

Technical Information

# PLUS+1<sup>®</sup> Mobile Machine Displays

## DM700



## Revision history

*Table of revisions*

Date	Changed	Rev
July 2022	Corrected part number in Model Variants	0103
July 2022	Features list corrected	0102
June 2022	First edition	0101

## Contents

### DM700 literature references

Technical Information (TI).....	4
Data Sheet (DS).....	4
DM700.....	4
PLUS+1 GUIDE User Manual.....	4
Latest version of technical literature.....	4

### User liability and safety statements

OEM responsibility.....	5
Safety statements.....	5
Display operation guidelines.....	5
Machine wiring guidelines.....	7
Machine welding guidelines.....	7

### Overview

DM700 description.....	8
DM700 features.....	8
PLUS+1® GUIDE.....	8
LCD Features.....	9

### Ordering information

Model Variants.....	10
Model Code.....	10
Model Code Key.....	10
Related Products.....	11

### Input/output types and specifications

Specifications.....	12
Input types.....	12
Digital/Analog.....	12
Multifunction inputs.....	13
CAN shield/Analog Input.....	15
Digital output.....	15
CAN communication.....	15
USB communication.....	16
Sensor output.....	16
Video power.....	16
Officially validated digital camera formats.....	16
Officially validated analog camera formats.....	17
Ethernet.....	17

### Product ratings

DM700 environmental testing criteria.....	18
Supply voltage/maximum current ratings.....	18
Ingress Protection (IP) rating .....	19

### Installation

DM700 Series Displays dimensions.....	20
Pin Assignments.....	20
Panel Mount.....	21
RAM mount.....	23
Fastening.....	23
Visibility and viewing radius.....	23
Display faulty application recovery.....	24
Cleaning.....	24

## DM700 literature references

### Reference literature

Literature title	Literature type	Literature number
DM700 Series PLUS+1® Mobile Machine Displays	Technical Information	*****
DM700 Series PLUS+1® Mobile Machine Displays	Data Sheet	*****
PLUS+1® GUIDE Software	User Manual	AQ152886483724

### Technical Information (TI)

A TI is comprehensive information for engineering and service personnel to reference.

### Data Sheet (DS)

A DS is summarized information and parameters that are unique to a specific model.

## DM700

The Operation Manual (OM) details information regarding the PLUS+1® GUIDE tool used in building PLUS+1® applications. This OM covers the following broad topics:

- How to use the PLUS+1® GUIDE graphical application development tool to create machine applications
- How to configure module input and output parameters
- How to download PLUS+1® GUIDE applications to target PLUS+1® hardware modules
- How to upload and download tuning parameters
- How to use the PLUS+1® Service Tool

### PLUS+1 GUIDE User Manual

The Operation Manual (OM) details information regarding the PLUS+1® GUIDE tool used in building PLUS+1® applications. This OM covers the following broad topics:

- How to use the PLUS+1® GUIDE graphical application development tool to create machine applications
- How to configure module input and output parameters
- How to download PLUS+1® GUIDE applications to target PLUS+1® hardware modules
- How to upload and download tuning parameters
- How to use the PLUS+1® Service Tool

### Latest version of technical literature

Comprehensive technical literature is online at [www.danfoss.com](http://www.danfoss.com)

## User liability and safety statements

### OEM responsibility

The OEM of a machine or vehicle in which Danfoss products are installed has the full responsibility for all consequences that might occur. Danfoss has no responsibility for any consequences, direct or indirect, caused by failures or malfunctions.

- Danfoss has no responsibility for any accidents caused by incorrectly mounted or maintained equipment.
- Danfoss does not assume any responsibility for Danfoss products being incorrectly applied or the system being programmed in a manner that jeopardizes safety.
- All safety critical systems shall include an emergency stop to switch off the main supply voltage for the outputs of the electronic control system. All safety critical components shall be installed in such a way that the main supply voltage can be switched off at any time. The emergency stop must be easily accessible to the operator.

### Safety statements

#### **Warning**

Unintended movement of the machine or mechanism may cause injury to the technician or bystanders. Improperly protected power input lines against over current conditions may cause damage to the hardware. Properly protect all power input lines against over-current conditions. To protect against unintended movement, secure the machine.

#### **Warning**

At high ambient temperatures the metal housing can become hotter than 70°C. Please use caution when touching the metal housing of the display



#### **Caution**

Unused pins on mating connectors may cause intermittent product performance or premature failure. Be sure to plug all pins on mating connectors.

### Display operation guidelines

- Disconnect your machine's battery power before connecting power and signal cables to the display.
- Before doing any electrical welding on your machine, disconnect all power and signal cables connected to the display.
- Do not exceed the display power supply voltage ratings. Using higher voltages may damage the display and can create a fire or electrical shock hazard.
- Do not use or store the display where flammable gases or chemicals are present. Using or storing the display where flammable gases or chemicals are present may cause an explosion.
- Software configures the keypad buttons on the display. Do not use these buttons to implement critical safety features. Use separate mechanical switches to implement critical safety features such as emergency stops.
- Design systems that use the display so that a communication error or failure between the display and other units cannot cause a malfunction that might injure people or damage material.
- The protective glass over the display screen will break if hit with a hard or heavy object. Install the display to reduce the possibility of it being hit by hard or heavy objects.
- Storing or operating a display in an environment that exceeds the display specified temperature or humidity rating may damage the display.

### **User liability and safety statements**

- Always clean the display with a soft, damp cloth. Use a mild dishwashing detergent as needed. To avoid scratching and discoloring the display, do not use abrasive pads, scouring powders, or solvents such as alcohol, benzene, or paint thinner.
- Keep ambient light sensor area clean and uncovered for best operation.
- Danfoss graphical displays are not user serviceable. Return the display to the factory in case of failure.

## User liability and safety statements

### Machine wiring guidelines

- Protect wires from mechanical abuse, run wires in flexible metal or plastic conduits.
- Use 85° C (185° F) wire with abrasion resistant insulation and 105° C (221° F) wire should be considered near hot surfaces.
- Use a wire size that is appropriate for the module connector.
- Separate high current wires such as solenoids, lights, alternators or fuel pumps from sensor and other noise-sensitive input wires.
- Run wires along the inside of, or close to, metal machine surfaces where possible, this simulates a shield which will minimize the effects of EMI/RFI radiation.
- Do not run wires near sharp metal corners, consider running wires through a grommet when rounding a corner.
- Do not run wires near hot machine members.
- Provide strain relief for all wires.
- Avoid running wires near moving or vibrating components.
- Avoid long, unsupported wire spans.
- Ground electronic modules to a dedicated conductor of sufficient size that is connected to the battery (-).
- Power the sensors and valve drive circuits by their dedicated wired power sources and ground returns.
- Twist sensor lines about one turn every 10 cm (4 in).
- Use wire harness anchors that will allow wires to float with respect to the machine rather than rigid anchors.

### Machine welding guidelines

#### **Warning**

High voltage from power and signal cables may cause fire or electrical shock, and cause an explosion if flammable gasses or chemicals are present.

Disconnect all power and signal cables connected to the electronic component before performing any electrical welding on a machine.

The following is recommended when welding on a machine equipped with electronic components:

- Turn the engine off.
- Remove electronic components from the machine before any arc welding.
- Disconnect the negative battery cable from the battery.
- Do not use electrical components to ground the welder.
- Clamp the ground cable for the welder to the component that will be welded as close as possible to the weld.

## Overview

### DM700 description

Expanding the PLUS+1® family, the Danfoss DM700 display series bring modern appearance and performance to mobile machine markets.

The DM700 series delivers outstanding operator visibility with its high brightness, wide viewing angles, optical bonding, anti-glare, anti-reflection and oleophobic coating.

The DM700 is built to withstand harsh operating environments with its IP66 and IP67 rating and the water-resistant screen, allowing for multi-touch while wearing gloves.

The integrated file viewer and media player provides view of documents and media files.

### DM700 features

- Basic Features Version
  - Outstanding Sunlight visibility
  - IPS LCD Technology with optical bonding
  - Media Player, PDF Viewer and File Browser
  - USB 2.0 High-Speed Device/Host (shared)
  - PLUS+1® GUIDE programmable
  - Landscape and portrait orientation
  - Integrated ambient light sensor
  - Ignition input
  - 2 CAN ports
  - Fast Start-up Time (~5 sec)
  - RAM® or Dashboard Mount
  - Touch Screen (optional)
- Video Features (optional)
  - Double Camera Input
- Advanced Features Version (optional)
  - 32 MB App Log
  - Ethernet
- CE Compliant, E-Mark\* and RoHS Compliant

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\*Pending

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Comprehensive technical literature is online at <http://www.danfoss.com>

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### PLUS+1® GUIDE

PLUS+1® GUIDE (Graphical User Integrated Development Environment) is a complete toolbox that generates downloadable applications for all programmable PLUS+1® Compliant products.

A screen editor allows easy development of applications by programmers without formal software development training. The expertise from a software engineer is not needed to find your way around in PLUS+1® GUIDE.

#### **Caution**

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Unwanted system failure may occur.

Refer to PLUS+1® GUIDE Software User Manual, **AQ152886483724** for best programming practices.  
<https://www.danfoss.com/en/products/software/dps/plus1-software/plus1-guide/#tab-overview>

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**Overview**

**LCD Features**

*DM7000 LCD 7" screen*

Description	Value.	Unit	Notes
Screen Size	7	Inch	
Resolution	800 x 480	Pixels	
Brightness	800	cd/m2	Value includes cover glass
Contrast Ratio	600:1		
Viewing Angle	± 90	Degree	vertical and horizontal
Color Depth	24	Bits	8 bits per color

## Ordering information

### Model Variants

#### Model variants

Part Number	Order Code	Description
11277810	DM07N-NN-2NB-ND-A-N-NN	7" Display Basic
11277811	DM07N-TN-2NB-ND-A-N-NN	7" Display Basic + Touch
11277883	DM07N-NN-2NB-2D-A-N-NN	7" Display Basic + Video
11301837	DM07N-TN-2NB-2D-A-N-NN	7" Display Basic + Video + Touch
11277885	DM07N-NN-2EB-2D-A-N-NN	7" Display Advanced
11277886	DM07N-TN-2EB-2D-A-N-NN	7" Display Advanced + Touch

### Model Code

A	B	C	D	E	F	G	H	I
DM07N								

### Model Code Key

A - Model Name	Description
DM07N	Display 7"

B - Touch/Buttons	Description
NN	No Touch or Buttons
TN	Touch only, No Buttons

C - Network & Navigation	Description
2N	2 CAN Ports
2E	2 CAN Ports + Ethernet

D - Additional Connections	Description
N	None
A	USB 2.0 Device
B	USB 2.0 Dev & Host, Shared Port

E - Video	Description
N	None
2	2 analog Camera Inputs

F - Additional I/O	Description
D	1 Anin, 2 MFIN, 1 DigOut

## Ordering information

G - Sensor Power	Description
A	5V Sensor Supply

H - Software	Description
N	No App Key

I - Special Features	Description
NN	None

## Related Products

### Related products part numbers

Connector Kit	
10100944	DEUTSCH 12-pin Connector kit(DTM06-12SA)

Panel Mounting Kits	
*	*

Cable Kits	
11277305	Cable, M12 4-Pin to USB Device A code
*	
*	

Software	
11179523 (Annual renewal with 11179524 to keep the software updates)	PLUS+1® GUIDE Professional Software (includes 1 year of software updates, a single user license, Service and Diagnostic Tool and Screen Editor)

## Input/output types and specifications

### Specifications

<b>Processor</b>	i.MX6 DualLite
<b>RAM</b>	512MB
<b>Flash</b>	4GB
<b>FRAM</b>	16KB
<b>Supply Voltage</b>	9-36 Vdc
<b>Size</b>	7"
<b>Aspect Ratio</b>	5:3 Wide View
<b>Resolution</b>	800x480, IPS
<b>Brightness</b>	800 cd/m2
<b>Contrast Ratio</b>	600:1
<b>Viewing Angle</b>	±90° Vertical and Horizontal
<b>Color Depth</b>	24 bit
<b>IP Rating</b>	IP66 an IP67 front and back
<b>Operating Temperature</b>	-30 C to +70C [-22F to 158F]
<b>Storage Temperature</b>	-40 C to +85C [-40F to 158F]
<b>Vibration/Shock</b>	IEC 60068-2-64 (3.17gRMS) /2-27 (50g)
<b>EMI/RFI Rating (V/m)</b>	100
<b>Humidity</b>	IEC 60068-2-78, 60068-2-30
<b>Transients</b>	ISO 7637/1, 2, 3
<b>Real Time Clock (RTC)</b>	30 days
<b>Weight</b>	0.8Kg

### Input types

Each PLUS+1® Module input pin supports one of the above functional types. For pins with multiple functions, input configurations are user programmable using PLUS+1® GUIDE templates.

When using inputs in digital mode, it is advised to use the software selectable pull-up or pull-down resistors.

### Digital/Analog

#### Digital/Analog Input

Description	Unit	Minimum	Typical	Maximum	Comment
Input voltage range	V	0	—	36	—
Rising Threshold Voltage	V	-	-	2.21	—
Falling Threshold Voltage	V	0.50	-	-	—
Input impedance	kΩ	12.9	13.0	13.2	--

## Input/output types and specifications

### Multifunction inputs

#### Low range analog

Description	Unit	Minimum	Typical	Maximum	Comment
Minimum discernible voltage	mV	—	—	13	—
Maximum discernible voltage	mV	379	404	430	—
Resolution	mV	—	0.1	—	—
Worst case offset and gain error	mV	—	—	±0.6	$V_{\text{Measure}} = 404 \text{ mV}$
Non-linearity	mV	—	—	±26	—
Input impedance	kΩ	232	233	234	No pull up or pull down
Input impedance (5V/GND)	kΩ	13.9	14.1	14.3	Pull up or pull down
Input impedance (2.5V)	kΩ	7.1	7.3	7.4	Pull up and pull down

#### Middle range analog

Description	Unit	Minimum	Typical	Maximum	Comment
Minimum discernible voltage	V	—	—	0.03	—
Maximum discernible voltage	V	5.69	5.78	5.88	—
Resolution	mV	—	1.4	—	—
Worst case offset and gain error	V	—	—	±0.14	$V_{\text{Measure}} = 5.78 \text{ V}$
Non-linearity	mV	—	—	±8.5	—
Input impedance	kΩ	232	233	234	No pull up or pull down
Input impedance (5V/GND)	kΩ	13.9	14.1	14.3	Pull up or pull down
Input impedance (2.5V)	kΩ	7.1	7.3	7.4	Pull up and pull down

#### High range analog

Description	Unit	Minimum	Typical	Maximum	Comment
Minimum discernible voltage	V	—	—	0.16	—
Maximum discernible voltage	V	37.9	38.8	39.7	—
Resolution	mV	—	9.5	—	—
Worst case offset and gain error	V	—	—	±0.95	$V_{\text{Measure}} = 38.8 \text{ V}$
Non-linearity	mV	—	—	±56.8	—
Input impedance	kΩ	109.1	109.3	109.5	No pull up or pull down ( $V_{\text{in}} < 5.7 \text{ V}$ )
Input impedance (5V/GND)	kΩ	13.0	13.2	13.4	Pull up or pull down ( $V_{\text{in}} < 5.7 \text{ V}$ )
Input impedance (2.5V)	kΩ	6.9	7.0	7.1	Pull up and pull down ( $V_{\text{in}} < 5.7 \text{ V}$ )

## Input/output types and specifications

### Low range frequency (PPU)

Description	Unit	Minimum	Typical	Maximum	Comment
Range	Hz	0	—	10000	In steps of 1 Hz
Rising voltage threshold	mV	—	—	314	
Falling voltage threshold	mV	55	—	—	
Input impedance	kΩ	232	233	234	No pull up or pull down
Input impedance (5V/GND)	kΩ	13.9	14.1	14.3	Pull up or pull down
Input impedance (2.5V)	kΩ	7.1	7.3	7.4	Pull up and pull down

### Middle range frequency (PPU)

Description	Unit	Minimum	Typical	Maximum	Comment
Range	Hz	0	—	10000	In steps of 1 Hz
Range (phase and quad)	Hz	0	—	5000	In steps of 1 Hz
Rising voltage threshold	V	—	—	4.25	Voltage required for frequency input
Falling voltage threshold	V	0.97	—	—	Voltage required for frequency input
Input impedance	kΩ	232	233	234	No pull up or pull down
Input impedance (5V/GND)	kΩ	13.9	14.1	14.3	Pull up or pull down
Input impedance (2.5V)	kΩ	7.1	7.3	7.4	Pull up and pull down

### Resistance input

Description	Unit	Minimum	Typical	Maximum	Comment
Range	Ω	6	—	10000	In steps of 1 Ω
Measurement error	%	—	—	7.1	@100Ω
		—	—	2.1	@1kΩ
		—	—	5.4	@10kΩ
Input impedance	Ω	1320	1320	1330	No pull up or pull down

### Current input (4-20 mA)

Description	Unit	Minimum	Typical	Maximum	Comment
Minimum discernible current	mA	—	—	0.12	—
Maximum discernible current	mA	28.2	28.9	29.7	—
Resolution	μA	—	7	—	—
Worst case offset and gain error	μA	—	—	±743	I <sub>Measure</sub> = 28.9 mA
Non-linearity	μA	—	—	±42	—
Input impedance	Ω	197	200	202	No pull up or pull down

## Input/output types and specifications

### CAN shield/Analog Input

#### *CAN Shield*

Description	Unit	Minimum	Typical	Maximum	Comment
Input impedance	—	—	0.68μF+1Ω	—	—

#### *Analog input*

Description	Unit	Minimum	Typical	Maximum	Comment
Minimum discernible voltage	V	—	—	0.03	—
Maximum discernible voltage	V	5.62	5.78	5.95	—
Resolution	mV	—	1.4	—	—
Worst case offset and gain error	V	—	—	±0.17	--
Non-linearity	mV	—	—	±8.5	—
Input impedance	kΩ	230	233	236	--

### Digital output

#### *Low side digital output*

Description	Unit	Minimum	Typical	Maximum	Comment
Voltage	V	0	—	V <sub>in</sub>	I <sub>out</sub> = 500mA
Current	mA	0	—	500	—

### CAN communication

Description	Unit	Minimum	Typical	Maximum	Comment
Available Baud rates	kbps		50		With 120 Ω termination. The default baud rate is 250 kbps.
			100		
			125		
			250		
			500		
			1000		
Maximum input voltage range	V	-27	—	40	CAN+ and CAN-

[Software updates using CG150 are supported via CAN0 and CAN1 channels.](#)

## Input/output types and specifications

### USB communication

Description	Unit	Minimum	Typical	Maximum	Comment
Available Baud rates	Mbps	12	—	480	—
Maximum input voltage	V	-0.3	—	7.3	D+, D-, and VBUS
USB current limitation	mA		250		

### Sensor output

Description	Unit	Minimum	Typical	Maximum	Comment
Sensor Output Voltage (5V)	V	4.81	5	5.18	
Sensor Output Current (5V)	mA			100	

### Video power

Description	Unit	Minimum	Typical	Maximum	Comment
Output Voltage (12V)	V		12		
Output Voltage (24V)	V		24		
Output Current (12V)	mA			375	
Output Current (24V)	mA			200	

### Officially validated digital camera formats

<b>IP Transport Protocol</b>	RTSP, RTP
<b>Video Stream Format</b>	H264, MJPEG



## Input/output types and specifications

### Officially validated analog camera formats

Format	Lines	Fields	FSC (MHz)
NTSC-M	525	60	3.579545
NTSC-Japan	525	60	3.579545
PAL-B, G, N	625	50	4.433619
PAL-D	625	50	4.433619
PAL-H	625	50	4.433619
PAL-I	625	50	4.433619
PAL-M	525	60	3.575612
PAL-CN	625	50	3.582056
SECAM	625	50	4.406 / 4.25
PAL-60	525	60	4.433619
NTSC (4.43)	525	60	4.433619

### Ethernet

Symbol	Description	Unit	Minimum	Typical	Maximum	Comment
Baud	Available baud rates	bps		10 M		Automatic polarity detection and correction; Auto-negotiation
				100 M		
V <sub>in</sub>	Max input voltage range	V	-25		25	Receiver input

## Product ratings

### DM700 environmental testing criteria

#### *Climate environment*

Description	Applicable standard	Comment
Storage temperature	IEC 60068-2-1, test Ab, IEC 60068-2-2 test Bb	
Operating temperature	IEC 60068-2-1, test Ab, IEC 60068-2-2 test Bd	
Thermal and humidity cycle	IEC 60068-2-38 (partial)	
Degree of protection	IEC 60529	

#### *Chemical environment*

Description	Applicable standard	Comment
Chemical resistance	ISO 16750-5	

#### *Mechanical environment*

Description	Applicable standard	Comment
Vibration	IEC 60068-2-64 test Fh	3.17g
Bump	IEC 60068-2-27 test Eb	
Shock	IEC 60068-2-27 test Ea	50g
Free fall	IEC 60068-2-31 test Ed	

#### *Electrical/electromagnetic*

Description	Applicable standard	Comment
EMC emissions	ISO 13766	Electromagnetic compatibility for earth moving machinery.
EMC immunity	ISO 13766	Electromagnetic compatibility for earth moving machinery.
ESD	EN61000-4-2	
Electrical transients	ISO 7637-2, ISO 7637-3	
Short circuit protection	Danfoss test	Inputs and outputs survive continuous short circuit. Normal function resumes when short is removed.
Reversed polarity protection	Danfoss test	Survives reverse polarity at supply voltage for at least five minutes.

### Supply voltage/maximum current ratings

DM700 displays are designed to operate with a nominal 9 to 36 Vdc power supply with reverse polarity protection.

#### *Supply voltage/maximum current ratings*

Description	Unit	Minimum	Typical	Maximum	Comment
Operating temperature	°C	-30	—	+70	
Storage temperature	°C	-40	—	+85	

## Product ratings

### Supply voltage/maximum current ratings (continued)

Description	Unit	Minimum	Typical	Maximum	Comment
DC supply voltage	V	9	—	36	Normal operation.
		7	—	—	Cranking; reduced functionality.
		-36	—	36	Short circuit and reversed polarity protection.
Average supply Current	A	—	1.08	—	Vin = 8V
		—	.675	—	Vin = 14V
		—	0.325	—	Vin = 27V
		—	0.26	—	Vin = 36V
Short circuit pin voltage	V	0	—	36	All DEUTSCH connector pins.

To achieve operation at the lowest supply voltage range, Danfoss has the following recommendations:

1. Use the largest appropriate gauge wire for power and ground to reduce cabling voltage drops.
2. Disable unused peripherals (WiFi, Bluetooth, GNSS, etc).
3. Reduce the overall power requirements on the device.
  - Reduce the LCD back light intensity.
  - Reduce the button back light intensity.
  - Reduce the load on USB Host (C3p03).
  - Reduce the load on sensor power (C1p08).

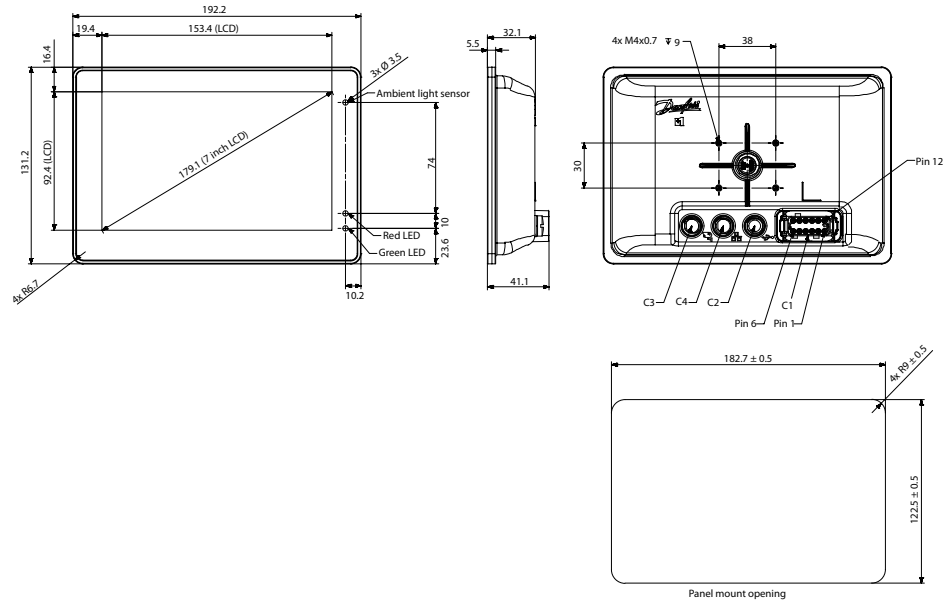
## Ingress Protection (IP) rating

DM700 displays carry Ingress Protection rating of IP66 and IP67 in the front and back.

## Installation

### DM700 Series Displays dimensions

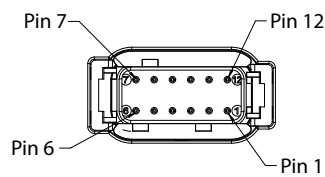
Dimensions in mm [in], RAM mount and connector call outs



## Pin Assignments

### Connector

C1 – DEUTSCH DTM06-12SA 12-pin connector



C1 pin	Function
1	Power ground -
2	Power supply +
3	CAN 0+
4	CAN 0-
5	Digital Analog Input
6	CAN 1+
7	CAN 1-
8	Sensor Supply Out (+5 V)
9	K15 Ignition Input (Digital Input)
10	Multifunction input (Digin/Anin/Freq/4-20mA/Rheostat)
11	Multifunction input (Digin/Anin/Freq/4-20mA/Rheostat)
12	Digital out (0.5A sinking)

## Installation

*C2 – M12 8Pin, Female, USB On-The-Go (Device/Host) "A" Key*



Pin	Function
C2p1	Device/Host Data +
C2p2	Device/Host Data -
C2p3	Device/Host Vbus
C2p4	Device Id
C2p5	Ground
C2p6	Manufacturing Use Only(leave floating)
C2p7	Ground
C2p8	Ground

*C3--M12 5 Pin, Video, Female "A" Key (Optional)*



Pin	Function
1	Power Ground
2	Power Supply
3	Signal Input 0
4	Signal Ground
5	Signal Input 1

*C4 – M12 4 Pin, Ethernet, Female "D" Key (Optional )*

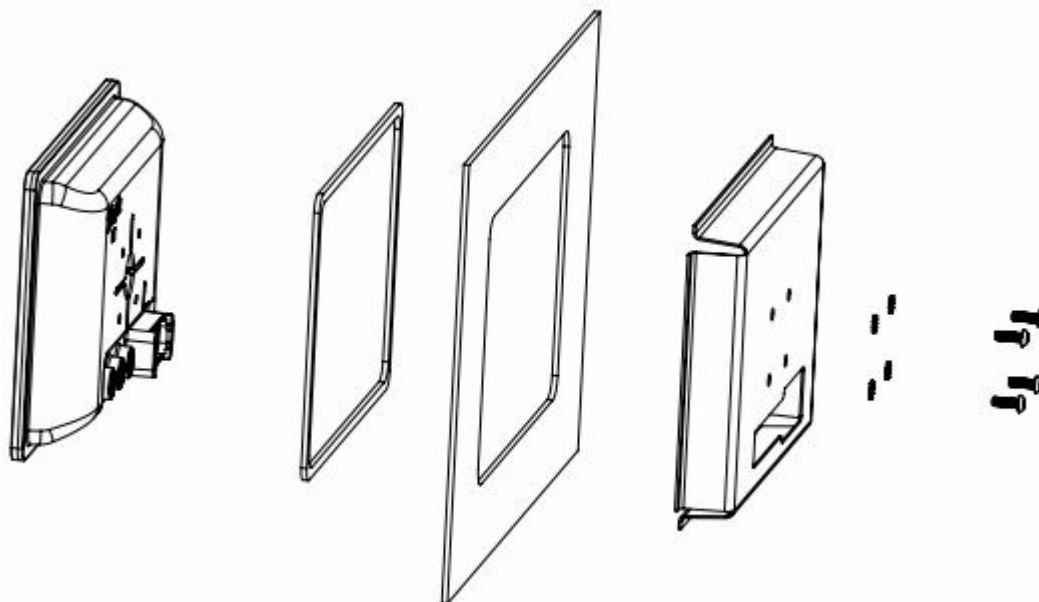


Pin	Function
1	TxD+
2	RxD+
3	TxD-
4	RxD-

## Panel Mount

Standard mounting procedure

## Installation



Call out	Description
1	Panel gasket (self sticks to housing, stays put during installation)
2	Mounting panel
3	Panel mounting kit
4	External tooth lock washers x 4
5	Fasting screws: 4xM5x0.8 thread type
6	Mounting hole depth: 12 mm [0.47 in] deep Torque: 4.5 N-m [39.8 in-lbs]&nbsp;

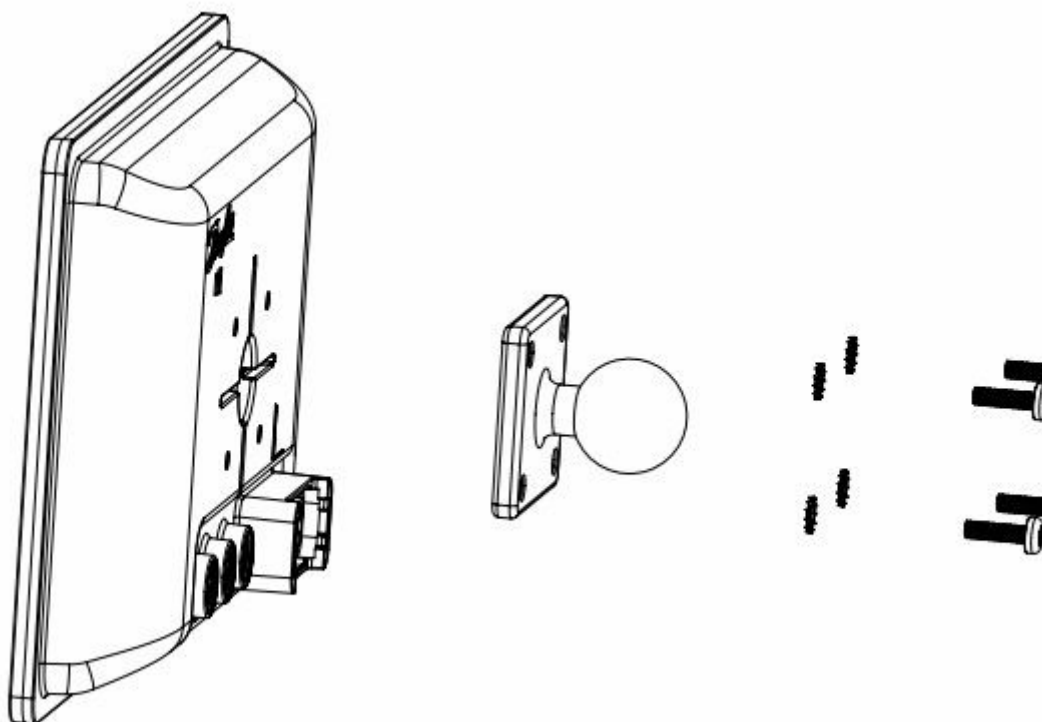
### Panel mounting kit

Quantity	Description
4	Screws
4	Washers
1	Gasket
1	Bracket

## Installation

### RAM mount

#### *Ram mounting procedure*



#### *RAM mount parts*

Call out	Description
1	RAM post mount hole pattern
2	Ball size: 38 mm [1.5 in] Size C
3	External tooth lock washers x 4
4	RAM fastening screws: 4xM5x0.8 thread type Mounting hole depth: 11 mm [0.43 in] deep Torque: 4.5 N-m [39.8 in-lbs].

### Fastening

#### **! Caution**

- Use of non-recommended screws can cause damage to housing.
- Reassembly with self-tapping screws can damage existing threads in housing..
- Ensure the vent is not covered. This excludes the RAM mount option.

### Visibility and viewing radius

Due to the display nature of the IPS-LCD screen, the optimal viewing angle for the DM700 series displays are at a maximum radius of 90° from either side of the screen.

## Installation

*Optimal viewing angle*

### Display faulty application recovery

The boot loader is always executed when the unit is powered. The boot loader checks if the application has the completely downloaded flag set and in that case starts to execute it after a delay of 200 ms. The delay gives an opportunity for the PLUS+1® Service Tool to prevent the call to the application. This allows a non functional application to be replaced by the boot loader. This recovery function is activated by the **Communication > Recover ECU** menu in the PLUS+1® Service Tool.

## Cleaning

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Do not pressure wash. Clean using a dry, soft, lint-free cloth, such as a micro-fiber cloth.

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