



# VISUALIZATION FOR VISIONARIES

The new collaborative, cloud-based platform for HMI and Edge Computing applications, changing the world of visualization in the era of digital transformation

## HIGHLIGHTS

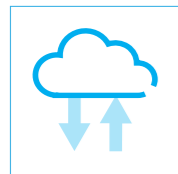
- Unprecedented collaboration, scalability and interoperability thanks to the new SaaS (Software-as-a-Service) model
- Modular object-oriented and cross-platform architecture for ARM/x86 systems running Windows/Linux
- Full OPC UA standard support for:
  - data acquisition from the field
  - M2M (Machine to Machine) communications
  - interfacing to MES systems, ERP and Cloud infrastructures
- Modern, responsive HMI interfaces, automatically adaptable to any display format and size
- Automatic management of PLC interchangeability at Runtime
- Scripts in C# to add custom methods and functionality that can be executed both at Runtime and within the editor to automate project development
- Natively integrated into OptixPanel™ Compact and OptixPanel™ Standard operator panels
- Optionally installable into all IPCs to build complete visualization, Industrial IoT and Edge Computing solutions
- HTML5 web interface that provides the same native GUI user experience without the need for conversions and compromises





It is the innovative software platform perfect to design modern, responsive HMIs with a high-level user experience, IIoT Gateways, Edge Computing applications and in general solutions related to Industry 4.0 needs. Thanks to the fully modular and extremely flexible architecture developed with cross-platform technologies, FT Optix™ enables the creation of applications compatible with ARM and x86 platforms with Windows and Linux operating systems, providing maximum flexibility to designers, who can choose the platform that best suits the application.

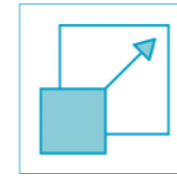
FT Optix™ is part of the cloud-based **FactoryTalk® Design Hub™** suite, which allows the design team to collaborate on HMI application development through a distributed version control system, simplifying software management, increasing productivity and accelerating time to market.



## CLOUD-BASED EDITOR AND COLLABORATIVE DEVELOPMENT

This is the age of remote working, hybrid office and SaaS, and companies especially SMEs must ride the wave of these new trends to succeed in today's highly dynamic and competitive marketplace. The modern workforce expects a flexible and agile experience: teams want to work with efficient, intuitive tools that add real value to their daily operations. SaaS enables this because it breaks down the barriers of the traditional office. Today it is typical to see distributed teams, with both onsite and remote users able to collaborate in real time on the same data and projects. Companies have realized that hybrid office and a remote workforce are the key to success.

**“ The new SaaS (Software-as-a-Service) model, which parallels the classic on-premise model, allows the development environment to be used directly from a browser at any time and from anywhere, lowering management costs and ensuring that the most up-to-date version available and even all previous versions are always used without the need for multiple local installations. Not only that, by leveraging a distributed version control system such as GitHub, developers can collaborate individually and in parallel, saving their own changes in the cloud and later sharing and merging them with others. The system automatically keeps track of who, what, and when the changes were made, allowing easy management of any conflict, all without the need for centralized private server support.**

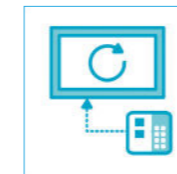


## EXTREME MODULARITY TO REDUCE TIME TO MARKET

We know that the manufacturing processes must be able to adapt quickly to new requirements. To respond efficiently to this evolution, it is necessary to increase the flexibility of machine and plant utilization through modular manufacturing, which reduces production costs and time to market while ensuring maximum flexibility of operations and interoperability between systems.

**“ The fully modular and highly flexible object-oriented architecture of FT Optix™ makes it possible to reduce application development time without compromising on functionality and performance, enabling an agile approach to machine development, guaranteeing reduced design time and extreme flexibility of the applications built, which are easy to modify according to new customer needs and reusable on different machines.**

**In fact, in FT Optix™ it is possible to define models (types) for any object (graphical and non-graphical) that can be instantiated both in the design phase and during the execution of the project even allowing the complete automatic creation of the project without the use of the FT Optix™ Studio development environment. With FT Optix™, it is also possible to completely customize the functionality of applications by programming in the C# language, even integrating existing programs to create unique solutions perfectly tailored to the specific needs of customers.**



## MAXIMUM EFFICIENCY IN MONITORING AND SHARING DATA

The manufacturing sector is constantly looking for solutions that increase productivity and overall plant efficiency. Machinery and plants will have to become increasingly connected, handle increasingly complex situations autonomously, automatically and adaptively, and monitoring functions will have to become increasingly efficient. HMI systems will therefore have to aggregate and display information clearly to facilitate machine operators' decisions and improve productivity. Flexibly managing interaction with PLCs will therefore become crucial.

**“ In FT Optix™ each communication protocol supports the import of variables from the PLC programming environment or directly online from the PLC memory itself.**

**At any time it is possible to check and compare the imported variables with the current PLC variables, highlighting any differences with a choice of how the variables are synchronized. In FT Optix™ the concept of “data context” that is the set of information to which an object refers, is applicable to all objects (graphical and non-graphical) and at any level. In the case where it is applied to the entire project, all the data referenced in the project can change instantaneously enabling automatic PLC change. In FT Optix™, it is also possible, when supported by the PLC communication protocol, to perform the import of variables from controller memory even at Runtime, creating the data structure of the HMI project at the time of project execution.**



## FULL INDUSTRIAL INTEROPERABILITY: NATIVELY OPC UA FOR MAXIMUM INTEROPERABILITY

In the era of Industry 4.0, data exchange is a prerequisite for efficiency and competitiveness. Every industrial application must be enabled to acquire and manage all relevant information from automation devices; much more than in the past, devices must support machine-to-machine communication without depending on the controller used. Plant connectivity must also support secure communication with cloud-based systems that are becoming the preferred place for data storage and analysis. The interoperability excellence standard for M2M communication, data acquisition from the field and interfacing to MES systems, ERP and Cloud infrastructures is the flexible and scalable OPC UA protocol, suitable for any industry.



***FT Optix™ natively integrates OPC UA to ensure future-proof, secure solutions that are open to the integration of third-party systems, offering new strategies in the design of Industry 4.0-compliant M2M and Industrial IoT applications. In fact, in FT Optix™ all project resources such as data structures, graphs, users, recipes, dataloggers, etc. are structured in OPC UA objects with properties, methods and events. This simplifies automatic interfacing to systems or solutions that support the OPC UA standard. In addition, FT Optix™ provides full support for Companion Specifications defined by consortia in different industries (MTP, PackML, Machinery...) and which simplify integration between automation systems.***



## RESPONSIVE AND MODERN HMIs COMPATIBLE WITH EVERY DEVICE

Levels of human-machine interaction are increasingly sophisticated and advanced, requiring modern user interface design to provide the best possible experience for operators who are operating the machine or line. Traditional process skills and knowledge in the control room or in the field are being replaced by new "digital native" operators who often have on the

one hand less process skills but on the other hand can rely on more skills regarding modern technologies that manage increasingly interconnected and integrated production systems.

In addition, web and mobile technologies typical of the consumer world have also become commonplace in the industrial sphere and offer greater flexibility, speed and real-time information ensuring greater efficiency and improving productivity.



***With FT Optix™, user interface designs are not structured in pages but in containers in which the placement of objects automatically adapts to the display format, e.g., 4:3 rather than Wide or vice versa, and/or to the resolution of the display. Object containers allow the automatic arrangement of elements in rows, columns, or arrays and also allow the use of multitouch gestures. In addition to the ability to create native multi-platform HMI designs, FT Optix™ also allows for HTML5 browser-compatible interfaces for full compatibility with any device.***

***FT Optix™ also provides for the management of OPC UA's international localization settings, which allow the creation of multilingual projects. Should the project be used by operators of different languages, localization settings such as time format and units of measure will automatically change.***



## EXPANDABLE AND SHAREABLE GRAPHIC SYMBOLS AND WIDGETS LIBRARY

Using a graphics library in industrial HMI software can help save time and effort, ensure consistency, improve usability, and give the HMI system a professional look.



***FT Optix™ has a rich library containing predefined and preconfigured symbols, widgets and scripts for use in your HMI project, you can also create new ones based on your own needs.***

***The personal libraries inherit the same collaboration model available for the entire project, i.e., they leverage a distributed version control system such as GitHub allowing sharing and parallel development of applications that are different from each other but use the same libraries.***



## CONFIDENTIALITY, INTEGRITY AND AVAILABILITY ASSURED

Since an HMI application is an important component of monitoring and control of industrial processes and machinery, its security is critical to ensure the safe and reliable operation of such systems. Some of the main reasons why such security is so important are: confidentiality of sensitive data such as production data, process parameters, and proprietary algorithms; data integrity by preventing unauthorized modification; and availability by ensuring that the system is always available and not vulnerable to unauthorized access.

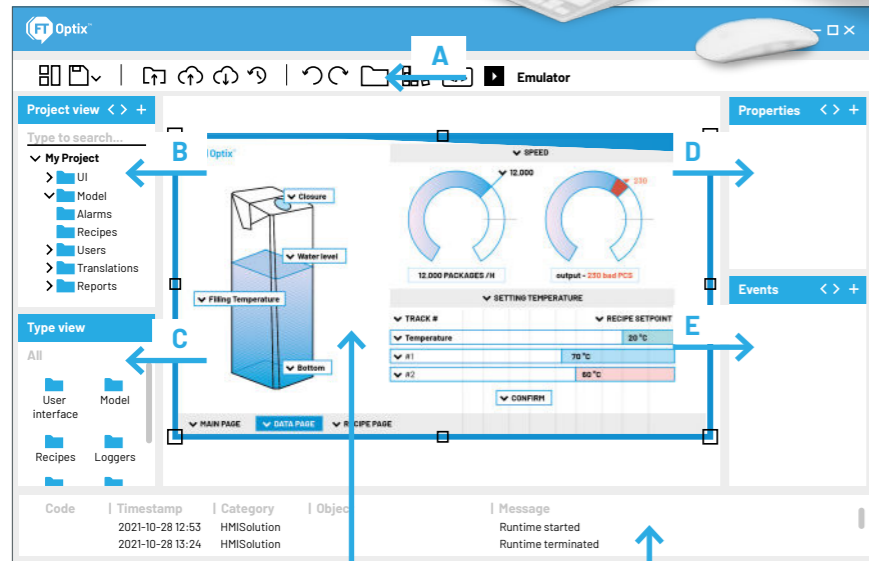


***FT Optix™ makes it possible to fully cover different aspects of security by acting on multiple areas. The project can be encrypted to protect its intellectual property. Taking advantage of user and group management, it is possible to assign areas of access to the project to specific groups or users that can be either local to the project or domain-based.***

***The application also can be developed to meet the 21 CFR Part 11 standard by allowing auditing of users and variables, signing and double-signing of changes, and allowing protection of exported data to ensure its integrity. It is also possible to take advantage of all the latest security standards in networking such as HTTPS for browser-based access to the project or certificate exchange for OPC UA communication.***

## FT Optix™ STUDIO

The innovative desktop or cloud-based development environment (IDE) for building FT Optix™ applications, with a programming interface that streamlines and simplifies the flow of actions performed by the programmer. The environment consists of the following seven main sections that enable the proper configuration of all elements of a project and can be local or cloud-based. FT Optix™ Studio is available in Standard and Pro versions.



G Objects Editor

### FT OPTIX™ STUDIO

#### A Main toolbar

B Project panel: project elements and functionality, organized into nodes and folders, that are the OPC UA information model

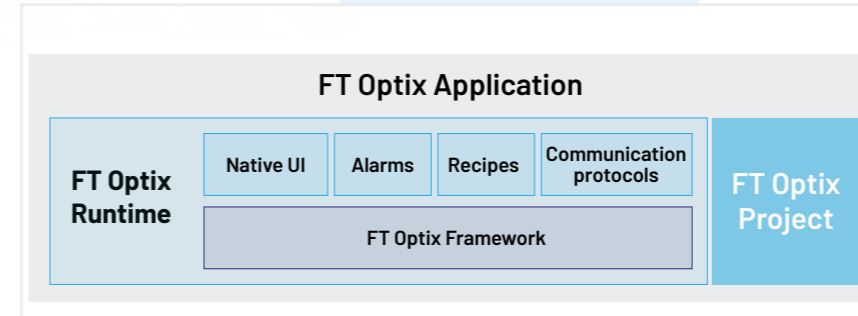
C Types panel: native and custom object and variable types from which to derive other objects and variables

D Properties panel for the selected project element

E Events panel: editor to manage events, and their associated commands, belonging to the selected object

F Log panel: Messages related to the operation of FT Optix™ Studio and running FT Optix™ Applications.

## TRANSFER — APPLICATION



### APPLICATION & FT Optix™ Runtime

The project created in FT Optix™ Studio is then compiled and transferred to the target becoming an FT Optix™ Application, i.e., an application that runs on the device that contains the compiled project and the Runtime components necessary to run the project i.e., FT Optix™ Runtime.

### FT Optix™ Framework & FT Optix™ Components

FT Optix™ Framework is the set of low-level software components developed by ASEM and Rockwell Automation for building industrial automation applications and include all commonly used functionalities, including user authentication and profile, data historization, and event management. FT Optix™ Components are the high-level components that manage the essential functionality of an HMI project such as graph objects, alarms, recipes, communication with PLCs, data management, interfacing to databases, etc.. Through FT Optix™ Studio, the designer builds the project using FT Optix™ objects and components by extending and integrating them as needed either through the graph editor or through logics written in C# language for maximum flexibility.



#### FT Optix Components

Embedded Visualization	OPC UA Client FULL	Alarms	UI Descriptions	Embedded DB Interface	Ritativity	Datalogger
Web Visualization	OPC UA Server	Recipes	Communication protocols	ODBC Interface	Reports	Event Logger

#### FT Optix Framework

Browsing	Node factory	Identity	Typing / Inheritance	Threading	Events	Databind / Converter
Security	Authentication	Debugging	Methods	History	Transactions	Audit

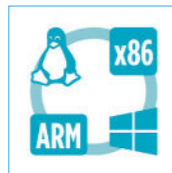
## BUSINESS MODEL

A highly modular and flexible solution such as the FT Optix™ platform also provides an innovative sales model, which offers maximum flexibility in achieving the best price/performance trade-off of a license or embedded system.



### NO LIMITS!

Unlike traditional solutions, FT Optix™ Runtime licenses and embedded systems with FT Optix™ do not have the traditional limitations and constraints on the number of variables, number of alarms, project pages, etc.



### CROSS-PLATFORM SUPPORT

FT Optix™ Runtime licenses are available:



- for both Windows and Linux operating systems
- for x86 ASEM VK/ HT/QT/BM/ PB platforms, ASEM 6300 and third-party systems
- for ARM platforms on OptixPanel™ embedded systems



### THE LICENSE AS A CONTAINER OF TOKENS

Each FT Optix™ Runtime license corresponds to a “token container” within which the designer can select and activate the functions necessary for application development. Each function has a token value associated with it, and some functions can be used for free without having a token cost. The selection of components and functions to be activated and used in the project is done at the time of programming with FT Optix™ Studio. FT Optix™ Runtime verifies that the total amount of tokens associated with all features actually activated is within the token limit of the purchased license.

## LICENCES AND TOKENS

LICENSE SIZE	 		
	IPCs	OptixPanel Compact	OptixPanel Standard
XS	5		
S	8	8 (included)	
M	11	11 (optional)	11 (included)
L	15		15 (optional)
XL	21		
UNLIMITED	N/A		

## FUNCTIONAL COMPONENTS

FUNCTIONALITY	DESCRIPTION	TOKEN VALUE
<b>GRAPHIC FUNCTIONALITY</b>		
Native graphical interface	Allows the project to be visualized using the native graphical interface of the device on which the application is running (Native HMI Client)	1
Web graphical interface	Allows you to view the project using an HTML5 browser (Web HMI Client) The value in tokens depends on the number of concurrent client sessions you want to allow	1 client = 1 token up to 3 clients = 2 tokens up to 5 clients = 3 tokens up to 10 clients = 5 tokens up to 20 clients = 7 tokens Unlimited = lic. Unlimited
Library	It allows developing the graphical part of the project using basic objects, graphical symbols in svg format, widgets and ready-to-use scripts	free
Multimedia content	Allows you to manage and display multimedia content: file PDFs, web pages, videos, file browsing	free
<b>BASIC FUNCTIONALITY</b>		
Alarms	Allows management of active alarms and the ability to schedule their notification	1
Data Logger	Allows sampling and historization of the value of variables on databases. This function requires at least an Embedded or ODBC type database	1
Event logger and alarm history	Allows the historicization of events such as Tag value change, User change, and alarms on database. This function requires at least one database of type Embedded or ODBC	1
Recipes	Allows the management of a set of values associated with process variables and stored on databases. This function requires at least one database of type Embedded or ODBC	1
Retentiveness	Allows saving changes made at Runtime to the project (value of Tags, Users, Language) while maintaining the possibility of restoring to the original value	1
Report	Allows the creation of reports with customizable layouts containing text, tables, and static graphs	1
Signature on Audit	Allows a digital firm to be applied to exported data in accordance with 21 CFR Part 11	1
User authentication via AD	Also allows authentication of users registered in the Domain of which the system on which the project is running is part. Not available on OptixPanel	1
Localization	Allows management of regional settings (date format, decimal separator...), translations of texts in the project, and management of units of measurement	free
Users	Allows management of users/groups in the project and definition of levels or access areas	free
Converters	They allow you to apply conversions to the values to be represented, example: key-to-value converter, linear converter, mathematical expressions, string formatter, etc.	free
Scripting	Allows you to develop scripts in C# to extend functionality with custom methods to run at Runtime and also at Desing time to automate project development	free
<b>DATABASE</b>		
Database embedded	Allows data historization and interaction on local SQLite database	1
Database ODBC	Allows data historization and interaction on remote databases of type Microsoft SQL Server and MySQL. The value in tokens depends on the number of databases configured	one database = 1 up to 3 databases = 2 up to 5 databases = 3 Unlimited = lic. Unlimited
<b>OPC UA</b>		
OPC UA Client	Allows import and access to any resource exposed by an OPC UA Server, according to the Data Access, Alarm & Conditions , Historical Data Access specifications	connection to one server = 1 connection to multiple servers = 2
OPC UA Server	Allows all project resources (such as graph, variables, alarms, events, methods, historical data) to be exposed via OPC UA Server, according to the Data Access, Alarm & Conditions, Historical Data Access specifications. The value in tokens depends on the number of concurrent client sessions you want to allow	one client = 1 up to 3 clients = 2 up to 5 clients = 3 up to 10 clients = 5 up to 20 clients = 7 clients Unlimited = lic. Unlimited

## COMMUNICATION PROTOCOLS

COMMUNICATION PROTOCOLS	SERIAL	ETHERNET	TOKEN VALUE WITH OptixPanel™ OR ASEM 6300 IPC	TOKEN VALUE ON THIRD PARTY SYSTEMS
RockwellAutomation EtherNet/IP		✓	1 station = free multiple stations = 1	1 station = 1 multiple stations = 2
Beckhoff TwinCAT (*)		✓		
CODESYS		✓		
Mitsubishi MELSEC FX3U		✓		
Mitsubishi MELSEC Q/FX5U		✓		
Modbus Master	✓	✓	1 station = 1 multiple stations = 2	
Omron EtherNet/IP		✓		
Omron FINS Eth	✓	✓		
Siemens S7 TCP		✓		
Siemens S7 TIA PROFINET (*)		✓		
Customizable serial communication	✓			

(\*) = available with tag import function in runtime at a cost of 1 additional token

## FT Optix™ Studio STANDARD & PRO

FEATURES	FactoryTalk® Optix™ Studio STANDARD	FactoryTalk® Optix™ Studio PRO
Design and deploy application from PC	✓	✓
Design application using web-based Studio	✗	✓
Deploy applications from the cloud via FactoryTalk® Remote Access™	✗	✓
Use the multi-user collaboration with Version Control System (Project + Libraries)	✗	✓
Technical training from ASEM Sales Engineer	8h	24h
ASEM Technical Support during working time (8x5)	Limited	Full
Price	Free	Annual subscription per user (90 days trial)

## NOT ONLY HMI:

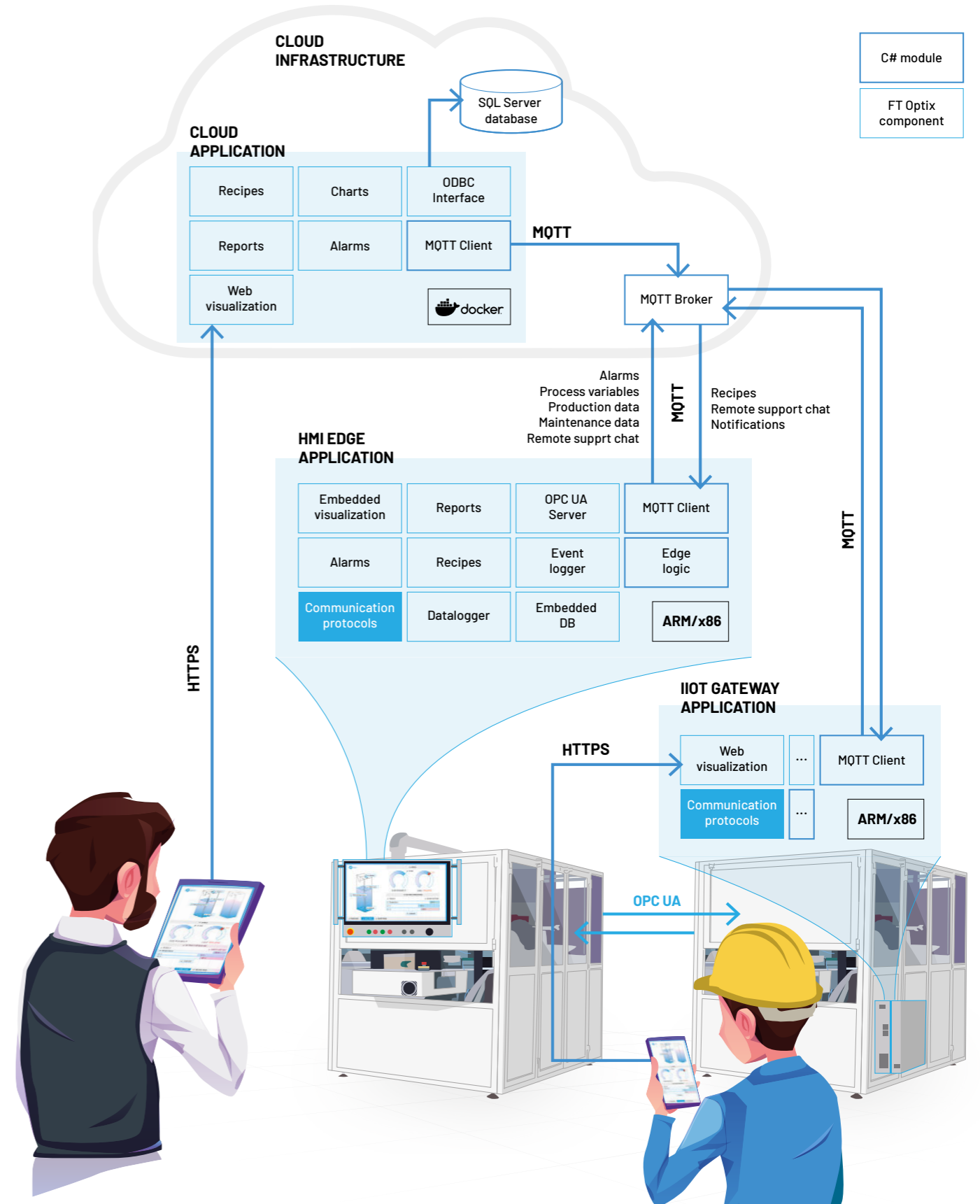
## IIOT EDGE GATEWAY

## FOR INDUSTRY

## 4.0 SOLUTIONS

FT Optix™ allows effective interfacing with any system that supports OPC UA and enables the creation of smart HMI projects:

- IIoT Gateway solutions with Edge Computing functions that process data collected from machines and then communicate it via OPC UA in M2M scenarios and to cloud infrastructures via MQTT protocol
- Docker container-based apps to be installed in the cloud to easily manage the ingestion and processing of data sent from IIoT Edge Gateway devices allowing the creation of plant management dashboards and the implementation of production process improvement logic



# OptixPanels™



FT Optix™ INSIDE

FT Remote Access™ INSIDE

OPC UA

MQTT

## HIGHLIGHTS

- Integrated solutions to design modern, ergonomic and flexible native interfaces that take full advantage of the graphical performance of systems, with built-in remote assistance for maximum connectivity
- Full industrial interoperability for M2M scenarios and interfacing to MES and ERP systems thanks to the native support for OPC UA protocol, simple two-way communication with Cloud infrastructures via MQTT protocol
- Front panels available in aluminum, aluminum and glass and stainless steel with display sizes from 4.3" to 21.5" and resistive or capacitive multitouch touchscreens
- NXP® i.MX 8M Quad Core processors for uncompromised performance
- OptixPanel™ Compact and OptixPanel™ Standard already include the Runtime license, which can be upgraded to meet any need
- Integrated communication interfaces such as USB 2.0 or 3.0 ports, Gigabit Ethernet network ports

## COMPARISON TABLE

	OptixPanel Compact	OptixPanel Standard	
<b>HMI SOFTWARE</b>	FT OPTIX (License size: S / M)	FT OPTIX (License size: M / L)	
<b>REMOTE ASSISTANCE SW</b>	FT Remote Access / UBIQUITY compatible (License type: BASIC)	FT Remote Access / UBIQUITY compatible (License type: Pro)	
<b>PROCESSOR (soldered on-board)</b>	NXP® i.MX 8M Mini	NXP® i.MX 8M Plus	
<b>SYSTEM MEMORY RAM</b>	1GB	4GB	
<b>AVAILABLE STORAGE FOR FT OPTIX APPLICATION</b>	-2GB	-12GB	
<b>STORAGE EXPANSION</b>	X	1x MicroSD with external access	
<b>INTERFACES</b>	<b>USB</b>	1x USB 2.0 (Type-A)	2x USB 3.0 (Type-A)
	<b>LAN</b>	1x Gigabit Ethernet (RJ45)	2x Gigabit Ethernet (RJ45)
	<b>SERIAL</b>	1x RS232/422/485 (DB9M)	1x RS232/422/485 (DB9M)
<b>LED BACKLIGHT TFT LCD</b>	<b>4:3</b>	-	10.4" - 800x600 12.1" - 1024x768 15" - 1024x768
	<b>WIDE</b>	4.3" W - 480x272 7" W - 800x480	7" - 800x480 10.1" - 1280x800 12.1" - 1280x800 15.6" - 1920x1080 18.5" - 1920x1080 21.5" - 1920x1080
<b>FRONT PANEL TYPES</b>	• Aluminum - Resistive touchscreen (Wide) • True Flat Aluminum and glass- Capacitive touchscreen (Wide)	• Aluminum - Resistive touchscreen (4:3 and Wide) • True Flat Aluminum and glass - Capacitive touchscreen (Wide) • True Flat Aluminum - Resistive touchscreen (4:3) • IP69K True Flat Stainless Steel - Resistive touchscreen (Wide)	
<b>PROTECTION GRADE</b>	up to IP65	up to IP69K	
<b>APPROVALS</b>	<b>CE</b>	✓	✓
	<b>ATEX</b>	X	✓
	<b>UL</b>	✓	✓
	<b>UKCA</b>	✓	✓
	<b>KC</b>	✓	✓
	<b>RCM</b>	✓	✓
	<b>MOROCCO</b>	✓	✓
	<b>ODVA</b>	✓	✓



**USER INFORMATION**

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