

Marine computer monoblock
MVPC-xx04, MVPC-xx05, MVPC-xx06, MVPC-xx07
Operating Manual

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INTRODUCTION

This operating manual (hereinafter referred to as the OM) covers structure, construction, specifications of Marine computer monoblock type MVPC-xx04, MVPC-xx05, MVPC-xx06, MVPC-xx07 (hereinafter referred to as the Product), its components and instructions required for the Product's correct and safe operation (intended use, technical service, current repair), as well as disposal information for its components.

Only those who have read operational documentation shall be permitted to operate with the Product.

Only those who have had general education in the area of electronic devices and read operational documentation shall be permitted to provide the Product's service.

1 DESCRIPTION AND OPERATION OF THE DEVICE

1.1 DESCRIPTION

The Product is designed to be applied as a control computer, component of shipborne automation, navigation and surveillance devices, etc., and to indicate textual, graphic and other data types.

1.2 TECHNICAL SPECIFICATIONS

1.2.1 The Product ensures:

- control, conversion (transformation), reception and transmission of data by the connected input/output interfaces according to the connected ports;
- automated data processing in accordance with the installed software;
- displaying computing processes in accordance with the installed software;
- backlight dimming from the front panel within the range 0-100% (for MVPC-1005, MVPC-1007 backlight dimming within the range 5-100%);
- operation with the mains 50 Hz, rated voltage 110, 220 V AC or 12, 24 V DC.

The Product can be optionally applied as a data input device using capacitive touch panel.

1.2.2 Main parameters and technical specifications of the Product are represented in Tables 1 – 6.

Table 1 – Technical specifications of the MVPC-xx04

Parameter	MVPC-1204	MVPC-1504	MVPC-1704	MVPC-1904	MVPC-2104
	Value				
Screen diagonal *	12.1"	15"	17"	19"	21.3"
Screen format	(4:3)		(5:4)		(4:3)
Screen resolution	1024 x 768		1280 x 1024		1600 x 1200
Viewable area, mm	246 x 184	304 x 228	337 x 270	376 x 301	432 x 324
Viewing angle, not less than	160°	160°	170° (160°)	178°	178°
Contrast ratio	700:1 (800:1)		1000:1 (700:1)	1000:1	1400:1
Brightness, cd/m² ****	500 (1000)	350 (1600)	250 (800)	300 (700)	440 (800)
Screen surface	anti-glare glass or touch screen (option)				
Max. power consumption, W **	94 (99)	96 (110)	105 (114)	113 (122)	119 (137)
Supply voltage ***	220 VAC, 110 VAC, 24 VDC, 12 VDC				
IP rating	IP22 or IP56 (option) - front side, IP22 - other surfaces				
Type of connectors (one of available options)	standard or protected				
Operating temperature, °C	-15...+55				
Temperature limit, °C	-60...+70				
* The monoblocks may be delivered with non-standard diagonals. ** Power consumption is based on max. processor load and usage of all ports. *** One of available options. **** Given brightness can differ depending on the order.					

Table 2 – Technical specifications of the MVPC-xx05

Parameter	MVPC-1005	MVPC-2105	MVPC-2305	MVPC-2405	MVPC-2705	MVPC-3205	MVPC-4205	MVPC-4605
	Value							
Screen diagonal *	10.1"	21.5"	23"	24"	27"	31.5"	42"	46"
Screen format	(16:10)	(16:9)		(16:10)	(16:9)			
Screen resolution	1280 x 800	1920 x1080		1920x1200	1920 x 1080			
Viewable area, mm	217x136	476x268	509x286	518x324	597x336	698x392	930x523	1018x572
Viewing angle, not less than	170°	178°						
Contrast ratio	1300:1	5000:1 (3000:1)	1000:1	1000:1	1000:1	3000:1	4000:1	4000:1
Brightness, cd/m ² ****	360	300 (700)	300	300 (1200)	300 (1000)	450 (1000)	500 (700)	700 (1500)
Screen surface	touch screen	anti-glare glass or touch screen (option)						
Max. power consumption, W **	91	117 (128)	114	110 (144)	116 (120)	138 (194)	165 (210)	191 (268)
Supply voltage ***	220 VAC, 110 VAC, 24 VDC, 12 VDC					220 VAC, 110 VAC, 24 VDC		
IP rating	IP22 or IP56 (option) - front side, IP22 - other surfaces							
Type of connectors (one of available options)	standard or protected							
Operating temperature, °C	-15...+55							
Temperature limit, °C	-60...+70							
* The monoblocks may be delivered with non-standard diagonals.								
** Power consumption is based on max. processor load and usage of all ports.								
*** One of available options.								
**** Given brightness can differ depending on the order.								

Table 3 – Technical specifications of the MVPC-xx06

Parameter	MVPC-1206	MVPC-1506	MVPC-1706	MVPC-1906	MVPC-2106
	Value				
Screen diagonal *	12.1"	15"	17"	19"	21.3"
Screen format	(4:3)		(5:4)		(4:3)
Screen resolution	1024 x 768		1280 x 1024		1600 x 1200
Viewable area, mm	246 x 184	304 x 228	337 x 270	376 x 301	432 x 324
Viewing angle, not less than	160°	160°	170° (160°)	178°	178°
Contrast ratio	700:1 (800:1)		1000:1 (700:1)	1000:1	1400:1
Brightness, cd/m ² ****	500 (1000)	350 (1600)	250 (800)	300 (700)	440 (800)
Screen surface	anti-glare glass or anti-glare glass with touch screen (option)				
Max. power consumption, W **	94 (99)	96 (110)	105 (114)	113 (122)	119 (137)
Supply voltage ***	220 VAC, 110 VAC, 24 VDC, 12 VDC				
IP rating	IP22 or IP56 (option) - front side, IP22 - other surfaces				
Type of connectors (one out of available options)	standard or protected				
Operating temperature, °C	-15...+55				
Temperature limit, °C	-60...+70				
* The monoblocks may be delivered with non-standard diagonals.					
** Power consumption is based on max. processor load and usage of all ports.					
*** One of available options.					
**** Given brightness can differ depending on the order.					

Table 4 – Technical specifications of the MVPC-xx07

Parameter	MVPC-1007	MVPC-2107	MVPC-2307	MVPC-2407	MVPC-2707	MVPC-3207	MVPC-4207	MVPC-4607
	Value							
Screen diagonal *	10.1"	21.5"	23"	24"	27"	31.5"	42"	46"
Screen format	(16:10)	(16:9)		(16:10)	(16:9)			
Screen resolution	1280 x 800	1920 x1080		1920x1200	1920 x 1080			
Viewable area, mm	217x136	476x268	509x286	518x324	597x336	698x392	930x523	1018x572
Viewing angle, not less than	170°	178°						
Contrast ratio	1300:1	5000:1 (3000:1)	1000:1	1000:1	1000:1	3000:1	4000:1	4000:1
Brightness, cd/m ² ****	360	300 (700)	300	300 (1200)	300 (1000)	450 (1000)	500 (700)	700 (1500)
Screen surface	touch screen	anti-glare glass or anti-glare glass with touch screen (option)						
Max. power consumption, W **	91	117 (128)	114	110 (144)	116 (120)	138 (194)	165 (210)	191 (268)
Supply voltage ***	220 VAC, 110 VAC, 24 VDC, 12 VDC					220 VAC, 110 VAC, 24 VDC		
IP rating	IP22 or IP56 (option) - front side, IP22 - other surfaces							
Type of connectors (one out of available options)	standard or protected							
Operating temperature, °C	-15...+55							
Temperature limit, °C	-60...+70							
* The monoblocks may be delivered with non-standard diagonals.								
** Power consumption is based on max. processor load and usage of all ports.								
*** One of available options.								
**** Given brightness can differ depending on the order.								

Table 5 – Technical specifications of products with screen diagonal 10" – 17"

Parameter	MVPC-1005, MVPC-1204, MVPC-1007, MVPC-1206	MVPC-1504, MVPC-1704, MVPC-1506, MVPC-1706
	Value	
CPU (not worse than)	Intel Atom E3845, 4 cores 1.91 GHz	
RAM	DDR3L, 8 GB	
Type and capacity of HDD	SSD, 128 GB	
Supported interfaces	Ethernet 10/100/1000 Base-T - 2 pcs. USB 2.0 type A (not worse than) - 3 pcs. COM (RS-232/422) - 2 pcs. Audio (output, microphone) - 1 pc. HDMI - 1 pc.	Ethernet 10/100/1000 Base-T - 2 pcs. USB 2.0 type A (not worse than) - 4 pcs. COM (RS-232/422/485) - 4 pcs. Audio (output, microphone) - 1 pc. HDMI - 1 pc.

Table 6 – Technical specifications of products with screen diagonal 19" – 46"

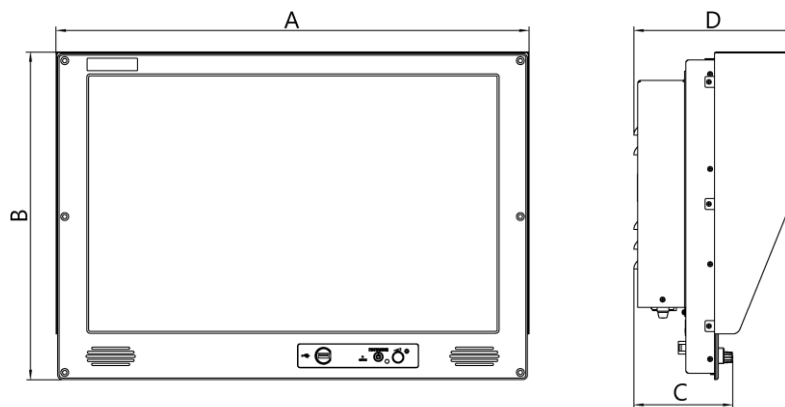
Parameter	MVPC-1904, MVPC-2104, MVPC-2105, MVPC-2305, MVPC-2405, MVPC-2705, MVPC-3205, MVPC-4205, MVPC-4605, MVPC-1906, MVPC-2106, MVPC-2107, MVPC-2307, MVPC-2407, MVPC-2707, MVPC-3207, MVPC-4207, MVPC-4607
	Value
CPU (not worse than)	Intel Core i7-6820EQ, 4 cores 2.8/3.5 GHz Intel Core i5-7442EQ, 4 cores 2.1/2.9 GHz Intel Core i3-7100E, 2 cores 2.9 GHz
RAM	DDR4 SO-DIMM, 8 to 32 GB
Type and capacity of HDD	SSD, 240 to 960 GB
Supported interfaces	USB 2.0 type A (not worse than) - 5 pcs.* Ethernet 10/100/1000 Base-T - 2 pcs. Audio input, audio output, microphone - 1 pc. HDMI - 1 pc. (VGA - 1 pc. at option) COM (RS-232/422/485) - 4 pcs. COM (RS-232/422) - 2 pcs.
* 4 pcs. for MVPC-xx06, MVPC-xx07 type.	

1.2.3 Products' overall dimensions depending on the diagonal are represented in Figures 1 and 2.

Notes

1 Figures 1 and 2 show overall dimensions of the Products' casings not including a set of mounting brackets.

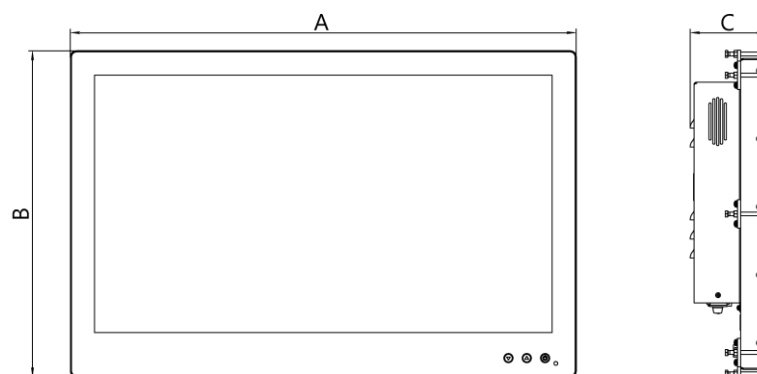
2 Overall dimensions in Figures 1 and 2 are informative and may differ from particular Product design depending on the order. Inquire the manufacturer for overall dimensions of particular Product design.



Design	A, mm	B, mm	C, mm	D, mm
MVPC-1005	266.5	230	121.5	177
MVPC-1204	325	263	118	177
MVPC-1504	384.5	314	121.5	201
MVPC-1704	417.5	360	123.5	203
MVPC-1904	4153	388	121	200.5
MVPC-2104	514.5	413	127	206.5

Design	A, mm	B, mm	C, mm	D, mm
MVPC-2105	552	360	125.5	205
MVPC-2305	590	377	120	198.5
MVPC-2405	602	417	125.5	205
MVPC-2705	674	424	118	207.5
MVPC-3205	811	542	128.5	218
MVPC-4205	1051	675	130	269.5
MVPC-4605	1144.5	727.5	129	268.5

Figure 1 – Overall dimensions of the Products MVPC-xx04, MVPC-XX05 type



Design	A, mm	B, mm	C, mm
MVPC-1007	260	198	102.5
MVPC-1206	302.5	251	100
MVPC-1506	362	302	103
MVPC-1706	395	348	105.5
MVPC-1906	430.5	375.5	103
MVPC-2106	492	401	109

Design	A, mm	B, mm	C, mm
MVPC-2107	529.5	347.5	93.5
MVPC-2307	567.5	364.5	102
MVPC-2407	590	419.5	108.5
MVPC-2707	662	426.5	100
MVPC-3207	759	478	102
MVPC-4207	1000	611	112
MVPC-4607	1092.5	663.5	112

Figure 2 – Overall dimensions of the Products MVPC-xx06, MVPC-xx07 type

1.3 THE PRODUCT'S STRUCTURE AND OPERATION

1.3.1 Installation

The Product enables different types of mounting depending on the order. For all types of mounting a sunshield is mounted using screws delivered in the mounting kit. For desk-top or wall mounting of the Products with the diagonal more than 21" vibration isolators are provided. Types of mounting are shown in Figures 3 – 7.

Caution! Provide 160 mm free space from the detachable connection to connect the Product at mounting.

1) Panel mounting with outer fastenings (see Figure 3) ensures fastening from the front panel using mounting kit of metal ware.

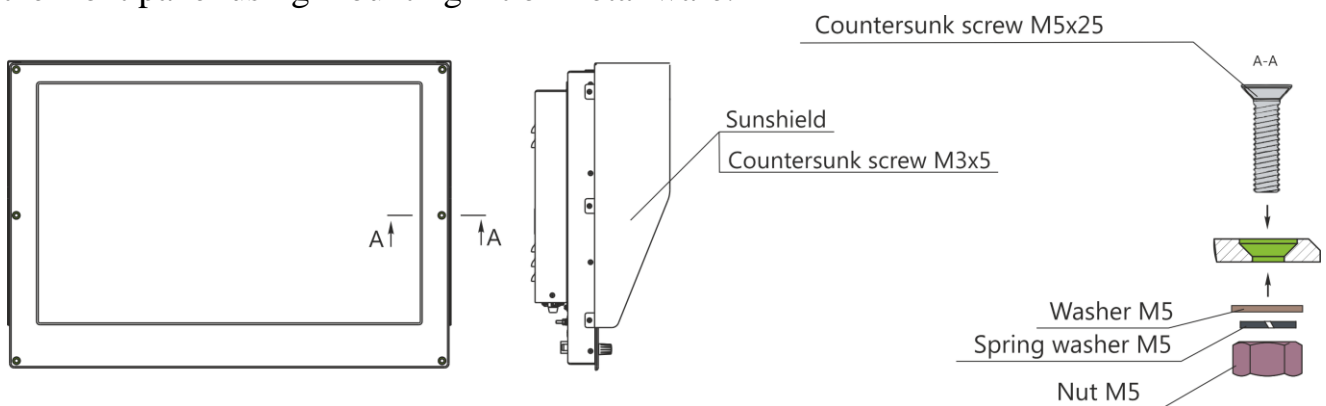


Figure 3 – Panel mounting with outer fastenings

2) Panel mounting with inner fastenings (see Figure 4) ensures fastening from the inner panel of console using plates and a mounting kit of metal ware.

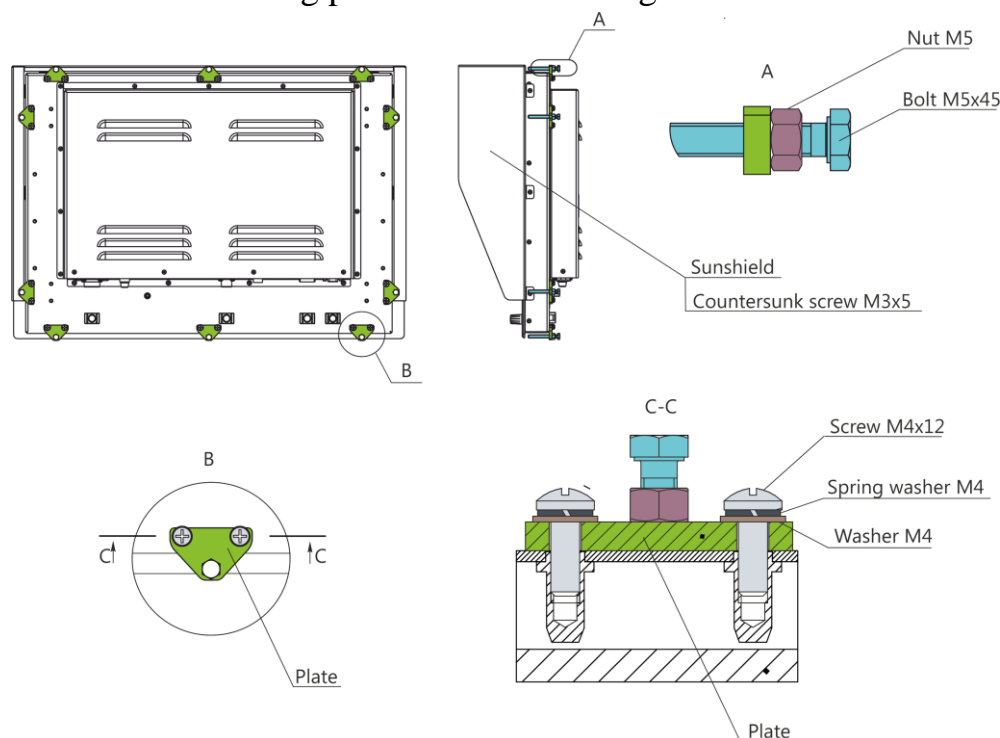


Figure 4 – Panel mounting with inner fastenings

3) Desk-top mounting with an adjustable bracket (see Figure 5) ensures mounting on a surface using adjustable brackets, nut handles and a mounting kit of metal ware.

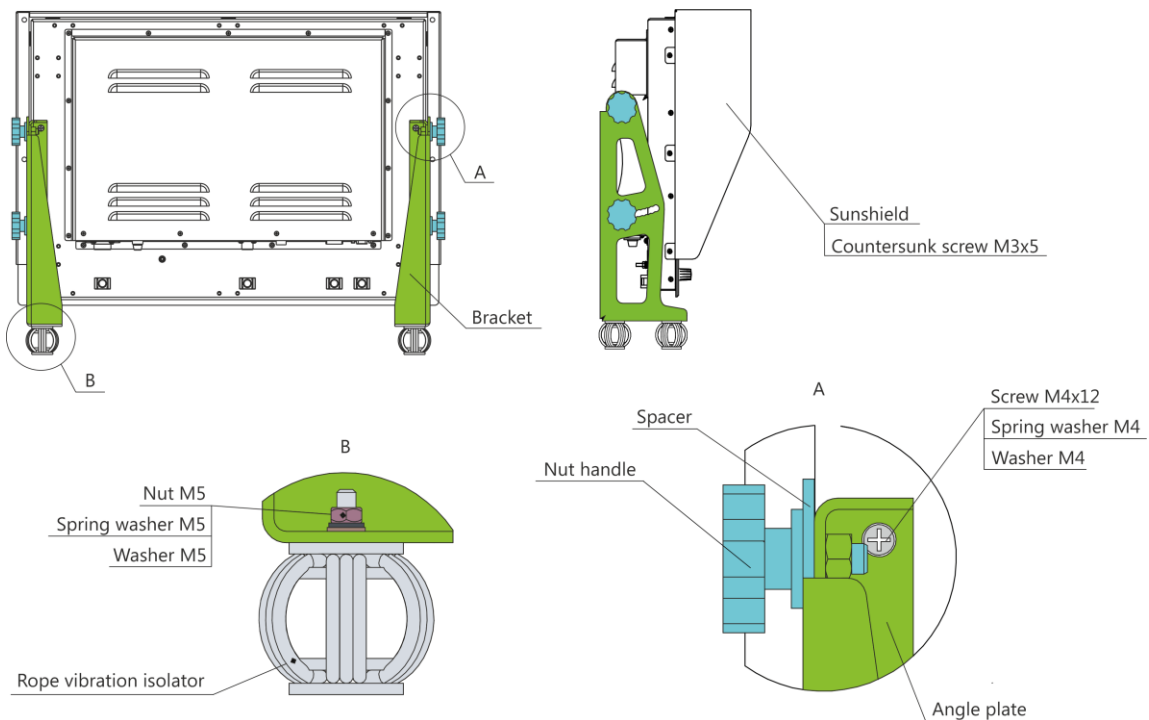


Figure 5 – Desk-top mounting with an adjustable bracket

4) Wall mounting with an adjustable bracket (see Figure 6) ensures mounting on a surface using adjustable brackets, nut handles and a mounting kit of metal ware.

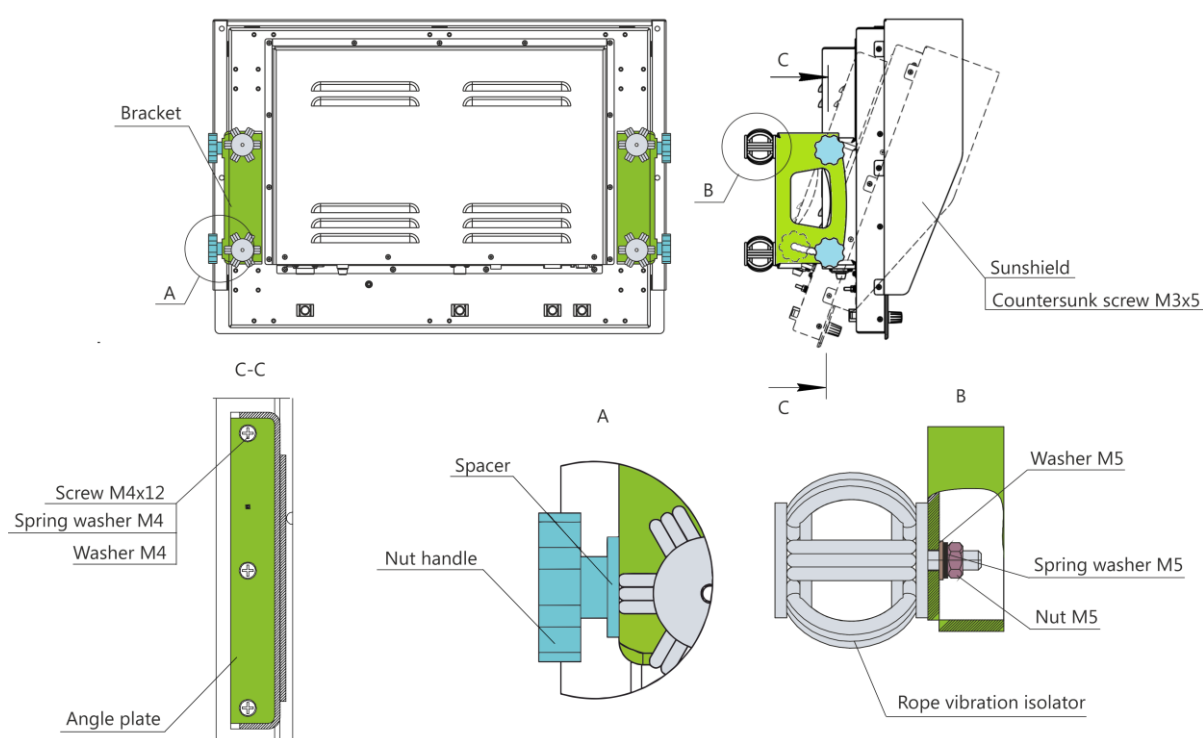


Figure 6 – Wall mounting with an adjustable bracket

5) Wall mounting with a non-adjustable bracket (see Figure 7) ensures mounting on a surface using brackets and a mounting kit of metal ware.

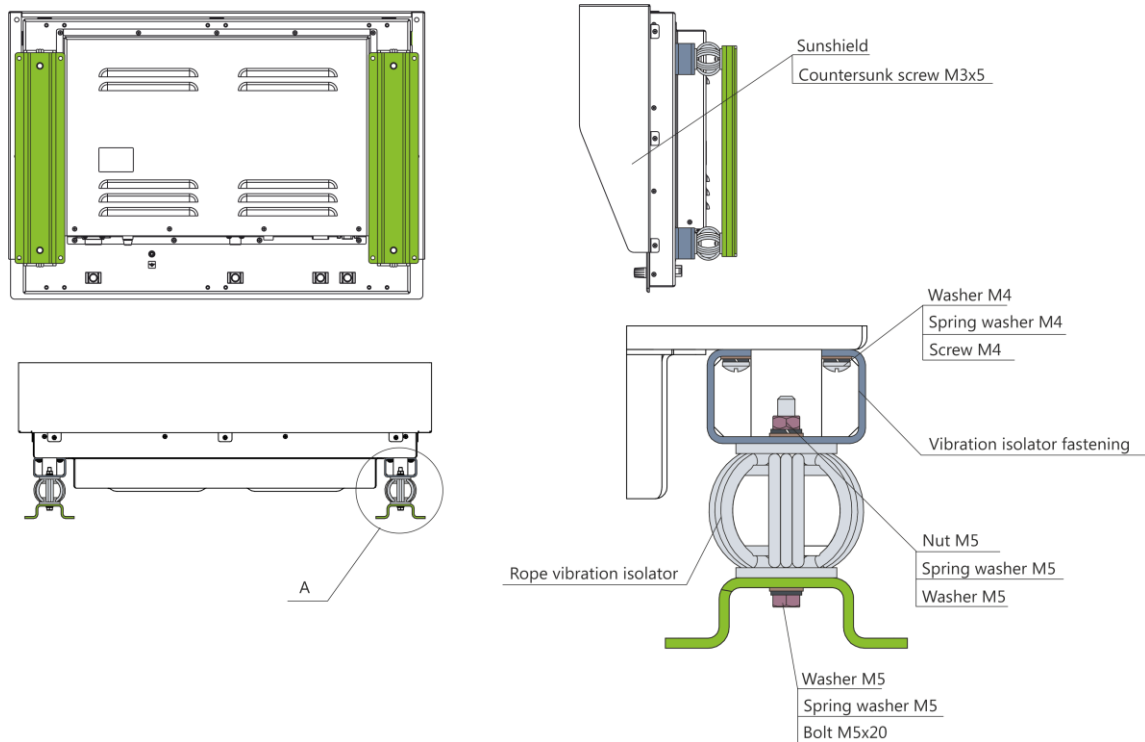


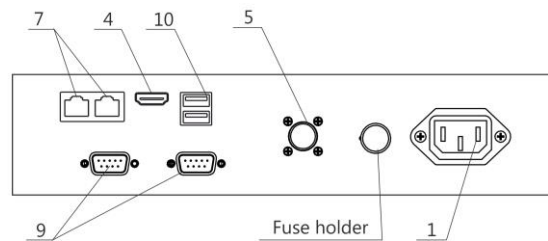
Figure 7 – Wall mounting

1.3.2 General description

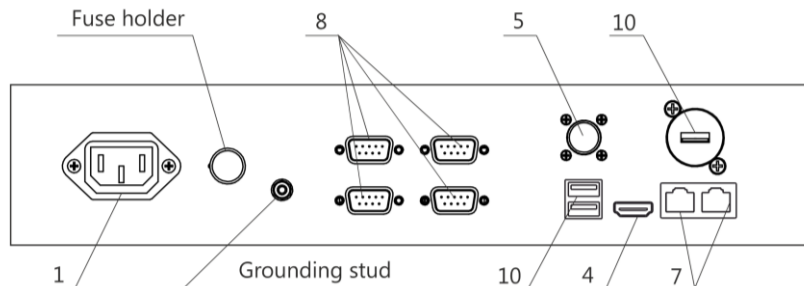
The Product is manufactured in metal casing, where a power connector, audio ports, video ports, peripheral interfaces, local network ports are generally located. Connectors are standard, see Figure 8 (the Product's connector layout may differ from the given ones).

For the description of connectors, see Table 7. Electrical connectors pinouts are represented in Tables 8 – 16.

The Products with diagonals 10" - 12"



The Products with diagonals 15" - 17"



The Products with diagonals 19" - 46"

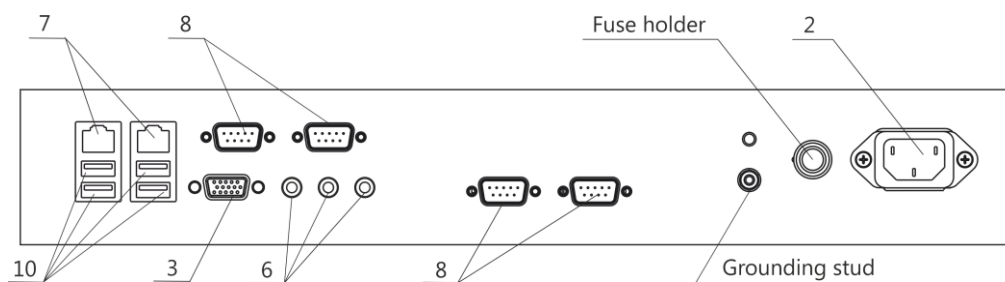


Figure 8 – Connectors layout depending on the diagonal

Table 7 – Description of the Product's connectors

N.	Name	Description	Type
1	XPn.8	To connect AC voltage 220 V, 50 Hz	C13
	XPn.9	To connect AC voltage 110 V, 50 Hz	C13
2	XSn.10	To connect DC voltage 24 V	C14
	XSn.11	To connect DC voltage 12 V	C14
3	XSn.1	To connect VGA	DB-15F
4	XSn.4	To connect HDMI	HDMI
5	XPn.15	To connect common audio	PC10TB
6	XSn.12	To connect audio input	3.5 jack
	XSn.13	To connect audio output (speaker)	3.5 jack
	XSn.14	To connect microphone	3.5 jack
7	XSn.17	To connect Ethernet 10/100/1000 Base-T	RJ-45
8	XPn.24	To connect universal serial interface COM (RS-232/422/485)	DB-9M
9	XPn.31	To connect universal serial interface COM (RS-232/422)	DB-9M
10	XSn.25	To connect USB devices	USB type A

Note – «n» – ordinal number of same-type connectors. For example, if the device has 2 USB interfaces, they are marked as: XS1.25, XS2.25.

Table 8 – Description of XSn.25 connector pins

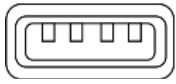
Type	Pin №	Description
 (view from connection side)	1	+ 5 V (VCC)
	2	data – (D –)
	3	data + (D +)
	4	GND

Table 9 – Description of XSn.1 connector pins

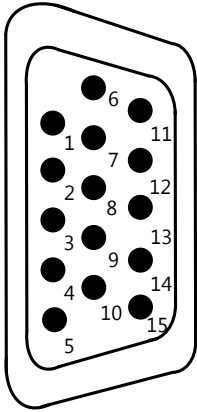
Type	Pin №	Description
 (pinout of unit from side of cable connection)	1	Red
	2	Green
	3	Blue
	4	Not used
	5	Common (GND)
	6	GND_Red
	7	GND_Green
	8	GND_Blue
	9	+ 5 B
	10	GND
	11	GND
	12	data (SDA)
	13	HSYNC
	14	VSYN
	15	Data synch (SCL)

Table 10 – Description of XSn.4 connector pins

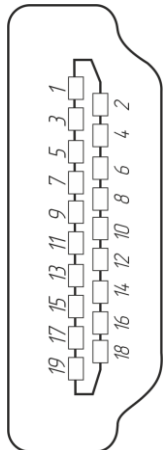
Type	Pin №	Description
 (pinout of unit from side of cable connection)	1	TMDS 2 +
	2	TMDS 2 Sh
	3	TMDS 2 -
	4	TMDS 1 +
	5	TMDS 1 Sh
	6	TMDS 1 -
	7	TMDS 0 +
	8	TMDS 0 Sh
	9	TMDS 0 -
	10	TMDS Cl +
	11	TMDS Cl Sh
	12	TMDS Cl -
	13	CEC
	14	Not used
	15	SCL
	16	SDA
	17	GND
	18	+ 5 V
	19	HPD

Table 11 – Description of XSn.12, XSn.13, XSn.14 connectors pins

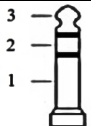
Type	Pin №	XSn.12, XSn.13	XSn.14
		Description	
	1	GND	GND
	2	LINE_R	MIC_VCC
	3	LINE_L	MIC_IN

Table 12 – Description of XPn.15 connector pins

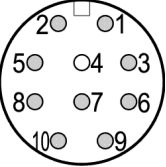
Type	Pin №	Description
 <p>(view from soldering side)</p>	1	Common (GND)
	2	Lin. right (Line_R)
	3	Lin.left (Line_L)
	4	common (GND)
	5	In. micr. (Mic_In)
	6	Micr.power (Mic_VCC)
	7	Common (GND)
	8	Aud.out.right (EAR_R)
	9	Aud.out.left (EAR_L)
	10	display

Table 13 – Description of XPn.24, XPn.31 connectors pins

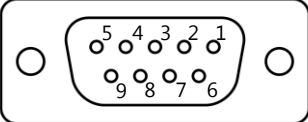
Type	Pin №	Description	Application		
			RS-232	RS-422	RS-485
 <p>(view from soldering side)</p>	1	Rx +	–	+	–
	2	RxD	+	–	–
	3	TxD	+	–	–
	4	Tx +	–	+	+
	5	GND	+	+	–
	6	Rx –	–	+	–
	7	RTS	+	–	–
	8	CTS	+	–	–
	9	Tx –	–	+	+
	10	Screen	+	+	+

Table 14 – Description of XPn.8, XPn.9 connector pins

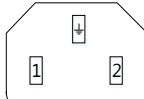
Type	Pin №	Description
 <p>(view from soldering side)</p>	1	L
	$\frac{\perp}{\equiv}$	E (PE)
	2	N

Table 15 – Description of XSn.10, XSn.11 connector pins

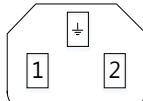
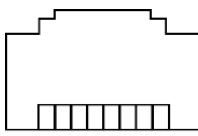
Type	Pin №	Description
 <p>(view from soldering side)</p>	$\frac{\perp}{\equiv}$	E (PE)
	1	+ 24 V
	2	0 V

Table 16 – Description of XSn.17 connector pins

Type	Pin №	Description
 <p>(view from connection side)</p>	1	MDI 0 + (white orange)
	2	MDI 0 – (orange)
	3	MDI 1 + (white green)
	4	MDI 2 + (blue)
	5	MDI 2 – (white blue)
	6	MDI 1 – (green)
	7	MDI 3 + (white brown)
	8	MDI 3 – (brown)

1.3.3 Controls and indication of MVPC-xx04, MVPC-xx05 type

Colour display with a diagonal in compliance with Tables 1 and 2 is located on the front panel of the Products MVPC-xx04, MVPC-x05 type. The Product may be delivered in two designs: anti-glare glass or touch capacitive panel.

Controls, indication (LEDs) and speakers are also located on the front panel, see Figure 9 (the Product's appearance may be different and depends on order). Description of the controls and indication (LEDs) are represented in Table 17.

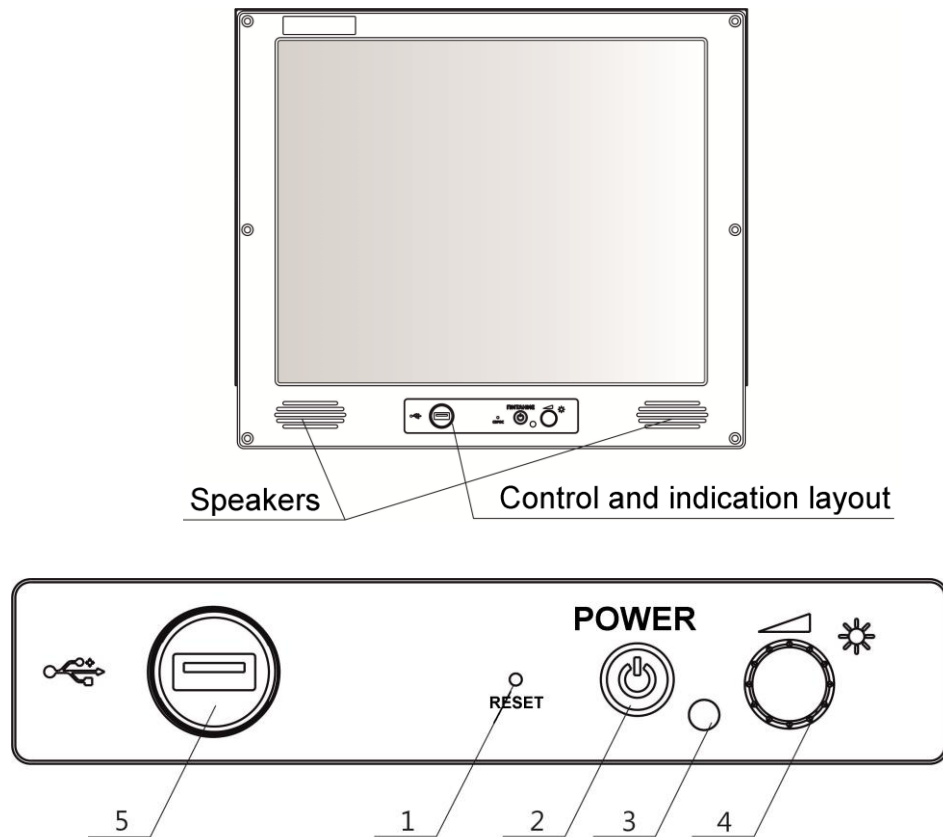


Figure 9 – Layout of controls, indication (LEDs) and speakers on the front panel of the Products MVPC-xx04, MVPC-xx05 type

Table 17 – Description of the controls and indication (LEDs)

N	Name	Description
1	Reset button	Button restarts the device. Reset is a sunken button to prevent accidental pressing; to press it - use long thin item.
2	Power button	Button switches on/off the device.
3	Display brightness LED	LED shows display brightness status.
4	Brightness adjustment knob	Knob ensures screen backlight adjustment.
5	USB	Provides connection of external USB devices

1.3.4 Controls and indication (LEDs) of the Products MVPC-xx06, MVPC-xx07 type

Colour display with a diagonal in compliance with Tables 3 and 4 is located on the front panel of the Products MVPC-xx06, MVPC-xx07 type. The Product may be delivered in two designs: anti-glare glass or touch capacitive panel.

Touch buttons with blue backlight are also located on the front panel, see Figure 10 (the Product's appearance may be different and depends on order). Speakers, if any exist, are located on the back panel of the Product. Description of the controls and indication (LEDs) see in Table 18.

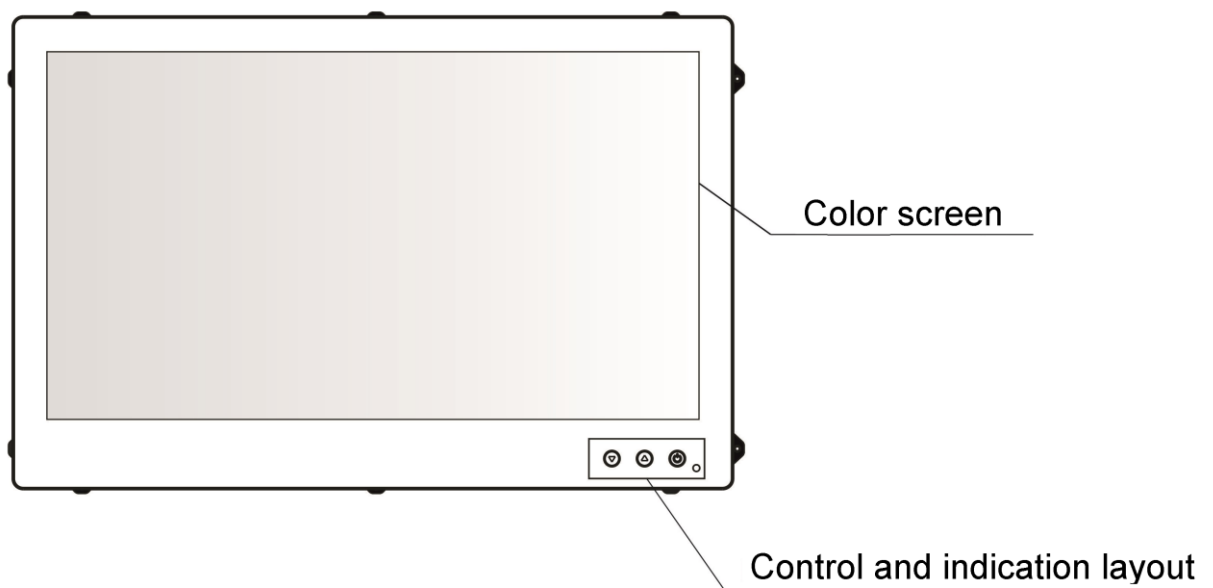

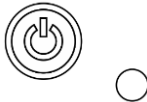


Figure 10 – Controls and indication (LEDs) layout on the front panel of MVPC-xx06, MVPC-xx07

Table18 – Description of controls and indication (LEDs)

Name	Description
	Brightness adjustment buttons (within 0% - 100%)
	Button switches on/off the device.

1.4 MEASUREMENT TOOLS, INSTRUMENTS AND APPLIANCES

Technical service (hereinafter – the TS) of the Product is carried out using tools and consumables represented in Table 19.

Table 19 – Number of consumables required for the TS

Name and identifier of consumables	Weight of consumables	Note
Cleaning cloth	0.10 kg	1 To clean surfaces and parts of the device – use clean cloth 2 To clean severe contamination – use alcohol-soaked cloth
Rectified hydrolytic technical ethyl alcohol	0.01 l	To soak cloth while removing contamination
Varnish AK-113	0.05 kg	To cover surfaces of the device in case of paint coating damage
Abrasive cloth	0.06 x 0.06 m	To polish surfaces of the device in case of paint coating damage

1.5 MARKING AND SEALING

The Product has a marking plate of connectors and nameplate where a user can find a serial number, date of manufacturing, weight, IP rating, rated input voltage and power consumption.

1.6 PACKAGING

The Products are packed in a corrugated board box and inner packaging ensuring its transportation and storage at the warehouse.

Transport packaging is also used as a returnable packaging for transportation of the Product to the repair location and back. Packaging sealing is not provided.

2 INTENDED USE

2.1 OPERATIONAL CONSTRAINTS

The Product's installation site must be selected according to the operational constraints (operating temperature and IP rating).

Caution! Installation site of the Product must not be less than 1 m from a magnetic compass!

2.2 PREPARATION FOR THE PRODUCT OPERATION

2.2.1 Safety features

While preparing the Product to operation provide the visual check and make sure the mechanical damage is absent.

Connection of the Product to the power mains must be provided only considering input power requirements.

The Products must be switched off and grounded before connection.

The staff shall follow “The technical rules for operation of electric installation” and “Safety rules for operation of electric installation” while testing electrical circuits and insulation resistance.

2.2.2 Method of the visual check

Before switching the Product on, the staff shall:

- observe visually the cable integrity and initial position of the controls on the front panel;
- clean front panels from dust and dirt by clean soft cloth, if necessary;
- check reliable cable connections to the devices and proper grounding.

2.2.3 Switching the Product on instructions

While connecting the Product and preparing it for operation follow the steps below:

- make sure that power mains voltage conforms with input voltage requirements;
- transfer circuit breakers of main power switchboard to «OFF position»;
- connect power cable and interface cables to the Product;
- transfer circuit breakers of main power switchboard to «ON» position;

- press «Power» button on the front panel;
- adjust display brightness using brightness controls on the front panel of the Product.

Switching the Product off is carried out in the following order: switch off power supply using software tools, transfer circuit breakers of main power switchboard to «OFF position, disconnect power cable from the Product.

2.3 USAGE OF THE PRODUCT

The Product is delivered with pre-configured software (in accordance with the order) from the manufacturing plant and it is ready to be used.

After switching the Product on, make sure that power supply indication is functioning, and graphic data to be displayed on the screen are correct and accomplish proper quality.

Touch screen operability is checked by intended use, herewith response time (sensitivity of cursor) estimation and movement within all active area of LCD screen.

The control is provided according to the pre-configured software.

3 TECHNICAL SERVICE OF THE PRODUCT

3.1 GENERAL INSTRUCTIONS

Technical service of the Product (hereinafter – TS) must be provided by staff, acquainted with structure, composition and operational features of the Product.

To ensure reliable operation of the Product service personnel shall carry out all types of service:

- Technical service № 1 (TS-1) – semi-annual TS;
- Technical service № 2 (TS-2) – annual TS;

TS-1, TS-2 shall be provided by staff on the equipment in operation/running.

3.2 SAFETY FEATURES

While providing TS the staff shall follow instructions, see 4.2.

3.3 MAINTENANCE ROUTINE

The list of works for all types of the Technical service is given in Table 20. Maintenance routine procedure is given in the checklists (CL), represented in Tables 21 – 22.

Table 20 – The list of the TS works

CL №	Name of work	TS type	
		TS-1	TS-2
1	Visual check of the Product	+	+
2	Product operability test	–	+
Notes «+» – work is obligatory; «-» – work is not required.			

Table 21 – Check list № 1. Visual check

To be done	Routine	Man-hours per 1 Device
Visually examine the Product	1 Check completeness and appearance of the Product; mechanical damage, paint defects must be absent; legends are to be read easily; 2 Clean all surfaces by clean cloth; 3 Remove severe contamination, parts of corrosion, oil spots: – from metal surfaces: by suds, avoiding its penetration inside the device; all surfaces clean dry by clean cloth	1 person 5 mins

To be done	Routine	Man-hours per 1 Device
	and dry up; – from LED: by alcohol soaked cloth. Do not use hard cloth, paper, glass cleaning liquids or chemicals; Do not press hard on the surface while cleaning; Do not spray liquid directly to the surface of the Product; 4 In case of varnish damage clean it with abrasive cloth, then alcohol soaked cloth, cover with varnish AK-113 and let dry	
Check reliability of cable connections and grounding buses	1 Make sure that connectors and attaching screws are fastened tight, provide further fastening if needed; 2 Check integrity (no mechanical damage) of leading cables which are visible	1 person 5 mins

Table 22 – Checklist №2. The Product’s operability check

To be done	Routine	Man-hours per 1 Device
Check indication and picture on the computer screen	1 Switch the Product on; picture shall be in accordance with the pre-configured software; 2 The Product’s indication shall be in order and work	1 person 5 mins
Check ports	1 Check operability of any device connected to the Product; 2 Check operability of each port of the Product	1 person 15 mins

3.4 PRESERVATION

The Product and set of operational documents are stored in preserved condition in Manufacturer’s packaging boxes.

The time of represervation – 2 years from the Manufacturer’s commissioning.

The represervation is done in heated rooms in the same order as the preservation.

The represerved Product, SPTA kit and documents are placed in package. The time of storage - 2 years.

4 INSTALLATION AND DISASSEMBLY OF THE PRODUCT

4.1 GENERAL DESCRIPTION

The Product's operability is controlled by the display brightness LED located on the front panel, and presence of image on the screen.

To provide diagnostics of the problems, see Table 23.

If trouble shooting cannot be provided, contact manufacturer's service center.

4.2 SAFETY FEATURES

Repair works must be provided by personnel, examined in occupational safety and received qualification group not lower than 3.

The Product must be grounded before repair works.

Replacing defected parts, cards and modules when power of device under repair is ON is **STRICTLY PROHIBITED**.

It is **PROHIBITED** to put a poster "DO NOT switch on! Under Operation!", when power supply switch is in OFF position.

Installation, commissioning and repair works are **PROHIBITED** in the room, where less than 2 people present.

4.3 CURRENT REPAIR

The service personnel can provide repair works as given in Table 23.

All other defects shall be carried out only by the Manufacturer's specialists or the Manufacturer's representatives.

Table 23 – Possible problems / defects and troubleshooting

Problem / defect	Possible reasons	To do
Display's image is absent, brightness LED does not glow.	No voltage supplied from the power source	Check power cable connection to the Product
		Check the fuse
		Provide the voltage
No data reception on the port	Port is faulty	Check cable connection to the Product port
		Check operability of connected device

5 STORAGE

The Product must be stored in packaging inside areas complying with the required storage conditions (+ 5...+ 40 °C) with the concentration of dust, oil, moisture and aggressive impurities in the air within the required limits for the working areas of production facilities.

After storage or transportation of the Device below + 10 °C, it must be unpacked only in heated premises and left in normal climate conditions for 12 hours beforehand.

6 TRANSPORTATION

The Product must be transported in the Manufacturer's transportation package in closed means of transport.

Types of shipment:

- motor vehicle and railroad transportation in closed means of transport (covered cars, multipurpose containers);
- air transportation (in sealed and heated compartments);
- sea transportation (in dry service premises).

The Product must be transported in compliance with transportation rules applicable for each means of transport.

During loading / unloading operations and transportation, the requirements indicated on warning labels on the boxes/packaging must be observed, and no impacts are permitted since they can affect the safety and performance of the Product.

Inside the means of transport, the packed device must be firmly secured/fastened.

7 DISPOSAL

New equipment, the parts of the Product damaged during operation, and any overage equipment must not be disposed as standard household wastes, since they contain the materials suitable for re-use.

Decommissioned and non-used components of the Product must be delivered to a special waste disposal center licensed by local authorities. You can also send an overage equipment / unit to the manufacturer for its further disposal.

Proper disposal of Product components allows avoiding possible negative environmental and health impacts, and it also allows for proper restoration of components with substantial energy and resources saving.

During operation and upon completion of its service life, the equipment is not hazardous for health and environment.

This unit must be disposed according to the rules applied to electronic devices (Federal Law dated 24.06.98 No. 89-FZ On Production and Consumption of Waste as amended of 30.12.2008 No.309-FZ).



Any products marked with a crossed trash bin must be disposed separately from standard house-hold wastes.

8 WARRANTY

The Manufacturer is under warranty obligations in case of correct System exploitation according to the OM. In case of incorrect operation or service damage claims are not considered by the Manufacturer.

More information about warranty terms you can find on the official site of “NPK Morsvyazavtomatica” LLC, section **Support**.

Address and contacts of the Manufacturer's service centre:

“NPK Morsvyazavtomatica” LLC

26E, Kibalchicha str., 192174, St Petersburg, Russia

Tel.: + 7 (812) 602-02-64, 8-800-100-67-19

fax: +7 (812) 362-76-36

e-mail: service@unicont.com

9 DESIGN CODE STRUCTURE

The structure of the Product's design code is represented in Figures A.1 and A.2.

Display diagonal (screen format)										
1005	10.1" (16:10)									
1007	10.1" (16:10)									
1204	12.1" (4:3)									
1206	12.1" (4:3)									
1504	15" (4:3)									
1506	15" (4:3)									
1704	17" (5:4)									
1706	17" (5:4)									
CPU										
0	Intel Atom E3845, 4 cores 1.91 GHz									
Power supply										
A	220 VAC									
B	110 VAC									
C	24 VDC									
E	12 VDC									
RAM										
A	8 GB									
Capacity of HDD										
0	128 GB									
Mounting types										
1	Panel mounting									
2	Panel mounting (outside) ¹⁾									
3	Desk top mounting									
4	Wall mounting									
5	Wall mounting (adjusted)									
Screen										
1	Anti-glare glass									
2	Touch screen									
IP rating										
0	IP22									
1	IP56 (option) - front side + IP22 - other surfaces									
Screen brightness										
0	Standard									
1	Increased (option)									
Type of connectors										
A	Standard (D-Sub, USB, RJ-45, etc.)									
B	Protected (CHIL, PMT, etc.) ²⁾									
Software										
Windows 7 x86										
Windows 7 x64										
Windows 10 x64										
Astra Linux Special Edition										
Others (option)										
MVPC	1005	(0		A	- 0)
Order sample										
MVPC	1005	(0	A	A	- 0	2	1	1	0	A) Windows 7 x86

Sample of basic design:

Display diagonal 10" - 12": 3xUSB + 2xEthernet + 1xAudio + 2xCOM (RS-232/422) + 1xHDMI;

Display diagonal 15" - 17": 4xUSB + 2xEthernet + 1xAudio + 4xCOM (RS-232/422/485) + 1xHDMI.

Note: Customer can change a basic parameter to an optional one, if required. To arrange it, fill «X» in the relevant field / column and make an extra comment in the order form.

For example:

Order form: MVPC-1005 (0AX-02110AX), where X – customer's comment in order to change standard equipment.

Figure A.1 – The structure of the Product's design code with display diagonal 10" - 17"

¹⁾ For the Products MVPC-1005, MVPC-xx06 type panel (outer) mounting is not available.

²⁾ Connectors allowed for military equipment.

Display diagonal (screen format)														
1904	19" (5:4)													
1906	19" (5:4)													
2104	21.3" (4:3)													
2106	21.3" (4:3)													
2105	21.5" (16:9)													
2107	21.5" (16:9)													
2305	23" (16:9)													
2307	23" (16:9)													
2405	24" (16:10)													
2407	24" (16:10)													
2705	27" (16:9)													
2707	27" (16:9)													
3205	31.5" (16:9)													
3207	31.5" (16:9)													
4205	42" (16:9)													
4207	42" (16:9)													
4605	46" (16:9)													
4607	46" (16:9)													
CPU														
1	Intel Core i7-6820EQ, 4 cores 2.8/3.5 GHz													
5	Intel Core i5-7442EQ, 4 cores 2.1/2.9 GHz													
6	Intel Core i3-7100E, 2 cores 2.9 GHz													
Power supply														
A	220 VAC													
B	110 VAC													
C	24 VDC													
E	12 VDC ^(*)													
RAM														
A	8GB													
B	16 GB													
C	32 GB													
Capacity of HDD														
0	240 GB													
1	480 GB													
2	960 GB													
Mounting types														
1	Panel mounting													
2	Panel mounting (outside) ²⁾													
3	Desk top mounting													
4	Wall mounting													
5	Wall mounting (adjusted)													
Screen														
1	Anti-glare glass													
2	Touch screen													
IP rating														
0	IP22													
1	IP56 (option) - front side, IP22 - other surfaces													
Screen brightness														
0	Standard													
1	Increased (option)													
Type of connectors														
A	Standard (D-Sub, USB, RJ-45, etc.)													
B	Protected (CHII, PMT, etc.) ³⁾													
Software														
Windows 7 x86														
Windows 7 x64														
Windows 10 x64														
Astra Linux Special Edition														
Others (option)														
MVPC	1904	(—)				
Order sample														
MVPC	1904	(6	A	A	—	0	2	1	1	0	A)	Windows 7 x86

Parameters of basic design:

interfaces – 5 x USB + 2 x LAN + 3 x Audio (input, output, microphone) + 1 x HDMI (1 x VGA) + 4 x COM (RS-232/422/485).

Note: Customer can change basic parameter to an optional one, if required. To arrange it, fill «X» in the relevant field / column and make an extra comment in the order form.

For example:

Order form: MVPC-1904 (6AA-02110AX), where X – customer's comment in order to change standard equipment.

Figure A.2 – The structure of the Product's design code with display diagonal more than 19"

¹⁾ except the Products with display diagonals 32" - 46".

²⁾ for the Products MVPC-xx06, MVPC-xx07 type panel (outer) mounting is not available.

³⁾ Connectors allowed for military equipment.