



Pro Display Display Modules

Electronic Control Systems



ENGINEERING YOUR SUCCESS.

Application

Pro Display is an HMI (Human Machine Interface) product for mobile machines and vehicles. The apps-based system ensures that all essential HMI functions for machine functionality, diagnostics, work management, infotainment, entertainment and much more, can be integrated into a single HMI display. Customer can incorporate an unlimited number of apps into one display product, and the display is not limited to one particular control system integration. Pro Display is compatible with Parker UX Toolkit software development environment.

Pro Display comes with a 10.1" or 12.1" touchscreen display and is intended for in-cab use.

Hardware Properties

Pro Display has a high-level display for demanding HMI needs. The processor, together with software toolkit, enables great graphical performance. The reliability of the core design is improved by chosen technologies.

The use of sunlight readable IPS technology display offers clear images with great colour reproduction from all viewing angles, allowing the display to be mounted in landscape or portrait orientation. A multi-touch touchscreen interface enables a rapid and accurate interaction with the display's applications.

Pro Display offers a wide variety of communication interfaces. CAN bus supports communication up to 1 Mbps. Software updates can be made easily by using a memory stick via a USB port. There are internal antennae for wireless communication, and a connector for an external antenna for the FM-RDS radio. Pro Display is capable of reproducing sound and showing videos with audio. Bluetooth can be used for remote display and diagnostics, mobile phone hands-free apps, as well as for music streaming services.

Besides great camera connectivity with multiple analog camera interfaces, a number of IP-cameras can be connected via Ethernet switch or WLAN access point. Two mounting methods are available for Pro Display. The display can be easily integrated into the panel or can be mounted with adjustable RAM® Mount components.

Pro Display has fast system start up, and from low-power sleep mode the start up can be almost instant.

Specifications

General

Weight (Pro Display 10)	1.42 kg
Weight (Pro Display 12)	1.96 kg
Operating temperature	-30°C - +70°C
Storage temperature	-40°C - +85°C
Protection	IP65
Voltage supply	12V and 24V (9 - 36 Vdc)
Camera supply	12 Vdc
Certifications met	CE, E-mark

Performance

Processor (Pro Display 10)	i.MX 6Dual (800 MHz)
Processor (Pro Display 12)	i.MX 6Quad (800 MHz)
RAM size	1 GB
Flash size	2 GB
External memory	Micro SD card
Software tools	Parker UX Toolkit

Communication interface

CAN	4
USB	2 (2.0 high speed host)
RS232	1 (TX, RX, GND)
Ethernet	1 (10 / 100 Mbps)
Wireless	Bluetooth ¹ WLAN, 802.11 b/g/n

Infotainment

Audio	Line IN/OUT, Microphone IN, FM-RDS radio tuner
Video inputs	2/4 x analog composite

Display

Touch interface	PCAP
Display	10.1/12.1" IPS LCD, 16:10 ^{2,3}
Resolution	1280x800 pixels
Brightness	400/900 cd/m ² (typical)
Backlight	White LED

Connection

Electrical connection	2 x Deutsch DTM04 12-pin
Ethernet	1 x M12 4/5-pin
USB	2 x M12 4/5-pin
Video input	1 x M12 5/6-pin
Radio antenna	1 x SMA for FM-RDS radio

Inputs/Outputs

Digital inputs	1 x keylock, 1 x wakeup
Supply outputs (PD 10)	1 x +12V / 1.3A ⁴
Digital outputs (PD 10)	1 x highside 200 mA ⁵
Digital outputs (PD 12)	1 x highside 1500 mA ⁵

Internal features

3-axis acceleration sensor
Voltage measurement / supply supervision
Real time clock with backup

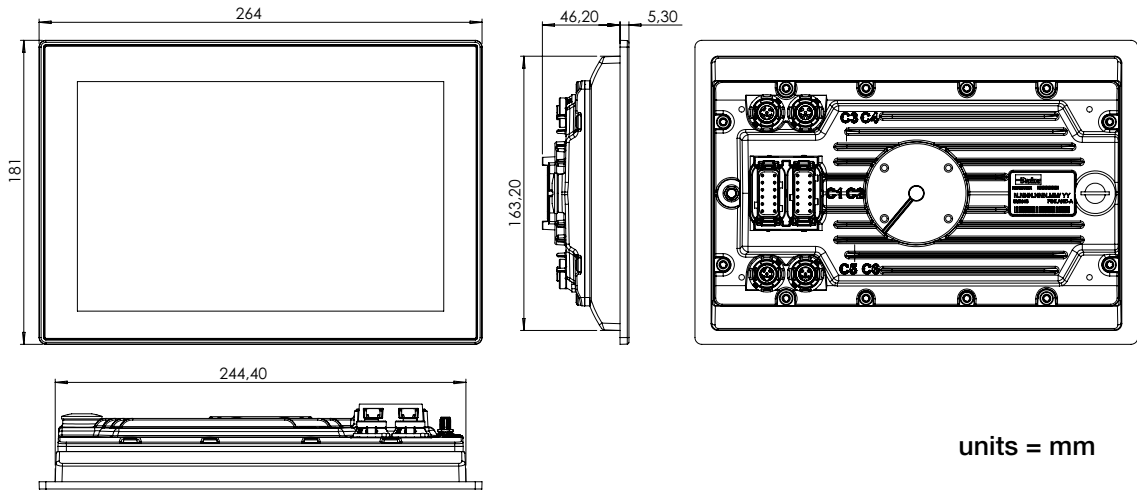
- 1) Hands-free, serial port protocol, A2DP sink
- 2) Hardened glass
- 3) With anti-glare coating (Pro Display 10)
- 4) E.g. for camera supply
- 5) E.g. for audio amplifier wakeup

Comparison of Product Variants

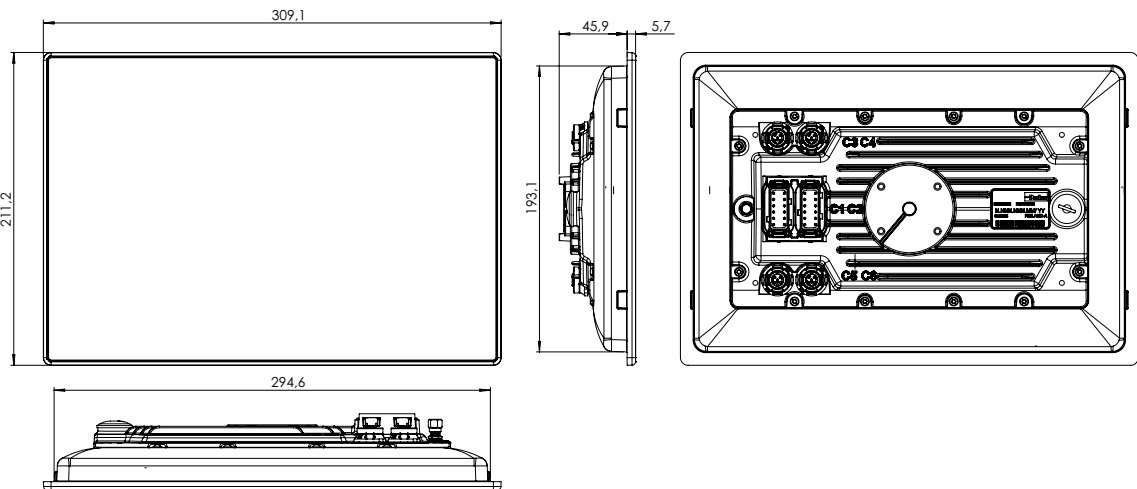
Available Products:	Pro Display 10	Pro Display 12
Processor	Dual core	Quad core
Display	10,1"	12,1"
Brightness	400 cd/m ²	900 cd/m ²
Camera inputs	2	4
CAN interfaces	4 (2 limited)	4

Dimensions

Pro Display 10



Pro Display 12



Ordering Part Numbers

Pro Display 10
Pro Display 12

88PROD10AS10
88PROD12AS10

For Development

Pro Display 10 Development
Pro Display 12 Development

88PROD10AD10
88PROD12AS10 + SW update¹

Accessories

M12 USB cable
Development cable kit
1" RAM mounting kit
Ethernet cable 1,5 meters

Pro Display all variants
Pro Display Development
Pro Display 10
Pro Display all variants

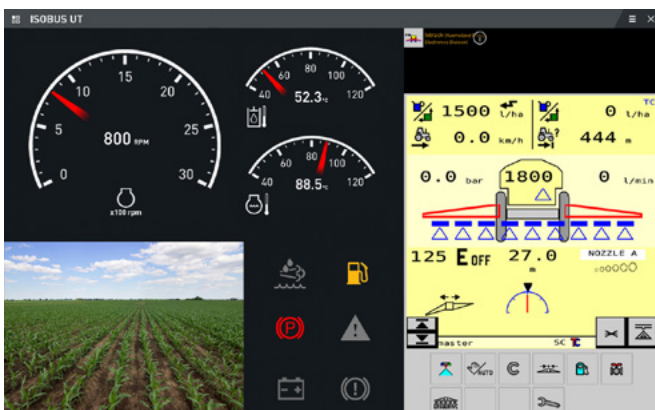
88CABPRODUSB
88CABPRODDHK
65RAM1KIT
20077780 (IQAN accessory)

1) Development unit software licence for Pro Display 12: please send a request with device serial number to support.forssa@parker.com

Develop Unique HMI with Parker UX Toolkit

Parker UX Toolkit includes the software tools to develop applications for Pro Display according to customer's own needs. Apps-based platform (UXP) enables separation of system functionality into own apps and independent app development, as well as integration of 3rd party software.

Parker UX Toolkit provides the tools to simplify application development by integrating all essential functions in order to optimise the development flow. All included app examples and ready-made UI components can be utilised and modified freely.



Due to platform flexibility, different apps can easily split the screen.

Design Applications

Parker Application Designer is the perfect tool for creating professional and user-friendly apps for Pro Display. Advanced scripting language (QML) and the WYSIWYG editor with ready-made components and style sheet are the key elements for the quick and easy programming of apps. Parker's Menu and Menu System apps provide a great framework for customized design.

The WYSIWYG editor (what-you-see-is-what-you-get) offers a simple and fast way of implementing your application. Application Designer enables the ease design of a custom graphical user interface, or the user can simply drag and drop the ready-made components. The components can be modified to fully reflect your own look and feel. The visualised content of an application can be evaluated instantly.

Application Designer provides a feature called "System project", which standardises common system-specific data and rules to be used in the development of apps. The system project is a special project in Application Designer and can be imported into each app project. With system project, the app

developer can rapidly begin building value-added functions instead of wasting time having to redefine the infrastructure of each app.

The platform supports multilingual applications. The new languages can be imported very easily by using a separate translation file.

Create Reliable Communication

Intelligent data management includes ready-made device and protocol suites, as well as efficient inbuilt diagnostics and alarm features to define communication interfaces very quickly. Reliable communication between machine and app can be created easily using drag-and-drop protocol layers.

Parker provides Device Suite, which implements an interface into many hardware devices, and J1939 Suite for standard communication with CAN bus. Our Communication Suite includes generic protocols for extracting, generating and manipulating data. With this special 'block library', you can define and manage different communication interfaces in your machine, such as CAN, Ethernet, Bluetooth and USB. System functionality can be expanded by creating new devices and protocols to manipulate the real world data.

Parker's data management includes efficient inbuilt diagnostics and alarm features for the data signals. Each signal path provides information about its health, which can be utilized with UI components.

Parker Apps

Pro Display unit comes with Maintenance App, which can be used for managing software installs and versions in the device.

Parker offers commercial apps for different mobile machine industry needs, such as ISOBUS Suite Apps for agricultural machines.



Environmental Protection

ESD

ISO 10605 (Electrostatic discharge operation & handling)

IP

IEC 60529 (Ingress protection IP65)

Athmosphere, corrosion

EN 60068-2-52 Test Kb (Salt mist)

ISO 15003 (Chemical brush exposure)

EN 60068-2-5 (Solar radiation)

Electrical

ISO 16750-2 (Operation voltage, overvoltage, superimposed alternating voltage, reversed voltage, slow decrease and increase of supply voltage, momentary drop on supply voltage, reset behavior at voltage drop, line interruption, short circuit protection)

Parker (Power supply with and without battery, immunity to micro power cuts)

Mechanical environment

IEC 60068-2-6 (Sinusoidal vibration)

IEC 60068-2-64 Test Fh (Random vibration)

IEC 60068-2-27 (Mechanical shock)

EN 60068-2-29 (Bump)

IEC 60068-2-6 (Resonance search)

Parker (Impact)

ISO 16750-3, 4.3 / IEC 60068-2-32 (Free fall)

Climate environment ISO 16750-4

IEC 60068-2-14 test Na (Temperature shock)

IEC 60068-2-2 (High temperature, storage)

IEC 60068-2-1 (Low temperature, storage)

IEC 60068-2-78 (Damp heat)

IEC 60068-2-30 (Damp heat cyclic)

IEC 60068-2-14 test Nb (Temperature cycling)

IEC 60068-2-2 test B (High temperature, operational)

IEC 60068-2-1 (Low temperature, operational)

EMI

ISO 7637-2 (Conducted transient emission, pulses 1, 2 & 3)

CISPR 25 ed3.0 (Radiated RF emission)

ISO 11452-1, ISO 11452-2 (Radiated RF susceptibility)

ISO 11452-8 (Immunity to low-frequency magnetic fields)

CISPR 25 ed3.0 (Conducted RF emission)

ISO 11452-1, ISO 11452-4 (Conducted susceptibility)

ISO 7637-2 (Transient - inductive load switching,

inductance, coupling, cranking, load dump)

ISO 7637-3 (Transient, signal lines, fast)

Miscellaneous

EP 455 (Readability)



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai

Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, St. Florian

Tel: +43 (0)7224 66201
parker.austria@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/NL/LU – Benelux,

Hendrik Ido Ambacht
Tel: +31 (0)541 585 000
parker.nl@parker.com

BG – Bulgaria, Sofia

Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

CH – Switzerland, Etoy

Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany

Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst

Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup

Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid

Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa

Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve

Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Piraeus

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs

Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IL – Israel

Tel: +39 02 45 19 21
parker.israel@parker.com

IT – Italy, Corsico (MI)

Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty

Tel: +7 7273 561 000
parker.easteurope@parker.com

NO – Norway, Asker

Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal

Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest

Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow

Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Borås

Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica

Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto

Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul

Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

UK – United Kingdom, Warwick

Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park

Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario

Tel: +1 905 693 3000

US – USA, Cleveland

Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill

Tel: +61 (0)2-9634 7777

CN – China, Shanghai

Tel: +86 21 2899 5000

HK – Hong Kong

Tel: +852 2428 8008

IN – India, Mumbai

Tel: +91 22 6513 7081-85

JP – Japan, Tokyo

Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul

Tel: +82 2 559 0400

MY – Malaysia, Shah Alam

Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington

Tel: +64 9 574 1744

SG – Singapore

Tel: +65 6887 6300

TH – Thailand, Bangkok

Tel: +662 186 7000

TW – Taiwan, Taipei

Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires

Tel: +54 3327 44 4129

BR – Brazil, Sao Jose dos Campos

Tel: +55 800 727 5374

CL – Chile, Santiago

Tel: +56 2 623 1216

MX – Mexico, Toluca

Tel: +52 72 2275 4200

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EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

US Product Information Centre

Toll-free number: 1-800-272-7537

www.parker.com

