



industrial solutions
flatpanel technology

PRODUCT NOTE

RuggedLine
extreme condition displays



www.i-sft.com



Industrial suitability does not mean something is feasible at a low cost, but rather more a technological necessity. This has been i-sft's approach to developing industrial products such as rugged line displays.

The rugged line is a selection of freely available displays that make i-sft's expertise applicable also for smaller projects.

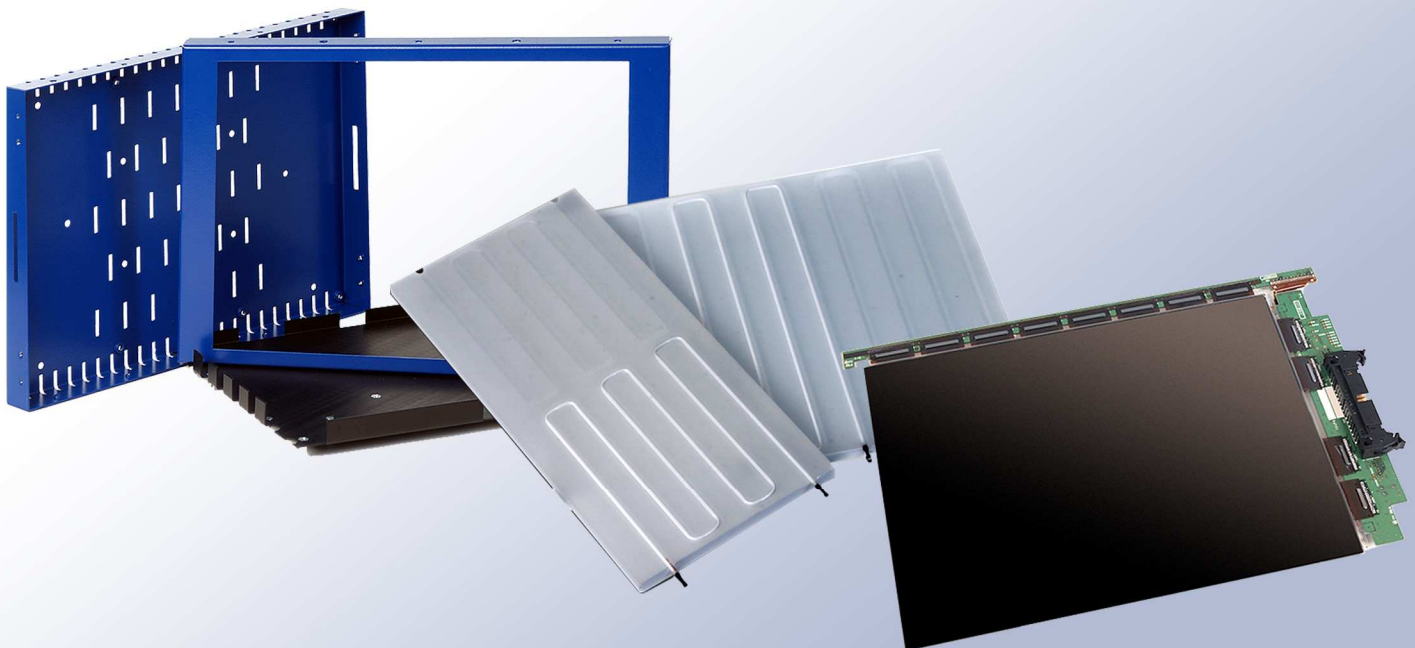
The rugged line displays family features:

- high brightness linked with a wide dimming ratio;
- extended temperature range;
- resistance to shock and vibration;
- long-time expectancy and excellent reliability;
- high efficiency resulting in low power input and minimal heat expansion;
- compact dimensions.



i-sft design and develop a solution to customer requirements ensuring long-term product availability.

Maybe only minor, customer specific modifications are necessary to obtain the best solution for your project?



Key features:

ultra-wide temperature range
 rugged system
 daylight readability
 long lifetime
 powered by e³ plasma technology



dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
10.5"	VGA	269.9 x 190.2 x 29.55	1450 g
interfaces			
input signal	LCD supply voltage	inverter supply voltage	power consumption
TTL	3.3 V DC or 5V DC	12 V DC	13 W (typ.)

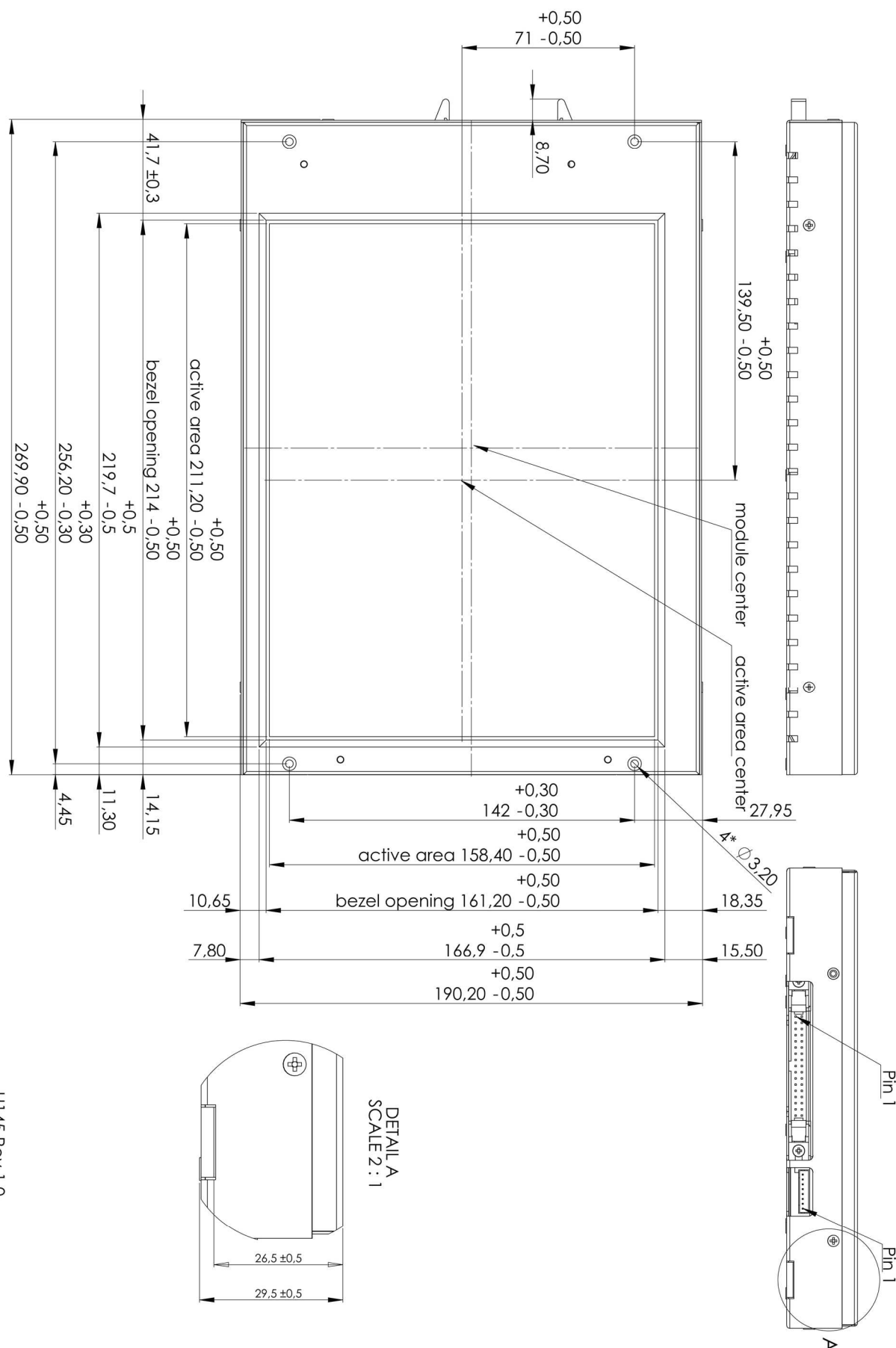
optical			
colors	k (1024)	256	
luminance	cd/m ²	500	
contrast		>450:1	typ.
viewing angle T/D	CR5 / °	55 / 30	
viewing angle R/L	CR5 / °	55 / 55	
color gamut	% of NTSC % of PAL	>35 >50	at 20°C
response time	ms	60 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range

environmental			
temperature (operating)	°C	-25 to +85	
temperature (storage)	°C	-35 to +85	
cold start	°C	-25	without reducing life time
shock (operating)	g; ms	100; 11	
vibration (operating)	g; Hz	3; 5-2000 Hz	

possible applications:



* customized versions on request



H145 Rev 1.0

Key features:

- ultra-wide temperature range
- rugged system
- daylight readability
- long lifetime
- powered by e³ plasma technology



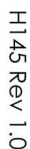
dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
10.5"	VGA	269.9 x 190.2 x 29.55	1450 g
interfaces			
input signal	LCD supply voltage	inverter supply voltage	power consumption
TTL	3.3 V DC or 5V DC	12 V DC	19 W (typ.)

optical			
colors	k (1024)	256	
luminance	cd/m ²	1000	
contrast		>450:1	typ.
viewing angle T/D	CR5 / °	55 / 30	
viewing angle R/L	CR5 / °	55 / 55	
color gamut	% of NTSC % of PAL	>35 >50	at 20°C
response time	ms	60 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range
environmental			
temperature (operating)	°C	-25 to +85	
temperature (storage)	°C	-35 to +85	
cold start	°C	-25	without reducing life time
shock (operating)	g; ms	100; 11	
vibration (operating)	g; Hz	3; 5-2000 Hz	

possible applications:



* customized versions on request



Key features:

ultra-wide temperature range
 rugged system
 daylight readability
 long lifetime
 powered by e³ plasma technology



dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
10.4"	XGA	251.5 x 177.6 x 23.55	1280 g
interfaces			
input signal	LCD supply voltage	inverter sup voltage	power
1ch LVDS	3.3 V DC	12 V DC	<20 W (typ.)

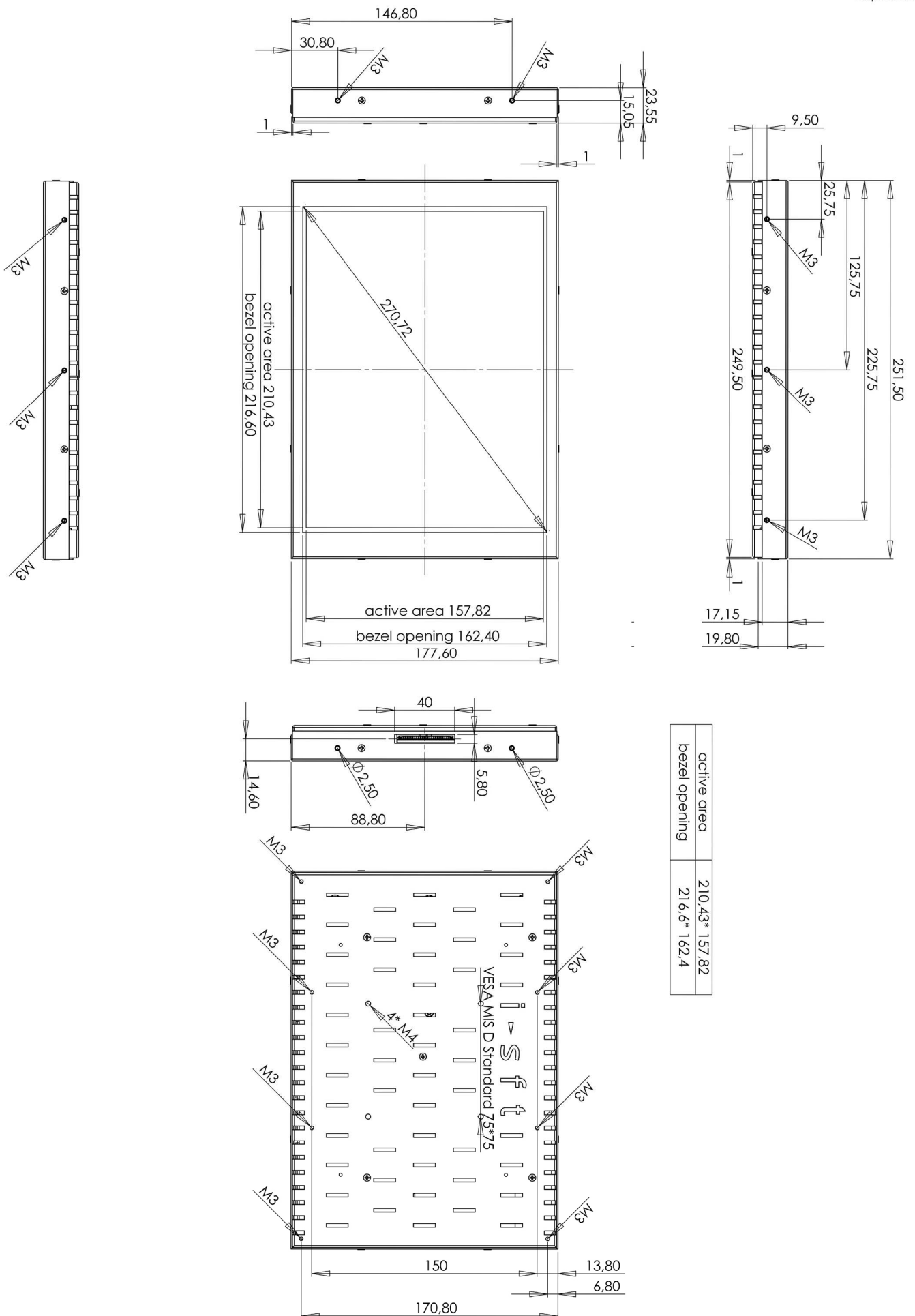
optical			
colors	k (1024)	256	
luminance	cd/m ²	1000	
contrast		650:1	typ.
viewing angle T/D	CR10 / °	>80 / 80	
viewing angle R/L	CR10 / °	>80 / 80	
color gamut	% of NTSC % of PAL	40 55	at 20°C
response time	ms	28 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range

environmental			
temperature (operating)	°C	-10 to +60	
temperature (storage)	°C	-25 to +70	
cold start	°C	-10	without damage
shock (operating)	g; ms	35; 6	
vibration (operating)	g; Hz	3; 10-2000 Hz	

possible applications:



* customized versions on request



Key features:

- ultra-wide temperature range
- rugged system
- sunlight readability
- energy efficiency
- powered by e³ plasma technology



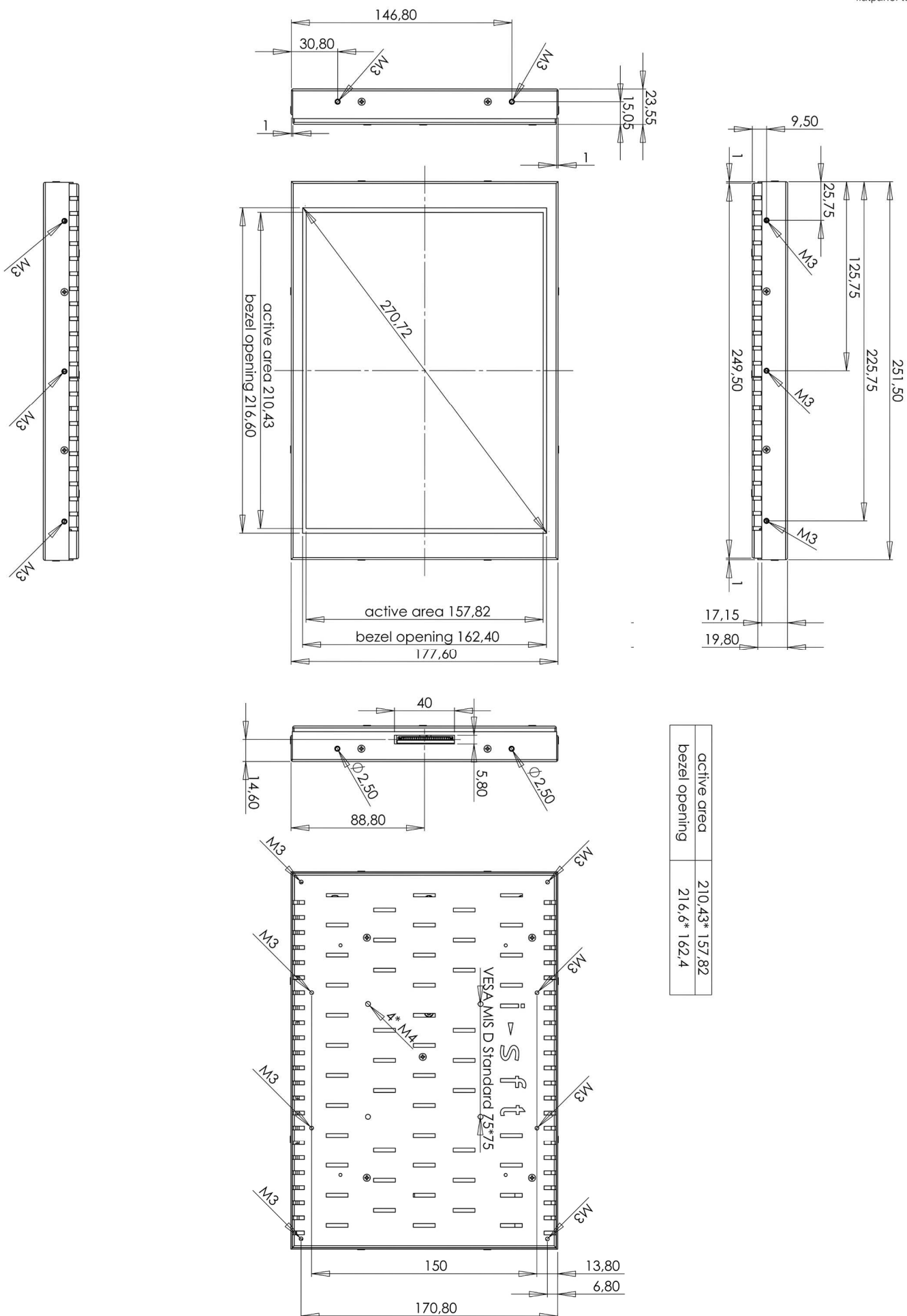
dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
10.4"	XGA	251.5 x 177.6 x 23.55	1300 g
interfaces			
input signal	LCD supply voltage	inverter supply voltage	power consumption
1ch LVDS	3.3 V DC	12 V DC	<20 W (typ.)

optical			
colors	k (1024)	256	
luminance	cd/m ²	1000	
contrast		900:1	typ.
viewing angle T/D	CR10 / °	> 80 / 80	
viewing angle R/L	CR10 / °	> 80 / 80	
color gamut	% of NTSC % of PAL	40 55	at 20°C
response time	ms	28 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range
environmental			
temperature (operating)	°C	-31 to +85	acc. MIL-STD810
temperature (storage)	°C	-46 to +85	acc. MIL-STD810
cold start	°C	-31	without reducing the life time
shock (operating)	g; ms	50; 11	acc. MIL-STD810
vibration (operating)	g; Hz	3.5; 10-2000 Hz	acc. MIL-STD810

possible applications:



* customized versions on request



Key features:

extended temperature range
 tested for extreme environments
 compact design
 energy efficiency
 powered by e³ plasma technology



dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
12.1"	XGA	284.8 x 215.4 x 22.25	1550 g ²
interfaces			
input signal	LCD supply voltage	inverter sup voltage	power
1ch LVDS	3.3 V DC	24 V DC	<35 W (typ.) ²

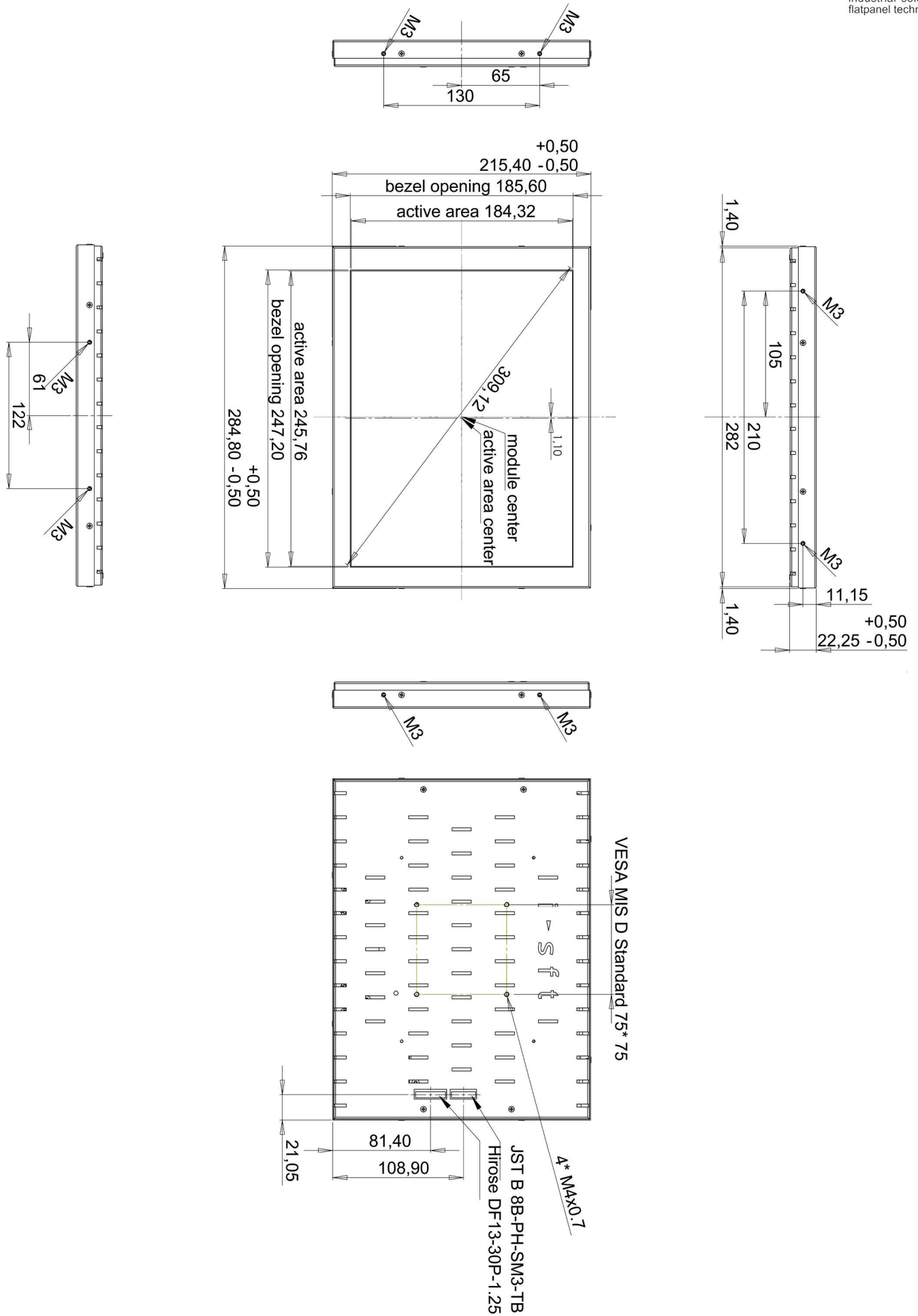
optical			
colors	k (1024)	256	
luminance	cd/m ²	1500 ²	
contrast		> 450:1 ²	typ.
viewing angle T/D	CR10 / °	> 80 / 80	
viewing angle R/L	CR10 / °	> 80 / 80	
color gamut	% of NTSC % of PAL	tbd tbd	at 20°C (Mura)
response time	ms	30 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range
Environmental			
temperature (operating)	°C	-25 to +70 ²	
temperature (storage)	°C	-30 to +75 ²	
cold start	°C	-25	without damage
shock (operating)	g; ms	35; 6*	
vibration (operating)	g; Hz	3; 10-2000 Hz*	

*target specification; ² Preliminary

possible applications:



* customized versions on request



Key features:

- battery powered applications
- tough thermal management environments
- slim design
- energy efficiency
- powered by e³ plasma technology



dimensions			
screen diagonal	resolution	size (WxHxD, mm)	weight
12.1"	SVGA	353.7 x 264.8 x 26.4	2300 g
interfaces			
input signal	LCD supply voltage	inverter sup voltage	power
1ch LVDS	3.3 V DC	24 V DC	12 W (typ.)*

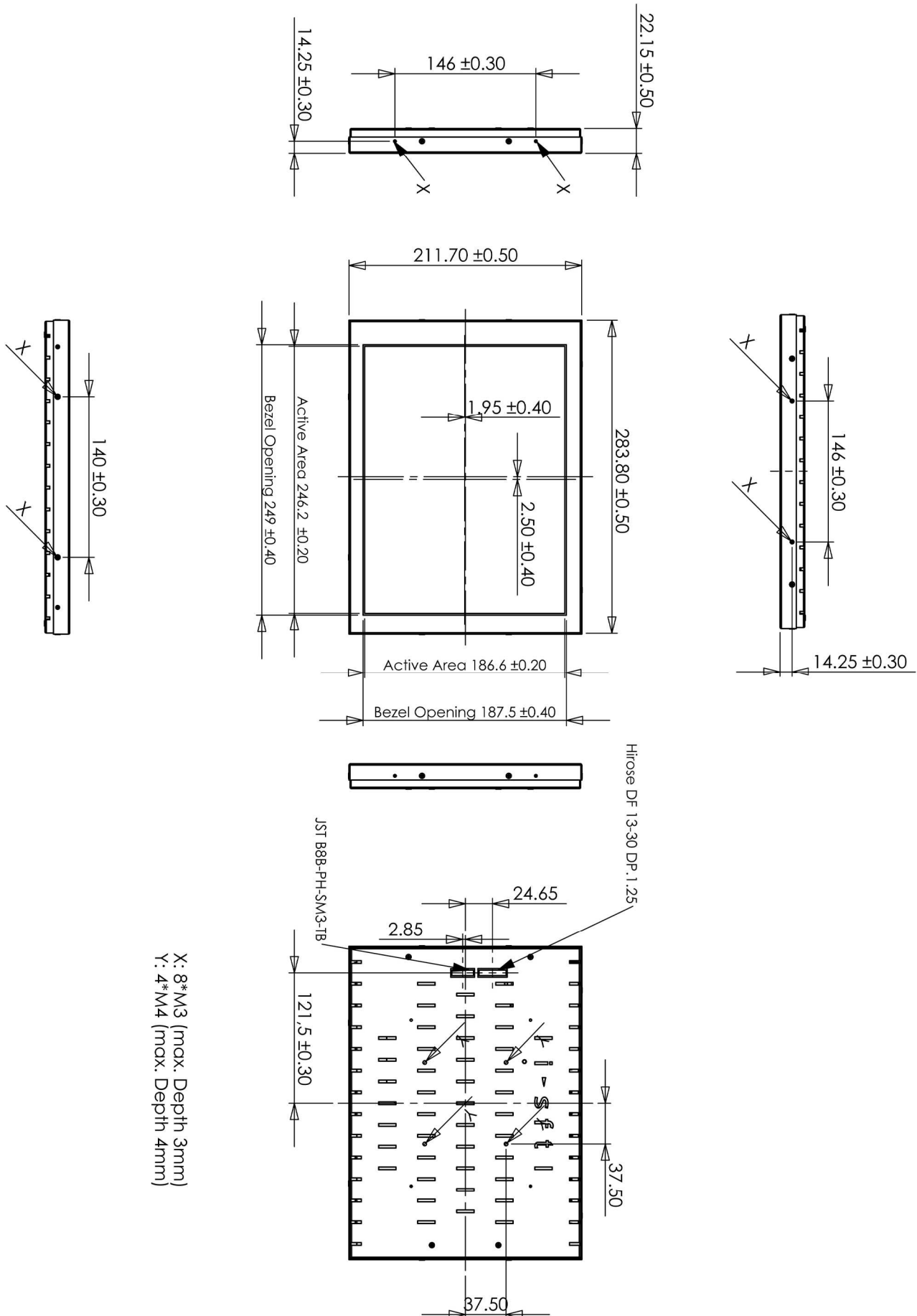
optical			
colors	k (1024)	256	
luminance	cd/m ²	1000	
contrast		550:1 ²	typ.
viewing angle T/D	CR10 / °	55 / 65	
viewing angle R/L	CR10 / °	65 / 65	
color gamut	% of NTSC % of PAL	45 62	at 20°C (Mura)
response time	ms	30 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range
environmental			
temperature (operating)	°C	-10 to +65 ²	
temperature (storage)	°C	-25 to +70 ²	
cold start	°C	-10	without damage
shock (operating)	g; ms	35; 6*	
vibration (operating)	g; Hz	3; 10-2000 Hz*	

*target specification; ² Preliminary

possible applications:



* customized versions on request



Key features:

extended temperature range

sunlight readability

LVDS interface

energy efficiency

powered by e³ plasma technology



dimensions

screen diagonal	resolution	size (WxHxD, mm)	weight
15"	XGA	353.7 x 264.8 x 26.4	2230 g

interfaces

input signal	LCD supply voltage	inverter sup voltage	power
1ch LVDS	3.3 V DC	24 V DC	40 W (typ.)

optical

colors	k (1024)	256	
luminance	cd/m ²	1600	
contrast		800:1	typ.
viewing angle T/D	CR10 / °	70 / 60	
viewing angle R/L	CR10 / °	70 / 70	
color gamut	% of NTSC % of PAL	55 76	at 20°C (Mura)
response time	ms	30 max.	rising+falling
dimming		1:1000	
MTTH	hours	> 50 000	over full temp range

environmental

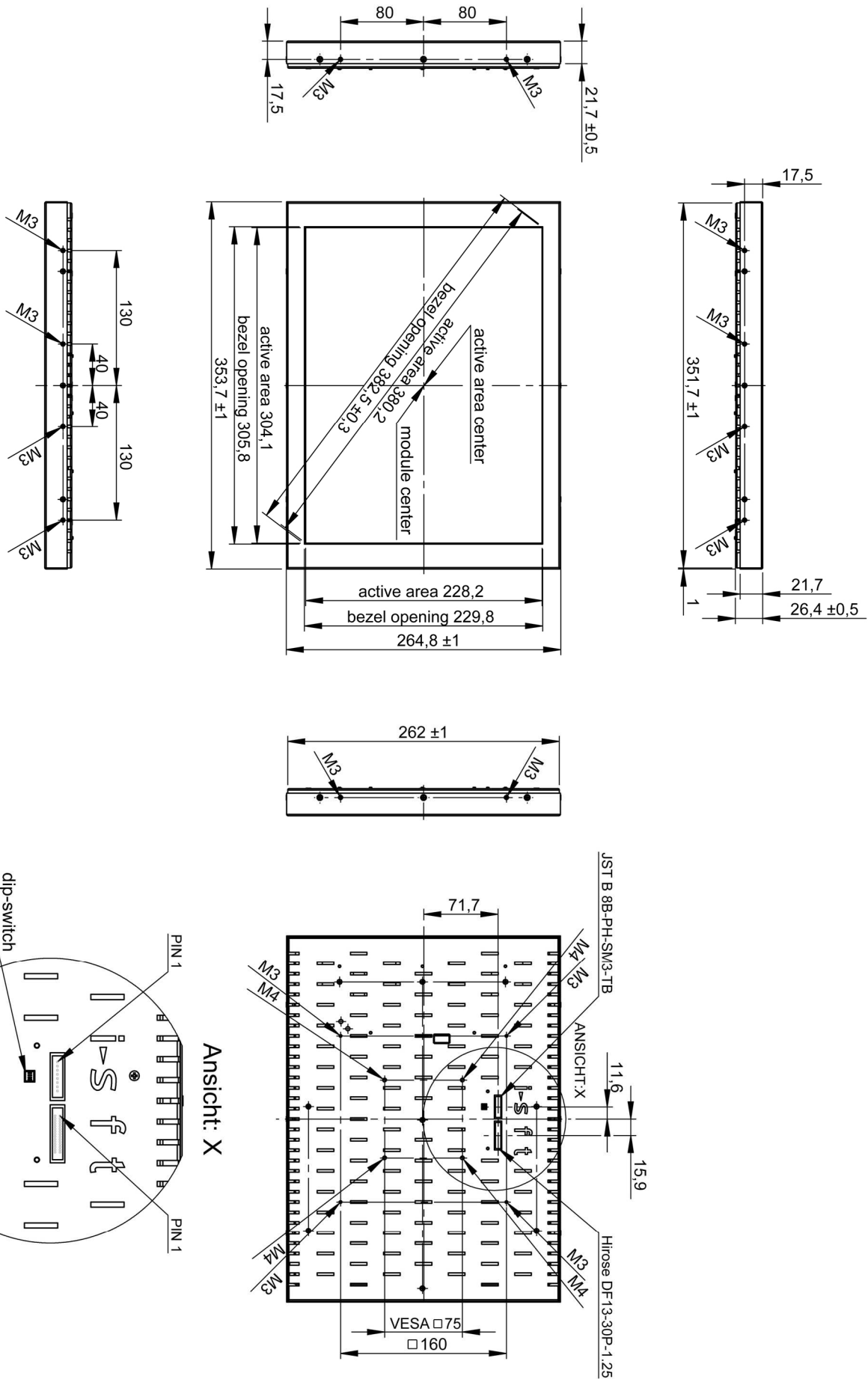
temperature (operating)	°C	-10 to +60	
temperature (storage)	°C	-25 to +70	
cold start	°C	-10	without damage
shock (operating)	g; ms	35; 6*	
vibration (operating)	g; Hz	3; 10-2000 Hz*	

*target specification

possible applications:



* customized versions on request





i-sft GmbH

An der Weidenmühle 2
D-67598 Gundersheim
Germany

Tel. +49 (0) 6244 / 9197-300
Fax +49 (0) 6244 / 9197-333

info@i-sft.de
www.i-sft.de