

SPECIFICATIONS

DuraVision® FDU2603W

DuraVision® FDU2603WT

65 cm (25.5 inch) class Color LCD Monitor
Viewable Image Size 64.8 cm (25.5 inches)

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1 REVISION TRACE

No.	Date	Alternation
A	5 August 2014	Established
B	15 January 2015	Revised P4 revise comments of the dew condensation in 3.2 P8 Correct to invalid the control button for Color mode in 4.3. P9 Correct viewable image size in 5.1. P14 Change notes and allowable distance in 8.3 P17 Add the heat stress mitigation measures in 9.6 P18 Revised the outline dimension in 10.1 P19 Change the packing specification for bonding in 10.2. P20 Add inset for KC label in 11.1. P23 Add KC label in 12.3
C	13 February 2015	Revised P6 Add End User License Agreement in 3.5. P22 Delete KC inset in 10.1. P22 Add the version of touch panel driver and comment in 10.2. -Delete optical bonding models -Correct the following value of color table in 13. P28-29, P34-35 DUSK RESBL, UINFB: R=28, G=116, B=247 → R=28, G=116, B=249。 RADHI, CHGRN, LITGN, UINFG: R=57, G=193, B=50 → R=53, G=199, B=54。
D	28 July 2015	Revised P3 Change product number in 2. (FDU2603WALZZPA→FDU2603WALZZPB、 FDU2603WTALZZPA→FDU2603WTALZZPB) P21 Add the housing tolerance in 9.1. P22 Delete the restriction of tilt angle for rear in 9.6, because of a typo. P24 Add EAC in 11.2 P25 Change labels to add EAC mark in 11.3
E	20 May 2016	Revised P16 7.1 Delete Windows8 and add Windows10 for compatible OS. P23 10.1 Add the information sheet of European contacts.
F	18 November 2016	Revised P23 10.1 Add Information sheet about TPOffset. P24 11.2 Revised EAC and CE.
G	10 October 2017	Revised P23 10.2 Revise touch driver version and change supported OS.

2 ABOUT THE SPECIFICATIONS

The specifications apply only to the following monitor.

Product name	Specification		Product Number
DuraVision FDU2603W	Panel mount	Standard	FDU2603WALZZPB
DuraVision FDU2603WT		With touch panel	FDU2603WTALZZPB

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3 PRECAUTIONS

3.1 Applications

This product is intended to be used in the engine rooms of marine vessels.

This product is not developed for applications which would require higher reliability, and safety such as those listed below.

- Safety devices (Disaster prevention system, security control system, etc.)
- Equipment for the use that have direct effect on human life (Life support system, Medical equipment or devices used in the operating room, etc.)
- Nuclear energy control devices (Nuclear energy control system, security control system of nuclear facility, etc.)

Please contact EIZO Corporation for consultation, if you plan to use a product in the manners listed above or for any other deviation of use from the standard application.

3.2 Usage

- The product is designed for in-door use only. Please read the User's manual included into the product package carefully before use.
- This product has been adjusted specifically for use in the region to which it was originally shipped. If operated outside the region to which it was originally shipped, the product may not perform as stated in the specifications.
- The product specifications are also guaranteed with the EIZO standard power cord and signal cable provided with the product and/or EIZO optional cables.
- Please find listed below phenomena caused by the characteristics inherent to the LCD itself that are not defects of the product.
 - (1) Defective pixels, bright point
The screen may have some defective pixels as slightly light or dark areas on the screen.
 - (2) After image, retained image
When the screen image has been changed after displaying the same image for a period, after images (retained image) may appear.
 - (3) Backlight life
The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, the backlight needs to exchange.
 - (4) Characteristics for the LCD panel
Take care when handling the LCD panel. Do not scratch or press on the panel with any sharp objects, such as pencil or pen. Cleaning the panel with a dirty or rough cloth also may damage the panel. Do not press on the panel or edge of the frame strongly as this will result in damage to the screen.
 - (5) Warm-up period
It takes approx. 30 minutes until the monitor and component stabilizes. Allow the monitor to warm up for at least 30 minutes before making adjustment.
- When transferring the monitor from a cold environment to a warm environment, dew condensation might occur. When this occurs, please wait until the dew condensation disappears from the monitor before turning on the power. Turning the power on too soon with dew condensing will damage the monitor.
- When cloudiness cannot be removed even by wiping the screen, dew condensation may have occurred on the interior side of the glass that protects the panel. In this case, turn on the monitor and display something on screen. The dew condensation will disappear after a while. Also, warming the glass using a hair dryer may make the dew condensation disappear more quickly. Dew condensation appearing like this on the interior side of the glass will not lead to product failure or degradation.
- Periodic cleaning of the screen is recommended to maintain image clarity.
- AC/DC power input part has a shock and energy hazard, so please install the cover on the unused power connector or terminal block respectively.
- This product has no cutoff switch of AC/DC power, so please install a cutoff switch as

- necessary.
- This product is intended to be housed in an enclosure. Do not use the bare monitor separately.

3.3 Exclusion of liability

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- (1) Any defect of the Product caused by freight damage, modification, alteration, abuse, misuse, accident, incorrect installation, disaster, faulty maintenance and/or improper repair by third party other than EIZO and Distributors;
- (2) Any incompatibility of the Product due to possible technical innovations and/or regulations;
- (3) Any deterioration of the sensor;
- (4) Any deterioration of display performance caused by the deterioration of expendable parts such as the LCD panel and/or backlight, etc. (e.g. changes in brightness, changes in brightness uniformity, changes in color, changes in color uniformity, defects in pixels including burnt pixels, etc.);
- (5) Any defect of the Product caused by placement in a location where it may be affected by strong vibration or shocks;
- (6) Any defect of the Product caused by external equipment;
- (7) Any defect of the Product on which the original serial number has been altered or removed;
- (8) Any defect of the Product caused by liquid leaking from battery;
- (9) Any normal deterioration of the product, particularly that of consumables, accessories, and/or attachments (e.g. buttons, rotating parts, cables, User's Manual, etc.); and
- (10) Any deformation, discoloration, warp, and/or rust of the exterior of the product including that of the surface of the LCD panel.

3.4 Limited Warranty

- The product is warranted by "LIMITED WARRANTY" included with the product.

Monitor	3 years
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- Panel qualification (Bright dots, Black dots) is guaranteed for 6 months after production.
- EIZO Corporation will stock parts of this monitor at least ten years after the stop of production. In repairing the monitor, we will use renewal parts which comply with our QC standards.

3.5 End User License Agreement

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(Touch panel driver: DUS-DD)

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(Touch panel sensitivity adjustment application: TPOffset)

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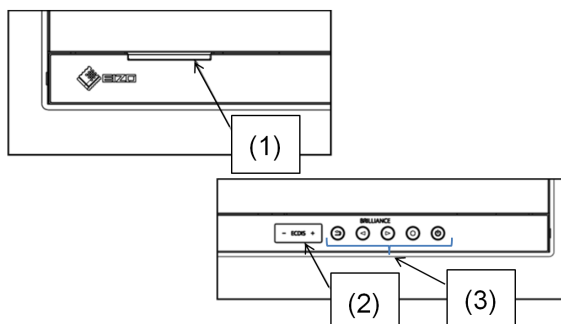
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4 USER CONTROL SPECIFICATIONS

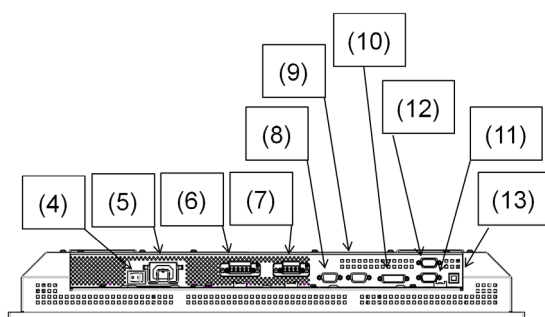
4.1 Appearance

Front (control panel)



- (1) Buzzer hole
- (2) ECDIS Status Indicator
- (3) Control button
(Return/Down/Up/Enter/Power)

Rear (connector)



- (4) Main power switch
- (5) AC power connector (3 pin inlet)*
- (6) AC power connector (terminal block)*
- (7) DC power connector (terminal block)*
- (8) D-Sub mini 15pin connector (Output)
- (9) D-Sub mini 15pin connector (Input)
- (10) DVI-D 24pin connector (input)
- (11) RS-232C connector
- (12) RS-232C connector (Touch panel only)
- (13) USB connector (Touch panel only)

* in a cover

4.2 Indicator

Power State Of Monitor		LED Indicator			
		Return	Brilliance (Down/Up)	Enter/Menu	Power
Secondary Power OFF		Off	Off	Off	Orange
Screen Display /Power Save	Lock off	Orange	Orange	Orange	Orange
	Key Lock	Off	Orange	Off	Orange

4.3 Functions

Category	Item	Default Setting	Adjustment		
			Control Button	DDC/CI	RS-232C
Color	Brilliance(Brightness)	100% (Custom) 67% (Day) 60% (Dusk) 11% (Night)	√	√	√
	Temperature	6500 K	√	-	-
	Gamma	2.2	√	-	-
	Hue	0	√	-	-
	Saturation	0	√	-	-
	Outline Enhancer	0	√	-	-
	Gain	Factory adjustment	√	-	-
	Color Reset	-	√	-	-
Screen	Screen Size	Enlarged	√	-	-
	Auto Adjustment (*Analog signal input only)	Preset signal data	√	-	-
	Range Adjustment (*Analog signal input only)	Factory adjustment	√	-	-
	Clock (*Analog signal input only)	Preset signal data	√	-	-
	Phase (*Analog signal input only)	Preset signal data	√	-	-
	H.Position (*Analog signal input only)	Preset signal data	√	-	-
	V.Position (*Analog signal input only)	Preset signal data	√	-	-
Power	Power Save	Off	√	-	-
	Indicator	4	√	-	-
	Eco Timer	Off	√	-	-
Menu	Language	English	√	-	-
	Menu position	Center	√	-	-
Tools	Input	D-Sub	√	√	-
	Input Selection	Auto	√	√	-
	Auto Sharpness	Off	√	-	-
	Signal Info	-	-	-	-
	Monitor Info	-	-	√	-

Category	Item	Default Setting	Adjustment		
			Control Button	DDC/CI	RS-232C
	All Reset	-	√	-	-
Others	Key Lock	Off	√	√	√
	DDC/CI	On	√	-	-
	Backlight Off Mode	On	√	-	-
	Orientation	Landscape	√	-	-
	ECDIS Indicator	On	√	-	-
	Color Mode	Custom	-	√	√

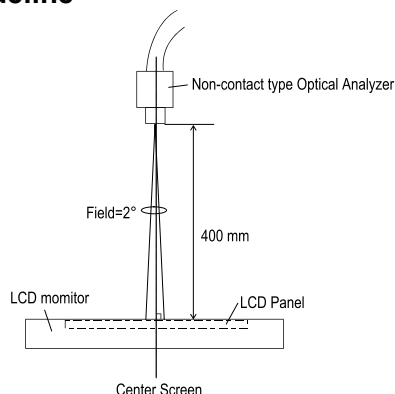
5 LCD SPECIFICATIONS

5.1 Panel specifications

Type	Color TFT (VA type)	
Size	25.54 inch	
Resolution	1920 x 1200	
Viewable Image Size	550.08 mm (H) x 343.8 mm (V)	
Dot Pitch	0.2865 mm x 0.2865 mm	
Backlight	WLED	
Face Treatment	Standard	AR, 5H
	Touch panel	AR, 5H

5.2 Optical specifications

5.2.1 Guideline



Measured under the condition of the right diagram.

Measurement condition:
The condition of the right diagram or same level condition.

Illuminance environment:
The dark room or the same level condition.

5.2.2 Optical characteristic

Conditions: 25°C, Default setting

Item		Value	Conditions
Viewing Angle 		011 (Top): 88° typ. 012 (Bottom): 88° typ. 021 (Left): 88° typ. 022 (Right): 88° typ.	At Contrast Ratio; CR ≥ 10 with white field and black field pattern.
Contrast Ratio		1500:1 typ.	
Response Time	Black to White to Black	20 ms typ.	10% <-> 90%
Chromaticity	White	x: 0.298 typ. Y: 0.308 typ.	White field, center of the panel
	Red	x: 0.638 typ. Y: 0.342 typ.	Red field, center of the panel
	Green	x: 0.310 typ. Y: 0.616 typ.	Green field, center of the panel
	Blue	x: 0.153 typ. Y: 0.055 typ.	Blue field, center of the panel
Maximum brightness	FDU2603W	490 cd/m ² typ.	With protection glass White field pattern at 25°C Default setting
	FDU2603W T	470 cd/m ² typ.	With touch panel White field pattern at 25°C Default setting
Dimming range		Less than 1cd/m ² ~ max. brightness	At 25°C, default setting
Bright Uniformity		1.33 max.	Max/Min with white field

Item	Value	Conditions
Other	Image quality: IEC62288, IEC61174 (IHO S-52)	Color mode: Day/Dusk/Night, with color table setting

5.3 LCD Panel Qualification

* Panel qualification (Bright dots, Black dots) is guaranteed 6-month after production.

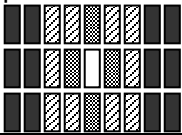
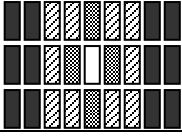
5.3.1 Definition

- A dot observed through a ND filter or on the prescribed gray background is a bright dot.
- A blinking dot is also counted as a bright dot.
- A pixel which is not active at all (non-shining) on the 255 level field pattern is counted as a black dot.
- A set of coupled defective dots is counted as 1 defective dot.
e.g.) A set of 2 coupled dot ... counted as a 1 defective dot
A set of 3-coupled dot ... counted as a 1 defective dot
- A Single and/or coupled defective dot(s) is/are counted separately and applied each standard value.
e.g.) A single defective dot, a 2-coupled dot ... total 2 dots
- A single and/or coupled defective dot(s) within the allowable distance/ area is/are counted separately and applied each standard value.
e.g.) A single defective dot + a 2-coupled dot = 2 dots
- A shining dot due to a foreign substance (transparent substance like acrylic chip) on polarizer is not counted as a bright/black dot. Inspect this shining dot referring the standard of foreign substance.

5.3.2 Measurement Condition

Items	Conditions
Ambient Light	500~700 Lx
Ambient Temperature	0°C ~35°C
Observation distance	350mm ~ 500mm (straight angle)
Measurement pattern	White screen, Black screen (The measurement conditions for the panel qualification are prioritized.)
Area Definition	Whole area

5.3.3 Allowable number of defective dots

Items	Values	Conditions	Notes
Bright dot: 1 defective dot 2 coupled 3 coupled or over Total Allowable distance / area	3 or less 0 or less 0 or less 3 or less Distance: 10mm Area: -	Signal: Black field pattern	Coupled dots are defined as anyone of slashed or dotted dot and the center dot in the picture below. 
Black dot: 1 defective dot 2 coupled 3 coupled or over Total Allowable distance / area	5 or less 1 or less 0 or less 5 or less Distance: 10mm Area: -	Single: White, Red, Green, and blue field pattern	Coupled dots are defined as anyone of slashed or dotted dot and the center dot in the picture below. 
Total	5 or less	-	-

5.3.4 Measurement Standard of the outline

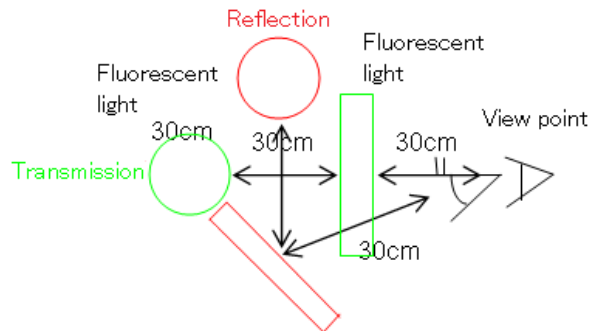
Items		Values			Notes
Scratches .	Line	$W \leq 0.1 \text{ mm}$	$L = -$	-	W: Width L: Length
		$0.1 \text{ mm} < W \leq 0.3 \text{ mm}$	$0.3 \text{ mm} < L \leq 10.0 \text{ mm}$	5	
		$W = -$	$10.0 \text{ mm} < L$	0	
		$0.3 \text{ mm} < W$	$L = -$	0	
	Circle	$D \leq 0.5 \text{ mm}$		-	D: Diameter
		$0.5 \text{ mm} < D \leq 1.0\text{mm}$		5	
		$1.0\text{mm} < D$		0	
Foreign substance	Line	$W \leq 0.1 \text{ mm}$	$L = -$	-	W: Width L: Length
		$0.1\text{mm} < W \leq 0.3 \text{ mm}$	$0.3 < L \leq 10.0\text{mm}$	5	
		$W = -$	$10.0 \text{ mm} < L$	0	
		$0.3 \text{ mm} < W$	$L = -$	0	
	Circle	$D \leq 0.5 \text{ mm}$		-	D: Diameter
		$0.5\text{mm} < D \leq 1.0 \text{ mm}$		5	
		$1.0 \text{ mm} < D$		0	
Total		-		10	

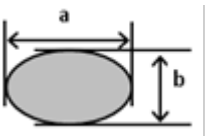
6 PROTECTION GLASS SPECIFICATIONS

6.1 Conditions

Defect is determined by eye or loupe in the following way.

Illuminance: 1500 ± 500 lx



Items	Values		Notes
Scratch (Dot)	$0.5\text{mm} < \Phi$	0	Φ : mean diameter
	$0.2\text{ mm} < \Phi \leq 0.5\text{ mm}$	3	W: Width
	$\Phi \leq 0.2\text{mm}$	-	L: Length
Scratch (line)	$0.10\text{mm} < W$	0	Including defective dot of coating
	$0.05\text{mm} < W \leq 0.10\text{ mm}$ $L \leq 20\text{ mm}$	6	
	$W \leq 0.05\text{mm}$	-	
Foreign substance (transparence)	$0.5\text{mm} < \Phi$	0	Defect definition
	$0.4\text{mm} < \Phi \leq 0.5\text{mm}$	6	
	$\Phi \leq 0.4\text{mm}$	-	
Foreign substance (black)	$0.5\text{mm} < \Phi$	0	$\Phi = (\text{Diameter a} + \text{Diameter b})/2$
	$0.3\text{mm} < \Phi \leq 0.5\text{mm}$	3	
	$\Phi \leq 0.3\text{mm}$	-	
Loosing AR coating/Print (per one side)	$0.5\text{mm} < \Phi$	0	
	$0.3\text{mm} < \Phi \leq 0.5\text{mm}$	3	
	$\Phi \leq 0.3\text{mm}$	-	

7 TOUCH PANEL SPECIFICATIONS

7.1 Touch Panel Electrical Specifications

Sensor system	Projected Capacitive type
Communication protocol	USB, RS-232C
Compatible OS	Windows 10 (32bit/64bit) Windows 8.1 (32bit/64bit) Windows 7 SP1 (32bit/64bit) Windows XP SP3 (32bit)
Multiple touch point	5 point (Windows XP: 1 point)
Resolution	19200(H)x13312(V) point
Face treatment (Face Hardness)	AR, Hard-coating (5H)
Durability	Continuous input with fingers: 50 million min.

7.2 Outline Standard

7.2.1 Inspection Conditions

Items	Conditions
The ambient light on the panel surface	About 1000 lx
Observation distance from the panel surface	About 45 cm
Viewpoint	Any value

7.2.2 Scratch/ Foreign substance/Defective dot (transparence)

Items	Values			Condition	Notes
Dot	$D \leq 0.4\text{mm}$		-	D: Average diameter(mm) = (long diameter + short diameter)/2	D: Average diameter W: Width L: Length
	$0.4 < D \leq 0.8\text{mm}$		1*		
	$0.8 < D \leq 1.1\text{mm}$		2		
	$D > 1.1\text{mm}$		0		
Line	$W < 0.08\text{mm}$	L: -	-	The things of thickness over 0.15mm is judged as a foreign substance of a dot.	* Up to 1 detect in Φ 25 mm including other kinds of defect
	$0.08 \leq W < 0.1\text{mm}$	$L \leq 25\text{mm}$	1 or less*		
	$0.1 \leq W < 0.15\text{mm}$	$L \leq 15\text{mm}$	2 or less		
Total	-		15 or less		
Dirt	No easily noticeable and clear outline dirt should be OK				

7.2.3 Appearance criteria for color-printed area of cover glass

Items	Values		Notes
Adhesion foreign substance	$D \leq 0.3\text{mm}$	-	Pinhole through to the base glass. Adhering foreign substance which is different color from the printing, D = Average diameter *Within ϕ 30mm
	$0.3\text{mm} < D \leq 0.4\text{mm}$	2*	
	Total	10	

7.2.4 Scratch (Cover glass)

Items	Values			Notes
Scratch	$W \leq 0.6\text{mm}$	$L \leq 5\text{mm}$	5	W: Width, L: Length

8 ELECTRICAL SPECIFICATIONS

8.1 Standard measurement conditions

All measurements are subject to the conditions listed below.

Items	Condition
Pattern of the signal	Black and White two dotted mesh pattern
Color	Default setting
Analog Input	0.7Vp-p
Digital Input	TMDS

8.2 Digital Signal Input

Items	Values	Conditions
Input Signal	TMDS Single Link DVI Rev. 1.0 compliant	
Copyright protection technology	HDCP support	
Dot Clock	162 MHz max.	
Horizontal scanning frequency	31 kHz ~ 76 kHz	
Vertical scanning frequency	59 Hz ~ 61 Hz	VGA TEXT: 69 Hz ~ 71 Hz
Min sync pulse width	Horizontal: 0.5 us Vertical: 1 H	The image is not lacked.
Min sync pulse + Back Porch	Vertical: 16 H	
Max display colors	16.77 million	

8.3 Analog Signal Input

Items	Values	Conditions
Video Input Signal Form	0.7 Vp-p	Separate sync
Input impedance	75 Ω	
Dot Clock	162MHz Max.	
Horizontal scanning frequency	31kHz ~ 81kHz	
Vertical scanning frequency	56Hz ~ 76Hz (1600x1200, 1920x1200: 56Hz~61Hz)	Non Interlaced
Sync Input Signal Form	H/V Separate, Positive / Negative H/V Composite, Positive / Negative Sync on Video (Green), Negative	Non Interlaced
Sync Input Signal level	Separate/ Composite: TTL Sync on Video: 0.3 + 0.05Vp-p / -0.1Vp-p	
Min sync pulse width	Separate/ Composite	Horizontal: 0.2 us, Vertical: 1 H
Min sync pulse + Back Porch	Separate/ Composite	Horizontal: 0.7 us, Vertical: 16 H
Min Back Porch width	Sync on Video	Horizontal: 0.5 us
Max display colors	16.77 million	

8.4 Analog Signal Output

Items	Values		Conditions
Video Input Signal Form	0.7 V p-p		Separate sync
Input impedance	75 Ω		
Dot Clock	162MHz Max.		
Horizontal scanning frequency	31kHz ~ 81kHz		
Vertical scanning frequency	56Hz ~ 76Hz (1600x1200, 1920x1200: 56Hz~61Hz)		Non Interlaced
Sync Input Signal Form	H/V Separate, Positive / Negative H/V Composite, Positive / Negative Sync on Video (Green), Negative		Non Interlaced
Sync Input Signal level	Separate/ Composite	TTL 0.3 + 0.05Vp-p	
	Sync on Video	/ -0.1Vp-p	

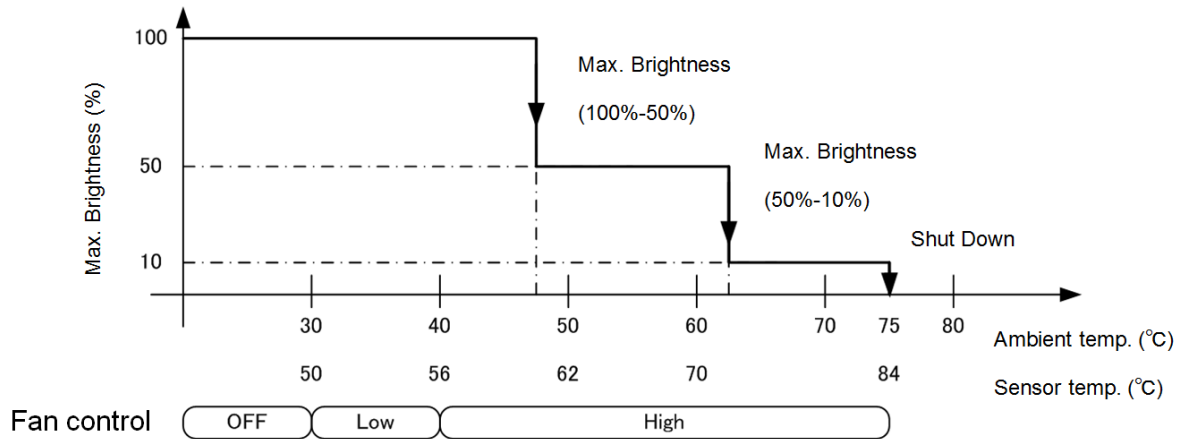
8.5 Power Supply

Items		Values		Condition
Input voltage		AC	85V ~ 264V, 50/60Hz±3Hz	-
		DC	+24V +30%/-10%	
Maximum input current		AC	Less than 1.2A (AC100V) Less than 0.6A (AC200V)	
		DC	Less than 4.5A (DC24V)	
In-rush current		72A peak max. (Cold) 96 A peak max. (Hot)		AC 264 V
Leak current		Less than 0.25 mA (AC100V /60Hz) Less than 0.7 mA (AC240V / 50Hz)		
Power Consumption	Maximum	108 W or less		AC85V~265V or DC24V
	Standby	AC	10W or less	AC 100V/115V/230V USB unconnected 2 nd power switch off
		DC	7 W or less	
Insulation Resistance		100MΩ or more		-

8.6 Heat Stress mitigation measures

The fan and brightness are controlled such as the below among the high temperature.
Also, when the power is turned on, the fan will work for 3 hours.

Heat stress mitigation measures (Fan and brightness control in High temperature)



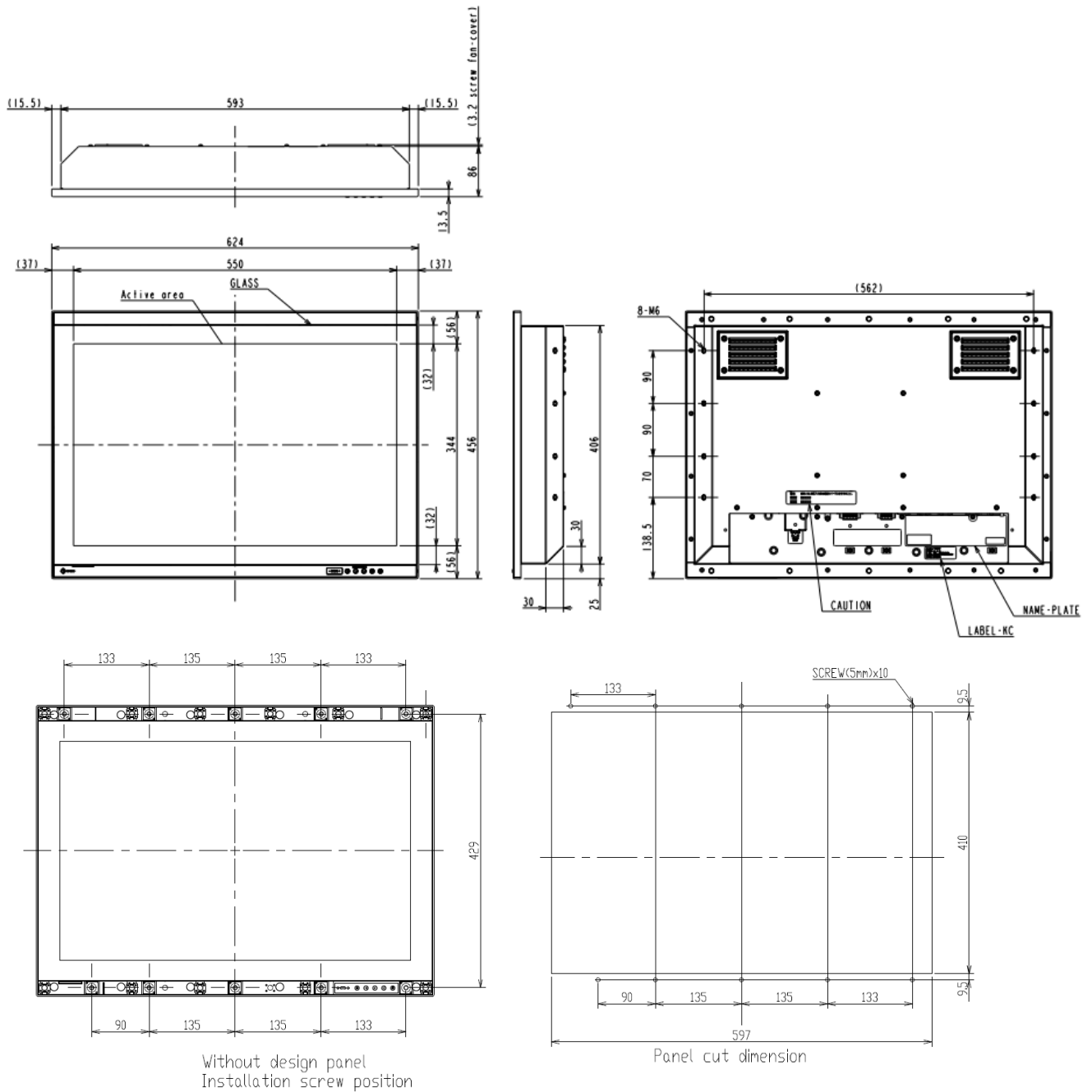
9 MECHANICAL SPECIFICATIONS

9.1 Configuration

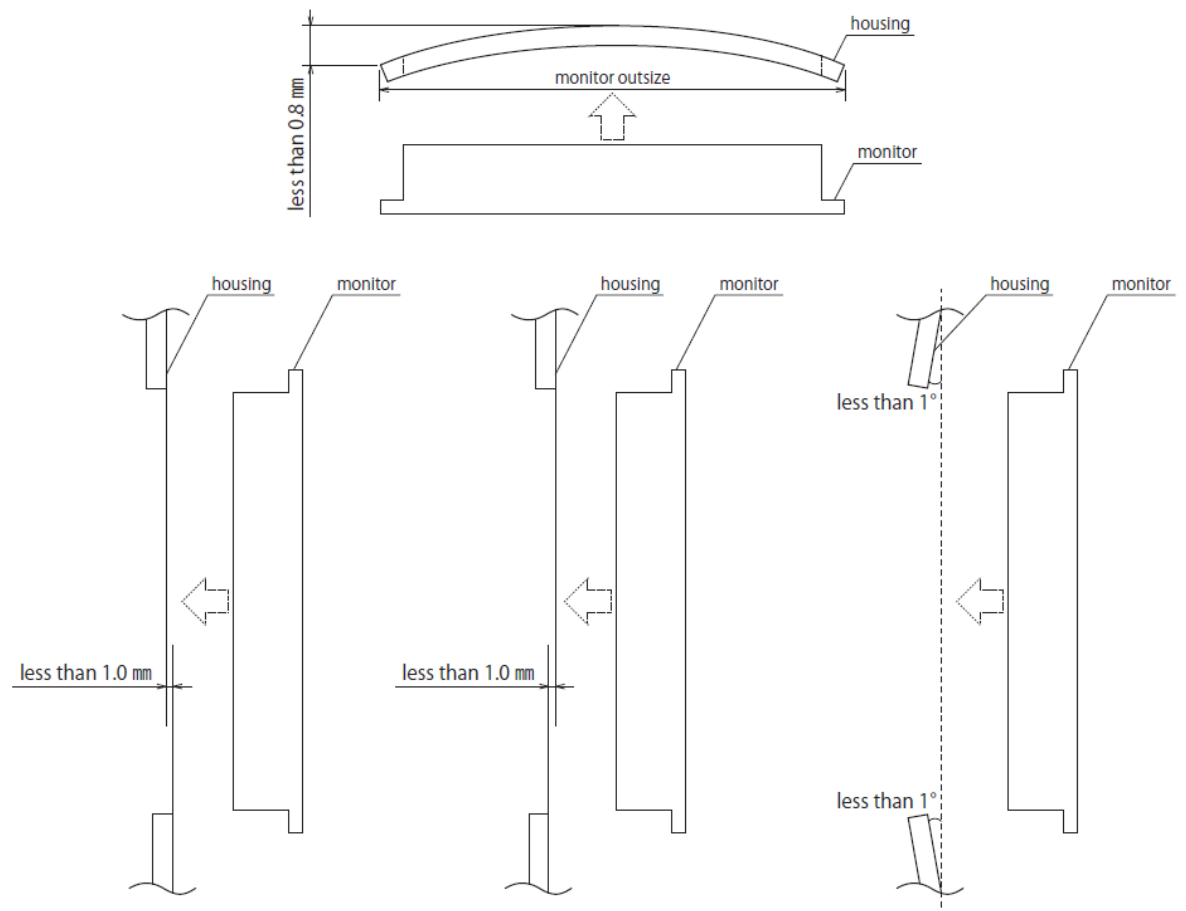
NOTE: All of the dimensions, weights and angles below are reference values.

Dimensions (net)	624 mm (W) x 456 mm (H) x 86 mm (D)	
Weight (net)	Standard	approx. 14.5kg
	Touch panel	approx. 15.1kg

Unit: mm



● Housing tolerance for the mounting



9.2 Packing Specifications

NOTE: All of the dimensions and weight below are reference values.

Packing dimensions		736 mm (W) x 232 mm (H) x 566 mm (D)
Packaging weight	Standard	approx. 18.0 kg
	Touch panel	approx. 19.0 kg
Stack limit		5 units (Maximum)

9.3 Connector Specifications

Item	Connector name	Number
AC power connector	3 pin inlet (male)	1
	terminal block	1
DC power connector	terminal block	1
Signal input connector	D-Sub 15 pin (female)	1
	DVI-D 24 pin (female)	1
Signal output connector	D-Sub 15 pin (female)	1
RS-232C connector	D-Sub 9 pin (female)	1
	D-Sub 9 pin (male)*	1
USB connector	Type B: Upstream*	1

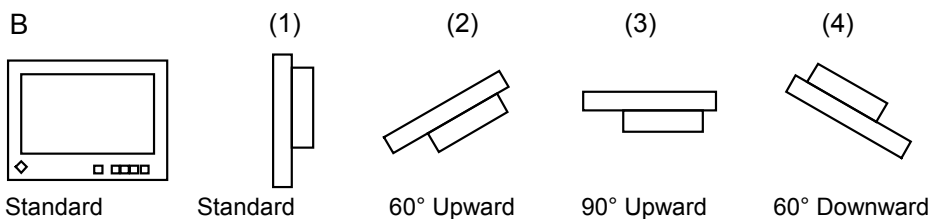
*Touch panel only

9.4 Materials

Item		Material
Cabinet	Front	PC
	Rear	A5052P
	Fan cover	PC+ABS
Packing Case		Cardboard
Packing materials		Expanded polystyrene, Cardboard

9.5 Panel Mount installation conditions

Item	Value
Monitor rotation direction	(B) Standard only
Inclination on the surface	(1), (2) and the middle



9.6 Degree of protection

Item	Value
Inner circumference part of the front panel	IP65
Rear	IP22

10 ACCESSORIES

10.1 Accessories

Item	Description	Standard	Touch panel
Setup manual	Japanese, English, Russian, Chinese and Korean	1	1
Service information sheet	Japanese	1	1
CD-ROM	Refer to the next section.	1	1
Cleaning cloth	AR cloth	1	1
Information sheet of European contacts	English	1	1
Information sheet about TPOffset	Japanese, English, German, French, Russian, Chinese and Korean	-	1

* Precaution or notation sheets may be added or removed.

10.2 CD-ROM

Item	Specifications	
Launcher	OS	Windows 10/8.1/7/XP
User's Manual	Languages	Japanese, English, Chinese, Korean, Russian
	Format	PDF
Touch panel driver (Ver.1.15)	OS	Windows XP SP3 (32bit) Windows 7 SP1 (32bit/64bit) Windows 8 (32bit/64bit) Windows 8.1 (32bit/64bit) Windows 10 (32bit/64bit)
	Languages	Japanese, English
User's Manual for Touch panel driver	Languages	Japanese, English
	Format	PDF
Touch panel sensitivity adjustment application	OS	Windows 10/8.1/7/XP
	Languages	English
User's Manual for Touch panel sensitivity adjustment application	Languages	Japanese, English
	Format	PDF
Screen adjustment pattern data	Format	Bmp
Readme	Languages	English, Japanese
	Format	Text

* Please refer our web site (<http://www.eizoglobal.com/>) about newest version of software.

11 CERTIFICATIONS & STANDARDS

11.1 Ship's Class

Classification society	Abbreviation
Lloyd's Register (UK)	LR
Nippon Kaiji Kyokai (Japan)	NK
American Bureau of Shipping	ABS
Det Norske Veritas (Norway)	DNV

*License processing. Ask for details of status.

(Note) According to circumstances, ship's classes may be added, removed or changed.

11.2 Certifications and Standards

Standard	Origin
CB	IEC60950-1
CE (EU)	[2014/35/EU: Low Voltage Directive] EN60950-1 [2014/30/EU: EMC Directive] EN55022 (Class A) EN55024 EN61000-3-2 (Class D) EN61000-3-3 [2011/65/EU: RoHS]
EAC (Russia/Belarus/Kazakhstan)	IEC60950-1 CISPR22 CISPR24 IEC61000-3-2 IEC61000-3-3
EC Directive (EU)	RoHS (2011/65/EU) WEEE (2002/96/EC)
Ministry of Information Industry, China, etc.	Management Methods for Controlling Pollution by Electronic Information Products (China RoHS)
Ministry of the Environment Ministry of Economy, Trade and Industry	PC recycling (Business-use)
IEC	IEC60945 (EMC/Environmental Test) Image quality: IEC62288, IEC61174 (Related items on monitor)
KC (Korea)	K60950-1 (Safety) K00022 (EMI) K00024 (EMC)

*License processing. Ask for details of status.

(Note) In order to comply with the standards in the chart above, it is necessary to bundle the Power Cord and User's Manual specified by these standards.

(Note) According to circumstances, certifications may be added, removed or changed.

(Note) This product does not comply with IEC60945/62288/61174 by itself. In order to satisfy the requirements of these standards, it is necessary to control this monitor from computer by communication of DDC/CI or RS-232C.

11.3 Name Plate

(Note) Additional standards or marking may be added to this label. In accordance with this addition, the label code (05B***), in the lower right bottom corner will be changed

(Note) The label for additional standards or identified purposes may be put on near the name plate.

● Standard

 D-SUB (OUT)	 D-SUB (IN)	 DVI	 SERIAL PORT
DuraVision FDU2603W (型号: FDU2603W) 65 cm (25.5 inch) class Color LCD Monitor Viewable Image Size 64.8 cm (25.5 inches) 65 厘米 (25.5 英寸) 级彩色液晶显示器 64.8 厘米 (25.5 英寸) 可视影像大小 The equipment must be connected to a grounded main outlet. L'appareil doit être relié à une prise avec terre. Jordet stikkontakt skal benyttes når apparatet tilkobles datanett. Apparaten skall anslutas till jordat nätuttag. 设备必须连接到接地的电源插座。 電源コードのアースは必ず接地してください。 Input Rating/輸入電源: 100-240V 50/60Hz 1.2A-0.6A     EIZO Corporation EIZO株式会社 日本製造 Made in Japan External Design by Japan Radio Co., Ltd.			

● With Touch Panel

 D-SUB (OUT)	 D-SUB (IN)	 DVI	 SERIAL PORT	
DuraVision FDU2603WT (型号: FDU2603WT) 65 cm (25.5 inch) class Touch Panel Color LCD Monitor Viewable Image Size 64.8 cm (25.5 inches) 65 厘米 (25.5 英寸) 级触摸式彩色液晶显示器 64.8 厘米 (25.5 英寸) 可视影像大小 The equipment must be connected to a grounded main outlet. L'appareil doit être relié à une prise avec terre. Jordet stikkontakt skal benyttes når apparatet tilkobles datanett. Apparaten skall anslutas till jordat nätuttag. 设备必须连接到接地的电源插座。 電源コードのアースは必ず接地してください。 Input Rating/輸入電源: 100-240V 50/60Hz 1.2A-0.6A     EIZO Corporation EIZO株式会社 日本製造 Made in Japan External Design by Japan Radio Co., Ltd. 05B25884B1				 — TOUCH PANEL  — MONITOR

● KC label

	1. 인증 번호: MSIP-REM-EIZ-FDU2602W ZU10043-14003
	2. 모델명: 모니터 (FDU2602W)
	3. 정격: 제품에 별도 표기
	4. 제조업체명: EIZO Corporation (일본)
	5. 제조년월: 제품에 별도 표기
	6. A/S 연락처: 씨지코리아 02-713-5340

12 RELIABILITY

Item			Value	Conditions
Operation	Feature guaranty ^{*1}	Temperature	-15 °C~55°C	
		Humidity	10 %~90 % R.H.	Non condensing
	Operation guaranty ^{*2}	Temperature	-20 °C~70 °C	
		Humidity	10 %~95% R.H.	Wet-bulb temperature: 54°C or less
		Pressure	700 hPa ~ 1060 hPa	
Non-operation (Non-packing condition)		Temperature	-25 °C~75°C	
		Humidity	10 %~95% R.H.	Wet-bulb temperature: 54°C or less
		Pressure	700 hPa ~ 1060 hPa	
Storage/Shipping (Packing condition)		Temperature	-20 °C~60 °C	
		Humidity	10 %~90 % R.H.	Wet-bulb temperature: 39°C or less Non condensing
		Pressure	200hPa ~ 1060hPa	FDU2603W, FDU2603WT
Durable period			11.4 years (100,000 hours)	40°C
Backlight LED Life			50,000 hours or more	25°C
MTBF (Reference value)			50,000 hours or more	MIL-HDBK-217F
Operating time per day			24 hours	
Safe distance of nautical equipment from compasses			Standard compass: 1.50m Steering compass: 1.00m	Measurement result

*1: Exclude characteristics of LCD panel itself

*2: Some parts don't implement feature guaranty, but are non-destruction state.

13 COLOR TABLE

13.1 For Standard

Table: DAY

<Monitor setting>

Color Mode	Day
Remote Control Brightness	171/255
Brilliance (OSD)	67%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	40	132	159	171
2	CURSR	orange	0.50	0.40	32	212	115	56
3	CHBLK	black	0.28	0.31	0	0	0	0
4	CHGRD	grey	0.28	0.31	10	70	84	91
5	CHGRF	grey	0.28	0.31	25	107	128	138
6	CHRED	red	0.48	0.30	25	220	71	104
7	CHGRN	green	0.31	0.56	60	57	216	58
8	CHYLW	yellow	0.41	0.49	70	207	208	57
9	CHMGD	magenta	0.30	0.17	20	179	54	191
10	CHMGF	magenta	0.28	0.24	48	187	152	229
11	CHBRN	brown	0.39	0.43	30	148	137	78
12	CHWHT	white	0.28	0.31	80	181	218	234
13	SCLBR	orange	0.50	0.40	32	212	115	56
14	CHCOR	orange	0.50	0.40	32	212	115	56
15	LITRD	red	0.48	0.30	25	220	71	104
16	LITGN	green	0.31	0.56	60	57	216	58
17	LITYW	yellow	0.41	0.49	70	207	208	57
18	ISDNG	magenta	0.30	0.17	20	179	54	191
19	DNGHL	red	0.48	0.30	25	220	71	104
20	TRFCD	magenta	0.30	0.17	20	179	54	191
21	TRFCF	magenta	0.28	0.24	48	187	152	229
22	LANDA	brown	0.35	0.39	50	175	174	131
23	LANDF	brown	0.45	0.42	15	131	92	46
24	CSTLN	grey	0.28	0.31	10	70	84	91
25	SNDG1	grey	0.28	0.31	25	107	128	138
26	SNDG2	black	0.28	0.31	0	0	0	0
27	DEPSC	grey	0.28	0.31	10	70	84	91
28	DEPCN	grey	0.28	0.31	25	107	128	138
29	DEPDW	white	0.28	0.31	80	181	218	234
30	DEPMD	pale_blue	0.26	0.29	65	148	199	231
31	DEPMS	light_blue	0.23	0.25	55	112	184	247
32	DEPVS	medium_blue	0.21	0.22	45	78	167	251
33	DEPIT	yellow-green	0.26	0.36	35	73	161	142
34	RADHI	green	0.31	0.56	60	57	216	58
35	RADLO	green	0.31	0.56	20	35	131	35
36	ARPAT	blue_green	0.26	0.42	30	21	155	111
37	NINFO	orange	0.50	0.40	32	212	115	56
38	RESBL	blue	0.18	0.15	22	26	110	235
39	ADINF	yellow	0.41	0.49	35	151	151	42
40	RESGR	grey	0.28	0.31	25	107	128	138
41	SHIPS	black	0.28	0.31	0	0	0	0
42	PSTRK	black	0.28	0.31	0	0	0	0

43	SYTRK	grey	0.28	0.31	25	107	128	138
44	PLRTE	red	0.58	0.35	18	201	53	39
45	APLRT	orange	0.50	0.40	32	212	115	56
46	UINFD	black	0.28	0.31	0	0	0	0
47	UINFF	grey	0.28	0.31	10	70	84	91
48	UIBCK	white	0.28	0.31	80	181	218	234
49	UIAFD	medium_blue	0.21	0.22	45	78	167	251
50	UINFR	red	0.48	0.30	25	220	71	104
51	UINFG	green	0.31	0.56	60	57	216	58
52	UINFO	orange	0.50	0.40	32	212	115	56
53	UINFB	blue	0.18	0.15	22	26	110	235
54	UINFM	magenta	0.30	0.17	20	179	54	191
55	UIBDR	grey	0.28	0.31	10	70	84	91
56	UIAFF	brown	0.35	0.39	50	175	174	131
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.45	0.42	15	131	92	46
59	RES01	grey	0.28	0.31	25	107	128	138
60	RES02	grey	0.28	0.31	25	107	128	138
61	RES03	grey	0.28	0.31	25	107	128	138
62	BKAJ1	grey	0.28	0.31	0.6	19	22	24
63	BKAJ2	grey	0.28	0.31	1.6	30	36	39

Table: DUSK

<Monitor setting>

Color Mode	Dusk
Remote Control Brightness	153/255
Brilliance (OSD)	60%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	7	91	109	117
2	CURSR	orange	0.50	0.40	10	190	103	50
3	CHBLK	grey	0.28	0.31	20	146	176	189
4	CHGRD	grey	0.28	0.31	20	146	176	189
5	CHGRF	grey	0.28	0.31	10	107	128	138
6	CHRED	red	0.48	0.30	10	220	71	104
7	CHGRN	green	0.31	0.56	20	53	199	54
8	CHYLW	yellow	0.41	0.49	24	193	193	53
9	CHMGD	magenta	0.28	0.24	18	181	148	222
10	CHMGF	magenta	0.30	0.17	7	168	51	179
11	CHBRN	brown	0.39	0.43	8	123	114	65
12	CHWHT	white	0.28	0.31	36	191	230	247
13	SCLBR	orange	0.50	0.40	10	190	103	50
14	CHCOR	orange	0.50	0.40	10	190	103	50
15	LITRD	red	0.48	0.30	10	220	71	104
16	LITGN	green	0.31	0.56	20	53	199	54
17	LITYW	yellow	0.41	0.49	24	193	193	53
18	ISDNG	magenta	0.28	0.24	18	181	148	222
19	DNGHL	red	0.48	0.30	10	220	71	104
20	TRFCD	magenta	0.28	0.24	18	181	148	222
21	TRFCF	magenta	0.30	0.17	7	168	51	179
22	LANDA	brown	0.35	0.39	5	93	93	70
23	LANDF	brown	0.45	0.42	12	179	126	64
24	CSTLN	grey	0.28	0.31	20	146	176	189
25	SNDG1	grey	0.28	0.31	10	107	128	138
26	SNDG2	white	0.28	0.31	36	191	230	247
27	DEPSC	grey	0.28	0.31	20	146	176	189
28	DEPCN	grey	0.28	0.31	10	107	128	138
29	DEPDW	black	0.28	0.31	0	0	0	0
30	DEPMD	dark_blue	0.25	0.29	1	29	46	52
31	DEPMS	medium_blue	0.23	0.25	3	45	74	100
32	DEPVS	light_blue	0.21	0.22	5	44	93	140
33	DEPIT	yellow-green	0.26	0.36	6	49	109	97
34	RADHI	green	0.31	0.56	20	53	199	54
35	RADLO	green	0.31	0.56	7	33	123	33
36	ARPAT	green	0.26	0.42	17	24	182	130
37	NINFO	orange	0.50	0.40	10	190	103	50
38	RESBL	blue	0.18	0.15	10	28	116	249
39	ADINF	yellow	0.41	0.49	12	141	141	39
40	RESGR	grey	0.28	0.31	20	146	176	189
41	SHIPS	white	0.28	0.31	36	191	230	247
42	PSTRK	white	0.28	0.31	36	191	230	247
43	SYTRK	grey	0.28	0.31	10	107	128	138
44	PLRTE	red	0.58	0.35	8	211	56	41

45	APLRT	orange	0.50	0.40	10	190	103	50
46	UINFD	white	0.28	0.31	36	191	230	247
47	UINFF	grey	0.28	0.31	20	146	176	189
48	UIBCK	black	0.28	0.31	0	0	0	0
49	UIAFD	light_blue	0.21	0.22	5	44	93	140
50	UINFR	red	0.48	0.30	10	220	71	104
51	UINFG	green	0.31	0.56	20	53	199	54
52	UINFO	orange	0.50	0.40	10	190	103	50
53	UINFB	blue	0.18	0.15	10	28	116	249
54	UINFM	magenta	0.28	0.24	18	181	148	222
55	UIBDR	grey	0.28	0.31	20	146	176	189
56	UIAFF	brown	0.45	0.42	12	179	126	64
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.35	0.39	5	93	93	70
59	RES01	grey	0.28	0.31	10	107	128	138
60	RES02	grey	0.28	0.31	10	107	128	138
61	RES03	grey	0.28	0.31	10	107	128	138
62	BKAJ1	grey	0.28	0.31	0	0	0	0
63	BKAJ2	grey	0.28	0.31	0.72	32	38	41

Table: NIGHT

<Monitor setting>

Color Mode	Night
Remote Control Brightness	27/255
Brilliance (OSD)	11%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	1.2	87	105	112
2	CURSR	orange	0.50	0.40	1.25	158	85	42
3	CHBLK	grey	0.28	0.31	2.5	122	146	157
4	CHGRD	grey	0.28	0.31	2.5	122	146	157
5	CHGRF	grey	0.28	0.31	1.25	89	107	115
6	CHRED	red	0.48	0.30	1.25	183	59	86
7	CHGRN	green	0.31	0.56	2.5	44	166	45
8	CHYLW	yellow	0.41	0.49	3.0	160	161	44
9	CHMGD	magenta	0.30	0.17	2.0	204	62	217
10	CHMGF	magenta	0.30	0.17	2.0	204	62	217
11	CHBRN	brown	0.39	0.43	1.3	115	107	61
12	CHWHT	white	0.28	0.31	5.0	167	200	215
13	SCLBR	orange	0.50	0.40	1.25	158	85	42
14	CHCOR	orange	0.50	0.40	1.25	158	85	42
15	LITRD	red	0.48	0.30	1.25	183	59	86
16	LITGN	green	0.31	0.56	2.5	44	166	45
17	LITYW	yellow	0.41	0.49	3.0	160	161	44
18	ISDNG	magenta	0.30	0.17	2.0	204	62	217
19	DNGHL	red	0.48	0.30	1.25	183	59	86
20	TRFCD	magenta	0.30	0.17	2.0	204	62	217
21	TRFCF	magenta	0.30	0.17	2.0	204	62	217
22	LANDA	brown	0.35	0.39	0.8	86	86	65
23	LANDF	brown	0.45	0.42	1.6	154	107	54
24	CSTLN	grey	0.28	0.31	2.5	122	146	157
25	SNDG1	grey	0.28	0.31	1.25	89	107	115
26	SNDG2	white	0.28	0.31	5.0	167	200	215
27	DEPSC	grey	0.28	0.31	2.5	122	146	157
28	DEPCN	grey	0.28	0.31	1.25	89	107	115
29	DEPDW	black	0.28	0.31	0	0	0	0
30	DEPMD	dark_blue	0.25	0.29	0.2	30	47	54
31	DEPMS	medium_blue	0.23	0.25	0.4	38	63	85
32	DEPVS	light_blue	0.21	0.22	0.8	40	86	130
33	DEPIT	yellow-green	0.26	0.36	1.2	51	112	100
34	RADHI	green	0.31	0.56	2.5	44	166	45
35	RADLO	green	0.31	0.56	0.8	26	98	27
36	ARPAT	blue-green	0.26	0.42	1.75	19	138	99
37	NINFO	orange	0.50	0.40	1.25	158	85	42
38	RESBL	blue	0.18	0.15	1.25	23	96	207
39	ADINF	yellow	0.41	0.49	1.5	117	117	32
40	RESGR	grey	0.28	0.31	1.25	89	107	115
41	SHIPS	white	0.28	0.31	5.0	167	200	215
42	PSTRK	white	0.28	0.31	5.0	167	200	215
43	SYTRK	grey	0.28	0.31	1.25	89	107	115
44	PLRTE	red	0.58	0.35	0.9	167	44	32

45	APLRT	orange	0.50	0.40	1.25	158	85	42
46	UINFD	white	0.28	0.31	5.0	167	200	215
47	UINFF	grey	0.28	0.31	2.5	122	146	157
48	UIBCK	black	0.28	0.31	0	0	0	0
49	UIAFD	light_blue	0.21	0.22	0.8	40	86	130
50	UINFR	red	0.48	0.30	1.25	183	59	86
51	UINFG	green	0.31	0.56	2.5	44	166	45
52	UINFO	orange	0.50	0.40	1.25	158	85	42
53	UINFB	blue	0.18	0.15	1.25	23	96	207
54	UINFM	magenta	0.30	0.17	2.0	204	62	217
55	UIBDR	grey	0.28	0.31	2.5	122	146	157
56	UIAFF	brown	0.45	0.42	3.2	211	147	75
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.35	0.39	0.8	86	86	65
59	RES01	grey	0.28	0.31	1.25	89	107	115
60	RES02	grey	0.28	0.31	1.25	89	107	115
61	RES03	grey	0.28	0.31	1.25	89	107	115
62	BKAJ1	black	0.28	0.31	0	0	0	0
63	BKAJ2	grey	0.28	0.31	0.1	28	33	36

13.2 For with Touch Panel (-T)

Table: DAY

<Monitor setting>

Color Mode	Day
Remote Control Brightness	171/255
Brilliance (OSD)	67%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	40	132	159	171
2	CURSR	orange	0.50	0.40	32	212	115	56
3	CHBLK	black	0.28	0.31	0	0	0	0
4	CHGRD	grey	0.28	0.31	10	70	84	91
5	CHGRF	grey	0.28	0.31	25	107	128	138
6	CHRED	red	0.48	0.30	25	220	71	104
7	CHGRN	green	0.31	0.56	60	57	216	58
8	CHYLW	yellow	0.41	0.49	70	207	208	57
9	CHMGD	magenta	0.30	0.17	20	179	54	191
10	CHMGF	magenta	0.28	0.24	48	187	152	229
11	CHBRN	brown	0.39	0.43	30	148	137	78
12	CHWHT	white	0.28	0.31	80	181	218	234
13	SCLBR	orange	0.50	0.40	32	212	115	56
14	CHCOR	orange	0.50	0.40	32	212	115	56
15	LITRD	red	0.48	0.30	25	220	71	104
16	LITGN	green	0.31	0.56	60	57	216	58
17	LITYW	yellow	0.41	0.49	70	207	208	57
18	ISDNG	magenta	0.30	0.17	20	179	54	191
19	DNGHL	red	0.48	0.30	25	220	71	104
20	TRFCD	magenta	0.30	0.17	20	179	54	191
21	TRFCF	magenta	0.28	0.24	48	187	152	229
22	LANDA	brown	0.35	0.39	50	175	174	131
23	LANDF	brown	0.45	0.42	15	131	92	46
24	CSTLN	grey	0.28	0.31	10	70	84	91
25	SNDG1	grey	0.28	0.31	25	107	128	138
26	SNDG2	black	0.28	0.31	0	0	0	0
27	DEPSC	grey	0.28	0.31	10	70	84	91
28	DEPCN	grey	0.28	0.31	25	107	128	138
29	DEPDW	white	0.28	0.31	80	181	218	234
30	DEPMD	pale_blue	0.26	0.29	65	148	199	231
31	DEPMS	light_blue	0.23	0.25	55	112	184	247
32	DEPVS	medium_blue	0.21	0.22	45	78	167	251
33	DEPIT	yellow-green	0.26	0.36	35	73	161	142
34	RADHI	green	0.31	0.56	60	57	216	58
35	RADLO	green	0.31	0.56	20	35	131	35
36	ARPAT	blue_green	0.26	0.42	30	21	155	111
37	NINFO	orange	0.50	0.40	32	212	115	56
38	RESBL	blue	0.18	0.15	22	26	110	235
39	ADINF	yellow	0.41	0.49	35	151	151	42
40	RESGR	grey	0.28	0.31	25	107	128	138
41	SHIPS	black	0.28	0.31	0	0	0	0
42	PSTRK	black	0.28	0.31	0	0	0	0
43	SYTRK	grey	0.28	0.31	25	107	128	138
44	PLRTE	red	0.58	0.35	18	201	53	39

45	APLRT	orange	0.50	0.40	32	212	115	56
46	UINFD	black	0.28	0.31	0	0	0	0
47	UINFF	grey	0.28	0.31	10	70	84	91
48	UIBCK	white	0.28	0.31	80	181	218	234
49	UIAFD	medium_blue	0.21	0.22	45	78	167	251
50	UINFR	red	0.48	0.30	25	220	71	104
51	UINFG	green	0.31	0.56	60	57	216	58
52	UINFO	orange	0.50	0.40	32	212	115	56
53	UINFB	blue	0.18	0.15	22	26	110	235
54	UINFM	magenta	0.30	0.17	20	179	54	191
55	UIBDR	grey	0.28	0.31	10	70	84	91
56	UIAFF	brown	0.35	0.39	50	175	174	131
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.45	0.42	15	131	92	46
59	RES01	grey	0.28	0.31	25	107	128	138
60	RES02	grey	0.28	0.31	25	107	128	138
61	RES03	grey	0.28	0.31	25	107	128	138
62	BKAJ1	grey	0.28	0.31	0.6	19	22	24
63	BKAJ2	grey	0.28	0.31	1.6	30	36	39

Table: DUSK

<Monitor setting>

Color Mode	Dusk
Remote Control Brightness	153/255
Brilliance (OSD)	60%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	7	91	109	117
2	CURSR	orange	0.50	0.40	10	190	103	50
3	CHBLK	grey	0.28	0.31	20	146	176	189
4	CHGRD	grey	0.28	0.31	20	146	176	189
5	CHGRF	grey	0.28	0.31	10	107	128	138
6	CHRED	red	0.48	0.30	10	220	71	104
7	CHGRN	green	0.31	0.56	20	53	199	54
8	CHYLW	yellow	0.41	0.49	24	193	193	53
9	CHMGD	magenta	0.28	0.24	18	181	148	222
10	CHMGF	magenta	0.30	0.17	7	168	51	179
11	CHBRN	brown	0.39	0.43	8	123	114	65
12	CHWHT	white	0.28	0.31	36	191	230	247
13	SCLBR	orange	0.50	0.40	10	190	103	50
14	CHCOR	orange	0.50	0.40	10	190	103	50
15	LITRD	red	0.48	0.30	10	220	71	104
16	LITGN	green	0.31	0.56	20	53	199	54
17	LITYW	yellow	0.41	0.49	24	193	193	53
18	ISDNG	magenta	0.28	0.24	18	181	148	222
19	DNGHL	red	0.48	0.30	10	220	71	104
20	TRFCD	magenta	0.28	0.24	18	181	148	222
21	TRFCF	magenta	0.30	0.17	7	168	51	179
22	LANDA	brown	0.35	0.39	5	93	93	70
23	LANDF	brown	0.45	0.42	12	179	126	64
24	CSTLN	grey	0.28	0.31	20	146	176	189
25	SNDG1	grey	0.28	0.31	10	107	128	138
26	SNDG2	white	0.28	0.31	36	191	230	247
27	DEPSC	grey	0.28	0.31	20	146	176	189
28	DEPCN	grey	0.28	0.31	10	107	128	138
29	DEPDW	black	0.28	0.31	0	0	0	0
30	DEPMD	dark_blue	0.25	0.29	1	29	46	52
31	DEPMS	medium_blue	0.23	0.25	3	45	74	100
32	DEPVS	light_blue	0.21	0.22	5	44	93	140
33	DEPIT	yellow-green	0.26	0.36	6	49	109	97
34	RADHI	green	0.31	0.56	20	53	199	54
35	RADLO	green	0.31	0.56	7	33	123	33
36	ARPAT	green	0.26	0.42	17	24	182	130
37	NINFO	orange	0.50	0.40	10	190	103	50
38	RESBL	blue	0.18	0.15	10	28	116	249
39	ADINF	yellow	0.41	0.49	12	141	141	39
40	RESGR	grey	0.28	0.31	20	146	176	189
41	SHIPS	white	0.28	0.31	36	191	230	247
42	PSTRK	white	0.28	0.31	36	191	230	247
43	SYTRK	grey	0.28	0.31	10	107	128	138
44	PLRTE	red	0.58	0.35	8	211	56	41

45	APLRT	orange	0.50	0.40	10	190	103	50
46	UINFD	white	0.28	0.31	36	191	230	247
47	UINFF	grey	0.28	0.31	20	146	176	189
48	UIBCK	black	0.28	0.31	0	0	0	0
49	UIAFD	light_blue	0.21	0.22	5	44	93	140
50	UINFR	red	0.48	0.30	10	220	71	104
51	UINFG	green	0.31	0.56	20	53	199	54
52	UINFO	orange	0.50	0.40	10	190	103	50
53	UINFB	blue	0.18	0.15	10	28	116	249
54	UINFM	magenta	0.28	0.24	18	181	148	222
55	UIBDR	grey	0.28	0.31	20	146	176	189
56	UIAFF	brown	0.45	0.42	12	179	126	64
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.35	0.39	5	93	93	70
59	RES01	grey	0.28	0.31	10	107	128	138
60	RES02	grey	0.28	0.31	10	107	128	138
61	RES03	grey	0.28	0.31	10	107	128	138
62	BKAJ1	grey	0.28	0.31	0	0	0	0
63	BKAJ2	grey	0.28	0.31	0.72	32	38	41

Table: NIGHT

<Monitor setting>

Color Mode	Night
Remote Control Brightness	27/255
Brilliance (OSD)	11%
Temperature	6500K
Gamma	2.2

	Token	Color	x	y	Y	R	G	B
1	NODTA	grey	0.28	0.31	1.2	87	105	112
2	CURSR	orange	0.50	0.40	1.25	158	85	42
3	CHBLK	grey	0.28	0.31	2.5	122	146	157
4	CHGRD	grey	0.28	0.31	2.5	122	146	157
5	CHGRF	grey	0.28	0.31	1.25	89	107	115
6	CHRED	red	0.48	0.30	1.25	183	59	86
7	CHGRN	green	0.31	0.56	2.5	44	166	45
8	CHYLW	yellow	0.41	0.49	3.0	160	161	44
9	CHMGD	magenta	0.30	0.17	2.0	204	62	217
10	CHMGF	magenta	0.30	0.17	2.0	204	62	217
11	CHBRN	brown	0.39	0.43	1.3	115	107	61
12	CHWHT	white	0.28	0.31	5.0	167	200	215
13	SCLBR	orange	0.50	0.40	1.25	158	85	42
14	CHCOR	orange	0.50	0.40	1.25	158	85	42
15	LITRD	red	0.48	0.30	1.25	183	59	86
16	LITGN	green	0.31	0.56	2.5	44	166	45
17	LITYW	yellow	0.41	0.49	3.0	160	161	44
18	ISDNG	magenta	0.30	0.17	2.0	204	62	217
19	DNGHL	red	0.48	0.30	1.25	183	59	86
20	TRFCD	magenta	0.30	0.17	2.0	204	62	217
21	TRFCF	magenta	0.30	0.17	2.0	204	62	217
22	LANDA	brown	0.35	0.39	0.8	86	86	65
23	LANDF	brown	0.45	0.42	1.6	154	107	54
24	CSTLN	grey	0.28	0.31	2.5	122	146	157
25	SNDG1	grey	0.28	0.31	1.25	89	107	115
26	SNDG2	white	0.28	0.31	5.0	167	200	215
27	DEPSC	grey	0.28	0.31	2.5	122	146	157
28	DEPCN	grey	0.28	0.31	1.25	89	107	115
29	DEPDW	black	0.28	0.31	0	0	0	0
30	DEPMD	dark_blue	0.25	0.29	0.2	30	47	54
31	DEPMS	medium_blue	0.23	0.25	0.4	38	63	85
32	DEPVS	light_blue	0.21	0.22	0.8	40	86	130
33	DEPIT	yellow-green	0.26	0.36	1.2	51	112	100
34	RADHI	green	0.31	0.56	2.5	44	166	45
35	RADLO	green	0.31	0.56	0.8	26	98	27
36	ARPAT	blue-green	0.26	0.42	1.75	19	138	99
37	NINFO	orange	0.50	0.40	1.25	158	85	42
38	RESBL	blue	0.18	0.15	1.25	23	96	207
39	ADINF	yellow	0.41	0.49	1.5	117	117	32
40	RESGR	grey	0.28	0.31	1.25	89	107	115
41	SHIPS	white	0.28	0.31	5.0	167	200	215
42	PSTRK	white	0.28	0.31	5.0	167	200	215
43	SYTRK	grey	0.28	0.31	1.25	89	107	115
44	PLRTE	red	0.58	0.35	0.9	167	44	32

45	APLRT	orange	0.50	0.40	1.25	158	85	42
46	UINFD	white	0.28	0.31	5.0	167	200	215
47	UINFF	grey	0.28	0.31	2.5	122	146	157
48	UIBCK	black	0.28	0.31	0	0	0	0
49	UIAFD	light_blue	0.21	0.22	0.8	40	86	130
50	UINFR	red	0.48	0.30	1.25	183	59	86
51	UINFG	green	0.31	0.56	2.5	44	166	45
52	UINFO	orange	0.50	0.40	1.25	158	85	42
53	UINFB	blue	0.18	0.15	1.25	23	96	207
54	UINFM	magenta	0.30	0.17	2.0	204	62	217
55	UIBDR	grey	0.28	0.31	2.5	122	146	157
56	UIAFF	brown	0.45	0.42	3.2	211	147	75
57	OUTLW	black	0.28	0.31	0	0	0	0
58	OUTLL	brown	0.35	0.39	0.8	86	86	65
59	RES01	grey	0.28	0.31	1.25	89	107	115
60	RES02	grey	0.28	0.31	1.25	89	107	115
61	RES03	grey	0.28	0.31	1.25	89	107	115
62	BKAJ1	black	0.28	0.31	0	0	0	0
63	BKAJ2	grey	0.28	0.31	0.1	28	33	36

14 COMMAND SPECIFICATIONS

14.1 DDC/CI

1. Scope of This Document

This document describes the DDC/CI Protocol and Supported Commands for Monitor Control, that are to be implemented on the 26-inch monitor for vessel (hereinafter described as FDU2603W). Please note that details of each standards mentioned in “Related Documents” are not described here.

2. Related Documents

VESA DDC/CI Standard V1.1

VESA E-DDC Standard V1.1

VESA MCCS V2.2

Access Bus Specification V3.0

3. Monitor Control

FDU2603W supports the protocol and commands based on DDC/CI Standard V1.1 defined by VESA as a communication method from a host to itself. Each adjustment commands are implemented based on the VESA MCCS V2.2 Command Sets. This enables a host to set and obtain each parameter.

4. DDC/CI Protocol (Physical Layer)

FDU2603W supports 100 kHz utmost as the I2C bus clock (SCL) rate used for the physical layer of DDC/CI. FDU2603W acts only as a slave device, then recognizes and replies to only slave addresses 6E/6F for DDC/CI command detection.

5. DDC/CI Command Sequence

DDC/CI command sequences supported by FDU2603W are described below. Refer to DDC/CI Standard for descriptions of each packet within the command sequences.

5-1. Capabilities Request and Reply

FDU2603W replies supported DDC/CI commands and VCP codes requested by a host.

<Capabilities Request>

S	6E	a	51	a	83	a	F3	a	OFS (H)	a	OFS (L)	a	CHK	a	P
---	----	---	----	---	----	---	----	---	---------	---	---------	---	-----	---	---

It must wait at least 40 ms.

<Reply>

S	6F	a	6E	a	XX	A	E3	A	OFS (H)	a	OFS (L)	a	Data(0)	a	Data(1)	a	...	A	CHK	n	P
---	----	---	----	---	----	---	----	---	---------	---	---------	---	---------	---	---------	---	-----	---	-----	---	---

Next message must not be issued until at least 50 ms have passed after the issue of this command.

The DDC/CI Standard defines the maximum data length of 32 bytes for transmission and reception. Therefore, this command must be split and transmitted multiple times if the data size exceeds 32 bytes. The waiting periods between a request and a reply, and a reply and a request, must be guaranteed.

5-2. Get VCP Feature and VCP Feature Reply

It returns VCP command parameters designated by a host.

<Get VCP Feature>

S	6E	a	51	a	82	a	01	a	CP	a	CHK	a	P
---	----	---	----	---	----	---	----	---	----	---	-----	---	---

It must wait at least 40 ms.

<VCP Feature Reply>

S	6F	a	6E	a	88	A	02	a	RC	a	CP	a	T	a	MH	a	ML	a	SH	a	SL	a	CHK'	n	P
---	----	---	----	---	----	---	----	---	----	---	----	---	---	---	----	---	----	---	----	---	----	---	------	---	---

Next message must not be issued until at least 50 ms have passed after the issue of this command.

5-3. Set VCP Feature

It transmits VCP command designated by the host to the monitor.

<Set VCP Feature>

S 6E a 51 a 84 a 03 a CP a SH a SL a CHK a P

Next message must not be issued until at least 50 ms have passed after the issue of this command.

5-4. Save Current Settings

It saves adjustment data onto FDU2603W.

<Save Current Settings>

S 6E a 51 a 81 a 0C a CHK a P

Next message must not be issued until at least 200 ms have passed after the issue of this command.

5-5. Get Timing Report and Timing Message

It obtains the information of current input signal.

<Get Timing Report>

S 6E a 51 a 81 a 07 a CHK a P

It must wait at least 40 ms.

<Timing Message>

S 6F a 6E a 06 A 4E a S a HH a HL a VH a VL a CHK' n P

Next message must not be issued until at least 50 ms have passed after the issue of this command.

5-6. Null Message

It returns an error message.

<Null Message>

S 6F a 6E a 80 a CHK' n P

Next message must not be issued until at least 50 ms have passed after the issue of this command.

6. VCP Codes

6-1. Brightness (BRILLIANCE) Adjustment

Brightness (BRILLIANCE) adjustment of the backlight

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
10h	Luminance	R/W	C	Sets and obtains backlight brightness (BRILLIANCE) value.	0	255	It varies on color mode settings (EDh).

Execute "Save Current Settings" to save the adjusted parameter onto a monitor.

Conversion from the luminance value to percentage in on-screen display is described as:

$N\% = \text{ROUNDDOWN}((\text{Luminance} * 99 + 155) / 254)$

Note that it will be shown as '1%' for Luminance=0 when the "Backlight Off Mode" is set to 'Off'.

6-2. Power Setting (Manufacturer-Specific Command)

It sets power-status of a monitor.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E2h	Power Selection	R/W	NC	Sets and obtains power-status 0: OFF 1: ON	0	1	-

Next command must not be issued until at least 5 seconds have passed after the issue of this command.

6-3. Input Source Select (Manufacturer-Specific Command)

It selects input signal sources.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E3h	Input Source Select	R/W	NC	0x0100: D-SUB 0x0200: DVI	0x0100	0x0200	0x0100

Next command must not be issued until at least 5 seconds have passed after the issue of this command.

This setting is saved onto a monitor with this command. This command should not be issued periodically without any necessity.

6-4. Input Signal Mode (Manufacturer-Specific Command)

It obtains which input signal is displayed; analog or digital.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E4h	Input Signal Mode	R/O	NC	0: Analog 1: Digital 2: Unknown	0	2	-

6-5. Usage Time (Manufacturer-Specific Command)

It obtains the monitor usage time (accumulated time when backlight is on).

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E5h	Usage Time	R/O	C	It obtains usage time by minutes (natural number).	0	4294967295 (0xFFFFFFFF)	-

This value is saved onto a monitor every 60 minutes.

6-6. Input Auto Off (Manufacturer-Specific Command)

It sets the setting of the automatic selection of the input signal source.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E7h	Input Auto Off	R/W	NC	0: Auto 1: Manual	0	1	0

Next command must not be issued until at least 5 seconds have passed after the issue of this command.

This setting is saved onto a monitor with this command. This command should not be issued periodically without any necessity.

6-7. Thermal Error Status (Manufacturer-Specific Command)

It obtains brightness (BRILLIANCE) dimming/off status due to high temperature.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E8h	Thermal Error Status	R/O	NC	0: Normal 1: 50% dimming due to high temperature. 2: 10% dimming due to high temperature. 3: Power-off due to high temperature.	0	3	0 (Normal)

“Power-off due to high temperature” status will be kept until next power-on, while “dimming due to high temperature” will be back to normal when power-off.

6-8. All Key Lock (Manufacturer-Specific Command)

This command provides means to enable/disable the local control.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
E9h	All Key Lock	R/W	NC	0: Unlock state 1: State of all key lock (except Power) 2: State of all key lock (including Power) 3: State of Menu key lock	0	3	0

This setting is saved onto a monitor with this command. This command should not be issued periodically without any necessity.

6-9. Internal Temperature (Manufacturer-Specific Command)

It obtains the temperature inside a monitor.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
ECh	Internal Temperature	R/O	C	0-1023 (which reads as -511 to 512; 1 equals to 0.5C.) Temperature Range -255.5C to 256.0C Equation: $T[C] = (x - 511) / 2$	0	1023	-

6-10. Color Mode (Manufacturer-Specific Command)

It sets the color mode of a monitor.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
EDh	Color Mode	R/W	NC	3: Custom 22: Day 23: Dusk 24: Night	3	24	3

Next command must not be issued until at least 5 seconds have passed after the issue of this command.

This setting is saved onto a monitor with this command. This command should not be issued periodically without any necessity.

6-11. Serial Number (Manufacturer-Specific Command)

It obtains the serial number (e.g. "00000001").

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
F0h	Serial Length	R/O	NC	Length of Serial No	-	-	-
F1h	Serial Offset	R/W	C	Offset of Serial No	-	-	-
F2h	Serial String	R/O	NC	String of Serial No	-	-	-

6-12. Model Name (Manufacturer-Specific Command)

It obtains the product name of a monitor from the list below:

- FDU2603W (standard model)
- FDU2603WT (touch panel model)

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
F3h	Model Length	R/O	NC	Length of Model Name	-	-	-
F4h	Model Offset	R/W	C	Offset of Model Name	-	-	-
F5h	Model String	R/O	NC	String of Model Name	-	-	-

6-13. Manufacturer Name (Manufacturer-Specific Command)

It obtains the manufacturer name of a monitor from the list below:

- EIZO

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
F6h	Manufacturer Name Length	R/O	NC	Length of Manufacturer Name	-	-	-
F7h	Manufacturer Name Offset	R/W	C	Offset of Manufacturer Name	-	-	-
F8h	Manufacturer String	R/O	NC	String of Manufacturer Name	-	-	-

6-14. Buzzer (Manufacturer-Specific Command)

Turn the buzzer on/off.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
F9h	Buzzer	R/W	C	0: Turn the buzzer off	0	255	-

				1-254: Turn the buzzer on for a definite period of time (unit: 10 ms) 255: Turn the buzzer on			
--	--	--	--	--	--	--	--

6-15. Error Status (Manufacturer-Specific Command)

It obtains an Error Status.

Code	VCP Code name	Type	Function	Description	MIN	MAX	Factory Default
FAh	Error Status	RO	NC	bit0: FAN1 bit1: FAN2 (0: Normal, 1: Error)	0	255	-

7. VCP Capabilities

FDU2603W replies VCP Capabilities according to Capabilities Request command from a host.

Analog signal:

(prot(monitor)type(LCD)model(*Product Name)cmds(01 02 03 07 0C E3 F3)vcp(02 04 08 0E 10 14(02 03 04 05 06 07 08 09) 16 18 1A 1E(00 01) 1F(00 01) 20 30 3E 8A 90 B6 C0 DF E2(00 01) E3(0100 0200) E4(00 01 02) E5 E6(00 01) E7(00 01) E8 E9(00 01 02 03) EB EC ED(03 16 17 18) EE(00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F) EF(02 03 04 05 06 FF) F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB(00 04) FC FE(00 01 02 04 05 06 08))mswhql(1)mccs_ver(2.0))

Other signals:

(prot(monitor)type(LCD)model(*Product Name)cmds(01 02 03 07 0C E3 F3)vcp(02 04 08 10 14(02 03 04 05 06 07 08 09) 16 18 1A 8A 90 B6 C0 DF E2(00 01) E3(0100 0200) E4(00 01 02) E5 E6(00 01) E7(00 01) E8 E9(00 01 02 03) EB EC ED(03 16 17 18) EE(00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F) EF(02 03 04 05 06 FF) F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB(00 04) FC FE(00 01 02 04 05 06 08))mswhql(1)mccs_ver(2.0))

* Product Names:

- FDU2603W (standard model)
- FDU2603WT (touch panel model)

8. Requirements for Applications

Issue a command from an application under stable display state of FDU2603W. It may not reply to a command correctly if a monitor is in a transient state. It also may reply a NULL Message when a FDU2603W is unable to respond to a command request from the application, even if it displays the input signal. In this case, retry the command request to the monitor.

14.2 RS-232C

Introduction

This document defines data format and communication protocols of RS-232C. The purpose of this specification is to enable a computer application to control the unit. The unit refers to the monitor manufactured by EIZO Corporation.

Data Rates

The unit is configured to transmit and receive data at 9600 bits/second.

Data Format

Data shall be transmitted with no parity, 8 data bits, one start bit and one stop bit.

Message Format

The basic message format shall be as follows:

Byte #	0	1	2	3	4	5	6	7, etc	8 or 7+DATA=END
	ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK

Attention (ATTN)

This single byte is used to identify a start of message. 3 values are possible:

ATTN	Description
0x07	Command, also known as ASCII BELL
0x06	Acknowledge, also known as ASCII ACK
0x15	Negative Acknowledge, also known as ASCII NAK

A device shall send a command using the 0x07 Attention Code. The unit will respond to the command with either an ACK if the command completed successfully, or a NAK if the command failed.

Address (ADDR)

This single byte is used to specify a particular unit to receive a Command and to identify the unit responding (ACK or NAK) to a Command. All units will support the broadcast address.

ADDR	Description
0xFF	Broadcast - Addressed to all units

Message Commands and Queries (CMD) Contents

The command can be one of the following values and consists always of 3 bytes in positions 2, 3, 4:

Byte 2	Byte 3	Byte 4	ASCII	Description	I/O
0x42	0x52	0x55	"BRU"	Backlight Dimmer Control	W
0x42	0x52	0x3F	"BR?"	Backlight Dimmer Query	R
0x42	0x5A	0x5A	"BZZ"	Buzzer Control	W
0x42	0x5A	0x43	"BZC"	Buzzer Control (Custom)	W
0x4D	0x4F	0x44	"MOD"	Color Mode Control	W
0x45	0x52	0x52	"ERR"	Error Status	R
0x54	0x45	0x52	"TER"	Thermal Error Status	R
0x4C	0x4F	0x43	"LOC"	Key Lock Control	W

Notes: R=Read, W=Write

Data Length (LEN)

This single byte defines the length of DATA in the message in bytes. The maximum value for this field is 74 bytes (0x4A in HEX). The minimum value is 0 bytes (0x00 in HEX).

Inverse Header Checksum (IHCHK)

This single byte is a simple 8-bit checksum of the header data, message bytes 0 to 5 on which a bit-wise inversion has been performed. The checksum shall be initialized to 0. The 8-bit sum (without carry) of bytes 0, 1, 2, 3, 4, 5 and 6 shall be 0xFF (255 in value). If the unit receives a message with an incorrect checksum, the unit will reply with the attention code set to NAK and no data field.

Data Field (DATA)

The single byte is the DATA field which shall only be transmitted if LEN is greater than 0. This field depends on the CMD transmitted.

Inverse Data Checksum (IDCHK)

This single byte shall only be transmitted if LEN is greater than 0. This is a simple 8-bit checksum of the data field, message bytes 7 to 7+ (LEN-1) on which a bit-wise inversion has been performed. The checksum shall be initialized to 0. The 8-bit sum (without carry) of bytes 7 through 7+LEN inclusive shall be 0xFF. The receiver will reply to any message that the checksum has failed with the attention code set to NAK. Basically this byte is located at the very end of a received stream.

Operational Requirements

The following sections define the operational requirements.

Serial Message Failure

If serial messages stop being transmitted or are corrupt, the unit will remain at the last commanded brightness (BRILLIANCE).

Periodic Messages

The Brightness (BRILLIANCE) Command shall be transmitted to the unit at a repetition no faster than 4 Hz.

Other commands should not be transmitted periodically without any necessity.

Command Response Time

The unit will output the required response within $T_r = 2.5$ character periods after the last byte of a command message is received (2.6ms at 9600 bit/sec).

Inter-message Gap

Following an individually addressed command, the next command shall not be issued until at least $T_g = 5$ character periods after the ACK or NAK message received. At 9600, that is $5 * 10 / 9600 = 5.2$ ms.

Unit Response

When a unit receives an incomplete message and the next byte is not received until after a time equal to the Inter-message Gap, the next bytes received shall be processed to check for the start of a new command (0x07, ASCII Bell).

If the header checksum is valid, but the first byte of the command message is not 0x07, as specified, the unit may wait until after the next inter-message gap to resume checking. A NAK message shall not be generated.

If the header checksum is valid, but the value of the CMD field does not equal one of the defined commands, the unit shall reply by generating a NAK message.

If the header checksum is valid, but the value of the LEN field is greater than the maximum allowed, the unit shall ignore the message. A NAK message shall not be generated.

If the data checksum is valid, but the value in the DATA field associated with a command is invalid (out of range, undefined, etc.), the unit shall generate a NAK message indicating the current data value in the DATA field.

"BRU" - Backlight Dimmer Control

This command shall be sent to the unit to command the backlight brightness (BRILLIANCE)

control setting. The brightness value shall be sent as 1 byte in the DATA field. A setting of 0x00 (0%) shall indicate minimum brightness. A setting of 0xFF (100%) shall indicate maximum brightness. This command is available when a valid input signal is present.

Conversion from the brightness value to percentage in on-screen display is described as:

$$N\% = \text{ROUNDDOWN}((\text{DATA} * 99 + 155) / 254)$$

Note that it will be shown as '1%' for brightness = 0 when the "Backlight Off Mode" is set to 'Off'.

Example:

Command to set 50% Brightness:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x07	0xFF	0x42	0x52	0x55	0x01	0x0F	0x80	0x7F

Acknowledge - Brightness is 50%:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x06	0xFF	0x42	0x52	0x55	0x01	0x10	0x80	0x7F

Negative Acknowledge:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x15	0xFF	0x42	0x52	0x55	0x01	0x01	0x80	0x7F

"BR?" - Backlight Dimmer Query

This command shall be sent to the unit to ask the backlight brightness (BRILLIANCE) control setting. The brightness value shall be sent as 1 byte in the DATA field. A setting of 0x00 (0%) shall indicate minimum brightness. A setting of 0xFF (100%) shall indicate maximum brightness. This command is available when a valid input signal is present.

Conversion from the brightness value to percentage in on-screen display is described as:

$$N\% = \text{ROUNDDOWN}((\text{DATA} * 99 + 155) / 254)$$

Note that it will be shown as '1%' for brightness=0 when the "Backlight Off Mode" is set to 'Off'.

Example:

Command to query Brightness:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK
0x07	0xFF	0x42	0x52	0x3F	0x00	0x26

Acknowledge - Brightness is 50%:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x06	0xFF	0x42	0x52	0x3F	0x01	0x26	0x80	0x7F

Negative Acknowledge:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x15	0xFF	0x42	0x52	0x3F	0x01	0x17	0x80	0x7F

"BZZ" - Buzzer Control

This command is sent to the unit to control buzzer on/off if there is a buzzer present. LEN = one data byte.

Byte 7	Description
0x00	Turn the buzzer off
0xFF	Turn the buzzer on

Example:

Command to turn the buzzer on:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x07	0xFF	0x42	0x5A	0x5A	0x01	0x02	0xFF	0x00

Acknowledge – the buzzer is turned on:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x06	0xFF	0x42	0x5A	0x5A	0x01	0x03	0xFF	0x00

"BZC" - Buzzer Control (Custom)

This command is sent to the unit to control buzzer on/off if there is a buzzer present. Time to turn buzzer on can also be set up. This time is reset whenever the unit receives "BZC" command.
LEN = one data byte.

Byte 7	Description
0x00	Turn the buzzer off
0x01-0xFE	Turn the buzzer on for a definite period of time (unit: 10 milliseconds)
0xFF	Turn the buzzer on

Example:

Command to turn the buzzer on for 100 milliseconds:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x07	0xFF	0x42	0x5A	0x43	0x01	0x19	0x0A	0xF5

Acknowledge – the buzzer is turned on for 100 milliseconds:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x06	0xFF	0x42	0x5A	0x43	0x01	0x1A	0x0A	0xF5

"MOD" - Color Mode Control

This command shall be sent to the unit to command the current mode which is associated with the default backlight brightness (BRILLIANCE). LEN = one data byte.

If LEN is 0, the unit will reply with a NAK attention code and the current mode setting.

Example:

Byte 7	Description
0x03	Custom
0x16	Day
0x17	Dusk
0x18	Night

Command to set Dusk:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x07	0xFF	0x4D	0x4F	0x44	0x01	0x18	0x17	0xE8

Acknowledge - Mode is Dusk:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x06	0xFF	0x4D	0x4F	0x44	0x01	0x19	0x17	0xE8

Negative Acknowledge:

ATTN	ADDR	CMD	CMD	CMD	LEN	IHCHK	DATA	IDCHK
0x15	0xFF	0x4D	0x4F	0x44	0x01	0x0A	0x16	0xE9

"ERR" - Error Status

This command shall be sent to the unit to ask an error status.

Byte 7	Description
0x00-0x03	bit0: FAN1 bit1: FAN2 (0: Normal, 1: Error)

"TER" - Thermal Error Status

This command shall be sent to the unit to ask brightness (BRILLIANCE) dimming/off status due to high temperature.

Byte 7	Description
0x00	Normal
0x01	50% dimming due to high temperature.
0x02	10% dimming due to high temperature.
0x03	Power-off due to high temperature.

"Power-off due to high temperature" status will be kept until next power-on, while "dimming due to high temperature" will be back to normal when power-off.

"LOC" - Key Lock Control

This command provides means to enable/disable the local control. LEN = one data byte.

If LEN is 0, the unit will reply with a NAK attention code and the current key lock setting.

Example:

Byte 7	Description
0x00	Unlock state
0x01	State of all key lock (except Power)
0x02	State of all key lock (including Power)
0x03	State of Menu key lock