: none"> ■ camera1 IN; 1 OUT ■ camera 2 IN; 2 OUT ■ selected camera OUT ■ power supply TBD
Controls:	On / Off Camera 1 / 2 Brightness "+" and "-"
Protection:	IP 65 according to EN 60529
Temperature:	-10 °C to +55 °C (operating) -25 °C to +70 °C (storage)

10,4" XGA Display (Type number 00658):

Brightness:	1000 cd/m ² max. (without anti-glare Filter)
Dimensions:	312 x 238 x 50 mm (W x H x D)

12,1" XGA Display (Type number 00659):

Brightness:	300 cd/m ² (typ.)
Dimensions:	312 x 263 x 55 mm (W x H x D)

**15" TFT-Display, Touch Screen, Heater, 2 LVDS
Inputs, Milled Housing, 18 Vdc - 36 Vdc, Chain Vehicle**

type number 00676



Technical Data:

Display type:	15" TFT
Resolution:	XGA 1024 x 768 pixels
Standard:	CCIR; NTSC
Colours:	256k, 18 bit
Grey scales:	64, 6 bit
Power supply:	24 Vdc (18 Vdc to 32 Vdc) < 30 W / 80 W with heating according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 54 according to EN 60529
Operating temperature:	-32 °C to +55 °C with integrated heating below 0 °C)
Dimensions:	420 x 325 x 50 mm (W x H x D) without overlaying parts
Controls:	On/Off, brightness and 7 illuminated keys
Special features:	This display can be used as PC-console or as monitor with selectable signal from 2 PC's, Resistive USB-Touch system -optional build for mobile ground vehicle applications

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.

15" TFT-Display with Picture In Picture Function

type number 00833



Allows simultaneous view of two signal sources

Technical Data:

Display type:	15" TFT
Resolution:	XGA 1024 x 768 pixels
Standard:	CCIR
Colours:	16,7 millions (24 bit)
Grey scales:	256
Power supply:	24 Vdc (18 Vdc to 32 Vdc) < 30 W / 90 W with heating according to VG 96916-5
Environmental conditions:	according to MIL-STD-810
Protection:	IP 54 according to EN 60529 (optional IP 65)
Operating temperature:	-32 °C to +55 °C with integrated heating below 0 °C)
Dimensions:	349 x 300 x 57 mm (W x H x D) without overlaying parts
Controls:	On/Off, brightness and 7 illuminated keys
Special features:	Picture in Picture multifunctional display with 2 input signals Resistive USB-Touch system build for mobile ground vehicle applications

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Display with Integrated Keyboard and 4x KVM Switch

type number 00731



Options:

- desk top adaptation kit available
- housing finish: black anodized or TBD

Technical Data:

Display type:	15" TFT
Resolution:	XGA 1024 x 768 pixels
Standard:	VGA
Colours:	16,7 millions (24 bit)
Grey scales:	256
Power supply:	230 Vac < 30 VA
Protection:	IP 54 according to EN 60529 (optional IP 65)
Operating temperature:	-10 °C to +55 °C
Dimensions:	19" Rack mount (1 HE)
Special features:	integrated keyboard, mouse 4 x KVM-Switch to operate 4 PCs

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Rugged 15" Multi Function Display with Integrated Mouse Function

type number 00964



Main features:

- Rugged LCD-TFT colour multi-function display for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- USB Keyboard function keys F1 - F8
- Mouse pad with right and left mouse buttons
- Two integrated speakers
- Dimmable backlight down to 10 %
- Quick shutdown of backlight
- Two port USB hub for external keyboard / mouse

The CCIR-camera picture can be displayed as an overlay within the DVI or RGB-analogue screen.

Options:

- Picture in picture video input
- RS232 interface for initialising size and position of the camera picture
- Night vision capability

Optional accessories:

- Mounting adapters and wiring harness for various vehicles
- Video distribution box
- Digital video recorder

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	15" XGA LCD with touchscreen
Resolution:	1024 x 768 pixels (H x V) 16,7 Mio colours / 256 shades of grey
Display standards:	VGA, SVGA, XGA max. 60 Hz
Contrast ratio:	700:1 (typ.)
Brightness:	260 cd/m ² (typ.)
Viewing angle:	160° horizontal / vertical
Response time:	22 ms (typ.) ton+toff
Inputs:	<ul style="list-style-type: none"> ■ RGB analogue on 75 Ω ■ DP DVI ■ 2 x USB 2.0
Power input:	14 Vdc ± 32 Vdc ≤ 30 W or 24 Vdc (18 Vdc - 32 Vdc) ≤ 35 W according to VG 96916-5 with additional vehicle converter power supply
Controls:	<ul style="list-style-type: none"> ■ On / Off button ■ Brightness up / down ■ Backlight On / Off ■ Mouse with two buttons ■ Two speaker volume keys ■ Four On Screen Display keys
Shock:	15 g / 11 ms operating 25 g / 6 ms non operating
EMI:	MIL-STD-461E
Protection:	IP 54
Temperature:	-31 °C to +60 °C (operating) -40 °C to +80 °C (storage)
Dimensions:	351 x 300 x 57 mm (W x H x D)
Weight:	approx. 3,4 Kg without power supply unit
Colour:	RAL6031 HR bronze green or TBD

By courtesy of our customer

Ruggedized Customer Specific 15" XGA-TFT-Video-Display

type number 00761



- External display for thermal imager
- Water protected transportation and operational box for outdoor use

Technical Data:

Display type:	15" TFT
Resolution:	XGA 1024 x 768 pixels
Standard:	PAL; NTSC
Colours:	16 millions 24 bit
Grey scales:	256, 8 bit
Power supply:	12 Vdc or 230 Vac
Environmental conditions:	TBD
Protection:	IP 65 according to EN 60529
Operating temperature:	-20 °C to +50 °C
Dimensions:	480 x 366 x 70 mm (W x H x D) without overlaying parts
Controls:	On/Off; brightness and contrast by OSD
Special features:	mounted into Pelican® Case 1550

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

type number 00727



Description:

- This 15" TFT Monitor was developed for application under harsh environmental conditions. It can be used for industrial applications as well as for mobile land vehicles.

Special performances:

- Extended temperature range by improved thermal design
- Improved vibration and shock performance in accordance to MIL/VG and EN
- Front panel and operational elements are water resistant
- Low loss power converter
- Contrast improving anti-glare and EMI protecting front glass

Adjustments are supported by OSD by 4 push-buttons located on the front panel (protected by a cover plate)

Options:

- Resistive Touch-Screen
- Power supply 100 Vac to 230 Vac
- Extended operating temperature range from -20 °C to +56 °C

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Resolution:	XGA 1024 x 768 pixels
Display standards:	VGA 640 x 480 pixels
	SVGA 800 x 600 pixels
	XGA 1024 x 768 pixels
	TEXT 720 x 400 pixels
	MAC 832 x 624 pixels
Synchronization:	TTL high or low active C-Sync, Sync on Green
Colours:	Full Colour
Connectors:	15 pin HD VGA socket line connector TBD
Power supply:	18 Vdc - 32 Vdc 230 Vac (optional)
Protection:	front panel IP 65
Temperature:	-10 °C to +56 °C (operation) -20 °C to +70 °C (storage)
Dimensions:	432 x 343 x 80 mm (W x H x D)

15" XGA-LCD 32 kHz / 50 Hz Video-Monitor

type number 00143



... the quality choice for thermal imaging
and night vision on LCD...

Description:

In addition to flicker free 100 Hz-Video-Monitors this „high quality LCD video monitor“ was developed especially for use in environments, critical with respect to space-, weight- and power consumption.

The monitor is based on an XGA analogue full-colour – LC Display with one of the shortest response times actually available on the market.

„Full colour“ also means no 6-bit limitation in displaying grey scales.

The complete electronics inclusive the LCD module is mounted via shock mounts inside the housing. As a result there is no need for special mounting techniques of the system in the desired environment.

The vision system has two resolution specific inputs, which enables toggling the camera and the VGA input to visualize PC-data on the screen.

A separate PC monitor might not be necessary.

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	15" XGA-LCD
Resolution:	XGA 1024 x 768 pixels
Standard:	Frame rate conversion to 50 / 60 Hz non interlace Response time 15 ms (white to black)
Colours:	Full colour or greyscale
Power supply:	<40 VA
Special features:	VCR output Time / date fading in Digital noise reduction Digital edge improvement Still Picture

Options:

- PC-system connectable
- Watertight housing

HPC 2000 Ruggedized 15" XGA-Display

type number 00725



Description:

The external display has been designed as an extension for the HPC 2000-System.

Due to the larger screen size, the higher resolution and the sunlight readability, this „partner display“ is the ideal, compatible choice to enhance the handheld PC to a military workstation.

The display is available in two versions:

1. Display only for visualization of the PC-data, built into a waterproof IP 65 housing.

2. The contrast enhancement filter in front of the LCD is replaced by a high sensitive resistive touch screen which can get operated with gloves. In this case this external LC Display becomes a complete user terminal. The standard cable length is approx. 2.5 meter.

The dimensions of the housing are identical in both versions, only the protection degree and the temperature range values are different.

The „touch version“ reaches IP 54 and 0 °C to +55 °C.

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

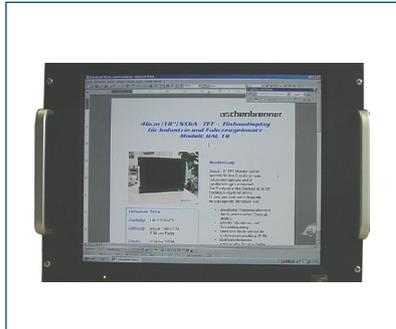
Resolution:	XGA 1024 x 768 pixels
Display modes:	640 x 480 pixels 800 x 600 pixels 1024 x 768 pixels
Brightness:	max. 500 cd/m ² (without anti-glare filter)
Connectors:	project specific (TBD)
Supply:	project specific (on request)
Temperature:	-10 °C to +62 °C (operating) -25 °C to +70 °C (storage)
Dimensions:	350 x 300 x 45 mm (W x H x D)

Options:

Display:	resistive touch screen
Temperature:	-32 °C to +62 °C with Internal heater

18" (46 cm) SXGA-TFT-Rack Mounting Display Unit for Rough Industrial and Vehicle Applications

type number 00156



Description:

- The DAC18 display series has been designed for rough industrial applications. The display is available for rack mounting or as a stand alone desk top model. The very stable construction of these displays allows also the installation in wheel driven vehicles.

Benefits:

- Improved thermal design
- Improved vibration and shock resistance
- Front panel and controls: IP 65
- Anti-glare, contrast enhancement filter
- DVI-Input
- All adjustments via front panel controls or built in RS 232 Interface
- Automatic Input scanning
- VESA DDC2B™ and VESA DPMS™ power saving
- Linear Zoom in Still Picture
- Frame-rate-conversion

Options:

- Resistive touch screen
- Video input FBAS / YC
- Custom specific timings
- Built in DC converter for 18 Vdc to 32 Vdc input voltage
- Enhanced operating temp. range -20 °C to +56 °C
- Custom specific front designs
- Modified mounting techniques
- Modified mechanics for other environmental conditions

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	18" TFT
Resolution:	SXGA 1280 x 1024
Display standards:	VGA to UXGA PAL / NTSC (optional)
Contrast ratio:	450:1 (typ.)
Colours:	16 Mio or 256 greyscales
Viewing angle:	r / l: 160°, u / d: 160° (typ.)
Response Time:	20 ms (typ.)
Power supply:	100 Vac - 230 Vac (18 Vdc - 32 Vdc opt.)
Connectors:	<ul style="list-style-type: none"> ■ DVI Digital socket ■ 15 - pin HD VGA socket ■ SVHS Video socket ■ Composite Video socket ■ Power plug EN 60320
Consumption:	60 VA max.
Synchronization:	TTL high or low active C- Sync, Sync on Green
EMI:	EN 55022 Cl.B, MIL-STD 461D
Protection:	Front IP 65, EN 60529
Temperature:	-10 °C to +56 °C (operating) -20 °C to +70 °C (storage)
Dimensions:	483 x 354 x 100 mm (W x H x D)
Weight:	ca. 8,5 kg

Rugged 19" Multifunctional Display with Picture In Picture Function

type number 00979



Main features:

- Rugged LCD-TFT colour video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles Front panel controls are illuminated with yellow LED's with separated dimming
- Build in mouse
- 2,8 W stereo amplifier with two speakers.

Options:

- Touch screen
- Picture in Picture function

Optional accessories:

- Mounting adapters and wiring harness for various vehicles
- Car adaptation power supply
- Digital video recorder

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

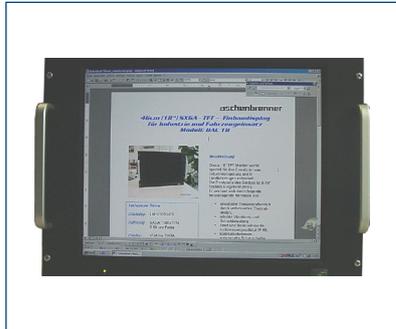
Technical Data:

Display type:	19" TFT LCD
Resolution:	SXGA, 1280 x 1024 pixels (H x V), 16,7Mill. colours or 256 grey scales
Display standards:	VGA, SVGA, XGA, SXGA ≤ 60 Hz
Contrast ratio:	1000:1 (typ.)
Brightness:	300 cd/m ² (typ.) without protection glass
Viewing angle:	170° (typ.) horizontal & vertical at contrast ratio 10:1
Response time:	20 ms (typ.) ton + toff
Inputs:	<ul style="list-style-type: none"> ■ DVI 1.0 (cable length ≤4m) ■ RGB analogue ■ USB 2.0 ≤ 500 mA per downstream port
Power supply:	19 Vdc or 24 Vdc (18 Vdc - 32 Vdc) according to VG 96916-5 with additional car adaptation power supply
Controls:	<ul style="list-style-type: none"> ■ On / Off ■ Brightness increasing/ diminishing ■ Backlight On / Off ■ Key brightness ■ Two speaker volume keys ■ Four On Screen Display keys ■ Eight programmable functional keys ■ Mouse with two buttons
Consumption:	< 80 W
EMI:	MIL-STD-461E
Protection:	IP 54 according to EN 60529
Temperature:	-20 °C to +50 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	444 x 385 x 94 mm (W x H x D)
Weight:	<7,5 Kg without car adaptation power supply
Colour:	RAL9021 HR black matt or RAL6031 HR bronze green or TBD

By courtesy of our customer

21" (53 cm) UXGA-TFT-Rack Mounting Display Unit for Rough Industrial and Vehicle Applications

type number 00170



Description:

- The DAC21 display series has been designed for rough industrial applications. The very stable construction of these displays allows also the installation in wheel driven vehicles.

Benefits:

- Improved thermal design
- Improved vibration and shock rates
- Front panel and controls: IP 65
- Anti-glare, contrast enhancement filter
- DVI-Input
- All adjustments via front panel controls or built in RS 232 Interface
- Automatic Input scanning
- VESA DDC2B™ and VESA DPMS™ power saving
- Linear zoom in still picture
- Frame-rate-conversion

Options:

- Resistive touch screen
- Video input FBAS / YC
- Custom specific timings
- Built in DC converter for 18 Vdc until 32 Vdc input voltage
- Heater for enhanced operating temperature range -20 °C to +56 °C
- Custom specific front designs
- Modified mounting techniques
- Modified mechanics for other environmental conditions

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	LTM213U3-L07 21,3"
Resolution:	UXGA 1600 x 1200, 8 Bits each colour
Display standards:	VGA to UXGA, PAL / NTSC (optional)
Contrast ratio:	450:1 (typ.)
Colour:	16 Mio or 256 greyscales
Viewing angle:	r / l: 160°, u / d: 160° (typ.)
Response time:	20 ms (typ.)
Synchronization:	TTL high or low active
Power supply:	100 Vac until 230 Vac
Connectors:	<ul style="list-style-type: none"> ■ DVI digital socket ■ 15-pin HD VGA socket ■ SVHS video socket ■ Composite video socket ■ Power plug EN 60320
Consumption:	max. 100 VA
EMI:	EN 55022, Cl.B. MIL STD 461D
Protection:	front IP 65, EN 60529
Temperature:	-10 °C to +50 °C (operating) -20 °C to +65 °C (storage)
Dimensions:	520 x 400 x 120 mm (W x H x D)
Weight:	ca. 13 kg

TFT-LCD Controller Card AKV 02

type number 00668



Description:

The AKV 02 interface card adapts analogue VGA-, SVGA- XGA-, SXGA- and video information to digital LCD- or Plasma- Displays.

4 signal sources can be connected and selected via OSD Menu or jumpers.

Option:

Model AK 02 S is optimized for the SIEMENS I-SFT LCD series

Technical Data:

All standard timings such as VGA, SVGA, XGA and Video (CVBS, PAL, NTSC) are scaled to the maximum pixel resolution of a connected display.

User interface:	via OSD- Menu
Adjustments:	possible via external keypad
Data implementation:	company logo, postal address etc. via OSD-Menu
Colour resolution:	Digitizing 8 bits each colour, total 16 Mio colours
Compatibility to LCD-glasses:	Siemens ISFT -, Sharp-, NEC-, LG - LCDs
Distance AKV 02 to computer:	up to 50 meter can be realized
Display input voltages:	3,3 Vdc or 5 Vdc, selectable
Power supply:	12 Vdc +/-0,3 Vdc or 14 Vdc to 36 Vdc (setting of jumper) 6 W without display
Temperature range:	-20 °C to +80 °C

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

TFT-Controller-Card AKV 03

type number 00711



Description:

The AKV 03 interface adapts analogue VGA-, SVGA-, XGA and SXGA information to digital LC- Displays. Standard timings such as VGA, SVGA, XGA and SXGA are scaled to the maximum pixel resolution of a connected display module. Downscaling is possible with loss of picture quality.

Options:

Model **AKV 03 S** is optimized for the SIEMENS I-SFT LCD series.

Model **AKV 04** is optimized for video presentation

Technical Data:

All standard timings such as VGA, SVGA, XGA and Video (CVBS, PAL, NTSC) are scaled to the maximum pixel resolution of a connected display.

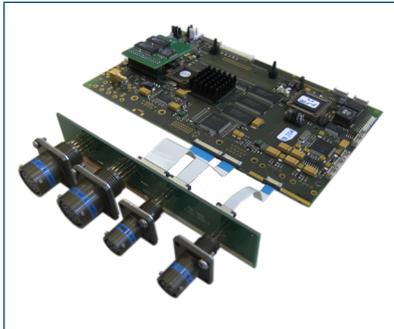
Interface:	via OSD menu
Adjustments:	possible via external keypad as an option
Colour resolution:	Digitizing 8 bits each colour, total 16 Mio.
Distance to signal sources:	up to 50 meters between computer and AKV 03. Special cables or cable adaptors for the different displays are available
Display logic voltages:	3,3 Vdc or 5 Vdc, selectable
Power supply:	9 Vdc to 36 Vdc, 2,5 W (without display)
Temperature range:	-20 °C to +80 °C

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

TFT- Controller- Card AKV 06 serie for Connection of LCD-Panels to DVI, RGB Analogue (CRT) and PAL/NTSC Video Sources

type number 46618



Features:

- Resolution up to SXGA (1280x1024) up/downscaling
- PAL/NTSC Video Input with Picture in Picture capability (optional)
- On Board 3x8 Bit Single LVDS Transmitter (optional)
- On Board 4-Port USB 2.0 Hub 2x ext. 2x int. (optional)
- On Board 2W Stereo Amplifier (optional)
- Flex Jumper Input for customized conn. Input PCB
- 6-Layer PCB for EMI Improvement

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Scaling:	All Resolutions from VGA to SXGA
Display standards:	Generally all VESA compatible modes are supported
DOS:	720x400, 640x350, 640x400 @ 70 Hz
VGA:	640x480 max. 85 Hz
SVGA:	800x600 max. 85 Hz
XGA:	1024x768 max. 85 Hz
SXGA:	1280x1024 max. 60 Hz
Analogue RGB:	Supports up to 140 MHz operation Sync on Green: (depending on PCB-version) Composite Sync: (depending on PCB-version)
DVI:	Supports up to 160 MHz operation, Single Link on Chip TMDS receiver
NTSC/PAL Input:	1x CVBS through Cinch connector, optional SMA conn.
USB-Hub (optional):	USB2.0, 2x USB A conn. downstream (external), 2x internal e. g. for touchscreen etc. USB-Upstream/Audio-in vs. 9-pin Sub-D Conn.
Audio Amplifier (optional):	Integrated 2W-Stereo Audio-Amplifier
Colours:	16 million colours, 256 shades of grey
Display connectors:	6-Bit TTL Interface, 40 pin. ODU- Minifix Connector 8-Bit TTL Interface, 66 pin 2mm pitch double row 24-Bit LVDS Interface (LDI Mapping), Hirose DF-14 Connector (option)
Temperature:	Operating: -31 °C to +70 °C, 5-95 RH, non-condensing. Ask factory for conformal coating
Dimensions:	PCB: 180 x 110 mm

