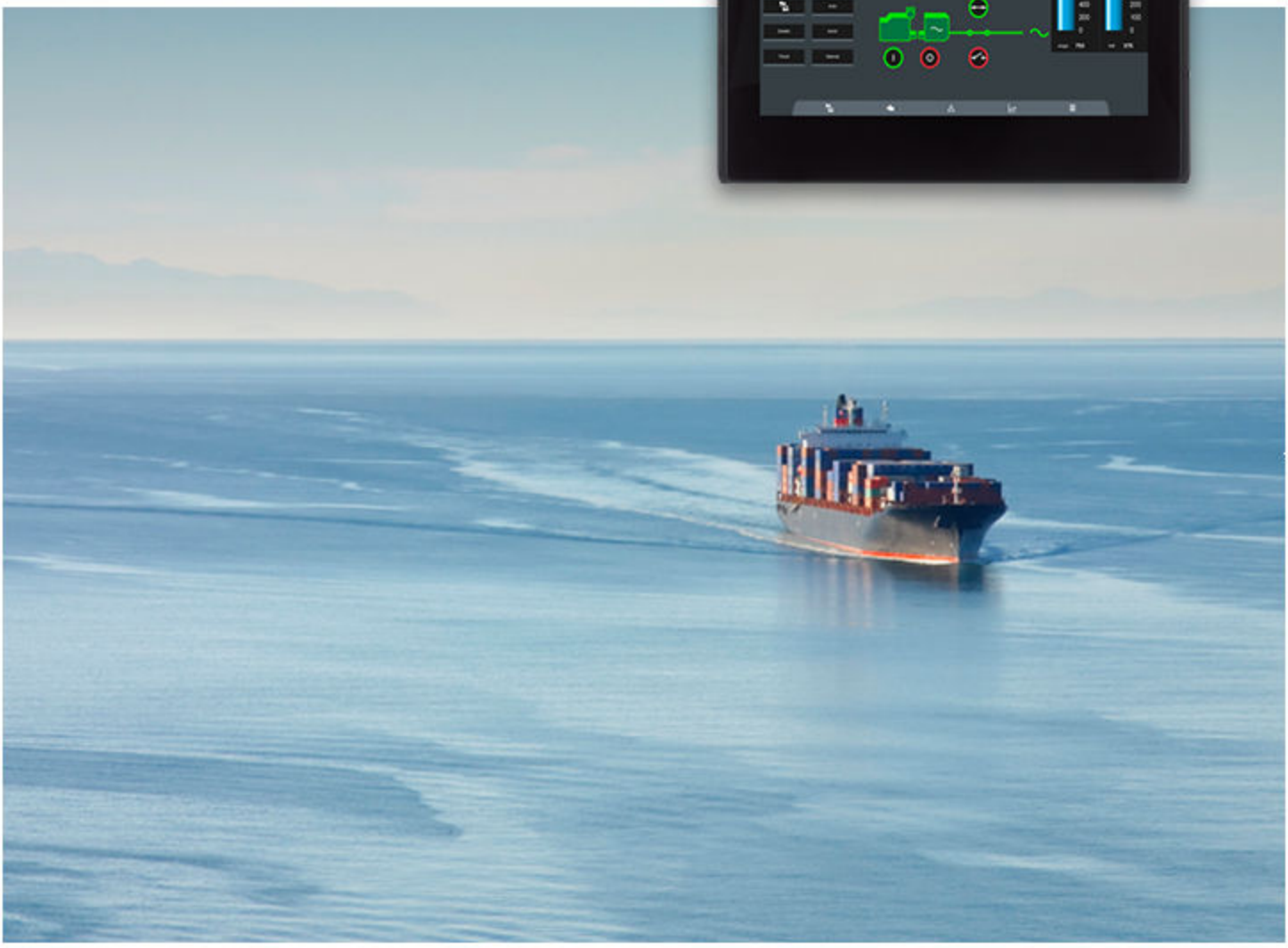
AGI 400 M series

4921240679-B

Advanced graphical interface

Data sheet

Improve Tomorrow



1. AGI 400 M/MHD series

1.1 About the touchscreens

The DEIF AGI 400 M/MHD series of touchscreens are industrial-grade panel displays designed for applications requiring robust performance and durability. They are often used in harsh environments like marine vessels, offshore installations and in stationary installations.

Compared to the 400 series, the 400 M series introduces a new 64-bit Quad core CPU for higher graphical performance.

The touchscreens connect to all DEIF controllers and third-party electronics using standard communication protocols. They provide a wide range of functionalities that eliminate the need for other instruments, saving space and wiring.

HMI

AGI model	Screen size	Resolution	Touchscreen	Brightness
407 M	7"	800 x 480 pixel	True glass projected capacitive, multi-touch	500 cd/m^2
410 M	10.1"	1280 x 800 pixel	True glass projected capacitive, multi-touch	500 cd/m^2
415 MHD	15.6"	1920 x 1080 pixel	True glass projected capacitive, multi-touch.	350 cd/m^2
421 M	21.5"	1920 x 1080 pixel	True glass projected capacitive, multi-touch	300 cd/m^2

For all models, the display LED backlight is dimmable to 0% and has a timeout option for extensive LED durability.

Interface

AGI model	Ethernet ports*	USB Host (2.0) ports	Serial ports	CAN ports	Expandable storage	Expansion slot
All models	3	2	1 - RS-232/422/485	Optional plug-in module (CAN/ CANopen/J1939)	SD card slot	2

NOTE *With individual MAC address with bridge option.

In-built buzzer

All models have an in-built buzzer.

Mounting depth

AGI Model	Mounting depth
407 M	47 mm
410 M, 415 MHD, and 421 M	56 mm

Dedicated HMI solutions

- Visualisation and active control in multiple applications on board maritime vessels and platforms.
- Advanced programming software.
- Full graphical overviews and user-friendly touchscreens.
- High-quality display, easily readable at sharp angles.

Flexible monitoring and control

- Monitor and control multiple setups at the same time.
- Share data using Ethernet and serial connections, effectively enabling the DEIF HMI to be used as a small SCADA system.
- Support multiple user levels and LAN clients, ensuring user control in several levels.

Application examples

- **Energy monitoring system - SEMS**
  Monitor, track and record your energy production and consumption to optimise and implement the energy awareness on board the vessel.

- **Alarm handling and monitoring**
  Monitor alarms, view historical alarm data, and acknowledge active alarms.

- **Power management systems - control and supervision**
  The AGI communicates with all power management system controllers, giving you an essential and full overview of the application. This means you can manage the power management system from a single screen.

- **Graphical interface - mechanical and electrical systems**
  Interface with mechanical and electrical equipment for local overview. Trend measured values to monitor operational performance and find any faults in the system.

NOTICE
Compliance Systems must comply with the guidelines of the classification societies.

1.2 Software

The AGI 400 M/MHD series uses the Linux RT operating system, and the platform has been designed to run the DEIF AGI software.

- Full vector graphic support. Native support of SVG graphic objects. Transparency and alpha blending.
- Full object dynamics: Control visibility and transparency, move, resize and rotate any object on screen. Change properties of basic and complex objects.
- TrueType fonts.
- Multi-language/alphabets and applications. Easily create and manage your applications in multiple languages to meet global requirements.
- AGI Creator supports easy third-party translations and help to reduce development and maintenance costs of the application, with its built-in language tools.
- Data display in numerical, text, bar graph, analogue gauges and graphic image formats.
- Rich set of state-of-the-art HMI features: Data acquisition, alarm handling, scheduler and timed actions (daily and weekly schedulers, exception dates), recipes, users and passwords, email and RSS feeds.
- Multiple drivers communication capability, see separate section in this document.
- Mobile and tablet compatible WEB server embedded, for easy mobile platform implementation.
- Remote monitoring and control. Client-server functionality. Mobile clients supported.
- Offline simulation with AGI Creator.
- Supports powerful CODESYS PLC runtime for automating HMI applications.
- Rich gallery of industrial standardiser symbols and objects.
- Embedded own user gallery workspace for fast application development.
- PDF reader for on-screen user guide reading.

Application development support

- DEIF specific application templates, free of charge.
- DEIF importable communication setup files, compatible with a DEIF controller.
- DEIF graphics included, covering over 4000 DEIF specific graphical elements.
- DEIF templates include a fully customisable menu structure.
- AGI system setting, included in templates.

2. Functionality

2.1 Functionality

2.1.1 Remote access

The AGI 400 M/MHD series offers the following options to connect and control remotely:

Remote options available	
AGI Client - an MS Windows parallel client	YES (max. 4)
AGI WEB - tablet and smartphone access	YES, via configurable AGI web server
VNC server	YES
Email client with SSL	YES
FTP server	YES
MQTT	YES

2.1.2 Software functionality

User functionality	
Screen image orientation	Landscape 0°, portrait 90°, landscape 180° and portrait 270°
Multiple protocols	YES, please see protocol section
Data transfer between protocols	YES
RTC with NTP synchronisation	YES, with internal maintenance-free battery backup
Time scheduled tasks	YES
LED backlight off with custom timeout	YES
Screen saver with custom timeout	YES
Live trending curves	YES
Alarm handling	YES
Trend data logging	YES
Historical data logging and export to SD card/USB	YES (export trending)
Logging events (audit trails)	YES
Retentive memory	YES
Recipe handling	YES
Internal buzzer	YES
Industrial widgets	YES
Custom widget library	YES
PDF reports	YES
PDF reader	YES
User/access management	YES, local and client/remote
Multi-touch support	YES, swipe and pinch zoom
IP camera support	YES, monitor and control
HTML 5 web browser support	YES, based on web kit

TrueType fonts	YES, support multiple alphabets
SVG images	YES
Multi-language	YES
Object dynamics	YES, visibility, opacity, position, size, rotation
JavaScripting	YES
CODESYS runtime add on	YES, V3.5 (license needed to enable)

AGI Creator - application designer software	
Update project via USB memory	YES
Programming and updating over LAN	YES
Password protection of projects	YES
Upload from AGI and re-work project	YES
Simulation online/offline	YES
Import/Export TAG list	YES
Import/Export alarm list	YES
Converting existing application to newest version	YES
Language list	YES, import/export to spreadsheet file for translation

2.1.3 Maximum resources

Maximum resources available	
Number of pages	1000
Number of basic widgets/objects	2000 x page
Number of tags	10000
Number of dialogue pages	200 (max. 5 can be opened simultaneously)
Number of recipes	32
Number of parameter set for a recipe	1000
Number of elements per recipe	1000
Number of user groups	50
Number of users	500
Number of concurrent remote clients	4
Number of schedulers	30
Number of alarms	4000 (10000 AGI PC)
Number of data transfers	1000
Number of template pages	50
Number of actions programmable per button	32
Number of trend buffers	30
Number of tags per trend buffer	300
Memory reserved for trend buffer	50 MB (500 MB AGI PC)
Number of curves per trend widget	10
Number of curves per scatter diagram widget	10

Maximum number of trend table printable rows	10000 (50000 AGI PC)
Number of messages in a message field	1024
Number of languages	24
Number of events per buffer	10000
Number of event buffers	4
JavaScript file size per page	64 KB
Size of project on disk	240 MB
Number of indexed instances	100
Number of indexed alias	100
Number of indexed tag sets	30
Number of physical protocols	8
Number of reports	64
Number of report pages	32
Maximum number of variables in variables widget	255
User folder size	100 MB
User folder size (UpdatePackage.zip)	5 MB
Number of concurrent FTP sessions	4
FTP additional folders	5

2.1.4 Communication protocols

Protocol	Compatible hardware		
Modbus RTU	Generic		
Modbus RTU server	Generic		
Modbus TCP	Generic		
Modbus TCP server	Generic		
OPC UA client	Generic		
OPC UA server	Generic (TAGS and variables)		
CANopen HMI	GE Fanuc Moeller	SAM GPM500 ISaGraf	CODESYS CODESYS 4 PDO
CODESYS V3	CODESYS V3 DEIF license is required		
CAN J1939	DEIF CANopen module required (read only)		
NMEA 0183	Generic		
Ethernet/IP CIP	Logix 5000 Omron NJ/NX Omron CJ Series Micro800		
Allan Bradley DF1	PLC3 PLC5/10/12/15/25 PLC5/40/40L PLC5/60/60L SLC500 fixed I/O	SLC500 Modular I/O Micrologix 1000 Micrologix 1500 Ultra5000	
Allan Bradley DH 485	SLC500 fixed I/O SLC500 Modular I/O	Micrologix 1000 Micrologix 1500	

Protocol	Compatible hardware	
Allan Bradley ENET	PLC 5 vie NET-ENI PLC5/10-25	SLC500/Micrologix 100/1200/1500 via NET-ENI Micrologix 1100/1400
Beckhoff ADS	BC/BX	PC/CX
Mitsubishi FX ETH	FX1N FX2N	FX3G FX3U
Mitsubishi FX SER	FX FX0/FX0S FX0N FX1N	FX1S FX2N FX3G FX3U
Mitsubishi Q/L ETH	Q00J/Q00/Q01 Q02/Q02H/Q06H/Q12H/ Q25H QnU L02CPU	L26CPU-BT Q170M-PLC CPU Q170M-Motion CPU
Mitsubishi iQ-R		
Mitsubishi iQ-F		
Omron FINS ETH	CJx/CS1x/CP1x	
Omron FINS SER	CJx/CS1x/CP1x	
Siemens Simatic S7 ETH	S7-3xx S7-313/314 S7-315 S7-316 S7-317 S7-318 S7-319 S7-412 S7-413	S7-414 S7-415 S7-416 S7-417 S7-1200 CPU 1211/1212 S7-1200 CPU 1214/1215 S7-1500 CPU 15xx LOGO! 0BAx / S7-200 SMART ET200S IM151
Siemens Simatic S7 MPI	S7-3xx S7-313/314 S7-315 S7-317 S7-318 S7-319	S7-412 S7-413 S7-414 S7-416 S7-417
Siemens Simatic S7 PPI	S7-212 S7-214 S7-215/216 S7-221	S7-222 S7-224/226 S7-226XM

3. Technical information

3.1 Specifications

3.1.1 Product data and dimensions, AGI 407 M

Display	
Type	TFT
Resolution	800 × 480 pixel
Active display area	7" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Backlight	LED
Brightness	500 cd/m^2 typ.
Backlight dimming 0 to 100 %	Yes
Backlight timeout	Yes, customisable
Backlight service time	50,000 h or more*
System resources	
Operating system	Linux RT
Cybersecurity	Conforming to IACS UR E27. IEC 62443, certification pending. Connections to untrusted networks may require additional equipment or security countermeasures not included in the product.
CPU	64-bit RISC quad core - 1.6 GHz
RAM	2 GB
Internal storage	8 GB Flash/64 KB FRAM
Operator interface	
Touch screen	True glass projected capacitive, multi-touch
Interface	
Ethernet	2 x 10/100 Mbit, 1 x 10/100/1000 Mbit
USB	2 × USB 2.0 - max. 500 mA
Serial	RS-232, RS-485, RS-422, software configurable
Expansion slot	2 optional plug-ins
Memory card	SD card slot
Ratings	
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	0.7 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 1.5 kg (un-boxed)

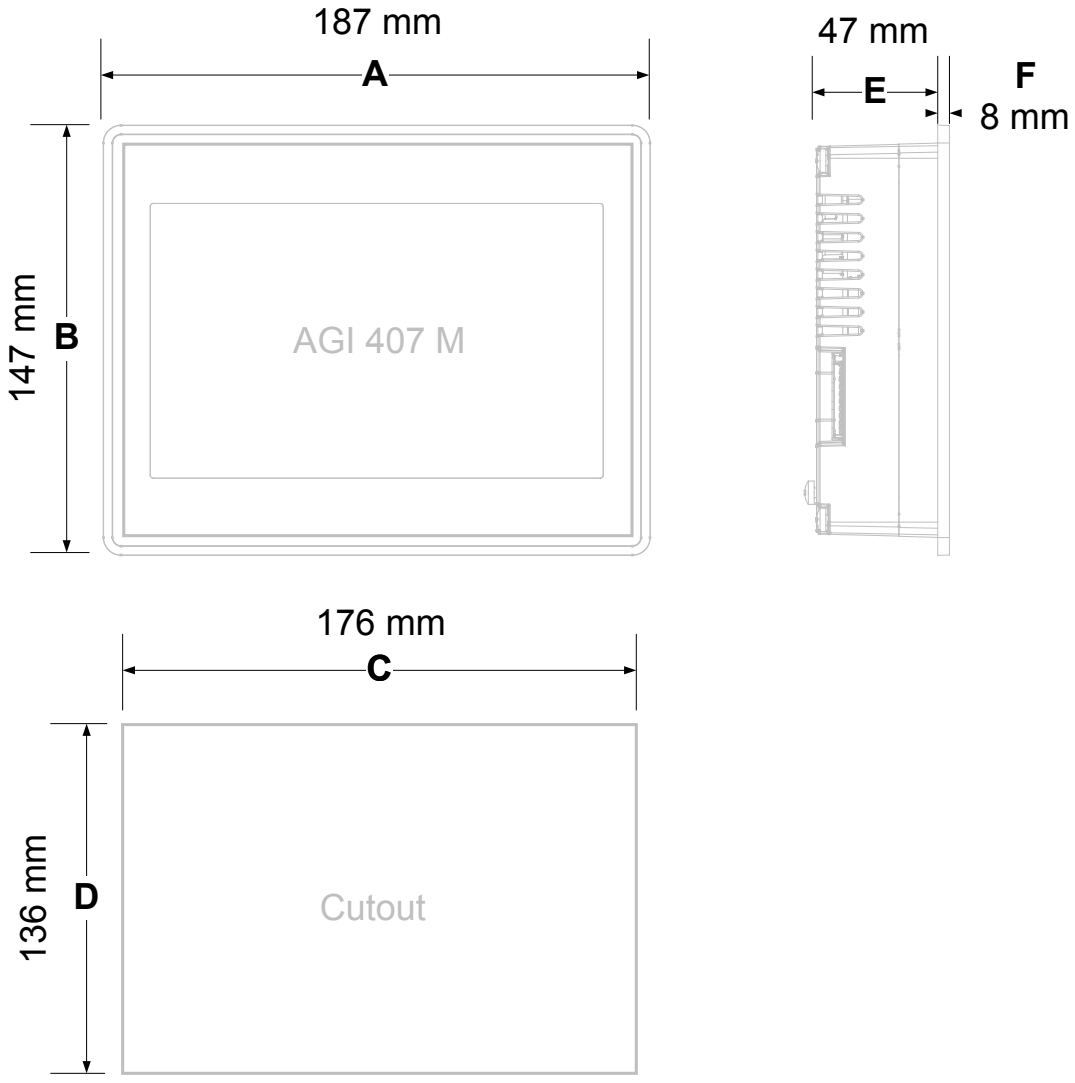
Battery	Rechargeable Lithium battery, not user-replaceable
Environmental conditions	
Operating temperature	Vertical installation: -20 °C to +60 °C With plug-in modules and USB devices: -20 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Vibration	IEC 60068-2-6 and IACS UR E10. 2 to 13.2 Hz ±1 mm 13.2 to 100 Hz 0.7 g
Shock	IEC 60068-2-27, test Ea 50 g 11 ms
Protection	IP66 (front) IP20 (rear) According to IEC/EN 60529
Dimensions	
Faceplate A × B	187 × 147 mm (7.36 × 5.79″)
Cutout C × D	176 × 136 mm (6.93 × 5.35″)
Depth E + F	47 + 8 mm (1.85 + 0.31″)

Approvals

Standards
CE
UCKA
UL/ULC Listed to UL61010-1 / UL61010-2-201
DNV

***** Time of continuous operation until the brightness of the backlight reaches 50 % of the rated value when the surrounding air temperature is 25 °C. Extended use in environments where the surrounding air temperature is 40 °C or higher may degrade backlight quality/reliability/durability.

Dimensions


187 mm
A
147 mm
B
AGI 407 M
47 mm
E
F
8 mm
176 mm
C
136 mm
D
Cutout

3.1.2 Product data and dimensions, AGI 410 M

Display	
Type	TFT
Resolution	1280 × 800 pixel
Active display area	10.1" diagonal
Colours	24 bit (16 million)
Aspect ratio H/V	16:9
Backlight	LED
Brightness	500 cd/m^2 typ.
Backlight dimming 0 to 100 %	Yes
Backlight timeout	Yes, customisable
Backlight service time	50,000 h or more*
System resources	
Operating system	Linux RT
Cybersecurity	Conforming to IACS UR E27. IEC 62443, Certification pending. Connections to untrusted networks may require additional equipment or security countermeasures not included in the product.
CPU	64-bit RISC quad core - 1.6 GHz
RAM	2 GB
Internal storage	8 GB Flash/64 KB FRAM
Operator interface	
Touch screen	True glass projected capacitive, multi-touch
Interface	
Ethernet	2 pcs. 10/100 Mbit, 1 pcs. 10/100/1000 Mbit
USB	2 × USB 2.0 - max. 500 mA
Serial	RS-232, RS-485, RS-422, software configurable
Expansion slot	2 optional plug-ins
Memory card	SD card slot
Ratings	
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	1 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 2.5 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable
Environmental conditions	
Operating temperature	Vertical installation: -20 °C to +60 °C

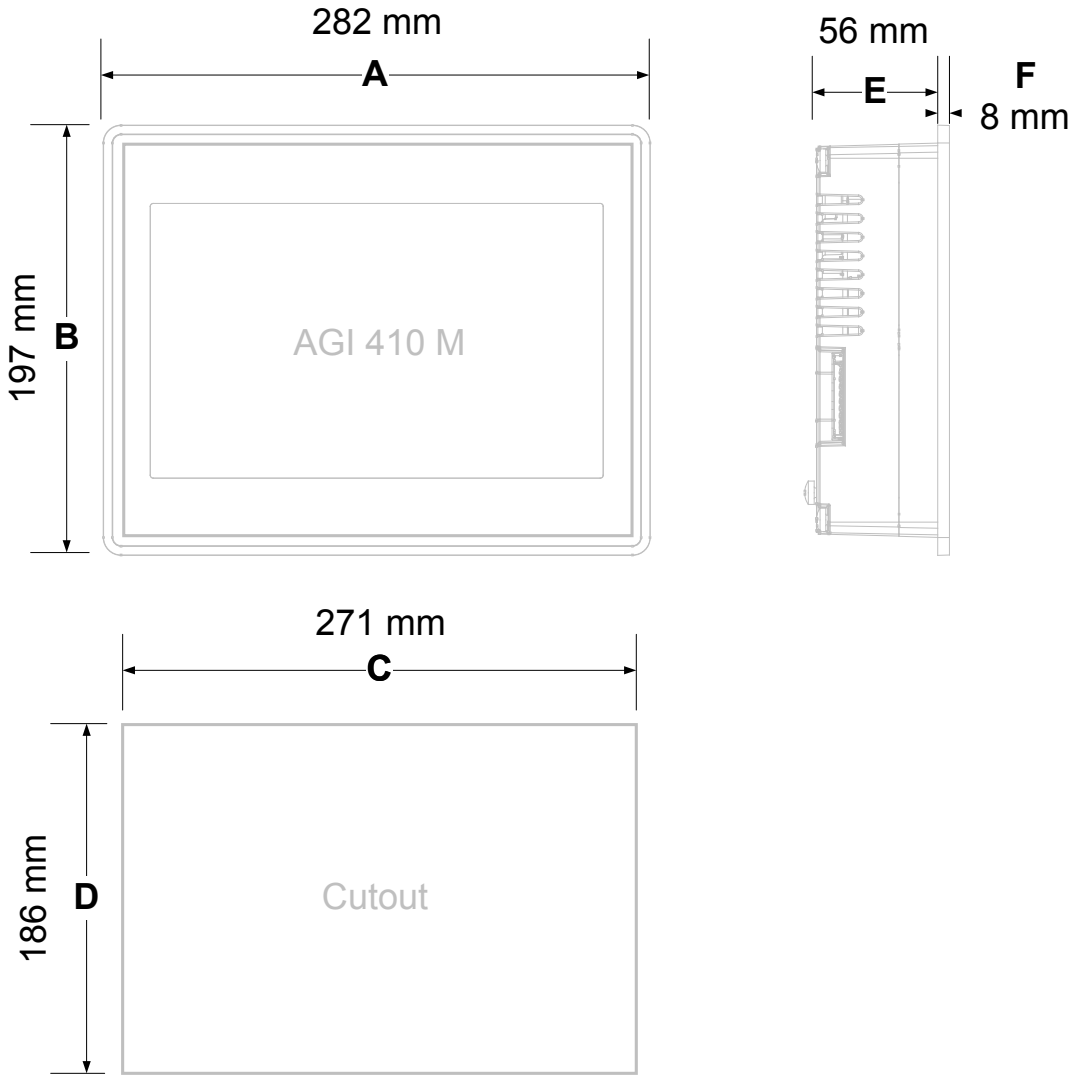
	With plug-in modules and USB devices: -20 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Vibration	IEC 60068-2-6 and IACS UR E10 2 to 13.2 Hz ±1 mm 13.2 to 100 Hz 0.7 g
Shock	IEC 60068-2-27, test Ea 50 g 11 ms
Protection	IP66 (front) IP20 (rear) According to IEC/EN 60529
Dimensions	
Faceplate A × B	282 × 197 mm (11.10 × 7.80“)
Cutout C × D	271 × 186 mm (10.67 × 7.32“)
Depth E + F	56 + 8 mm (2.20 + 0.33“)

Approvals

Standards
CE
UCKA
UL/ULC Listed to UL61010-1 / UL61010-2-201
DNV

***** Time of continuous operation until the brightness of the backlight reaches 50 % of the rated value when the surrounding air temperature is 25 °C. Extended use in environments where the surrounding air temperature is 40 °C or higher may degrade backlight quality/reliability/durability.

Dimensions


282 mm
A
197 mm
B
AGI 410 M
56 mm
E
F
8 mm
271 mm
C
186 mm
D
Cutout

3.1.3 Product data and dimensions, AGI 415 MHD

Display	
Type	TFT
Resolution	1920 × 1080 pixel, full HD
Active display area	15.6" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Backlight	LED
Brightness	350 cd/m^2 typ.
Backlight dimming 0 to 100 %	Yes
Backlight timeout	Yes, customisable
Backlight service time	50,000 h or more*
System resources	
Operating system	Linux RT
Cybersecurity	Connections to untrusted networks may require additional equipment or security countermeasures not included in the product.
CPU	64-bit RISC quad core - 1.6 GHz
RAM	2 GB
Internal storage	4 GB Flash/64 KB FRAM
Operator interface	
Touch screen	True glass projected capacitive, multi-touch
Interface	
Ethernet	2 x 10/100 Mbit, 1 x 10/100/1000 Mbit
USB	2 × USB 2.0 - max. 500 mA
Serial	RS-232, RS-485, RS-422, software configurable
Expansion slot	2 optional plug-ins
Memory card	SD card slot
Ratings	
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	1.1 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 4.1 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable
Environmental conditions	
Operating temperature	Vertical installation: -20 °C to +60 °C With plug-in modules and USB devices: -20 °C to +50 °C

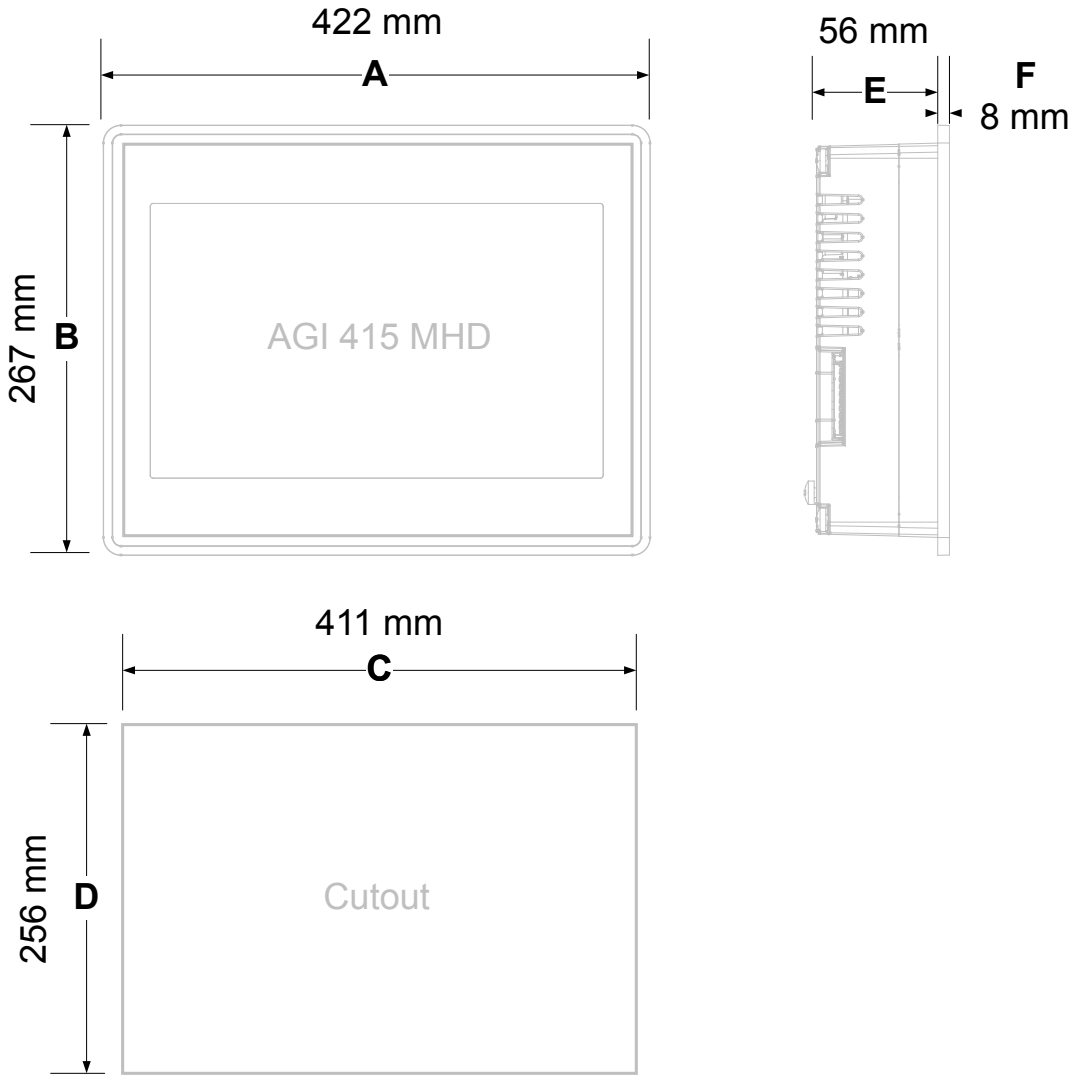
Storage temperature	-20 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Vibration	IEC 60068-2-6 and IACS UR E10 2 to 13.2 Hz ±1 mm 13.2 to 100 Hz 0.7 g
Shock	IEC 60068-2-27, test Ea 50 g 11 ms
Protection	IP66 (front) IP20 (rear) According to IEC/EN 60529
Dimensions	
Faceplate A × B	422 mm × 267 mm (16.6" × 10.5")
Cutout C × D	411 mm × 256 mm (16.18" × 10")
Depth E + F	56 mm + 8 mm (2.20" + 0.33")

Approvals

Standards
CE
UCKA
UL/ULC Listed to UL61010-1 / UL61010-2-201
DNV

***** Time of continuous operation until the brightness of the backlight reaches 50 % of the rated value when the surrounding air temperature is 25 °C. Extended use in environments where the surrounding air temperature is 40 °C or higher may degrade backlight quality/reliability/durability.

Dimensions


422 mm
A
56 mm
E
F
8 mm
267 mm
B
AGI 415 MHD
411 mm
C
256 mm
D
Cutout

3.1.4 Product data and dimensions, AGI 421 M

Display	
Type	TFT
Resolution	1920 × 1080 pixel, full HD
Active display area	21.5" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Backlight	LED
Brightness	300 cd/m^2 typ.
Backlight dimming 0 to 100 %	Yes
Backlight timeout	Yes, customisable
Backlight service time	50,000 h or more*
System resources	
Operating system	Linux RT
Cybersecurity	Conforming to IACS UR E27. IEC 62443, certification pending. Connections to untrusted networks may require additional equipment or security countermeasures not included in the product.
CPU	64-bit RISC quad core - 1.6 GHz
RAM	2 GB
Internal storage	8 GB Flash/64 KB FRAM
Operator interface	
Touch screen	True glass projected capacitive, multi-touch
Interface	
Ethernet	2 x 10/100 Mbit, 1 x 10/100/1000 Mbit
USB	2 × USB 2.0 - max. 500 mA
Serial	RS-232, RS-485, RS-422, software configurable
Expansion slot	2 optional plug-ins
Memory card	SD card slot
Ratings	
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	1.7 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 6.1 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable
Environmental conditions	
Operating temperature	Vertical installation: -20 °C to +60 °C

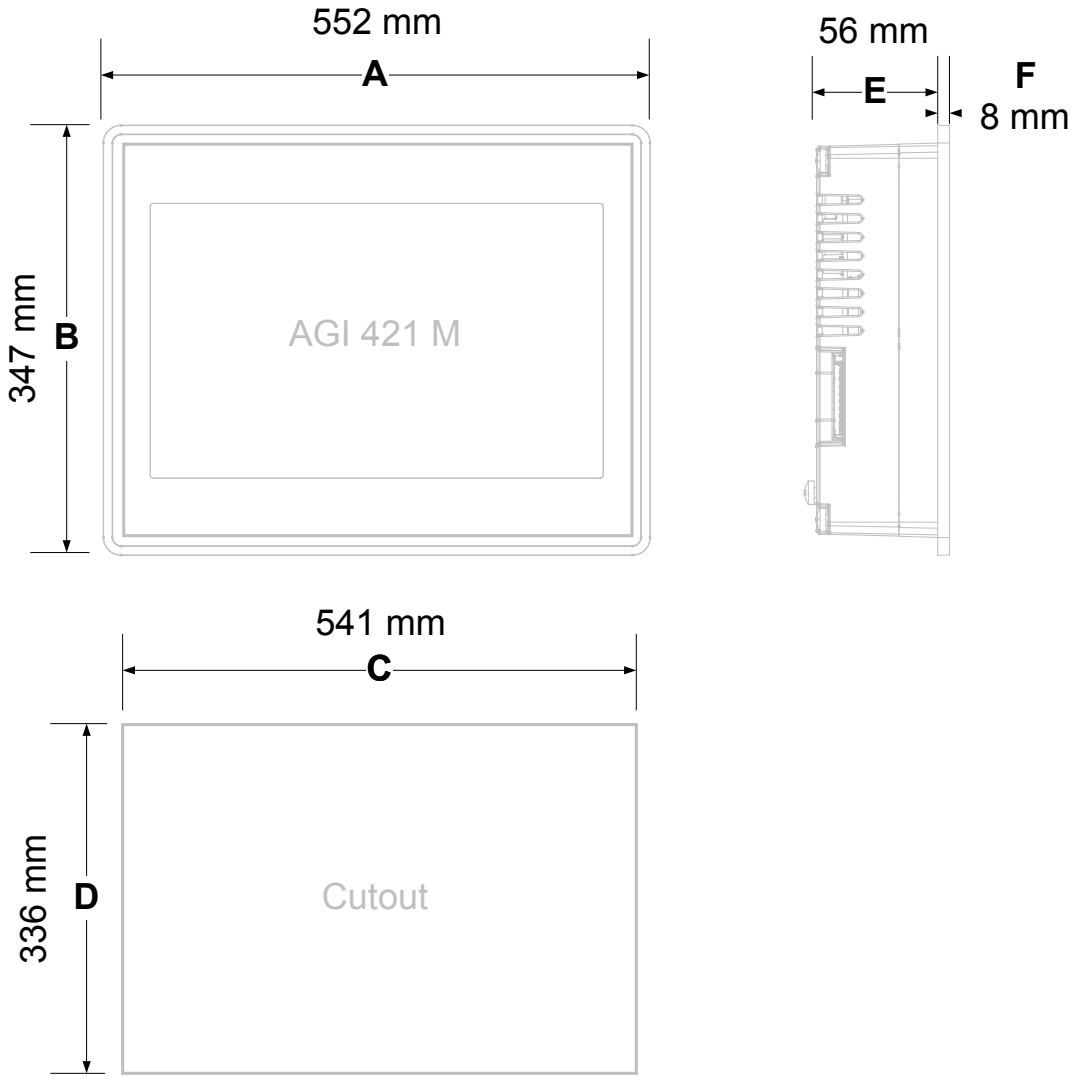
	With plug-in modules and USB devices: -20 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Vibration	IEC 60068-2-6 and IACS UR E10 2 to 13.2 Hz ±1 mm 13.2 to 100 Hz 0.7 g
Shock	IEC 60068-2-27, test Ea 50 g 11 ms
Protection	IP66 (front) IP20 (rear) According to IEC/EN 60529
Dimensions	
Faceplate A × B	552 × 347 mm (21.7 × 13.66“)
Cutout C × D	541 × 336 mm (21.3 × 13.23“)
Depth E + F	56 + 8 mm (2.20 + 0.33“)

Approvals

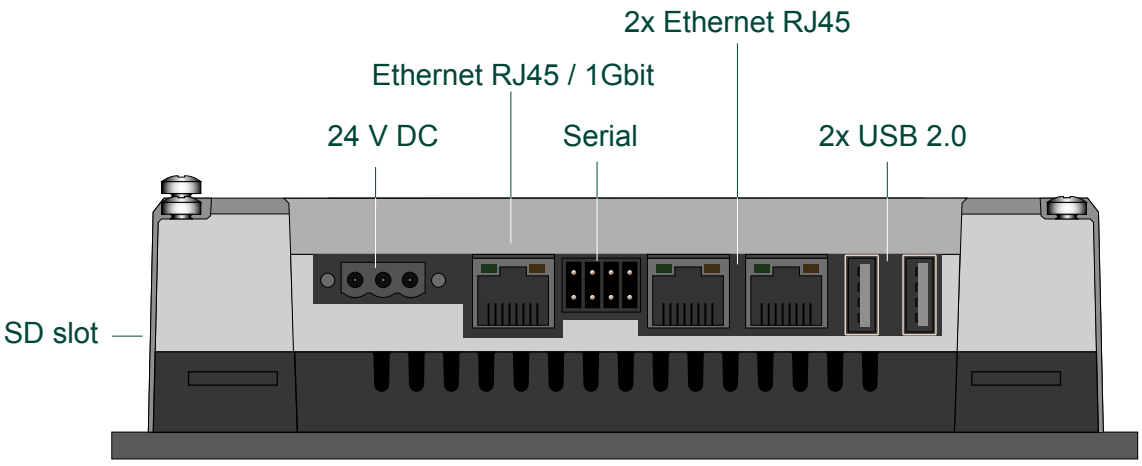
Standards
CE
UCKA
UL/ULC Listed to UL61010-1 / UL61010-2-201
DNV

***** Time of continuous operation until the brightness of the backlight reaches 50 % of the rated value when the surrounding air temperature is 25 °C. Extended use in environments where the surrounding air temperature is 40 °C or higher may degrade backlight quality/reliability/durability.

Dimensions



3.1.5 Connections



4. Ordering information

4.1 Order specifications and disclaimer

4.1.1 Order specifications

Touch display

Item no.	Type
2912460020.11	AGI 407 M
2912460020.12	AGI 410 M
2912460020.18	AGI 415 MHD
2912460020.14	AGI 421 M
2912460020.05	AGI PC Runtime, MS Windows® Runtime license

Accessories and software licences

Item no.	Type
2912990120.01	EXM CAN CANopen extension module
2912990120.02	AGI Creator licence (includes 10 activations)
2912990120.05	CODESYS PLC runtime activation license
2912990120.08	Table stand small, for 7" and 10" (set of 5 pcs.)
2912990120.09	Table stand large, for 15" and 21" (set of 2 pcs.)
2912990120.10	EXM AGIO-06 - digital I/O extension
2912990120.11	AGI 407 wall box
2912990120.12	AGI 410 wall box
2912990120.13	Power connector for AGI
2912990120.15	Installation kit for AGI 400

5. Legal information

5.1 Disclaimer and copyright

Trademarks

DEIF and the DEIF logo are trademarks of DEIF A/S.
SAE J1939® is a registered trademark of SAE International®.
CODESYS® is a trademark of CODESYS GmbH.
Linux® is a registered trademark of Linus Torvalds in the U.S. and other countries.
Modbus® is a registered trademark of Schneider Automation Inc.
Simatic® is a registered trademark of Siemens AG.

All trademarks are the properties of their respective owners.

Copyright

Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.

The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is a discrepancy, the English version prevails.