



Parker UX Toolkit Software Tools

Electronic Control Systems



ENGINEERING YOUR SUCCESS.

Create an Efficient and Unique Interface for Your Machine

Increase productivity of your machine by having a centralised control unit that is amazingly user-friendly. Parker offers the tools to create a premium human machine interface (HMI) for your machine.

It is an agricultural, bus, construction or forestry solution; you can combine all essential applications into one easy-to-use HMI display. Include all the functions your customers may want; the number of apps is unlimited. It's completely your design.



Provide your customer with an opportunity for intuitive communication with your machine, to improve efficiency and work safely.

Core Functionality

To operate the machine, create functionality apps for instrumentation, controls and adjustments, such as dashboard, ISOBUS and harvester head control.

Efficiency

Design applications such as auto-steering, auto-levelling, weighing management, fleet management, augmented camera views, bus route manager, maps and navigation applications to help operators' daily work.

Parker UX Platform

Move Your Business into Apps

Parker UX Platform (UXP) is an apps-based platform that can be used to develop human machine interface (HMI) products for mobile machines and vehicles. The platform is designed to enable separation of system functionality into separate apps. The list of advantages for using separate apps is impressive; quick independent development, flexible installation, individual value-added interface into your machine and many more. It gives you the possibility of integrating your own designers, partners' and third-party capabilities into one product.

Build Your Own User Experience

This is a platform for innovation. It is full of possibilities, implementing both your essential functions and the most amazing ideas. Parker UX Platform provides an incredible PC toolchain to create your own unique HMI product, which responds particularly to your customers' needs and supports your brand success. With Parker high quality displays, we will give you a possibility to offer a great experience in the machine.

Reduce Downtime

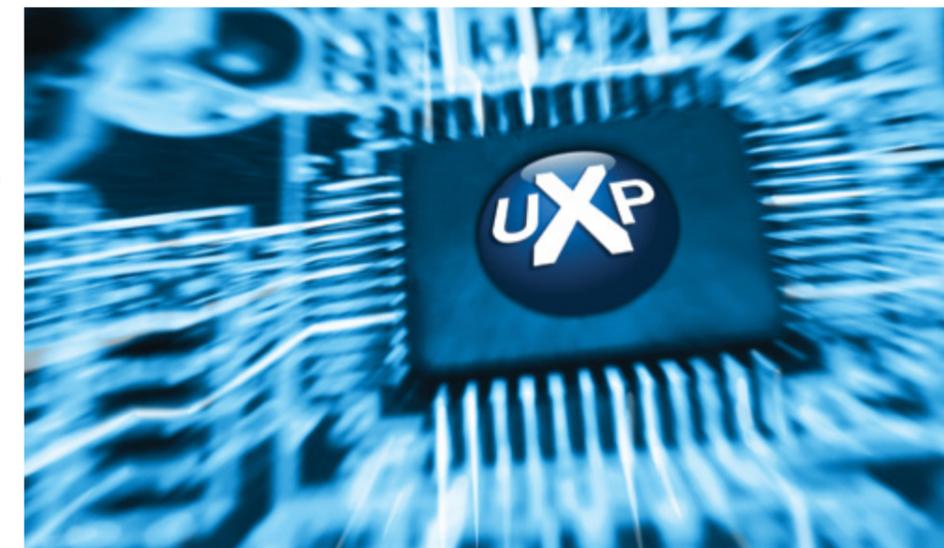
Reduce downtime when performing the core job by creating diagnostics, prognostics, integrated documentation, geo-fencing, immobiliser and load moment indicator apps.

Entertainment/Infotainment

Bring all entertainment and infotainment systems into one display, such as the mobile phone app, media player, radio and bus sign management.

Personal Tools

Provide tools like a journal, calculator and calendar to help the operator increase their productivity.





Parker UX Toolkit for Application Life Cycle Management

The Parker UX Toolkit allows designers and developers to focus on delivering successful solutions. We provide all the building blocks to deploy the apps easily, with a short time-to-market and comprehensive life cycle management. All Parker app examples and ready-made components can be utilised and modified freely.

Design Customised Plugins

Parker Plugin Wizard together with Qt Creator tool allows you to extend the functionality of the Parker UX Platform, to develop more complex applications.

With these software you can develop protocol layers to extend communication capabilities, advanced QML components with C++ and separate platform

processes for heavy calculations. Plugins are packaged and imported into a part of Parker Application Designer's application projects.

Define the Control System and Application Frames

System Project

System project is a special project type that can be developed and packaged with Parker Application Designer. This project is a control system setup and can be imported as part of all your actual application projects. System project includes information, boundaries and rules for the apps on how to operate.

System project provides a way to define the following:

- Machine communication
- Select display product
- Component style guide and themes
- Application life-cycle animations
- Mandatory languages to be translated
- System security
- User groups

System-specific data only needs to be defined once for all your display apps. The app developer can rapidly start to build value-added functions instead of wasting time with re-defining the infrastructure.

UXP Style Guide & Themes

Parker offers a style guide with a professional default theme, which can be utilised and modified freely to suit your brand and needs. A consistent layout of applications improves user-friendliness and work efficiency substantially. Create your own look and feel – components and apps will have the same identified outfit.

By using the style guide and definition tools you can create a frame for all applications in your machine.



App Design

Parker Application Designer is the perfect tool for creating professional and user-friendly apps for your mobile equipment.

Parker Application Designer is an innovative programming environment, which facilitates the development of great user interfaces with minimal programming effort. The software is based on QML language which is designed to describe the user interface of a program, and doesn't require specific programming skills.

What You See Is What You Get WYSIWYG editor offers a simple and fast way of implementing your application without having to write code. This visual editor

enables you to easily design a custom graphical user interface, or simply drag and drop our ready-made components. The visualised content of application can be evaluated instantly.

Ready-Made Components

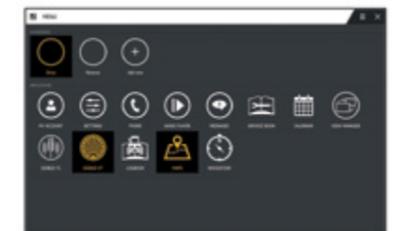
Parker provides a wide variety of modifiable UI components to ease the developer's work. The library includes elements such as buttons, switches, scroll bars, sliders, bar diagram, tabs, tumbler, dialogue box, drop-down menu, video overlay, keyboard, icon, telltale, gauge and more.

Language Translation

UXP 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.

Accessible Menu System

Parker Menu App example offers a clear menu structure. Parker Menu System example includes a menu bar with a drop-down options menu. Each app project can utilise the menu system to standardise usability of apps. Each application can register essential extra menus and icons to the menu bar.



Intelligent Data Management

Create amazingly fast, reliable communication between machine and app by 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.

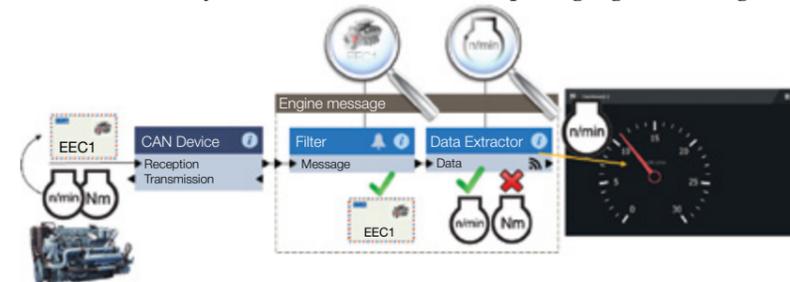
With this special 'block library', you can define and manage different communication interfaces in your machine, such

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 utilised with UI components. For example, a gauge can change

its pointer colour or blink the pointer if the corresponding data signal health has some problems. An alarm can be created for each signal path health issue and submitted to other apps, it can be displayed on top of the menu bar or logged in the notifications app for later diagnosis purposes.

Example: Engine controller broadcasts EEC1 message containing engine RPM and torque values. Display receives the message and extracts engine speed from the message data. Gauge subscribes the engine speed data.





Test and Simulate

Parker Application Designer provides a run-time environment to simulate the developed user interface, evaluate GUI appearance and test UI functionality. For testing purposes, it is possible to launch the application directly from the tool chain to the device by connecting Parker Pro Display to Parker Application Designer via Ethernet. A debugger is provided for a more in-depth test of the application code. The debugging works on both a PC environment and a device via Ethernet.

Parker Application Designer provides the key elements to develop a comprehensive simulation environment for the application. All data management interfaces can be simulated and monitored during the test process on PC or directly on the device via Ethernet.

Distribute

Parker Application Designer packages the application content (files) into Debian packages, including necessary dependencies to the system. The Parker System Certifier tool's key purpose is to certify and encrypt software packages to prevent unauthorised software installations. Encrypted packages can be safely transferred over a public network. System Certifier is intended only for OEM's use. Certified packages can be installed into Parker display products with the Parker Maintenance App. With this app, customers can install new, update existing and remove unnecessary apps, as well as see the current software versions.

Operate

Parker offers flexible and intelligent features to view the machine data, and works efficiently and intuitively through a one touchscreen display. Operators can run parallel applications, swipe to switch between running applications, change display orientation runtime, split the screen and - according to machine functions or other connected devices - always see the correct application on display.



View Manager

The operator can link different machine and application functions within defined activation signals in Parker View Manager App. For example, when driving the machine in reverse, the display can automatically show a special dashboard with a reverse camera view. This flexible feature enables further intuitive and efficient user interface.

Settings

Parker Settings App provides centralised interface for all app specific and system settings. Besides the app specific settings, the user can define the settings for the display and possible control devices, communication, audio and hardware, as well as localisation settings such as time and language.

With Parker UX Toolkit you can produce great looking HMIs displayed with rugged and high-performance Parker products.

Analyse and Profile

Parker Application Designer contains the code analysing tools to identify potential bottlenecks in code performance. Developers can inspect binding evaluations, and signal handling and painting operations when running a QML code. Parker UX Platform and Application Designer also provides building blocks for data logging and data analysis.

User Management

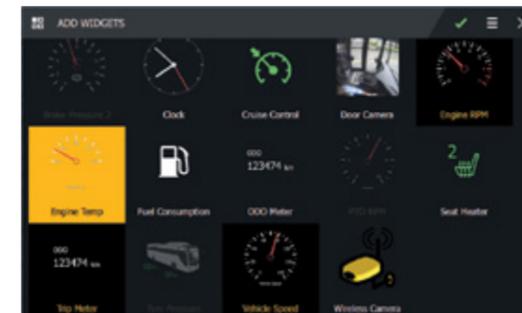
Parker User Account App offers the possibility of managing different users and user accounts. In each application project the developer can define application specific user permissions. Permissions can be utilised to restrict or allow certain functions and control visible applications for user levels. Developers can also define whether the saved data is system or user-specific information. User-specific data such as dashboards, display brightness and machine settings are automatically updated at the moment of login.

User Configurable Dashboard

Parker's flexible features to view the machine data helps working efficiently and intuitively through one display.

Operator can create individual dashboards according to their personal needs and save them. To add a new dashboard into your display menu, just select the desired widgets from widget library, organise and resize them freely and then approve.

You can easily create an operation related dashboard for your different work functions and your own favourite views. The displays menu can consist of several personal dashboards. User-specific dashboards are updated when the operator logs in.



Choose widgets for your personal dashboard.



Organise and resize widgets on the screen easily with touchscreen.

Diagnose

Parker Notifications App presents the data from each application log in a one clearly outlined table. This example application collects all the information messages, warning notifications and critical alarms together with sort and filter functions.

With Parker UX Platform it is possible to develop powerful diagnostic applications. A diagnostic application can inspect signals from the data management and visualise data in many formats. The measure groups, which can be configured runtime, can be logged for further analysis in the tool chain.



Your personal dashboard is ready and saved in menu.



Ordering Part Numbers

Parker UX Toolkit	Ordering P/N
Application Designer	88PAD1
Parker Pro Display	Ordering P/N
Pro Display 10 Development ¹	88PROD10AD10
Accessories	Ordering P/N
M12-USB cable ²	88CABPRODUSB
<i>Serial products & other accessories: Part numbers are found from catalogue HY33-4020/UK</i>	

¹ Intended only for product development use

² Needed for software installation via USB flash drive

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