








# **DiSPLAY**

PROTECTING THE FUTURE

**RUGGED  
COMPUTERS**



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FOR MORE THAN 35 YEARS «DISPLAY» DESIGN OFFICE», JSC, HAS BEEN SPECIALIZING IN ENGINEERING AND MANUFACTURE OF DISPLAY DEVICES DESIGNED FOR OPERATION IN SEVERE CONDITIONS AND IS CONSIDERED TO BE ONE OF THE MARKET LEADERS IN THIS INDUSTRY.

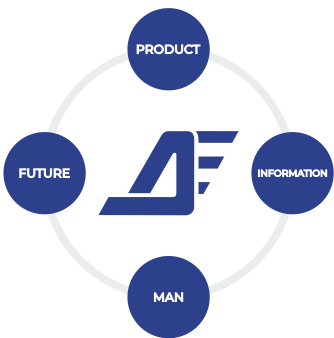
COMPANY  
PROFILE:

- DESIGN AND PRODUCTION OF RUGGED VIDEO MONITORS;
- DESIGN AND PRODUCTION OF RUGGED PANEL AND LAPTOP COMPUTERS;
- DESIGN AND PRODUCTION OF AVIONIC DISPLAYS;
- DESIGN AND PRODUCTION OF MICRO DISPLAY SYSTEMS;
- LCD RUGGEDIZATION.

OUR PRODUCTS OPERATE SUSTAINABLY  
IN THE FOLLOWING CONDITIONS:

- LOW TEMPERATURES, -55 °C;
- HIGH TEMPERATURES, до +70 °C;
- 100% HUMIDITY, FOG, SPATTER, RAIN;
- AGGRESSIVE ENVIRONMENT INFLUENCE, SALT SPRAY FOG, FUNGI, SAND;
- VIBRATION UP TO 6 g;
- SINGLE SHOCKS UP TO 500 g;
- HIGH AMBIENT ILLUMINATION (UP TO 100,000 LUX).

DESIGNING OUR PRODUCTS FOR OPERATION IN SEVERE CONDITIONS WE PROTECT THEM FROM ENVIRONMENTAL EXPOSURE. BY THAT WE PROTECT THE DISPLAYED INFORMATION AND THE PEOPLE WHO RECEIVE THE INFORMATION. PROTECTING THE PERSON, GIVING THE CHANCE TO IT TO MORE OPERATIVELY CORRECT DECISIONS, ON THE BASIS OF THE RECEIVED INFORMATION, **WE PROTECT THE FUTURE.**



BEING AWARE OF ALL THE RESPONSIBILITY, IN OUR ACTIVITY WE ARE GUIDED BY THE FOLLOWING PRINCIPLES:

- PERSONAL APPROACH TO EVERY CUSTOMER.
- UNIQUE TECHNOLOGIES, DEVELOPED BY OUR HIGHLY SKILLED SPECIALISTS.
- RESPONSIBILITY FOR MANUFACTURED PRODUCTS.

OUR KEY COMPETENCE:  
HIGH PRODUCTS CUSTOMIZATION TO APPLICATION ENVIRONMENT.

«DISPLAY» DESIGN OFFICE», JSC, IS OPEN FOR COOPERATION, PARTICIPATION IN NEW PROJECTS. R&D WORK IS ALWAYS OF GREAT INTEREST TO OUR COMPANY.

ONE OF THE MOST HIGH-TECH DIRECTIONS OF «DISPLAY «DESIGN OFFICE» IS ENGINEERING AND PRODUCTION OF COMPUTERS DESIGNED FOR OPERATION IN HARSH ENVIRONMENTS. HAVING EXTENSIVE EXPERIENCE IN ENGINEERING OF VIDEOMONITORS AND AVIONIC DISPLAYS, OUR ENGINEERS HAVE DESIGNED AND PUT INTO PRODUCTION A NUMBER OF RUGGEDIZED COMPUTERS FOR VARIOUS TASKS:



- RUGGED PANEL COMPUTERS 8,4" UP TO 55" IN DIAGONAL;
- RUGGED LAPTOPS 15" UP TO 21" IN DIAGONAL;
- TABLET COMPUTERS 6,5" IN DIAGONAL;
- AIRBORNE PANEL PC;
- DIGITAL SIGNAGE.

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



PC-17 IS A RUGGED AND COMPACT TABLET THAT BOASTS AN EXCELLENT BATTERY LIFE OF AT LEAST 6 HOURS, WHILE BEING INCREDIBLY LIGHTWEIGHT AND PORTABLE, MAKING IT THE PERFECT COMPANION FOR USE AS A PERSONAL COMPUTER IN THE FIELD.

THE RUGGED PC-17 TABLET PROVIDES UNRIVALED DURABILITY AND PROTECTION, ALLOWING IT TO EASILY WITHSTAND WATER AND DUST (IP65 RATING), DROPS FROM HEIGHTS, AS WELL AS HARSH ENVIRONMENTS WITH A TEMPERATURE RANGE OF -40 °C TO +55 °C.

THE PRODUCT PROVIDES CONNECTION OF AN EXTERNAL CHARGER, STATUS INDICATOR SIGNALS THE PRODUCT CHARGE, MANUAL BRIGHTNESS ADJUSTMENT AND MANUAL SWITCHING OFF OF THE LCD MODULE BACKLIGHT WILL PROVIDE QUICK ADAPTATION TO THE SITUATION YOU NEED.



DISPLAY	DISPLAY SIZE, INCH	6,5"
	RESOLUTION	
	ONE-SCREEN MODE	1024x768
	DUAL-SCREEN MODE / WITH HELMET MOUNTED DISPLAY	1024x768 / 800x600
	VIEWING ANGLE, °:	
	HORIZONTAL	±75
COMPUTER UNIT	VERTICAL	±75
	CONTRAST	400:1
	BRIGHTNESS, cd/m²	500
	TOUCH SCREEN	RESISTIVE
	CPU	NVIDIA TEGRA 2 (1 GHz)
	RAM, GB	0,5 (512 MB)
INTERFACES	OS COMPATIBILITY	WINDOWS CE 6.0, WINDOWS EMBEDDED COMPACT 7, ASTRA LINUX SPECIAL EDITION
	SSD, GB	0,5 (512 MB)
	MEMORY CARD SLOT	MICRO SD-1 SLOT
	SUPPORTED INTERFACES	RS-232 - 1 PORT, ETHERNET - 1 PORT, USB 2.0 - 1 PORT, SVGA - 1 PORT, GPS/GLONASS - 1 PORT, BUILT-IN BLUETOOTH MODULE, POSSIBILITY TO CONNECT A HELMET-MOUNTED INDICATION SYSTEM (OPTIONAL)
POWER SUPPLY	AUDIO	MICROPHONE INPUT, LINE OUTPUT
	POWER SUPPLY, V	BATTERY
	BUILT-IN BATTERY	LITHIUM-POLYMER 4000 mAh. CHARGING OF THE BATTERY IS CARRIED OUT: 1. FROM AN EXTERNAL CHARGER (CHARGER) WHEN POWERED FROM AC MAINS VOLTAGE 220V 50Hz (INCLUDED IN THE DELIVERY SET); 2. FROM THE EXTERNAL CHARGING DEVICE AT SUPPLY FROM A NETWORK OF DC 10...30 V (INCLUDED IN THE DELIVERY SET); 3. FROM AN EXTERNAL FLEXIBLE PHOTOVOLTAIC SOLAR PANEL (OPTIONAL)
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS	6 HOURS
	DIMENSIONS, mm:	
DIMENSIONS, WEIGHT	WIDTH	182
	HEIGHT	179
AMBIENT CONDITIONS	DEPTH	45
	WEIGHT, kg	1,2
	TEMPERATURE, °C:	
	OPERATING	-40...+55
	STORAGE	-40...+70
	VIBRATION	1...80 Hz, 3g
	SHOCKS:	
	SINGLE	75g, 1...5 ms
	REPEATED	15g, 5...10 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



RUGGED TABLET BU-31 HAS A LARGE 12 INCH DISPLAY IS INCREDIBLY COMFORTABLE ORGANIZED, GUARANTEED TO MEET ALL YOUR PROFESSIONAL NEEDS, MAKING IT THE PERFECT COMPANION FOR USE AS A PERSONAL COMPUTER IN THE FIELD.

THE 4:3 ASPECT RATIO AND PEAK BRIGHTNESS OF 300 NITS ENSURES A DISPLAY WITH PERFECT COLOR SATURATION AND VIVIDNESS.

RUGGED TABLET BU-31 HAS A LEVEL OF PROTECTION IP65, WHAT PROTECTES IT FROM WATER AND DUST. BU-31 IS ALWAYS READY FOR USE UNDER EXTREME ENVIRONMENTAL CONDITIONS IN THE TEMPERATURE RANGE FROM -20 °C TO +50 °C.

THE TABLET IS EQUIPPED WITH A POWERFUL 6800 MAH LITHIUM-POLYMER BATTERY. LONG BATTERY LIFE (UP TO 6 HOURS AT MINIMUM BRIGHTNESS) GUARANTEES TO KEEP YOU POWERED UP WHEN YOU NEED IT MOST.



DISPLAY	DISPLAY SIZE, INCH	12"
	RESOLUTION	1024x768
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±75 ±75
	CONTRAST	300:1
	BRIGHTNESS, cd/m²	300
	TOUCH SCREEN	RESISTIVE
COMPUTER UNIT	CPU	INTEL ATOM, 1,9 GHZ, (BAY TRAIL-I)
	RAM, GB	4
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB	1,0 (ALLOCATED FROM RAM)
	SSD, GB	128 (SSD)
INTERFACES	SUPPORTED INTERFACES	USB 2.0 - 2 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 1 PORT, CAN 2.0 - 2 PORTS, WI-FI, BLUETOOTH
	AUDIO	LINE OUTPUT
POWER SUPPLY	POWER SUPPLY, V	+18...32 ~220, 50 HZ FROM AC/DC POWER SUPPLY (AC/DC POWER SUPPLY IS INCLUDED IN THE SCOPE OF DELIVERY)
	BUILT-IN BATTERY	LITHIUM-POLYMER 6800 mAh (REMOVABLE)
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS	4 HOURS
	POWER CONSUMPTION, W	50
DIMENSIONS, WEIGHT	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	305 249 47,5
	WEIGHT, kg	4
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-20...+50 -40...+65
	HUMIDITY	98%, 35 °C
	VIBRATION	1...500 Hz, 2g
	SHOCKS: SINGLE REPEATED	75g, 1...5 ms 15g, 5...15 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# BU-38 /38.2

RUGGED LAPTOP



BUILT FOR EXTREME OUTDOOR ENVIRONMENTS, BU-38 AND BU-38.2 WILL OPERATE IN RAIN, DUST, SHOCK, VIBRATION, AND SALT SPRAY.

THESE IP65 RATED LAPTOPS ARE FULLY RUGGEDIZED. THEY WITHSTAND UP TO 2 HOURS OF BATTERY OPERATION AT AMBIENT TEMPERATURES FROM -20°C TO +50°C.





DISPLAY	MODEL		BU-38		BU-38.2	
	DISPLAY SIZE, INCH		15"			
	RESOLUTION		1024x768		1600x1200	
	VIEWING ANGLE, °:					
	HORIZONTAL		±85		±80	
VERTICAL		±85		±80		
CONTRAST		700:1		500:1		
BRIGHTNESS, cd/m²		400				
TOUCH SCREEN		(OPTION)				
COMPUTER UNIT	CPU		INTEL CORE I7, 2,5 GHZ, 3TH GENERATION			
	RAM, GB		8			
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION			
	GRAPHIC MEMORY, GB		1,7 (ALLOCATED FROM RAM)			
	SSD, GB		32 (SSD)			
INTERFACES	SUPPORTED INTERFACES		DVI OUTPUT - 1 PORT, RS-232 - 7 PORTS, GIGABIT ETHERNET - 2 PORTS, USB 2.0 - 4 PORTS, VIDEO INPUT - 4 PORTS, (CHANNELS FOR INPUT/OUTPUT OF ANALOG AND DISCRETE INFORMATION ADC AND DAC)		DVI OUTPUT - 1 PORT, RS-232 - 7 PORTS, GIGABIT ETHERNET - 2 PORTS, USB 2.0 - 4 PORTS	
	AUDIO		LINE INPUT, MICROPHONE INPUT, LINE OUTPUT			
POWER SUPPLY	POWER SUPPLY, V		+22...30 OR ~220, 50 HZ FROM CHARGING UNIT (CHARGER IS INCLUDED IN THE SCOPE OF DELIVERY)			
	BUILT-IN BATTERY		LITHIUM-POLYMER 6000 mAh			
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS		2 HOURS		3 HOURS	
	POWER CONSUMPTION, W		90			
POWER CONSUMPTION WITH HEATING, W		130				
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		WHEN CLOSED		WHEN OPEN	
	WIDTH		367		367	
	HEIGHT		113		406	
	DEPTH		350		350	
	WEIGHT, kg		10		9	
AMBIENT CONDITIONS	TEMPERATURE, °C:					
	OPERATING		-50...+55			
	STORAGE		-50...+70			
	HUMIDITY		98%, 35 °C			
	VIBRATION		1...80 Hz, 4g			
SHOCKS:						
SINGLE		75g, 1...5 ms				
REPEATED		15g, 5...10 ms				

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



BU-39 FULLY RUGGED LAPTOP, WITH A 15.6-INCH SCREEN DIAGONAL, COMBINES A HIGH LEVEL OF MOBILITY AND DATA PROTECTION. SPECIALLY DESIGNED TO EFFICIENTLY PERFORM MISSION-CRITICAL TASKS IN DEMANDING ENVIRONMENTS. CAPABLE OF WITHSTANDING THE HARSHTEST ENVIRONMENTS WHILE MAINTAINING ITS PERFORMANCE.

THE LAPTOP MEETS THE REQUIREMENTS OF IP65 PROTECTION CLASS, PROTECTED AGAINST RAIN AND DUST, SHOCK (100g) AND VIBRATION (UP TO 4g), MAINTAINING ITS PERFORMANCE AT TO + 50°C AND TO -30°C AMBIENT TEMPERATURES, AS WELL AS CONFIRMING PERFORMANCE IN SALT FOG CONDITIONS.

EQUIPPED WITH A WIDESCREEN 15.6"-INCH DISPLAY WITH BRIGHTNESS UP TO 800 NITS, WHICH PROVIDES THE BEST READABILITY AND COMFORTABLE OPERATION IN THE FIELD.



DISPLAY	DISPLAY SIZE, INCH		15,6"
	RESOLUTION		1920x1080
	VIEWING ANGLE, °:		
	HORIZONTAL		±85
	VERTICAL		±85
	CONTRAST		700:1
COMPUTER UNIT	BRIGHTNESS, cd/m²		800
	TOUCH SCREEN		RESISTIVE
	CPU		INTEL CORE I7, 2,8 GHz, 13TH GENERATION
	RAM, GB		32
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB		8,0 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB		512 (SSD)
	SUPPORTED INTERFACES		USB 2.0 - 2 PORTS, USB 3.0 - 1 PORT, RS-232/RS-422/RS-485 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, HDMI OUTPUT - 1 PORT
	AUDIO		LINE INPUT, MICROPHONE INPUT, LINE OUTPUT
POWER SUPPLY	POWER SUPPLY, V		+18...32 VIA AN EXTERNAL POWER ADAPTER OR ~230, 50 Hz FROM THE NETWORK ADAPTER (NETWORK ADAPTER IS INCLUDED IN THE SCOPE OF DELIVERY)
	BUILT-IN BATTERY		6800 mAh, REPLACEABLE BATTERIES (ADDITIONAL BATTERY AND BATTERY CHARGER ARE INCLUDED IN THE SCOPE OF DELIVERY)
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS		3 HOURS
	POWER CONSUMPTION, W		70
	POWER CONSUMPTION WITH HEATING, W		150
DIMENSIONS, WEIGHT	DIMENSIONS, mm:	WHEN CLOSED	WHEN OPEN
		WIDTH	394
		HEIGHT	74
		DEPTH	296
AMBIENT CONDITIONS	WEIGHT, kg		8,0
	TEMPERATURE, °C:		
	OPERATING		-30...+50
	STORAGE		-40...+55
	VIBRATION		1...80 Hz, 4g
	SHOCKS:		
	SINGLE		100g, 1...5 ms
	REPEATED		15g, 5...15 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



BU-43 FULLY PROTECTED NOTEBOOK, WITH A SCREEN DIAGONAL OF 18.5 INCHES, COMBINES A HIGH LEVEL OF MOBILITY AND DATA PROTECTION.

SPECIALLY DESIGNED TO EFFICIENTLY PERFORM MISSION-CRITICAL TASKS IN HARSH ENVIRONMENTS. CAPABLE OF WITHSTANDING THE HARSHTEST ENVIRONMENTS WHILE MAINTAINING ITS PERFORMANCE.

IP65-RATED, IT IS PROTECTED FROM RAIN AND DUST, SHOCK (100g) AND VIBRATION (UP TO 4g, AND REMAINS OPERATIONAL AT TO +55°C AND TO -50°C AMBIENT TEMPERATURES, AS WELL AS SALT FOG PROOF PERFORMANCE.



DISPLAY	DISPLAY SIZE, INCH		18,5"
	RESOLUTION		1920x1080
	VIEWING ANGLE, °:		
	HORIZONTAL		±89
	VERTICAL		±89
	CONTRAST		300:1
COMPUTER UNIT	BRIGHTNESS, cd/m²		300
	TOUCH SCREEN		(OPTION)
	CPU		INTEL CORE I7, 2,2 GHz, 5TH GENERATION
	RAM, GB		8
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB		1,7 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB		512 (SSD)
	SUPPORTED INTERFACES		USB 2.0 - 3 PORTS, USB 3.0 - 1 PORT, RS-232 - 3 PORTS, RS-232/RS-422/RS-485 - 1 PORT, LPT - 1 PORT, ETHERNET - 1 PORT, GIGABIT ETHERNET - 1 PORT, DISPLAYPORT OUTPUT - 1 PORT, VGA OUTPUT - 1 PORT
	AUDIO		LINE INPUT, MICROPHONE INPUT, LINE OUTPUT
POWER SUPPLY	POWER SUPPLY, V		+18...32 VIA AN EXTERNAL POWER ADAPTER OR ~230, 50 HZ FROM THE NETWORK ADAPTER (NETWORK ADAPTER IS INCLUDED IN THE SCOPE OF DELIVERY)
	BUILT-IN BATTERY		LITHIUM-POLYMER 6800 mAh, REMOVABLE (ADDITIONAL BATTERY AND BATTERY CHARGER ARE INCLUDED IN THE SCOPE OF DELIVERY)
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS		2,5 HOURS
	POWER CONSUMPTION, W		40
	POWER CONSUMPTION WITH HEATING, W		150
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		
	WHEN CLOSED		WHEN OPEN
AMBIENT CONDITIONS	WIDTH		457
	HEIGHT		375
	DEPTH		338
	WEIGHT, kg		10,1
	TEMPERATURE, °C:		
	OPERATING		-50...+55
	STORAGE		-65...+70
	HUMIDITY		98%, 35 °C
	VIBRATION		1...80 Hz, 4g / 80...200 Hz, 2g
	SHOCKS:		
	SINGLE		100g, 0,5...2 ms
	REPEATED		15g, 5...15 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



BU-51 IS A RUGGED LAPTOP WITH A DIAGONAL 21,3 INCH AND 2K RESOLUTION DESIGNED TO WORK AS A PART OF AUTOMATION SYSTEMS, AS WELL AS AN INDEPENDENT DEVICE.

IT IS ABLE TO WITHSTAND THE HARSHTEST OPERATING CONDITIONS, WHILE MAINTAINING ITS PERFORMANCE CHARACTERISTICS.

THE LAPTOP MEETS THE REQUIREMENTS OF IP65 PROTECTION CLASS, IT IS PROTECTED FROM RAIN AND DUST, SHOCK (100g) AND VIBRATION (UP TO 80 Hz), MAINTAINING OPERABILITY AT TO + 50 °C AND TO -50 °C AMBIENT TEMPERATURES, AS WELL AS CONFIRMING OPERABILITY IN



DISPLAY	DISPLAY SIZE, INCH		21,3"
	RESOLUTION		2048x1536
	VIEWING ANGLE, °:		
	HORIZONTAL	±80	
	VERTICAL	±80	
	CONTRAST		750:1
COMPUTER UNIT	BRIGHTNESS, cd/m²		700
	TOUCH SCREEN		(OPTION)
	CPU		INTEL CORE I7, 2,2 GHz, 5TH GENERATION
	RAM, GB		8
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB		1,0 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB		240 (2x120 SSD)
	SUPPORTED INTERFACES		USB 2.0 - 4 PORTS, USB 3.0 - 2 PORTS, RS-232 - 1 PORT, RS-232/RS-422/RS-485 - 1 PORT, GIGABIT ETHERNET - 3 PORTS, DISPLAYPORT OUTPUT - 1 PORT
	AUDIO		LINE INPUT, MICROPHONE INPUT, LINE OUTPUT
POWER SUPPLY	POWER SUPPLY, V		+22...30 OR ~230, 50 HZ FROM CHARGING UNIT (CHARGER IS INCLUDED IN THE SCOPE OF DELIVERY)
	BUILT-IN BATTERY		6800 mAh, REMOVABLE
	CONTINUOUS OPERATION FROM BATTERY IN NORMAL CONDITIONS		1,5 HOURS
	POWER CONSUMPTION, W		150
	POWER CONSUMPTION WITH HEATING, W		300
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		
	WIDTH	WHEN CLOSED	WHEN OPEN
	HEIGHT	485	485
AMBIENT CONDITIONS	DEPTH	90	478
		435	435
	WEIGHT, kg		14
	TEMPERATURE, °C:		
	OPERATING	-50...+50	
	STORAGE	-55...+60	
	HUMIDITY		98%, 35 °C
	VIBRATION		1...80 Hz, 4g
	SHOCKS:		
	SINGLE	100g, 1...5 ms	
	REPEATED	15g, 5...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



THE ARM-T COMPUTER SYSTEM IS DESIGNED TO WORK AS PART OF SPECIAL-PURPOSE COMPLEXES AND AS AN INDEPENDENT DEVICE.

THE ARM-T COMPUTER SYSTEM CONSISTS OF A CASE WITH TWO COMPUTING MODULES INSIDE.

IN THE UPPER PART OF THE ARM-T SYSTEM (FOLDING COVER) THERE IS A 20.1 INCH VIDEO MODULE, IN THE LOWER PART - A 15 INCH VIDEO MODULE WITH A TOUCH SCREEN.

ARM-T IS POWERED FROM THE DC NETWORK WITH VOLTAGE FROM 18 TO 32 V.

PROTECTION LEVEL OF THE ARM-T COMPUTER SYSTEM IS IP65.





DISPLAY	DISPLAY SIZE, INCH	20,1" / 15"	
	RESOLUTION	1600x1200	
	VIEWING ANGLE, °:		
	HORIZONTAL	±80	
	VERTICAL	±80	
	CONTRAST	600:1	
COMPUTER UNIT	BRIGHTNESS, cd/m²	600	
	TOUCH SCREEN	RESISTIVE, 15"	
	CPU	2X INTEL CORE I7, 2,2 GHz, 5TH GENERATION	
	RAM, GB	8	
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION	
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)	
INTERFACES	SSD, GB	128 (SSD)	
	SUPPORTED INTERFACES	20,1": USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, APMDZ "SOBOL" 15": USB 2.0 - 4 PORTS, RS-232 - 2 PORTS, GIGABIT ETHERNET - 2 PORTS	
	AUDIO	20,1": LINE INPUT, MICROPHONE INPUT, LINE OUTPUT	
POWER SUPPLY	POWER SUPPLY, V	+18...32	
	BUILT-IN BATTERY	No	
	POWER CONSUMPTION, W	160	
	POWER CONSUMPTION WITH HEATING, W	250	
DIMENSIONS, WEIGHT	DIMENSIONS, mm:	WHEN CLOSED	WHEN OPEN
	WIDTH	475	475
	HEIGHT	92	469
	DEPTH	400	400
AMBIENT CONDITIONS	WEIGHT, kg	14,5	
	TEMPERATURE, °C:		
	OPERATING	-50...+60	
	STORAGE	-60...+70	
	HUMIDITY	98%, 35 °C	
	VIBRATION	1...300 Hz, 2g	
	SHOCKS:		
	SINGLE		
	REPEATED	15g, 5...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



PANEL COMPUTER WITH A DIAGONAL OF 8 INCHES. DESIGNED FOR OPERATION IN AUTOMATED CONTROL SYSTEMS AND AS AN INDEPENDENT DEVICE.

PROVIDES STABLE OPERATION IN CONDITIONS OF EXTREME TEMPERATURES, HIGH HUMIDITY AND PRESSURE DROPS, AS WELL AS UNDER VIBRATION LOAD.

THE PRESENCE OF A TOUCH SCREEN AND THE LOCATION OF CONNECTORS ON THE UPPER PART OF THE PRODUCT ALLOWS IT TO BE USED AS AN INFORMATION PROCESSING DEVICE INSIDE OF A SPECIAL-PURPOSE VEHICLE.



DISPLAY	DISPLAY SIZE, INCH		8"
	RESOLUTION		1280x720
	VIEWING ANGLE, °:		
	HORIZONTAL	±75	
	VERTICAL	±75	
	CONTRAST		500:1
COMPUTER UNIT	BRIGHTNESS, cd/m²		500
	TOUCH SCREEN		RESISTIVE
	CPU		INTEL CELERON, 2,0 GHz (BAY TRAIL-D)
	RAM, GB		4
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB		1,0 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB		128 (SSD)
	SUPPORTED INTERFACES		USB 2.0 - 2 PORTS, RS-422 - 1 PORT, GIGABIT ETHERNET - 1 PORT, CAN 2.0 - 1 PORT
POWER SUPPLY	POWER SUPPLY, V		+18...32
	POWER CONSUMPTION, W		50
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		
	WIDTH	210	
	HEIGHT	158	
AMBIENT CONDITIONS	DEPTH		47
	WEIGHT, kg		2
	TEMPERATURE, °C:		
	OPERATING	-20...+50	
	STORAGE	-40...+65	
	HUMIDITY		98%, 35 °C
	VIBRATION		1...500 Hz, 2g
	SHOCKS:		
	SINGLE	75g, 1...5 ms	
	REPEATED	15g, 5...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# PC-21.3 /21.4

## RUGGED PANEL COMPUTER



PC-21.3

PANEL COMPUTERS PC-21.3 AND PC-21.4 WITH A CAPACITIVE TOUCH PANEL ARE DESIGNED TO ORGANIZE THE OPERATOR'S WORKPLACE.

THE PRODUCTS ENSURE OPERATION IN ROOMS WITH HIGH HUMIDITY, AS WELL AS IN ALL MACROCLIMATIC REGIONS ON LAND AND AT SEA.

THE PRODUCT IS POWERED BY A 27V DC POWER SUPPLY. THE OPERATE WORKING POSITION OF THE PRODUCT IS LANDSCAPE (THE SMALLER SIDE IS VERTICAL), 4x3.



PC-21.4

# PC-21.3 /21.4

DISPLAY	MODEL	PC-21.3	PC-21.4
	DISPLAY SIZE, INCH	8,4"	15"
	RESOLUTION	1024x768	
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±80 ±80	
	CONTRAST	500:1	250:1
	BRIGHTNESS, cd/m²	500	250
COMPUTER UNIT	TOUCH SCREEN	CAPACITIVE	
	CPU	PENTIUM N4200, 2,5 GHZ, (APOLLO LAKE)	
	RAM, GB	8	
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION	
	GRAPHIC MEMORY, GB	1,0 (ALLOCATED FROM RAM)	
	SSD, GB	256 (SSD)	32 (SSD)
INTERFACES	SUPPORTED INTERFACES	USB 2.0 - 2 PORTS, RS-232 - 1 PORT, RS-485 - 2 PORTS, ETHERNET - 1 PORT	USB 2.0 - 2 PORTS, RS-485 - 5 PORTS, ETHERNET - 3 PORTS
POWER SUPPLY	POWER SUPPLY, V	+12...35	
	POWER CONSUMPTION, W	25	50
	POWER CONSUMPTION WITH HEATING, W	60	100
DIMENSIONS, WEIGHT	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	234 205 95	424 344 160
	WEIGHT, kg	3,5	8,5
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	+5...+50 -50...+60	
	HUMIDITY	98%, 35 °C	
	VIBRATION	1...35 Hz, 1g	
	SHOCKS: SINGLE REPEATED	100g, 0,5...2 ms 15g, 5...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# PC-31

## RUGGED PANEL COMPUTER



PC-31 PANEL COMPUTER IS DESIGNED TO WORK IN AUTOMATED CONTROL SYSTEMS AND AS AN INDEPENDENT DEVICE. IT SERVES FOR COMPUTER PROCESSING OF INFORMATION, EXECUTION OF PROGRAMS.

THE RUGGED PC-31 CASE HAS A MOUNTING DEPTH OF ONLY 58MM. THE PRODUCT IS CARRIED OUT FROM THE DC NETWORK FROM 11 TO 35 V.



DISPLAY	DISPLAY SIZE, INCH	12,1"
	RESOLUTION	1024x768
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±75 ±75
	CONTRAST	500:1
	BRIGHTNESS, cd/m²	400
COMPUTER UNIT	TOUCH SCREEN	RESISTIVE
	CPU	INTEL CORE I7, 2,5 GHZ, 3TH GENERATION
	RAM, GB	4
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB	128 (SSD)
	SUPPORTED INTERFACES	USB 2.0 - 2 PORTS, RS-232 - 1 PORT, RS-232/RS-422/RS-485 - 1 PORT, ETHERNET - 2 PORTS
POWER SUPPLY	AUDIO	MICROPHONE INPUT, LINE OUTPUT
	POWER SUPPLY, V	+11...35
	POWER CONSUMPTION, W	50
DIMENSIONS, WEIGHT	POWER CONSUMPTION WITH HEATING, W	130
	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	305 249 58,8
	WEIGHT, kg	4,2
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-40...+55 -60...+65
	HUMIDITY	98%, 35 °C
	VIBRATION	1...500 Hz, 6g
	SHOCKS: SINGLE REPEATED	75g, 1...5 ms 15g, 5...15 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# PC-45-R4 / BI-45-R4

## RUGGED PANEL COMPUTER

PANEL COMPUTER PC-45-R4 IS DESIGNED FOR PROCESSING, STORING AND DISPLAYING OF INFORMATION UNDER HARSH OPERATING CONDITIONS. IT CAN BE USED AS AN INDEPENDENT DEVICE OR AS A PART OF A SPECIAL-PURPOSE COMPLEX.



INDICATOR UNIT BI-45-R4 IS DESIGNED FOR PROCESSING, STORING AND DISPLAYING OF INFORMATION. IT CAN BE USED AS A PART OF VARIOUS SPECIAL PURPOSE COMPLEXES AND AS AN INDEPENDENT DEVICE. BI-45-R4 INCLUDES PANEL COMPUTER PC-45-R4 AND VIDEO MONITOR VMC-45.3.

THE MAXIMUM RESOLUTION IS 1280x1024. THE PRODUCT IS POWERED FROM THE DC NETWORK WITH A VOLTAGE OF 27.0 V.





# PC-45-R4 / BI-45-R4

		BI-45-R4	
DISPLAY	MODEL	PC-45-R4	VMC-45.3
	DISPLAY SIZE, INCH	19"	
	RESOLUTION	1280x1024	
	VIEWING ANGLE, °:		
	HORIZONTAL	±80	
	VERTICAL	±80	
	CONTRAST	500:1	
COMPUTER UNIT	BRIGHTNESS, cd/m²	500	
	TOUCH SCREEN	(OPTION)	
	CPU	INTEL CORE I7, 2,8 GHZ, 6TH GENERATION	-
	RAM, GB	8	-
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION	-
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)	-
	SSD, GB	512 (SSD)	-
INTERFACES	SUPPORTED INTERFACES	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 2 PORTS, VIDEO ANALOG - 1 PORT, MS - 1 PORT, KB - 1 PORT	RGB - 1 PORT, VGA- 1 PORT
POWER SUPPLY	POWER SUPPLY, V	+22...29,7	
	POWER CONSUMPTION, W	100	45
	POWER CONSUMPTION WITH HEATING, W	165	95
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		
	WIDTH	482	482
	HEIGHT	399	399
	DEPTH	138	132
AMBIENT CONDITIONS	WEIGHT, kg	11	
	TEMPERATURE, °C:		
	OPERATING	-10...+50	-25...+55
	STORAGE	-40...+65	-40...+65
	HUMIDITY	98%, 25 °C	
	VIBRATION	1...300 Hz, 2g	
	SHOCKS:		
	SINGLE	-	
	REPEATED	15g, 5...10 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# PC-51M

## RUGGED PANEL COMPUTER



PC-51M PANEL COMPUTER WITH A DIAGONAL 20,1 INCH IS DESIGNED TO WORK IN AUTOMATED CONTROL SYSTEMS AND AS AN INDEPENDENT DEVICE.

IT SERVES FOR COMPUTER PROCESSING OF INFORMATION, EXECUTION OF PROGRAMS.

POWER SUPPLY OF THE PRODUCT IS CARRIED OUT FROM THE DC NETWORK 27 V.



DISPLAY	DISPLAY SIZE, INCH	20,1"
	RESOLUTION	1600x1200
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±88 ±88
	CONTRAST	600:1
	BRIGHTNESS, cd/m²	600
COMPUTER UNIT	TOUCH SCREEN	(OPTION)
	CPU	INTEL CORE I7, 2,5 GHZ
	RAM, GB	8
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB	64 (SSD)
	SUPPORTED INTERFACES	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 4 PORTS, VGA OUTPUT - 1 PORT, MS - 1 PORT, KB - 1 PORT
POWER SUPPLY	AUDIO	LINE INPUT, MICROPHONE INPUT, LINE OUTPUT
	POWER SUPPLY, V	+22...29,7
	POWER CONSUMPTION, W	100
DIMENSIONS, WEIGHT	POWER CONSUMPTION WITH HEATING, W	200
	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	482 399 73,5
	WEIGHT, kg	13,5
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-40...+55 -50...+70
	HUMIDITY	98%, 35 °C
	VIBRATION	1...500 Hz, 2g
	SHOCKS: SINGLE REPEATED	15g, 1...5 ms 15g, 5...10 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# UPC-15 /15.1 /19 /20 /24

## RUGGED PANEL COMPUTER

UPC-15  
15"



UPC-15.1  
15"



UPC LINE IS DESIGNED TO WORK AS PART OF AUTOMATED CONTROL SYSTEMS, AS WELL AS AN INDEPENDENT DEVICE FOR COMPUTER PROCESSING OF INFORMATION AND EXECUTION OF SET PROGRAMS WITH SUBSEQUENT DISPLAY. POWER SUPPLY OF THE UPC IS CARRIED OUT FROM THE DC NETWORK IN THE RANGE FROM 22 TO 29.7 V, OR FROM THE AC NETWORK THROUGH A POWER ADAPTER. THE WORKING POSITION OF THE UPC IS LANDSCAPE (THE SMALLER SIDE IS VERTICAL).

UPC-19  
19"



UPC-20  
20"



UPC-24  
24"

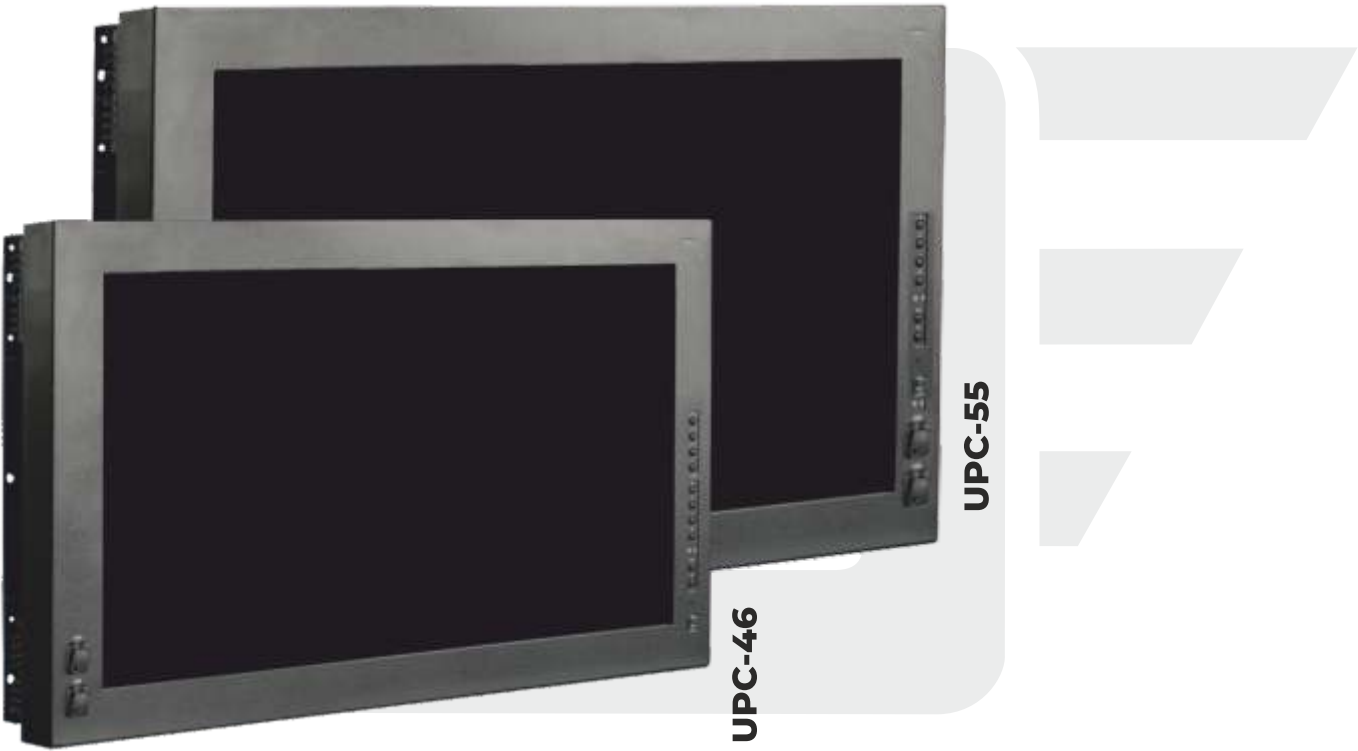


DISPLAY	MODEL	UPC-15	UPC-15.1	UPC-19	UPC-20	UPC-24
	DISPLAY SIZE, INCH	15"		19"	20"	24"
	RESOLUTION	1024x768	1600x1200	1280x1024	1600x1200	1920x1080
	VIEWING ANGLE, °: HORIZONTAL VERTICAL			±80 ±80		
	CONTRAST	300:1	600:1	500:1		
	BRIGHTNESS, cd/m²	300	600	500		300
	TOUCH SCREEN	RESISTIVE				
COMPUTER UNIT	CPU	INTEL CORE I7, 2,2 GHZ, 5TH GENERATION	INTEL CORE I7, 2,5 GHZ, 3TH GENERATION	INTEL CORE I7, 2,2 GHZ, 5TH GENERATION		
	RAM, GB	8				
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION				
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)				
INTERFACES	SSD, GB	64 UP TO 1024 (SSD)				
	SUPPORTED INTERFACES	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 4 PORTS, VGA - 1 PORT, MS (PS/2) - 1 PORT, KB (PS/2) - 1 PORT				
	AUDIO	LINE INPUT, MICROPHONE INPUT, LINE OUTPUT				
POWER SUPPLY	POWER SUPPLY, V	+22...29,7 OR ~230, 50 HZ FROM AC/DC ADAPTER				
	POWER CONSUMPTION, W	45	70	50	50	70
	POWER CONSUMPTION WITH HEATING, W	115	195	165	120	195
DIMENSIONS, WEIGHT	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	387 308 100	364 288 100	457 372 102	482 399 102	580 399 102
	WEIGHT, kg	9,5	9	12	14	16
	TEMPERATURE, °C: OPERATING STORAGE	-40...+50 -50...+70				
	HUMIDITY	98%, 35 °C				
AMBIENT CONDITIONS	VIBRATION	1...300 Hz, 2g				
	SHOCKS: SINGLE REPEATED	50g, 1...5 ms 15g, 5...10 ms				

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

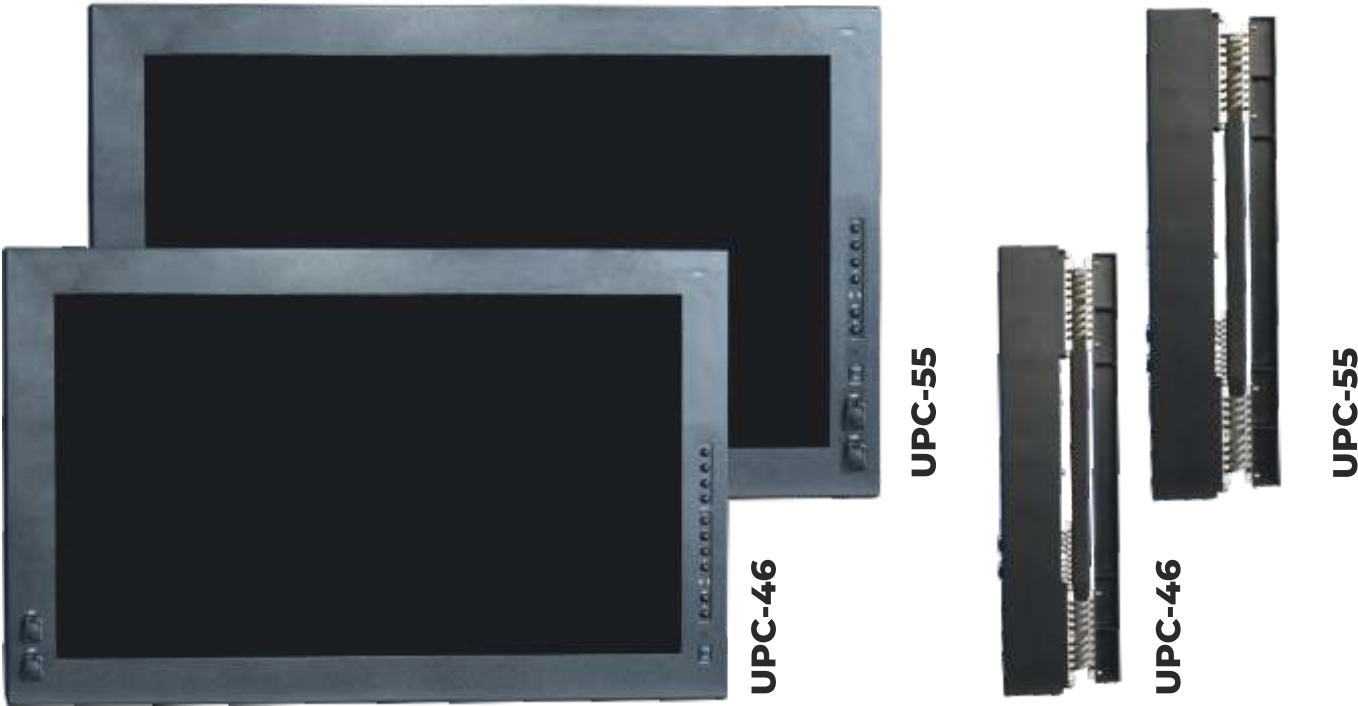
# UPC-46 /55

## RUGGED PANEL COMPUTER



UPC LINE WITH A DIAGONAL 46 (FULLHD) AND 55(2K) INCHES IS DESIGNED TO WORK AS PART OF AUTOMATED CONTROL SYSTEMS, AS WELL AS AN INDEPENDENT DEVICE FOR COMPUTER PROCESSING OF INFORMATION AND EXECUTION OF SET PROGRAMS WITH SUBSEQUENT DISPLAY.

POWER SUPPLY OF THE UPC IS CARRIED OUT FROM THE DC NETWORK IN THE RANGE FROM 22 TO 29.7 V, OR FROM THE AC NETWORK THROUGH A POWER ADAPTER.



DISPLAY	MODEL	UPC-46	UPC-55
	DISPLAY SIZE, INCH	46"	55"
	RESOLUTION	1920x1080	3840x2160
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±80 ±80	
	CONTRAST	300:1	
	BRIGHTNESS, cd/m²	300	
	TOUCH SCREEN	CAPACITIVE	
COMPUTER UNIT	CPU	INTEL CORE I7, 2,2 GHZ, 5TH GENERATION	
	RAM, GB	8	
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION	
	GRAPHIC MEMORY, GB	1,7 (ALLOCATED FROM RAM)	
INTERFACES	SSD, GB	512 (SSD)	64 (SSD)
	SUPPORTED INTERFACES	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 4 PORTS, VGA ВХОД - 3 PORTS, VGA OUTPUT - 1 PORT, MS (PS/2) - 1 PORT, KB (PS/2) - 1 PORT	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 2 PORTS, VGA OUTPUT - 1 PORT, MS (PS/2) - 1 PORT, KB (PS/2) - 1 PORT, WI-FI, BLUETOOTH
	AUDIO	LINE INPUT, MICROPHONE INPUT, LINE OUTPUT	
POWER SUPPLY	POWER SUPPLY, V	+22...29,7 OR ~230, 50 HZ FROM AC/DC ADAPTER	
	POWER CONSUMPTION, W	130	180
DIMENSIONS, WEIGHT	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	1181 726 205	1372 825 197
	WEIGHT, kg	60	80
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-10...+55 -50...+70	
	HUMIDITY	98%, 35 °C	
	VIBRATION	1...300 Hz, 5g	
	SHOCKS: SINGLE REPEATED	- 10g, 10...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# PC-31MA

## AIRBORNE PANEL COMPUTER



PC-31MA PANEL COMPUTER IS DESIGNED FOR OPERATION IN AIRBORNE SYSTEM.

THE PRODUCT IS POWERED FROM THE DC NETWORK FROM 18 TO 32 V. THE PRODUCT PROVIDES CONTINUOUS OPERATION FOR A LONG TIME.

IT IS EQUIPPED WITH MIL-STD-1553 INTERFACE AND GPS/GLONASS SYSTEM NAVIGATION RECEIVER.





DISPLAY	DISPLAY SIZE, INCH	12,1"
	RESOLUTION	1024x768
	VIEWING ANGLE, °: HORIZONTAL VERTICAL	±80 ±80
	CONTRAST	700:1
	BRIGHTNESS, cd/m²	700
COMPUTER UNIT	TOUCH SCREEN	(OPTION)
	CPU	INTEL CORE I7, 2,5 GHz, 3TH GENERATION
	RAM, GB	8
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB	1,0 (ALLOCATED FROM RAM)
INTERFACES	SSD, GB	128 (SSD)
	SUPPORTED INTERFACES	USB 2.0 - 2 PORTS, RS-232 - 1 PORT, GIGABIT ETHERNET - 2 PORTS, MIL-STD-1553, GPS/GLONASS
	AUDIO	MICROPHONE INPUT, LINE OUTPUT
POWER SUPPLY	POWER SUPPLY, V	+18...32
	POWER CONSUMPTION, W	75
	POWER CONSUMPTION WITH HEATING, W	150
DIMENSIONS, WEIGHT	DIMENSIONS, mm: WIDTH HEIGHT DEPTH	295 256 110
	WEIGHT, kg	6
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-40...+60 -60...+70
	HUMIDITY	98%, 35 °C
	VIBRATION	1...2000 Hz, 4,5g
	SHOCKS: SINGLE REPEATED	15g, 15 ms 15g, 10...15 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# BK-45-R4

RUGGED EMBEDDED  
COMPUTER UNIT



COMPUTER SYSTEM UNIT BK-45-R4 IS DESIGNED FOR INFORMATION PROCESSING AND STORAGE. IT HAS A LARGE NUMBER OF RS-232 INTERFACES (10 PIECES).

POWER SUPPLY IS CARRIED OUT FROM THE 27 V DC NETWORK.



COMPUTER UNIT	CPU		INTEL CORE I7, 4,4 GHZ, 11TH GENERATION	
	RAM, GB		16	
	OS COMPATIBILITY		WINDOWS, CENTOS, ASTRA LINUX SPECIAL EDITION	
	GRAPHIC MEMORY, GB		8,0 (ALLOCATED FROM RAM)	
	SSD, GB		512 (SSD)	
INTERFACES	SUPPORTED INTERFACES		USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 2 PORTS, RS-232 - 10 PORTS, HDMI ВЫХОД - 2 PORTS	
	AUDIO		MICROPHONE INPUT, LINE OUTPUT	
POWER SUPPLY	POWER SUPPLY, V		+18...36	
	POWER CONSUMPTION, W		70	
DIMENSIONS, WEIGHT	DIMENSIONS, mm:			
	WIDTH		332	
	HEIGHT		220	
	DEPTH		71,5	
	WEIGHT, kg		5	
AMBIENT CONDITIONS	TEMPERATURE, °C:			
	OPERATING		-10...+40	
	STORAGE		-50...+60	
	HUMIDITY		98%, 35 °C	
	VIBRATION		1...300 Hz, 2g	
	SHOCKS:			
	SINGLE		-	
	REPEATED		10g, 10...15 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



AIRBORNE COMPUTER IS AN ELECTRONIC COMPUTER THAT PROVIDES REAL-TIME PROCESSING OF INFORMATION. IT IS AN INTEGRAL PART OF ONBOARD AVIATION EQUIPMENT.



COMPUTER UNIT	CPU		INTEL CORE I7, 2,8 GHz, 7TH GENERATION
	RAM, GB		16
	OS COMPATIBILITY		WINDOWS, ASTRA LINUX SPECIAL EDITION
	GRAPHIC MEMORY, GB		8,0 (ALLOCATED FROM RAM)
	SSD, GB		32 (SSD)
INTERFACES	SUPPORTED INTERFACES		USB 2.0 - 3 PORTS, GIGABIT ETHERNET - 8 PORTS, RS-422(485) - 8 PORTS, HDMI OUTPUT - 1 PORT
POWER SUPPLY	POWER SUPPLY, V		+18...36
	POWER CONSUMPTION, W		35
DIMENSIONS, WEIGHT	DIMENSIONS, mm:		
	WIDTH		115
	HEIGHT		190
	DEPTH		203
	WEIGHT, kg		3
	TEMPERATURE, °C:		
	OPERATING		-60...+55
	STORAGE		-50...+65
	HUMIDITY		98%, 35 °C
	VIBRATION		1...2000 Hz, 4,5g
	SHOCKS:		
	SINGLE		5g, 40 ms
	REPEATED		6g, 20 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# INTERACTIVE DESK 460 /550 /650

DIGITAL  
SIGNAGE



THE TOUCH COMPUTER "INTERACTIVE DESK" IS USED IN INFORMATION SUPPORT AND AUTOMATED CONTROL SYSTEMS, ALSO AS AN INDEPENDENT DEVICE. POSSIBLE POSITIONS: HORIZONTAL, VERTICAL.



DISPLAY	MODEL	INTERACTIVE DESK 460		INTERACTIVE DESK 550	INTERACTIVE DESK 650
	DISPLAY SIZE, INCH	46"		55"	65"
	RESOLUTION	1920x1080		3840x2160	
	VIEWING ANGLE, °: HORIZONTAL VERTICAL			±85 ±85	
	CONTRAST			1000:1	
	BRIGHTNESS, cd/m²			700	
	TOUCH SCREEN			INFRARED	
COMPUTER UNIT	CPU	INTEL CORE I7, 5TH GENERATION			
	RAM, GB	8			
	OS COMPATIBILITY	WINDOWS, ASTRA LINUX SPECIAL EDITION, ANDROID			
	GRAPHIC MEMORY, GB	1,0 (ALLOCATED FROM RAM)			
	SSD, GB	60 (SSD)			
INTERFACES	SUPPORTED INTERFACES	USB 2.0 - 4 PORTS, GIGABIT ETHERNET - 1 PORT, RS-232 - 1 PORT, DVI INPUT - 1 PORT, DVI OUTPUT - 1 PORT, WI-FI			
	AUDIO	LINE INPUT, LINE OUTPUT			
POWER SUPPLY	POWER SUPPLY, V	~220, 50 HZ			
	POWER CONSUMPTION, W	250	350	450	
AMBIENT CONDITIONS	TEMPERATURE, °C: OPERATING STORAGE	-30...+45 -40...+55			
	HUMIDITY	98% 25 °C			

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



VIDEO CAMERAS ARE DESIGNED TO CONVERT AN OPTICAL IMAGE INTO A DIGITAL FORMAT. EVEN WHEN OPERATING IN HARSH ENVIRONMENTAL CONDITIONS, THEY RETAIN THEIR TECHNICAL CHARACTERISTICS. THE INTERFACE TYPE IS USB.





RESOLUTION	MODEL		CAM-01	CAM-02
	RESOLUTION		1280x720 (30 FRAME/SEC)	1280x720 (60 FRAME/SEC)
INTERFACES	SUPPORTED INTERFACES		USB	
	AUDIO		MICROPHONE	
DIMENSIONS, WEIGHT	DIMENSIONS, mm:			
	WIDTH		50	74
	HEIGHT		80	147
	DEPTH		65	44
	WEIGHT, kg		0,19	0,47
AMBIENT CONDITIONS	TEMPERATURE, °C:			
	OPERATING		-50...+55	
	STORAGE		-60...+70	
	HUMIDITY		98%, 35 °C	
	VIBRATION		1...500Hz , 2g	
	SHOCKS:			
	SINGLE		75g, 0,5...2 ms	
	REPEATED		10g, 0,5...2 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



PROTECTED KEYPADS KZ ARE DESIGNED TO WORK AS A PART OF AUTOMATION SYSTEMS, FOR ENTERING ALPHANUMERIC AND GRAPHIC INFORMATION. LEVEL OF PROTECTION IP65 (FRONT SIDE).

MODEL	KZ-01 (BUILT-IN)	KZ-03 (DESKTOP)
SUPPORTED INTERFACES	USB	
DIMENSIONS, mm:		
WIDTH	420	400
HEIGHT	25	29
DEPTH	212	190
WEIGHT, kg	1,3	1,5
TEMPERATURE, °C:		
OPERATING	-50...+55	
STORAGE	-60...+70	
HUMIDITY	98%, 35 °C	
VIBRATION	1...500 Hz, 2g	
SHOCKS:		
SINGLE	75g, 0,5...2 ms	
REPEATED	10g, 0,5...2 ms	



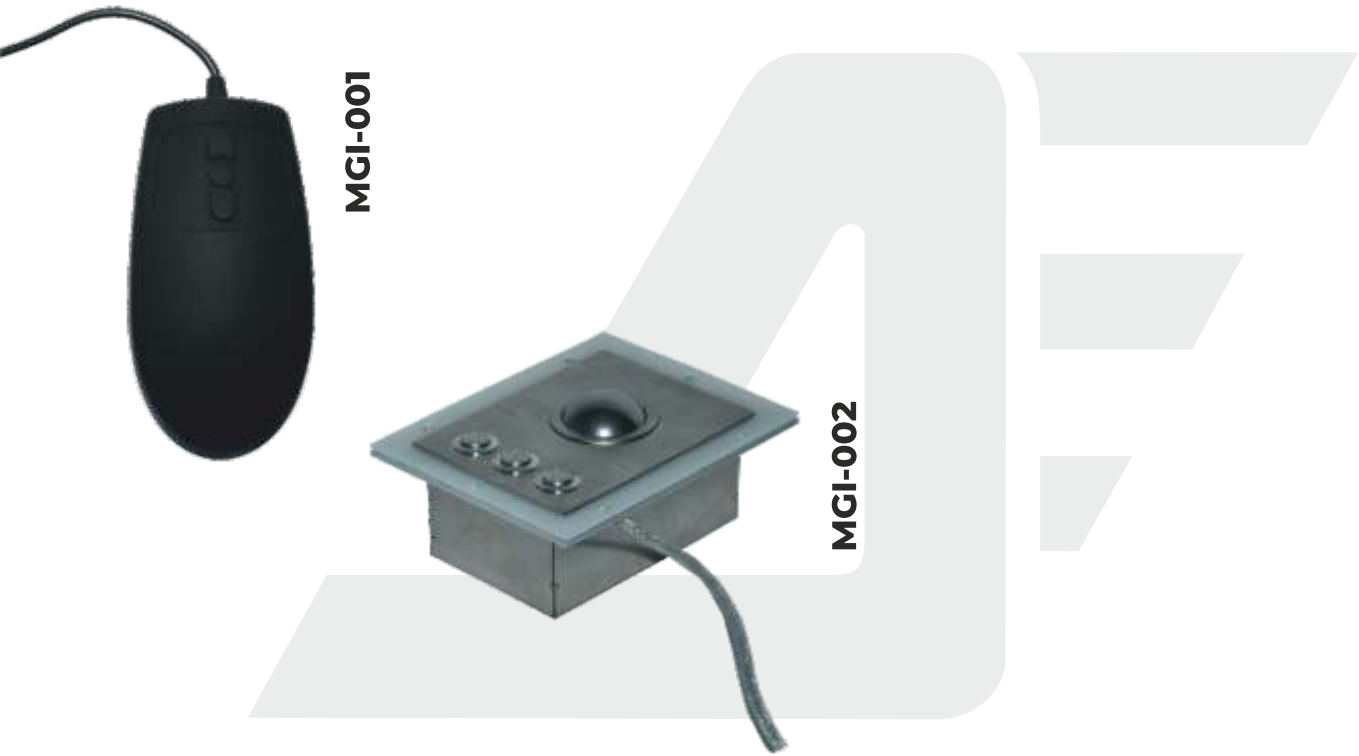
PROTECTED KEYPADS KZM WITH BUILT-IN TRACKBALLS ARE DESIGNED TO WORK AS A PART OF AUTOMATION SYSTEMS, FOR ENTERING ALPHANUMERIC AND GRAPHIC INFORMATION. LEVEL OF PROTECTION IP65 (FRONT SIDE).

MODEL		KZM-01 (BUILT-IN, WITH TRACKBALL)	KZM-03 (DESKTOP, WITH TRACKBALL)
SUPPORTED INTERFACES		USB	
DIMENSIONS, mm:			
WIDTH		420	400
HEIGHT		45	47
DEPTH		212	190
WEIGHT, kg		1,5	1,5
TEMPERATURE, °C:			
OPERATING		-20...+55	
STORAGE		-60...+70	
HUMIDITY		98%, 35 °C	
VIBRATION		1...500 Hz, 2g	
SHOCKS:			
SINGLE		75g, 0,5...2 ms	
REPEATED		10g, 0,5...2 ms	

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST

# MGI-001 /002

PERIPHERAL



THE MGI GRAPHIC INFORMATION MANIPULATOR IS A DEVICE DESIGNED FOR INPUT OF GRAPHIC INFORMATION. THE INTERFACE TYPE IS USB. PROTECTION LEVEL OF THE PRODUCT IS IP65 (FRONT SIDE).

MODEL	MGI-001	MGI-002
TYPE	MOUSE	TRACKBALL
SUPPORTED INTERFACES	USB	
DIMENSIONS, mm:		
WIDTH	127	134
HEIGHT	63	83
DEPTH	34	66
WEIGHT, kg	0,2	1,0
TEMPERATURE, °C:		
OPERATING	-50...+55	-20...+55
STORAGE	-60...+70	-60...+70
HUMIDITY	98%, 35 °C	
VIBRATION	1...500 Hz, 2g	
SHOCKS:		
SINGLE	75g, 0,5...2 ms	
REPEATED	10g, 0,5...2 ms	



RUGGED NKP IS DESIGNED TO RECORD AND STORAGE INFORMATION. LEVEL OF PROTECTION OF THE DRIVES IS IP65.

GB	32, 64, 128, 256, 512
SUPPORTED INTERFACES	USB 3.0
DIMENSIONS, mm:	
WIDTH	61,5
HEIGHT	24
DEPTH	24
WEIGHT, kg	0,045
TEMPERATURE, °C:	
OPERATING	-50...+55
STORAGE	-60...+70
HUMIDITY	98%, 35 °C
VIBRATION	1...500 Hz, 2g
SHOCKS:	
SINGLE	75g, 0,5...2 ms
REPEATED	10g, 0,5...2 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST



RUGGED BNM-001 IS DESIGNED TO WRITE INFORMATION TO A SSD AND CD. LEVEL OF PROTECTION OF BNM-001 IS IP65 (FRONT SIDE).

SSD, GB	128, 256, 512, 1024, NO STORAGE
SUPPORTED INTERFACES	USB 2.0 - 2 PORTS
DIMENSIONS, mm:	
WIDTH	134
HEIGHT	83
DEPTH	66
WEIGHT, kg	1,0
TEMPERATURE, °C:	
OPERATING	-10...+55
STORAGE	-60...+70
HUMIDITY	98%, 35 °C
VIBRATION	1...500 Hz, 2g
SHOCKS:	
SINGLE	75g, 0,5...2 ms
REPEATED	10g, 0,5...2 ms

CUSTOMIZED OPTIONS ARE PROVIDED UPON REQUEST





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