Parker Pro Display 10
Display Modules

Electronic Control Systems

Application

Parker Pro Display 10 is an apps-based HMI (Human Machine Interface) product for mobile machines and vehicles. Pro Display 10 provides the possibility of having one centralised HMI display in the vehicle cabin for machine functionality, diagnostics, efficiency tools, infotainment and entertainment, and much more. 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 10 comes with a 10.1" touchscreen display and is intended for in-cab use.

Properties

Parker Pro Display 10 has a high-level display for demanding HMI needs. The processor, together with software toolkit, enables great graphical performance. High-speed RAM memory greatly improves the performance. The reliability is improved by SLC technology of Flash memory, including internal wear levelling and bad block management.

The use of 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 touchscreen interface enables an intuitive, rapid and accurate interaction with the display's applications, however the platform can also be controlled using remote buttons or a pulse wheel.

Pro Display 10 offers a wide variety of communication interfaces. CAN bus supports communication up to 1 Mbps and enables simpler installation with software-controlled termination. Software updates can be made easily by using a memory stick via a USB port. There are internal antennas for wireless communication, and a connection point for an external antenna for the FM-RDS radio app. Pro Display 10 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 two available camera interfaces, an unlimited number of IP-cameras can be virtually connected via Ethernet switch or WLAN access point. Two mounting methods are available for Pro Display 10. The display can be easily integrated into the panel with steel clips or mounted with adjustable RAM® Mount components.

Pro Display 10 offers different modes for fast system start up, such as sleep mode, shutdown mode and operation mode.

Specifications

General

Weight	1.42 kg
Operating temperature	-30°C - +70°C
Storage temperature	-40°C - +85°C
Protection	IP65
Voltage supply	12V and 24V (6 - 36 Vdc)
Camera supply	12 Vdc
CE marking	2004/108/EC
E-Mark	Yes

Performance

Processor (Prime)	Freescale i.MX6solo (800 MHz)
Processor (Advanced)	Freescale i.MX6dual (800 MHz)
RAM size	512 MB / 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 x analog composite

Display

Touch interface	PCAP
Display	10.1" IPS LCD, 16:10[2]
Resolution	1280x800 pixels
Brightness	400 cd/m2 (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	1 x +12V / 1A[3]
Digital outputs	1 x highside 200 mA[4]

Internal features

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

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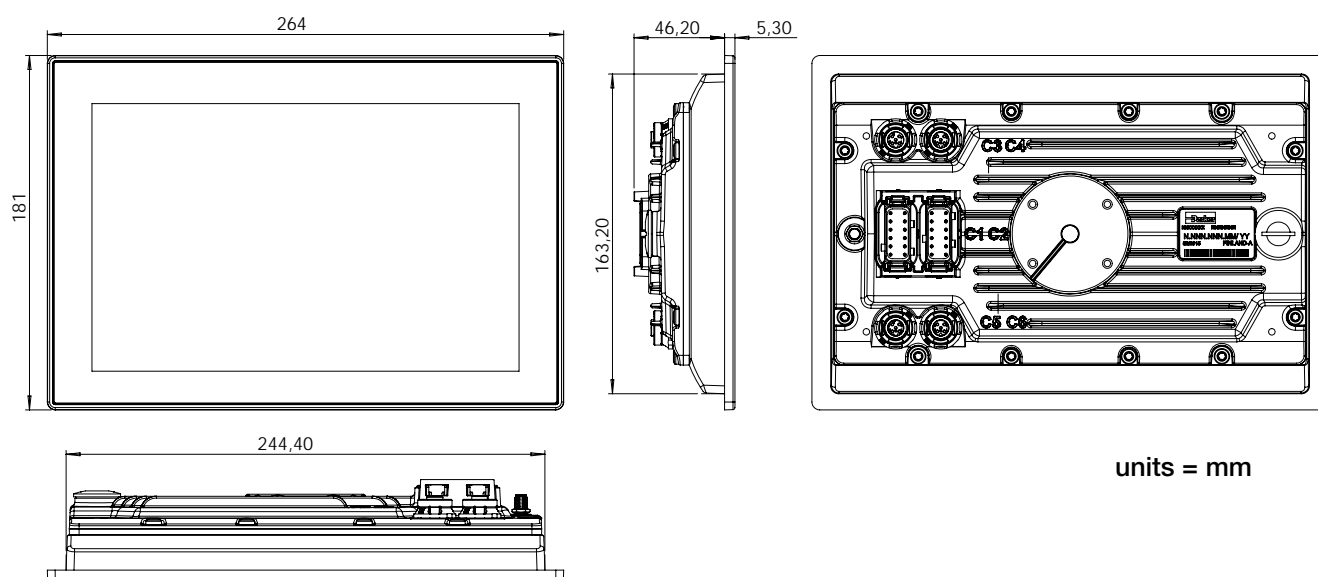2) Hardened glass with anti-glare coating
3) E.g. for camera supply
4) E.g. for audio amplifier wakeup

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Forssa, Finland

Comparison of Product Variants

Available Product Variants:	Prime	Advanced
Processor	i.MX6solo	iMX6dual
RAM Memory	512 MB	1 GB
Bluetooth	-	yes
WLAN, 802.11	-	yes
Audio	-	yes
Radio Antenna	-	yes

Dimensions

units = mm

Ordering Part Numbers

Parker Pro Display, serial production
Pro Display 10 Prime   88PROD10PS10
Pro Display 10 Advanced   88PROD10AS10

Parker Pro Display, development
Pro Display 10 Development   88PROD10AD10

Accessories
1" RAM Mounting Kit, Pro Display 10   65RAM1KIT
Panel Mounting Kit with Steel Clips, ~6 mm panel, Pro Display 10 88PMKPROD10
Panel Mounting Kit with Bracket, ~2 - 4 mm panel, Pro Display 10 88PMK2PROD10
M12 USB Cable, Pro Display   88CABPRODUSB
Main Connector Harness Package, Pro Display Development - C1   5030125 (IQAN accessory)
Main Connector Harness Package, Pro Display Development - C2   5030126 (IQAN accessory)
Main Connector Harness Package, Pro Display Development - Connectors only 20073081 (IQAN accessory)

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Develop Unique HMI with Parker UX Toolkit

Parker UX Toolkit includes the software tools to develop applications for Pro Display 10 according to customer's own needs. Apps-based platform 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.

Parker Application Designer

Parker Application Designer is the perfect tool for creating professional and user-friendly apps for your mobile equipment. Advanced scripting language (QML) and WYSIWYG editor with ready-made components and style guide are the key elements for quick and easy programming of apps.

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

For OEMs, Parker UX Toolkit 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 start to build value-added functions instead of wasting time with re-defining the infrastructure of each app.

The platform supports multilingual applications which can change fonts and text for each language. Whenever the current user language is changed, all dependencies are evaluated and displayed automatically.

Data Management

Intelligent data management includes ready-made device and protocol suites, as well as efficient built-in diagnostics and alarm features, to define communication interfaces in 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 in-built diagnostics and alarm features for the data signals. Each signal path provides information about its health, which can be utilized with UI components.
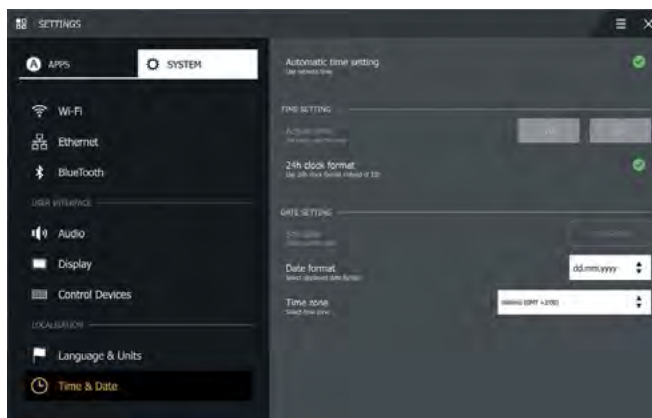
App Examples ★

Parker Pro Display 10 comes with several app examples, demonstrating on how the hardware features can be programmed with Parker UX Toolkit. Parker example apps can be utilised and modified freely, to deploy customised applications according to customer's own needs.

Available example apps are for example:

- Menu App / Menu System
- Settings App
- Maintenance App
- Dashboard
- Media Player App / Radio App

Parker is also developing commercial apps for different mobile machine industry needs.

Parker Settings App

★ Features will be implemented in upcoming releases.

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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)

Miscellanous
EP 455 (Readability)

Offer of Sale
Please contact your Parker representation for a detailed "Offer of Sale".

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 22 33 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@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, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaoers
Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@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

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@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, Leca da Palmeira
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, Spånga
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 (industrial)
Tel: +1 216 896 3000

US – USA, Elk Grove Village (mobile)
Tel: +1 847 258 6200

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

ID – Indonesia, Tangerang
Tel: +62 21 7588 1906

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Fujisawa
Tel: +81 (0)4 6635 3050

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, New Taipei City
Tel: +886 2 2298 8987

VN – Vietnam, Ho Chi Minh City
Tel: +84 8 3999 1600

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

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: 1-800-27 27 537

www.parker.com

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