



## Contents

<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1.	General Remarks	5
1.2.	Copyright note	5
1.3.	Contents of this Documentation	5
1.4.	Additional Products and Documents	5
1.4.1.	Software Products	5
1.4.2.	Documents	5
1.5.	Items delivered	6
1.6.	Installation	6
1.7.	Safety Recommendations and Warnings	6
1.8.	Electro-Static Discharge	6
1.9.	Life Cycle Information	7
1.9.1.	Transportation and Storage	7
1.9.2.	Assembly and Installation	7
1.9.3.	Operation	7
1.9.4.	Maintenance and Repair	7
1.9.5.	Disposal	7
1.10.	Warranty	8
1.10.1.	RoHS	8
1.10.2.	WEEE	8
<b>2</b>	<b>Product Description</b>	<b>9</b>
2.1.	Explanation of Symbols	9
2.1.1.	Danger warnings	9
2.1.2.	Warnings indicate the following:	9
2.1.3.	Information pictograms indicate the following:	9
2.2.	Introduction	10
2.2.1.	Benefits of the TFT-Panel	10
2.2.2.	Intended use of the TFT-Panels	10
2.3.	Device Versions	11
2.4.	Accessories	11
2.5.	Features	11
<b>3</b>	<b>Commissioning</b>	<b>13</b>
3.1.	Overview of terminals	13
3.2.	24V power supply terminal for panels	13
3.3.	Touch Terminal	14
3.4.	The DVI Interface	15
3.5.	Rotary Switch	16
3.6.	Ground Terminal	16
3.7.	Fuse	16
3.8.	Diagnostics LED	16

3.9.	Internal Interfaces	16
3.10.	Preparing the shields connections	17
3.11.	Interface Cable for COMPACT IPC	17
<b>4</b>	<b>Operation</b>	<b>19</b>
4.1.	Power up / Power down behavior	19
4.2.	Backlight adjustment	19
4.3.	Image sticking	19
<b>5</b>	<b>Mounting instructions</b>	<b>20</b>
5.1.	General mounting instructions	20
5.2.	Flush mounting in front panel – general	20
5.3.	Front cutout of the 10.4” TFT-Panel	21
5.4.	Front cutout of the 12.1” TFT-Panel	22
5.5.	Front cutout of the 15.0” TFT-Panel	23
5.6.	Front cutout of the 19.0” TFT-Panel	24
5.7.	Dimensions of the 10.4” TFT-Panel	25
5.8.	Dimensions of the 12.1” TFT-Panel	26
5.9.	Dimensions of the 15” TFT-Panel	27
5.10.	Dimensions of the 19” TFT-Panel	28
<b>6</b>	<b>Notes on the Touch Screen</b>	<b>29</b>
6.1.	Basic functions of the touch screen	29
6.1.1.	Infrared touch version	29
6.2.	Power up function test	29
6.2.1.	Infrared touch version	29
6.3.	Cleaning and maintaining the touch screen	30
6.3.1.	Cleaning the infra-red touch:	30
6.3.2.	Cleaning should only be carried out when the device is switched off!	30
<b>7</b>	<b>Backlight, Contrast, Diagnostics</b>	<b>31</b>
7.1.	Backlight	31
7.2.	Contrast	31
7.3.	Diagnostics	31
<b>8</b>	<b>Technical Data</b>	<b>32</b>
<b>9</b>	<b>Conformity and standards</b>	<b>34</b>
<b>10</b>	<b>Product Revision History</b>	<b>35</b>
10.1.	Hardware	35
<b>11</b>	<b>Manufacturer Information</b>	<b>36</b>
11.1.	Contact	36

## 12 Index

37

### List of Tables

Tab. 1	Materials	8
Tab. 2	TFT-Panel Device versions	11
Tab. 3	TFT-Panel accessories	11
Tab. 4	Features	12
Tab. 5	overview of terminals	13
Tab. 6	Pins of the Touch Terminal	14
Tab. 7	Pins of the DVI-Interface	15
Tab. 8	Symptom and Diagnostic	31
Tab. 9	Technical data	33
Tab. 10	Hardware Revision State	35

### List of Figures

Fig. 1	Overview of terminals	13
Fig. 2	Plug connector: 3pole Phoenix MSTB2.5/3-GF-5.08, RM 5.08mm, Phönix Order No. 1776511	13
Fig. 3	3pole plug connector	14
Fig. 4	Touch-Terminal	14
Fig. 5	DVI Interface	15
Fig. 6	Rotary switch	16
Fig. 7	Ground Terminal	16
Fig. 8	Diagnostics LED	16
Fig. 9	Cable interface	17
Fig. 10	Front cutout 10.4 inch	21
Fig. 11	Front cutout 10.4 inch IP65	21
Fig. 12	Front cutout 12.1 inch	22
Fig. 13	Front cutout 12.1 inch IP65	22
Fig. 14	Front cutout 15.0 inch	23
Fig. 15	Front cutout 15.0 inch IP65	23
Fig. 16	Front cutout 19.0 inch	24
Fig. 17	Dimensions 10.4 inch	25
Fig. 18	Dimensions 12.1 inch	26
Fig. 19	Dimensions 15.0 inch	27
Fig. 20	Dimensions 19.0 inch	28

# 1 Introduction

## 1.1. General Remarks

The content and presentation of this document has been carefully checked. No responsibility is accepted for any errors or omissions in the documentation.

Note that the documentation for the products is constantly revised and improved. The right to change this documentation at any time without notice is therefore reserved.

Syslogic is grateful for any help referring to errors or for suggestions for improvements.

All brand and product names are trademarks or registered trademarks of the owner concerned.

## 1.2. Copyright note

This documentation is the intellectual property of Syslogic Datentechnik AG, which also has the exclusive copyright. Any modification of the content, duplication or reprinting of this documentation, as well as any distribution to third parties can only be made with the express permission of Syslogic Datentechnik AG.

Syslogic Datentechnik AG does not accept any liability for damages arising from the use of any incorrect or incomplete information contained in this documentation or any information missing therefrom.

All brand and product names are trademarks or registered trademarks of the owner concerned.

## 1.3. Contents of this Documentation

This document addresses to system integrators, programmers and instructed installation and maintenance personal working with the TFT-Panel system. It provides all information needed to set-up, mounting, start-up an operation of this TFT-Panel.

## 1.4. Additional Products and Documents

### 1.4.1. Software Products

The following software drivers must be installed before commissioning the TFT-Panel:

The video driver for the corresponding DVI graphics card.

Touch driver on request. Please contact Syslogic Datentechnik AG or visit [www.syslogic.com](http://www.syslogic.com)

The supplied touch drivers for Windows 2000/XP/Vista (CE on request) enable the TFT-Panel to be used as a mouse-compatible input device. Touching the screen simulates a left-click on the mouse at the corresponding position. Other mouse buttons (middle, right) are not supported. In this way, user programs can benefit from the advantages of touch technology without any additional measures.

### 1.4.2. Documents

The following documents are *required* for correct installation and operation of the TFT-Panel Display:

- DOC/PANxxxIS-INST: Installation guide
- IRTouchAPI\_Manual\_Win32

- IRTouchDriver\_Manual\_Win32
- IRTouchDriver\_Manual\_WinCE

### **1.5. Items delivered**

The following items are delivered:

- 1x TFT-Panel
- 1x Seal
- 1x Power supply connector
- 4x Securing nuts (10.4", 12.1", 15" Versions)
- 8x Securing nuts (19" Version)
- 1x Fixing frame

Note : Mounting procedure is described in DOC/PANxxxIS-INST

### **1.6. Installation**

The installation of the TFT-Panel system is described in the documentation DOC/PANxxxIS-INST.

### **1.7. Safety Recommendations and Warnings**

The products are intended for measurement, control and communications applications in industrial environments. The products must be assembled and installed by specially trained people. The strict observation of the assembly and installation guidelines is mandatory.

Qualified personnel in the sense of the safety instructions in this device description or on the product are those persons:

- who are either familiar with the safety concepts of automation as project designers,
- or are instructed as operating personnel in the use of automation equipment and are familiar with the content of this device description related to operation,
- or have acquired the relevant training as commissioning or service personnel for the repair of such automation equipment, and are authorized to commission current circuits and devices/systems in compliance with standard safety engineering principles.

The use of the products in systems in which the life or health of persons is directly dependent (e.g. life support systems, patient monitoring systems, etc.) is not allowed.

The use of the products in potentially explosive atmospheres requires additional external protection circuitry which is not provided with the products.

In case of uncertainty or of believed errors in the documentation please immediately contact the manufacturer (address see chapter 11). Do not use or install the products if you are in doubt. In any case of misuse of the products, the user is solely liable for the consequences.

### **1.8. Electro-Static Discharge**

Electronic boards are sensitive to Electro-Static Discharge (ESD). Please ensure that the product is handled with care and only in a ESD protected environment. Otherwise a proper operation is not guaranteed.

## **1.9. Life Cycle Information**

### **1.9.1. Transportation and Storage**

During transportation and storage the products must be in their original packing. The original packing contains a TFT-Panel in a bag, a seal, a Power supply connector, securing nuts (4 or 8), a fixing frame and shock-absorbing material. It is recommended, to keep the original packing in case of return of the product to the factory for repair. Note that the packing is recyclable.

### **1.9.2. Assembly and Installation**

Observe the EMI-precautions against static discharge. Carefully read the assembly and installation guide (DOC/PANxxxIS-INST) before unpacking the products. Make sure that you have all the necessary items ready (including all the small parts). Follow the assembly guidelines in DOC/PANxxxIS-INST strictly.

The installation procedures (contained in document DOC/PANxxxIS-INST) must be strictly observed. Note that deviations from the installation guidelines may result in degraded operational reliability or in unfavourable EM-radiation or EM-susceptibility.

The device must not be switched on in humid conditions. When it is moved from a cold to a warm location it must therefore be allowed to adjust to the temperature change.

No warranty claims will be recognized for faults arising from the improper handling of the device.

### **1.9.3. Operation**

The operating environment must guarantee the environmental parameters (temperature, power supply, etc.) specified in the technical specification section of the TFT-Panels manuals.

### **1.9.4. Maintenance and Repair**

Regular cleaning of the inner section of the device front (front glass and IR frame) is recommended to ensure perfect operation of the IR touch screen

Repair to TFT-Panel and Panel PC devices must only be carried out by the manufacturer. (Manufacturer address: Syslogic Datentechnik AG, Täferstrasse 28, 5405 Baden-Dättwil, Switzerland) No liability is accepted for any modifications made to the device that are not described in this document. Only the original packaging must be used for transporting the device. The stipulated climatic conditions must be observed.

The device must only be used in the climatic conditions described in section Technical Data.

It is recommended that the devices are stored at room temperature.

### **1.9.5. Disposal**

At the end of the lifespan the TFT-Panel products must be properly disposed. TFT-Panel products contain a multitude of elements and must be disposed like computer parts. Packaging not needed anymore must be fairly disposed or be returned for disposal to the manufacturer or distributor. The wrapping contains the following materials: Cardboard box, transportation protection and bag made of TFL-foam (Polyethylene).

Light Emitting Diode display.

<b>Materials</b>	<b>Description</b>
Front	Infrared touch: Safety glass, plastic frame, Makrolon 2805 (manufacturer: Bayer AG), PETP polyester foil
Hoods	Galvanized sheet steel
Mounting plates	Galvanized sheet steel
Front glass	Safety glass
Display	LED, 1 Disposal quality
Print boards	1 Disposal quality

Tab. 1 Materials

## 1.10. Warranty

Our products are covered by a world-wide manufacturers warranty. The warranty period starts at the delivery time from our official distributor to the customer. The duration of the warranty period is specified in the General terms and conditions. All products carry a date code and a job number for identification. The manufacturing data and deliveries are registered in a high level Quality Management System.

The warranty covers material and manufacturing defects. All products must be returned via the official distributor to the factory for repair or replacement. The warranty expires immediately if the products are damaged or operation outside of the specified recommended operating conditions. The warranty also expires if the date code or job number listed on the product is altered or rendered unintelligible. The warranty does not include damage due to errors in firmware or software delivered with the products.

### 1.10.1. RoHS

The product of the TFT-Panel family are designed and produced according to the Restriction of Hazardous Substances (RoHS) Directive (2002/95/EC).

### 1.10.2. WEEE

The products of the TFT-Panel series are not designed ready for operation for the end-user and intended for consumer applications. Therefore the Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) is not applicable. But users should still dispose the product properly at the end of life.



## 2 Product Description

### 2.1. Explanation of Symbols

#### 2.1.1. Danger warnings




The following information is for your personal safety and the prevention of damage to the product described or connected devices.

Safety instructions and warnings for the prevention of danger to the life and health of users or service personnel, and for the prevention of damage are highlighted in this document by the pictograms specified below. “Warning” and “Information” pictograms are shown in this document.

#### 2.1.2. Warnings indicate the following:


Death, serious injury or substantial material damage may occur if the related safety measures are not implemented.

The individual “Warning” pictograms have the following meaning:

	<b>Attention! General!</b> Is an instruction that must be observed in order to ensure protection in time from dangers during and at the time of the operation of the device. The correct procedure must be observed.
	<b>Attention! Electric shock!</b> Persons may be exposed to dangerous voltages in electrical installations. There is a danger of electric shock if a live part is touched.
	<b>Attention! Observe ESD measures!</b> Electrostatic discharge may destroy electronic components.

#### 2.1.3. Information pictograms indicate the following:

Important information about the product or the relevant section of the document, requiring the particular attention of the reader.

	The “Information” pictogram has the following meaning:
	Indicates important and instructional information.

## **2.2. Introduction**

### **2.2.1. Benefits of the TFT-Panel**

- Scalable screen size
- Robust touch screen technology
- Front protection to IP65
- Can be mounted up to 30m detached from the IPC
- Low loss, digital signal transmission

The TFT-Panel meets all the requirements of state-of-the-art advanced digital video transmission. It is compliant with the DVI Standard as a “Single Channel DVI-D Flat Panel Monitor”.

The TFT-Panel is used in combination with a Syslogic COMPACT IPC or together with a standard DVI graphics card in a standard IPC. The TFT color screen, i.e. the place of operation, can be installed (depending on the screen resolution) up to 30 meters away from the computer.

The TFT-Panels are rugged information, display and input devices that were specially developed for operation in harsh environments.

The TFT technology makes a wide range of applications possible with a perfect and clear picture on an absolutely flat surface. Depending on the application, either a calibration-free infra-red touch frame with scratchproof safety glass or absolutely flat resistive touch panel can be used.

A metal housing with a solid front frame and scratchproof safety glass protects the device reliably during long and rugged periods of use (front protection: IP65) and requires little care and maintenance.

### **2.2.2. Intended use of the TFT-Panels**

The TFT-Panel is designed for:

- Visualization and process control
- PLC visualization
- General control and automation tasks
- Industrial use
- For medical technology
- For multi-media systems
- Operation in the ambient conditions specified in the technical data

This device description is designed as a reference guide for the installation, connection, operation and maintenance of all versions of the TFT-Panel, and also provides all the relevant technical data.

### 2.3. Device Versions

The TFT-Panel is available in the following versions:

TFT-Panel Device types			
Order code	Type designation	Flat screen	Mounting type
TFT/PAN104IS-F1	TFT-Panel 10.4" IR	10.4" SVGA	Flush mounting
TFT/PAN121IS-F1	TFT-Panel 12.1" IR	12.1" SVGA	Flush mounting
TFT/PAN150IS-F1	TFT-Panel 15.0" IR	15.0" XGA	Flush mounting
TFT/PAN190IS-F1	TFT-Panel 19.0" IR	19.0" SXGA	Flush mounting

Tab. 2 TFT-Panel Device versions

### 2.4. Accessories

The following accessories are not necessarily supplied with the device. These parts could ordered additionally or downloaded under [www.syslogic.com](http://www.syslogic.com) :

Accessories		
Order code	Type designation	Description
IRTouchAPI_Manual_Win32	Touch driver software	Driver software for touch API
IRTouchDriver_Manual_Win32	Touch driver software	Driver software for touch WinXP
IRTouchDriver_Manual_WinCE	Touch driver software	Driver software for touch WinCE
CPN/ATLINK-2F-3M	Serial cable	AT-Link Cable, 3.0m, 2x DSUB9 female
CPN/DVIMDVIMSL-2M	DVI cable	DVI-D to DVI-D Single Link Cable 2m
PSU/DR24V60W-1P	Power supply	DIN rail power supply 24VDC, 60W
	Front foil	On request

Tab. 3 TFT-Panel accessories

### 2.5. Features

Feature		Note	
Screen	Graphic	10.4", 12.1", 15", 19"	
	Type	TFT	
	Resolution	10.4"	800 x 600 (SVGA)
		12.1"	800 x 600 (SVGA)
15.0"		1024 x 768 (XGA)	
	19.0"	1280 x 1024 (SXGA)	

Touch	Infrared touch Resolution	10.4"	81 x 61
		12.1"	92 x 70
		15.0"	115 x 87
		19.0"	143 x 115
Interfaces	DVI	Type	Single Channel DVI-D
	Power supply	Type	24VDC
	Touch interface	Type	RS232

Tab. 4 Features

## 3 Commissioning

### 3.1. Overview of terminals

10.4"- 19" infrared versions:

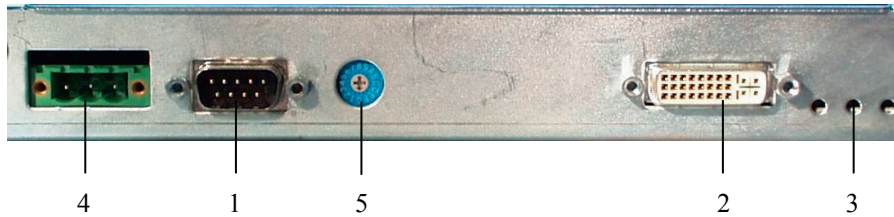


Fig. 1 Overview of terminals

No.	Element	Description
1	Touch	Chap. Touch terminal
2	Video	Chap. The DVI interface
3	Diagnostic LED	Chap. Diagnostics LED
4	24V power supply	Chap. 24V power supply terminal for Panels
5	Rotary switch	Chap. Rotary switch

Tab. 5 overview of terminals

### 3.2. 24V power supply terminal for panels

The TFT-Panel is a device compliant with protection class 3. The system must be fed with an SELV 24VDC (safety extra-low voltage) supply. The maximum breaking capacity of the fuse must be observed. The power supply is not electrically isolated. The 0V terminal is directly connected to the housing potential. The power supply is fuse protected. The device is protected against reverse polarity, however, operation is only possible when the device is connected correctly.

The relevant national regulations must be observed when connecting the TFT-Panel.

The connection should be made as follows:

- The cross-section of the power supply cable must be between 0.75mm<sup>2</sup> and 2.5mm<sup>2</sup>
- A lead or wire can be used for the connection
- The current consumption must be taken into account for the power supply.
- The functional ground is not compulsory for operation. It may help to prevent interference and potential differences.

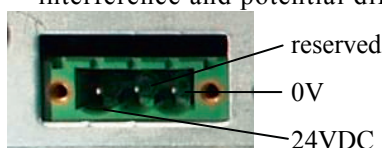




Fig. 2 Plug connector: 3pin Phoenix MSTB2.5/3-GF-5.08, RM 5.08mm, Phönix Order No. 1776511

	<p>If the polarity is reversed and a 0V connection is added at the same time, e.g. GND connection of the COM1 interface, the leakage current will flow across this 0V connection. The TFT-Panel or external components may be damaged if the housing is not properly connected to the 0V potential.</p>
	<p>The two connection wires must be connected with each other close to the plugin order to ensure a safe connection.</p>

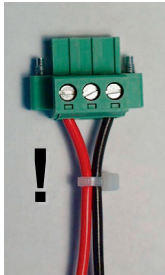


Fig. 3 3pole plug connector

### 3.3. Touch Terminal

This interface is not electrically isolated. The GND pin is directly connected to the housing potential.



Cables connected to the RS232 interface must be routed separately from low-voltage cables.



Fig. 4 Touch-Terminal

Pin	Signal	Description
1	-	reserved
2	RXD	Receive signal for the touch module
3	TXD	Send signal of the touch module
4	12V	Reserved for second 12V input (future)
5	GND	
6	-	reserved
7	-	reserved
8	-	reserved
9	12V	12V input

Tab. 6 Pins of the Touch Terminal

	<p>A detailed description of the functions of the RS232 interface is provided in the relevant software device description.</p>
	<p>The touch cable from the original accessories must be used in order to ensure trouble-free operation. (CPN/ATLINK-2F-3M)          The 12V power supply input of the TFT-Panel is not protected against reverse polarity.</p>

### 3.4. The DVI Interface

A standard DVI cable (see accessories) is used to connect the DVI interface of the TFT-Panel to a Compact IPC or the DVI interface of a standard PC.

The video transfer is carried out differentially in TMDS (Transition Minimized Digital Signalling). The video interface is compliant with the Single Link DVI-D Standard. For practical reasons, a DVI-I connector was fitted, however, the analog inputs do not have any function.

Pin	Signal	Description
1	RX2-	TMDS Data 2- Input
2	RX2+	TMDS Data 2+ Input
3	RX2/RX4 shield	TMDS shield for Data 2 & 4
4	RX4-	Not connected internally
5	RX4+	Not connected internally
6	DDC Clock	Digital Data Channel Clock Input
7	DDC Data	Digital Data Channel Data I/O
8	Analog Vsync	Not connected internally
9	RX1-	TMDS Data 1- Input
10	RX1+	TMDS Data 1+ Input
11	RX1/RX3 shield	TMDS shield for Data 1 & 3
12	RX3-	Not connected internally
13	RX3+	Not connected internally
14	+5 V	+5V for DDC
15	TTL Ground	
16	HPD	Hot Plug Detect
17	RX0-	TMDS receive 0-
18	RX0+	TMDS receive 0+
19	RX0/RX5 shield	TMDS shield for Data 0 & 5
20	RX5-	Not connected internally
21	RX5+	Not connected internally
22	Clock shield	TMDS shield for Clock
23	Clock+	TMDS Clock+ Input
24	Clock-	TMDS Clock- Input
C1	Analog Red	Not connected internally
C2	Analog Green	Not connected internally
C3	Analog Blue	Not connected internally
C4	Analog Hsync	Not connected internally
C5	Analog Ground	Not connected internally

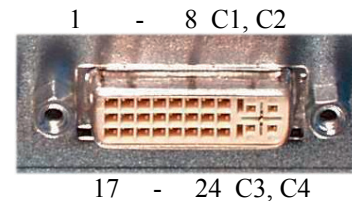



Fig. 5 DVI Interface

Tab. 7 Pins of the DVI-Interface

	<p>Use standard DVI cables or          CPN/DVIMDVIMSL-2M, DVI to DVI</p>
---	--

### 3.5. Rotary Switch

The rotary switch can be used to adapt the TFT-Panel for operation with long or short cables in order to prevent quality losses due to the DVI cable being too long or too short.

Normally no faults occur when the switch is set to the factory setting (0). However, cable that is too short may cause flickering. This can be eliminated by turning the rotary switch backwards.


	0 corresponds to long cable (factory setting) F corresponds to short cable
---	---



Fig. 6 Rotary switch

### 3.6. Ground Terminal

We recommend that the TFT-Panel is grounded in order to prevent interference. This can either be implemented with the shield for the touch & power supply or by using a ground connection on the grounding bolt.

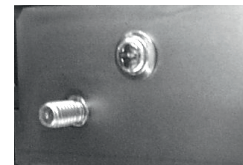


Fig. 7 Ground Terminal

### 3.7. Fuse

The device is protected internally by means of a self-healing fuse. If this fuse is tripped, the TFT-Panel must be disconnected from the power supply, all faults must be rectified and the reset time (approx. 1 min) must be allowed to elapse.

### 3.8. Diagnostics LED

The TFT-Panel has three diagnostics LEDs which indicate the correct power supply.

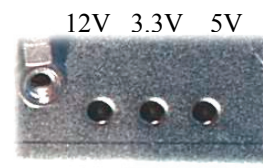


Fig. 8 Diagnostics LED

### 3.9. Internal Interfaces

- Video data** Digital signals for the TFT flat screen
- Touch module** Serial data from and to the touch module, backlight setting
- Backlight** Terminal for the backlight




### 3.10. Preparing the shields connections

The preparation of the data and signal cables is an essential factor in ensuring the electromagnetic compatibility (EMC) of the TFT-Panel. This applies both to immunity and emission.

The touch interface is connected with a D-subminiature plug connector in compliance with DIN 41652. For this only use metal or metallized connector casings with a cable clamp for strain relief that is securely screwed or clamped onto the connector. The clamping of the cable shield ensures that it makes contact with the connector casing over a large contact area with a low inductance, and is connected via the casing to the housing of the TFT-Panel.

The cable shield must be connected using the method described below or one with identical inductance properties:

- 1. Strip the cable
- 2. Shorten the exposed shield braid to a length of approx. 3 cm.
- 3. Turn back the braid over the cable sheath.
- 4. Use a heat shrinkable tubing or a rubber grommet to cover the cable sheath with the folded back shield braid so that 5 to 8 mm of exposed cable shield is left at the sheath end and is cleanly covered at the back.
- 5. Fit the connector
- 6. The cable is then fastened at the exposed shield braid and the cable sheath below it directly underneath the cable clamp strap of the connector casing.

	<p>Cabling should be carried out with special care in order to guarantee interference-free operation.</p> <p>The EMC values specified in the technical data can only be guaranteed by observing the prescribed cable preparation.</p>
---	---

### 3.11. Interface Cable for COMPACT IPC

Connections between a TFT-Panel and a Syslogic COMPACT-IPC:

- 1. The COMPACT-IPC must have a DVI port
- 2. Connect DVI cable between the COMPACT-IPC and the TFT-Panel
- 3. Connect the touch cable between the COMPACT-IPC (COM2) and the TFT-Panel
- 4. Connect 24VDC power supply

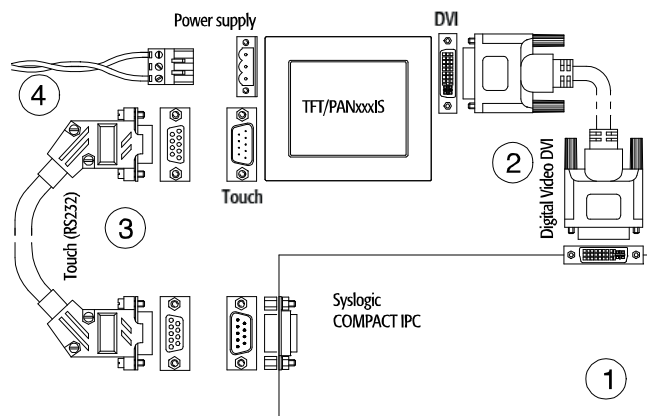





Fig. 9 Cable interface

	<p>Shielded cables and metallized connectors must be used for all interfaces. The shield must have a low-inductance connection to the connector case at both ends.</p>
	<p>The power supply via the touch cable is ideal for short cable distances. With cable distances exceed 5m and more, the voltage drop in the cable may be too large, and the power supply must be implemented with the 24V input. This depends on the current consumption of the TFT-Panel.</p>

## 4 Operation

### 4.1. Power up / Power down behavior

	The following description applies if the TFT-Panel is run with a Box PC or standard PC with DVI video card. Unlike a video card with a DVI output, the Box PC is not provided with a CRT connection.
---	--

The DVI-D video cable must be connected to the PC before the PC is switched on! The graphics card only checks once during power up whether the TFT-Panel or a conventional CRT (by means of a DVI/VGA adapter) and then only switches on the corresponding interface. The DVI-D cable must not be removed after the power up. Unplugging the TFT-Panel or the conventional CRT causes the corresponding interface to be disconnected. The TFT-Panel and the CRT remain dark if the device is replugged without completing the power down/power up procedure.

On some PCs, switching to a power down mode may cause a timing violation for the TFT flat screen (screen loses synchronization). In this case, the corresponding power down mode should be switched off.

Make the following setting for Compaq PCs, i.e. in BIOS Setup:

Power supply → Timeout values → System time (in minutes) to “never” → [F10] → File → Save change and close → [F10]

If the 12V is still present on the TFT-Panel after the PC is switched off (power supply not via PC), the backlight is switched off and the receive logic switches to a safe power down mode.

If the video cable is unplugged during operation, this will also cause the backlight to switch off and the receive logic to switch to a safe power down mode.


The video card will disable transfer of the video data if a screen refresh rate higher than 60Hz is set on the PC, or a screen resolution that is not supported by the TFT screen. In this case, the TFT-Panel will then switch off the backlight and also switch to a safe power down mode. After power up the PC boots the installed operating system. The self-tests supported by the BIOS are carried out at the same time.

### 4.2. Backlight adjustment

The backlight of the display can be adjusted via the touch software.

### 4.3. Image sticking

If a static pattern is displayed for a long time, image retention can occur. To prevent this behavior, it is recommended to change the pattern at least every 12 hours for a short period. Image sticking is mostly reversible, but can be very annoying.

	It is recommended to use a screensaver.
---	---


## 5 Mounting instructions

### 5.1. General mounting instructions

The TFT-Panels are mounted with a corresponding fixing frame.


For the max ambient temperature TFT-Panels can be operated with, see Tab. 9 Technical data.

The ambient temperature is based on the temperature of the area directly at the connectors with the device mounted vertically and with unhindered air convection. A 50mm clearance must be provided on all sides in order to ensure sufficient air circulation. A minimum clearance of 75mm must be ensured to active elements such as the power supply, transformers etc.

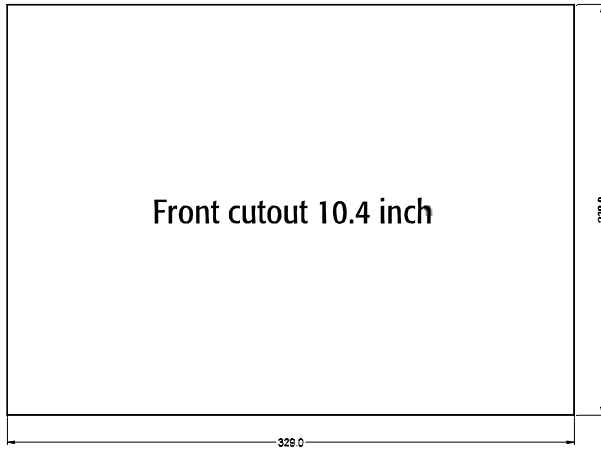
	<p>The following must be ensured to prevent the device from overheating during operation:</p> <ul style="list-style-type: none"><li>- All cooling slots must be free in order to ensure system cooling.</li><li>- Avoid the exposure of the front to direct sunlight.</li><li>- The mounting angle can reduce the temperature range.</li></ul>
---	--

### 5.2. Flush mounting in front panel – general

- 1. Insert the TFT-Panel from the front into the front panel cutout.
- 2. The front seal must be flat and evenly positioned between the front plate and the front panel.
- 3. Fasten the rear of the device to the supplied fixing frame using the 4 locking nuts (until the front frame is touching the front panel on all sides).


	<p>Ensure that the seal is seated correctly on the front panel. Avoid torques higher than 0.5Nm, as these may otherwise damage the device. The thickness of the front panel must not exceed 5mm.</p>
---	--

### 5.3. Front cutout of the 10.4" TFT-Panel

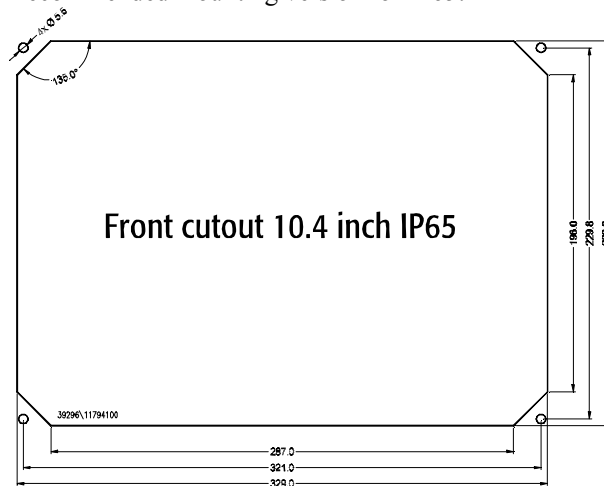


The device requires a mounting section of WxH:  
329 +0/-1mm x 238 +0/-1mm

Fig. 10 Front cutout 10.4 inch

	The thickness of the front panel must not exceed 5mm.
---	---

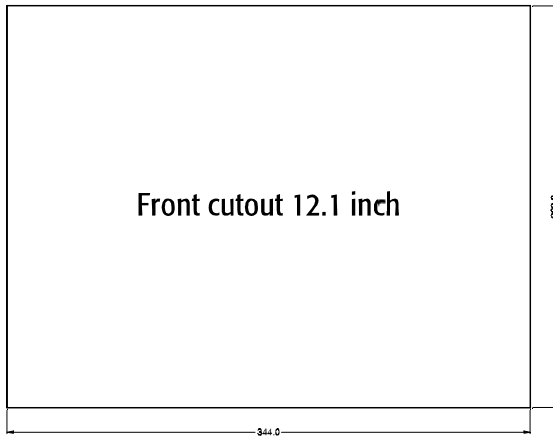
Recommended mounting version for IP65:



Tolerance of the mounting cutout: +0/-1mm


Fig. 11 Front cutout 10.4 inch IP65

#### 5.4. Front cutout of the 12.1" TFT-Panel

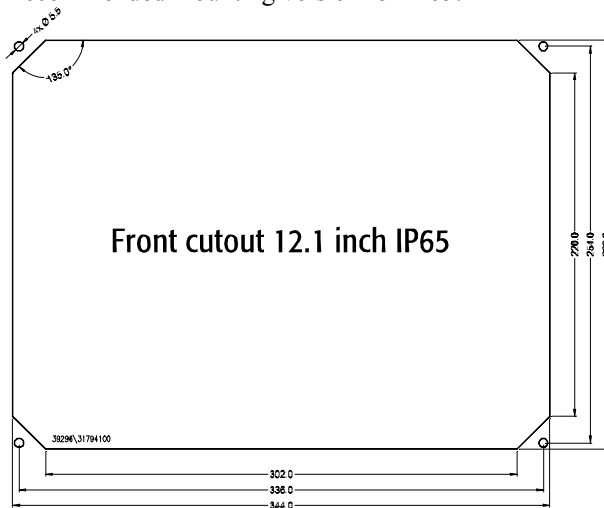


The device requires a mounting section of WxH:  
344 +0/-1mm x 262 +0/-1mm

Fig. 12 Front cutout 12.1 inch

	The thickness of the front panel must not exceed 5mm.
---	---

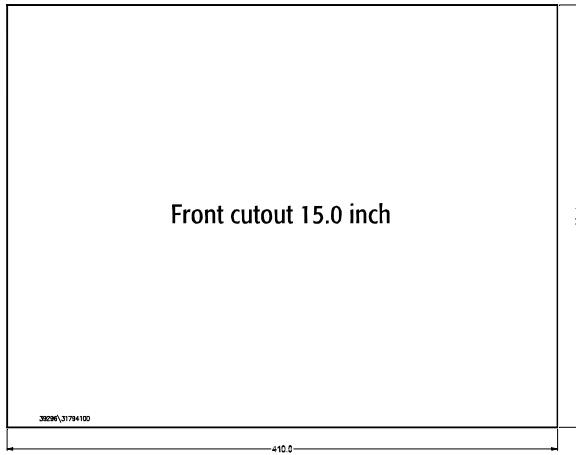
Recommended mounting version for IP65:



Tolerance of the mounting cutout: +0/-1mm

Fig. 13 Front cutout 12.1 inch IP65

### 5.5. Front cutout of the 15.0" TFT-Panel

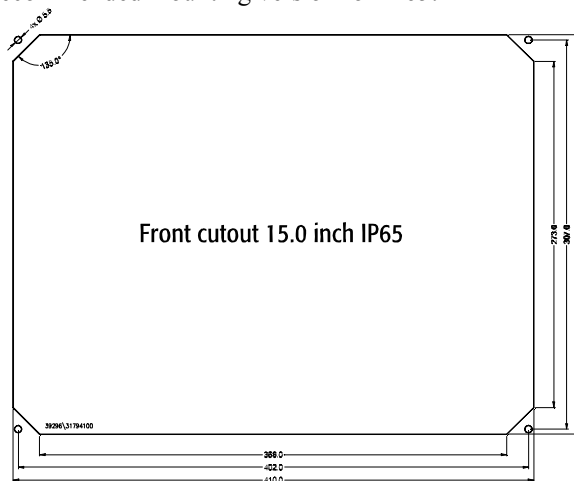


The device requires a mounting cutout of WxH:  
410 +0/-1mm x 315 +0/-1mm

Fig. 14 Front cutout 15.0 inch

	The thickness of the front panel must not exceed 5mm.
--	---

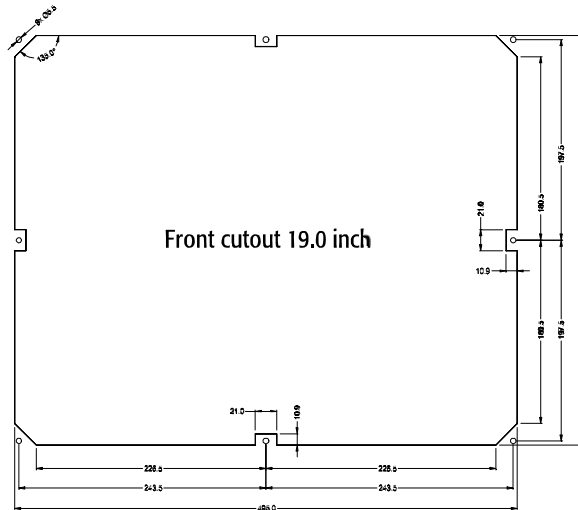
Recommended mounting version for IP65:



Tolerance of the mounting cutout: +0/-1mm


Fig. 15 Front cutout 15.0 inch IP65

## 5.6. Front cutout of the 19.0" TFT-Panel



The device requires a mounting cutout of WxH:  
495 +0/-1mm x 403 +0/-1mm

Fig. 16 Front cutout 19.0 inch

	The thickness of the front panel must not exceed 5mm.
---	---



## 5.7. Dimensions of the 10.4" TFT-Panel

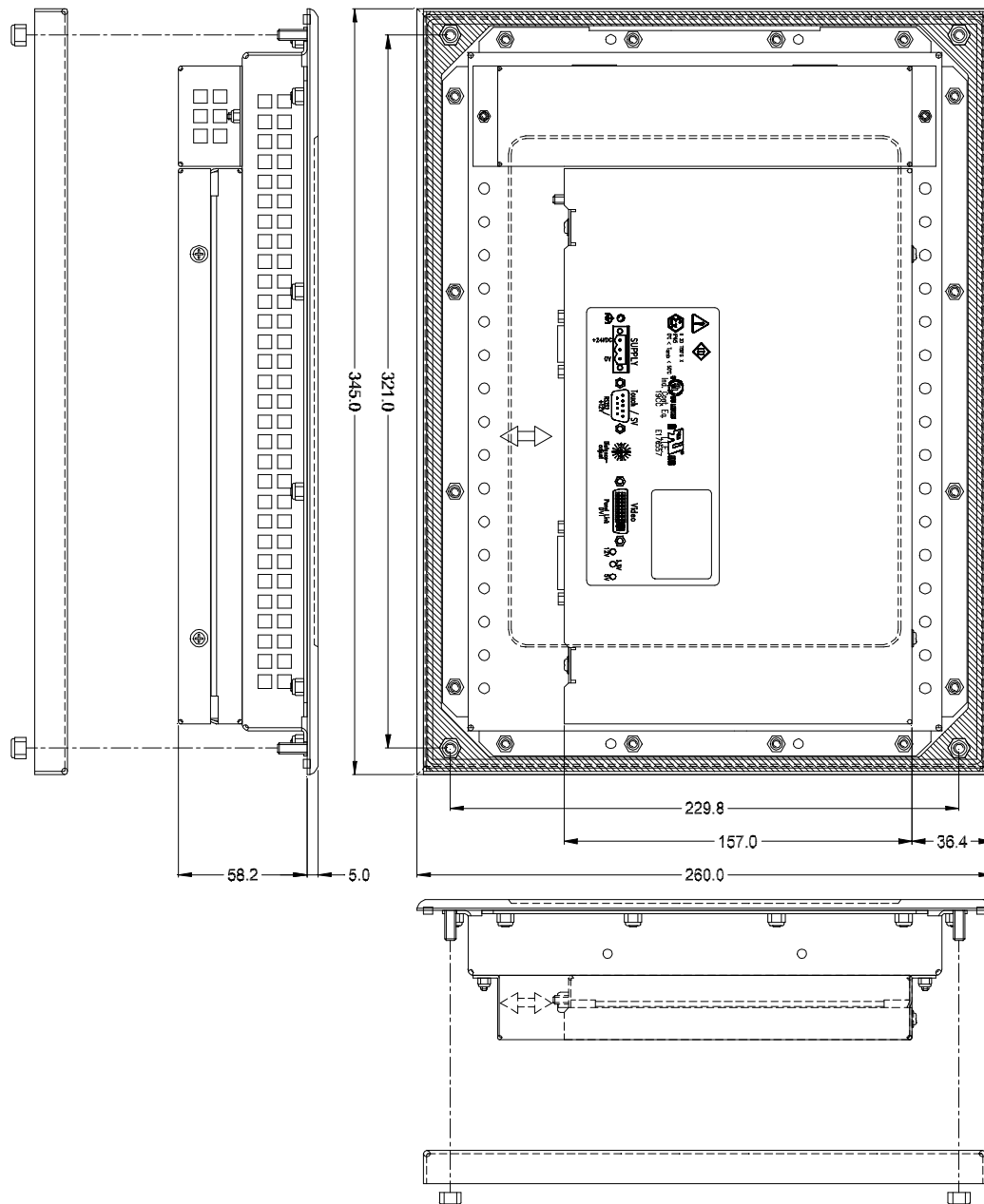


Fig. 17 Dimensions 10.4 inch



### 5.9. Dimensions of the 15" TFT-Panel

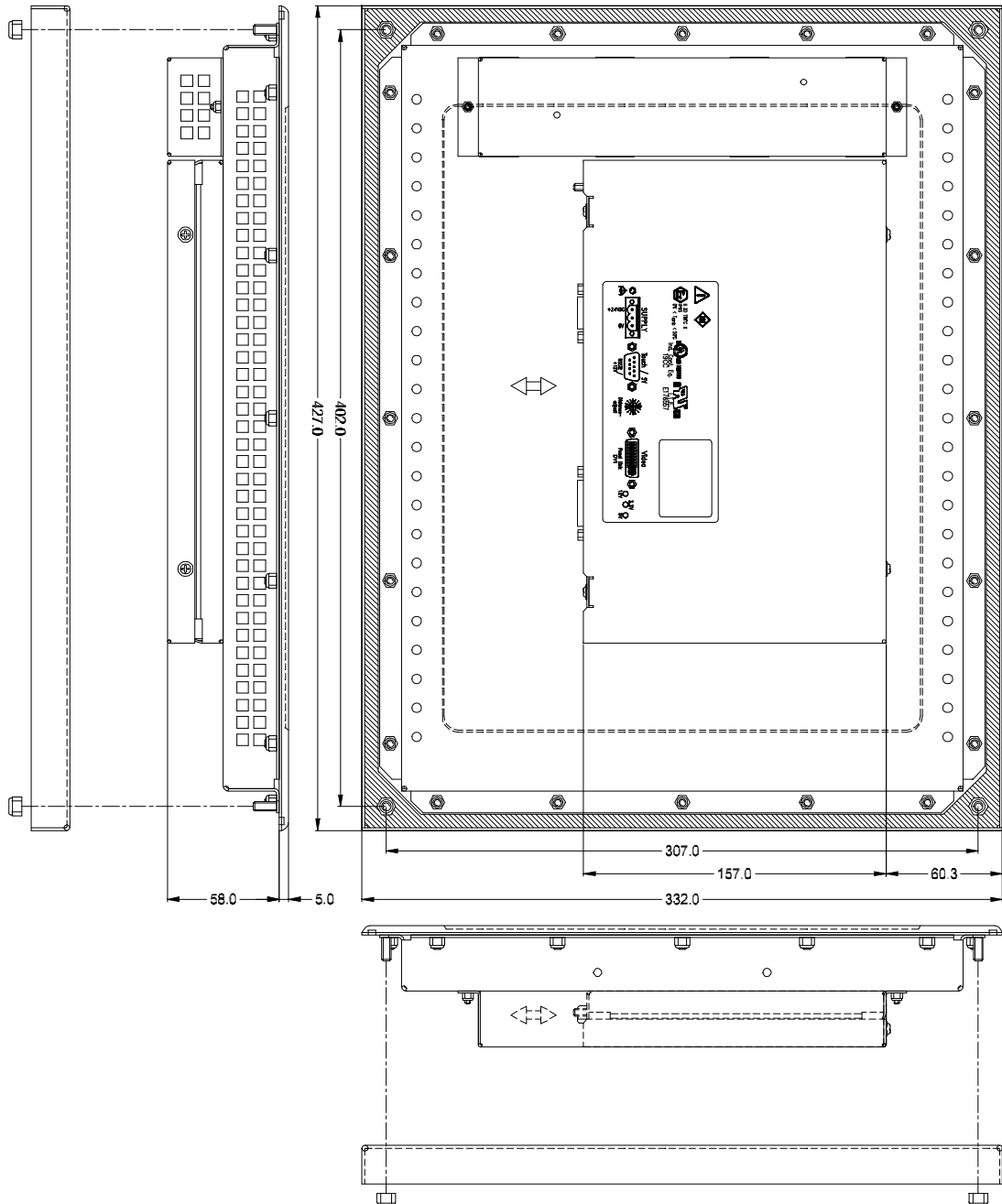


Fig. 19 Dimensions 15.0 inch

### 5.10. Dimensions of the 19" TFT-Panel

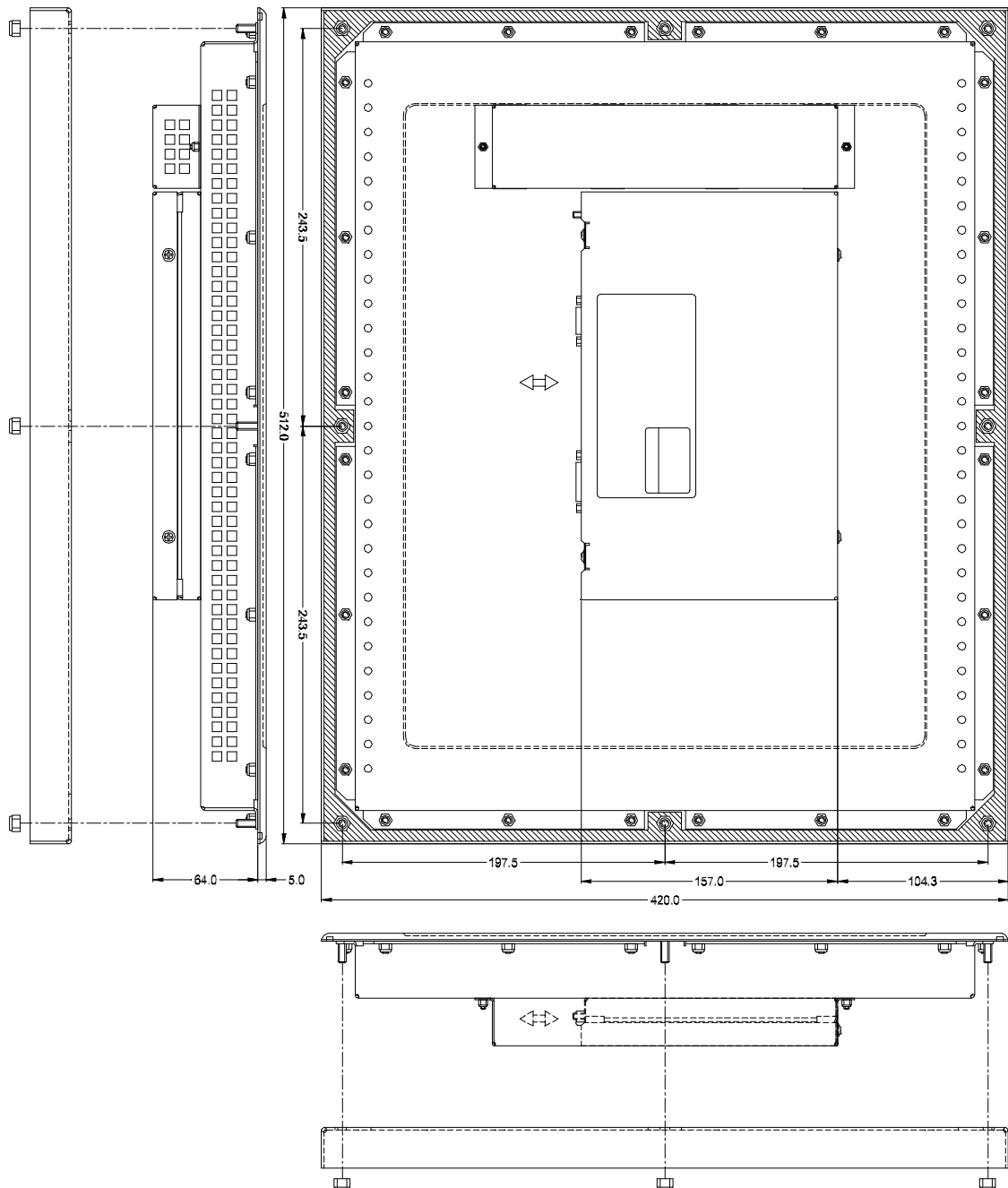


Fig. 20 Dimensions 19.0 inch


## 6 Notes on the Touch Screen

### 6.1. Basic functions of the touch screen

#### 6.1.1. Infrared touch version

The touch screen operates using an active light matrix in the infra-red range. The interruption of this light matrix at any point initiates an operation if a touch screen element is actuated (e.g. a button).


If the light matrix is interrupted for longer than approx. 15s, this initiates a timeout. The touch then switches to the “non actuated” state, and further operations can only be made after the touch button has been released and then actuated again. Several simultaneous touch operations are not evaluated.

	The calibration should be carried out with a touch stylus in order to ensure the optimum functioning of the touch screen.
---	---

### 6.2. Power up function test

#### 6.2.1. Infrared touch version

The touch screen runs a function test each time it is powered up, in which all the IR channels are tested. Faulty IR channels can be evaluated by the application and displayed graphically. A failure of the IR channels is normally due to severe contamination of the IR transparent plastic frame which consequently has to be cleaned. The optical elements of the light matrix are located behind the IR transparent plastic frame in the front of the device. IR channels that are continuously interrupted will be detected by the touch controller after a timeout of approx. 15s and no longer included in the evaluation. In extreme cases, this may mean that individual zones cannot be touch activated.

	Do not touch the screen of the touch panel during the system power up until your application is running. The touch screen performs a function test during the power up.
---	--

### **6.3. Cleaning and maintaining the touch screen**

#### **6.3.1. Cleaning the infra-red touch:**


For proper operation ensure that the signal levels of the channels are not so severely reduced or interrupted due to excessive contamination through dirt.

Clean the black plastic frame on the device front regularly with a damp soft cloth. Ensure that the surface is not scratched or scoured, especially when removing hard deposits and abrasive dust.

Do not expose the front of the device to solvents which may corrode and remove the plastic frame and foil (frame material: Makrolon 2805, manufacturer: Bayer AG).

#### **6.3.2. Cleaning should only be carried out when the device is switched off!**

This ensures that any functions are not accidentally activated when the screen is touched.

	Do not use a coarse scouring cloth, scouring powder or solvent.
---	---

## 7 Backlight, Contrast, Diagnostics

### 7.1. Backlight

The brightness of the backlight can be set by the application (the touch driver software).

### 7.2. Contrast

The Compact Panel PCs do not have a contrast setting as they are provided with TFT displays. A contrast setting is only required for passive LCDs.

### 7.3. Diagnostics

Symptom	Possible cause and remedy
Signal with Power On	Acoustic signal: 2 x short → Touch controller OK
Dark screen during power up	- Check power supply - Check diagnostics LEDs → All three must be lit - No video data present → The TFT-Panel switches to a safe mode
Touch not functioning	- Hardware faulty → No acoustic signal after power up - Too many IR channels interrupted → Clean touch - Check touch cable - The touch cable was removed after the power up and then replugged (depending on the application, the touch screen is only activated with the power up)
Faults on the screen	- Rotary switch not optimally set for cable length compensation - Check DVI cable
Reset of the TFT-Panel during operation	- Voltage drop in the power supply / touch cable too large → feed local 24 V
Sticking Image on screen	- use a screensaver

Tab. 8 Symptom and Diagnostic

## 8 Technical Data

<b>Screen</b>	10.4" TFT flat screen	SVGA	800 x 600 256k colors
	12.1" TFT flat screen	SVGA	800 x 600 256k colors
	15.0" TFT flat screen	XGA	1024 x 768 256k colors
	19.0" TFT flat screen	SXGA	1280 x 1024 256k colors
<b>Operation</b>	10.4" IR touch	81 x 61	(logic resolution)
	12.1" IR touch	93 x 71	(logic resolution)
	15.0" IR touch	115 x 87	(logic resolution)
	19.0" IR touch	143 x 115	(logic resolution)
<b>Ambient conditions</b>	Climatic conditions, operation	Class 3K3	EN50178 (extended/reduced) 0-50°C with vertical mounting 0-40°C with mounting up to max. 35° 10-90% rel. air humidity, non-condensing
	Climatic conditions, storage	Class 1K4	EN50178 (reduced) -20-60°C 10-90% rel. air humidity, non-condensing
	Climatic conditions, transport	Class 2K3	EN50178 (reduced) -20-60°C 10-90% rel. air humidity, non-condensing
	Vibration	<60Hz:	3.5mm EN 60068-2-6
		>60Hz:	1g EN 60068-2-6
	Shock	15g/11ms	EN 60068-2-27
<b>EMC</b>	EMC immunity	Industrial	EN 61000-6-2
		4kV/8kV	EN 61000-4-2
		10V/m	EN 61000-4-3
		3kV	EN 61000-4-4
		0.5kV/0.5kV	EN 61000-4-5
	10Vrms	EN 61000-4-6	
	EMC emission	Residential areas	EN 61000-6-3
<b>Degree of protection</b>	Front IP65	EX II 3D T80°C X, 0°C<Tamb<50°C (NEMA 12), to EN 60068-2-68	
	Rear	IP 20	
<b>Dimensions</b>	W x H x D	10.4"	345.0mm x 260.0mm x 63.2mm
		12.1"	361.0mm x 279.0mm x 62.5mm
		15.0"	427.0mm x 332.0mm x 63.0mm
		19.0"	512.0mm x 420.0mm x 69.0mm
<b>Weight</b>		10.4"	approx. 4.2 kg
		12.1"	approx. 4.7 kg
		15.0"	approx. 6.1 kg
		19.0"	approx. 9.0 kg
<b>Power supply</b>	Voltage range	12 VDC SELV, safety extra low voltage or	
		24 VDC SELV, safety extra low voltage	



<b>Power supply</b>	Voltage range	10.4" to 19": 10.8VDC-13.2VDC or 16VDC-32VDC
	Protection against reverse polarity	10.4",12.1",15", 19": No
	Potential isolation	No, 0V is connected to the housing potential
	Current consumption (normally)	
	10.4"	0.5A/24VDC
	12.1"	0.75A/24VDC
	15.0"	1.1A/24VDC
	19.0"	1.2A/24VDC
	Power consumption (normally)	
	10.4"	10W
	12.1"	20W
	15.0"	23W
	19.0"	29W
<b>Fuse</b>	Device internal	12V: Self-healing fuse 2.5A 24V: 2.5A slow blow fuse
<b>Separate mounting distance</b>	Distance to the PC:	
	10.4"	max. 30 m
	12.1"	max. 25 m
	15.0"	max. 20 m
	19.0"	max. 15 m
<b>Noise development</b>		<70db

Tab. 9 Technical data

## 9 Conformity and standards

The TFT-Panel meets the requirements specified by the EU Council Directives for harmonizing the regulations of EU member states relating to electromagnetic compatibility (89/336/EEC).

The following standards were used for the assessment of electromagnetic compatibility of the TFT-Panel:



EN 61000-6-3 (Emission)  
EN 61000-6-2 (Immunity)

The following product standard was used to assess the function of the TFT-Panel:

EN 61131-2

The following product standard was used to assess the safety of the TFT-Panel:

EN 60950 and EN 50178

The TFT-Panel is designed for use in installations in hazardous areas with combustible dust (Zone 22).



II 3D T80°C X  
IP65  
 $0^{\circ}\text{C} > T_{\text{amb}} > 50^{\circ}\text{C}$

The TFT-Panel meets the requirements of the UL Standard:

UL 508 - Industrial Control Equipment



Ind. Cont. Eq.  
19CC

The TFT-Panel meets the requirements of the UL Standard:

UL 60950 - Information Technology Equipment



I.T.E.  
E176557

## 10 Product Revision History

### 10.1. Hardware

This paragraph lists the different hardware revisions of the TFT-Panels delivered beginning with the first production lot. All information listed in this document relies on definitive state hardware.

#### Important Note

This document always covers the latest revision listed in Tab. 10  
Please contact the manufacturers technical support for upgrade options.

<b>TFT-Panel Identification (see product label)</b>	<b>Product Revision</b>	<b>Revision ID Register</b>	<b>Remarks</b>
TFT/PANxxxIS-1FE#1	#1	01H	Original Release

Tab. 10 Hardware Revision State

## 11 Manufacturer Information

### 11.1. Contact

Our distributors and system integrators will gladly give you any information about our products and their use. If you want to contact the manufacturer directly, please send a fax or email message containing a short description of your application and your request to the following address or use one of the information or technical support request forms on our internet homepage:

Syslogic Datentechnik AG  
Täferstrasse 28  
CH-5405 Baden-Dättwil / Switzerland

Email: [support@syslogic.com](mailto:support@syslogic.com)  
www: <http://www.syslogic.com>  
Fax: +41 56 200 9040  
Tel: +41 56 200 9050

## 12 Index

### 2

24V power supply ..... 13

### A

Accessories ..... 11

Ambient ..... 32

### B

Backlight ..... 31

Backlight adjustment ..... 19

### C

Cleaning ..... 30

Conformity and standards ..... 34

Contact ..... 36

Contrast ..... 31

cutout of the 10.4" TFT-Panel ..... 21

cutout of the 12.1" TFT-Panel ..... 22

cutout of the 15.0" TFT-Panel ..... 23

cutout of the 19.0" TFT-Panel ..... 24

### D

Degree of protection ..... 32

Device Versions ..... 11

Diagnostics ..... 31

Dimensions of the 10.4" TFT-Panel ..... 25

Dimensions of the 12.1" TFT-Panel ..... 26

Dimensions of the 15" TFT-Panel ..... 27

Dimensions of the 19" TFT-Panel ..... 28

DVI Interface ..... 15

### E

Electro-Static Discharge ..... 6

Explanation of Symbols ..... 9

### F

Faults ..... 31

Features ..... 11

### I

Image sticking ..... 19

Intended use ..... 10

Items delivered ..... 6

### M

Materials ..... 8

### N

Noise development ..... 33

### O

Order code ..... 11

overheating ..... 20

### P

Power down ..... 19

Power supply ..... 32

Power up ..... 19

### R

Repair ..... 7

Rotary Switch ..... 16

### S

SELV ..... 13

Symptom ..... 31

### T

Transportation ..... 7

### W

warranty period ..... 8

Weight ..... 32