KEYENCE

Data Collection/Transfer·Monitoring Software
KV COM+

Collect/change field data in real time

KV COM+

KV COM+

A single piece of software allows:

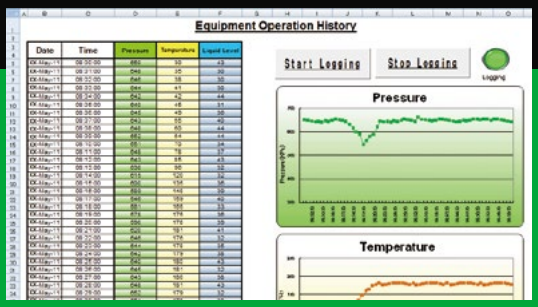
•MONITORING
•ACQUISITION
•CHANGE

of field PLC data.

3 basic functions in KV COM+

Common applications used for PC and PLC are installed. They can be used as Excel plugins, making it simple to generate diagrams.

*Feature of KV COM+ for Excel



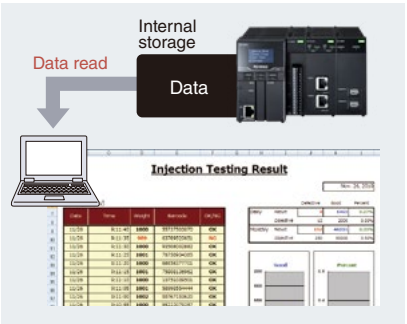
Data acquisition function embedded in Excel

Devices in a PLC can be embedded and saved in Excel without the use of other programs.

High Performance

Real-time acquisition and tracing

The new technology allows reading of data into the PC while buffering data in a PLC, facilitating high-speed recording (10 ms) and sampling within a scanning period when tracing.

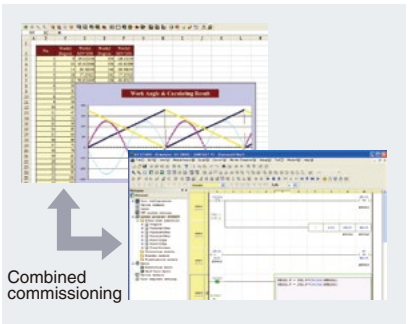


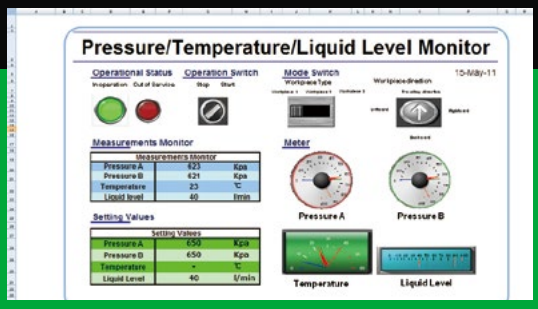
Standard GUI tools

Standard components such as switches, indicators and instruments are available to enhance visibility and operability on PC, facilitating shorter development periods and higher visibility.

Easy commissioning

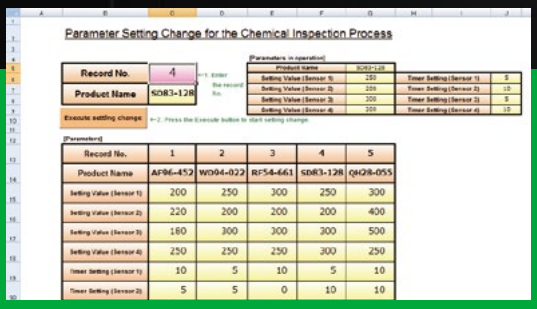
PC applications created with KV COM+ and the simulator function of KV STUDIO are integrated and communication between them is possible, which allows commissioning without a PLC.





PLC Monitor for monitoring from PC

The status of PLC devices sent from a file to PC can be displayed in real time.



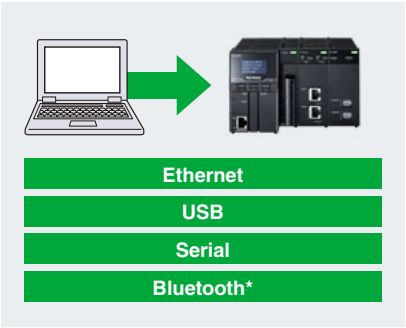
Batch replacement of Data Folder

With Excel lists, setpoints in PLCs can be replaced in batches.

Free Connection

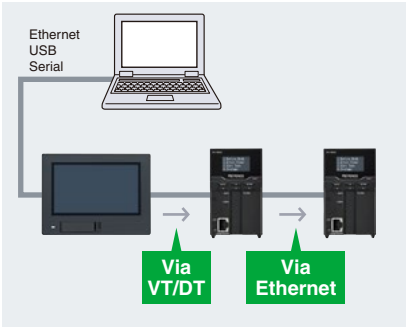
Various communication options

KV COM+ supports various communication methods between the PC and PLC. Wireless connection is possible via Bluetooth and an optimal system to meet customer requirements and environment can be built.



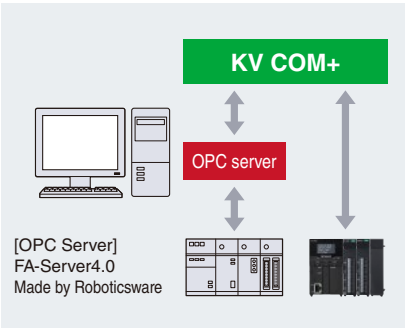
System-specific connection

For systems with multiple PLCs, communication is possible via Ethernet or VT/DT. This makes it possible to utilise various connection types to suit the system configuration even without a direct 1:1 connection to the communication PLC.



Communication with PLCs from other companies via OPC server

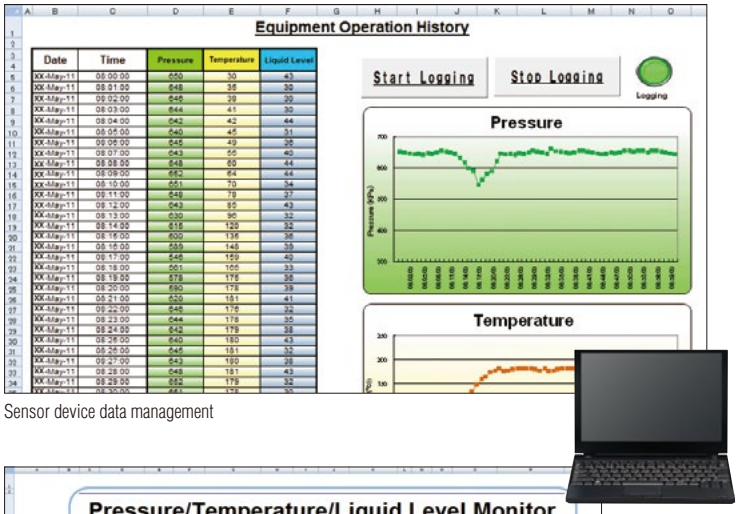
OPC server can be installed on the device to be connected. Even if PLCs from other companies are used in a system, system building can be completed easily with KV COM+.



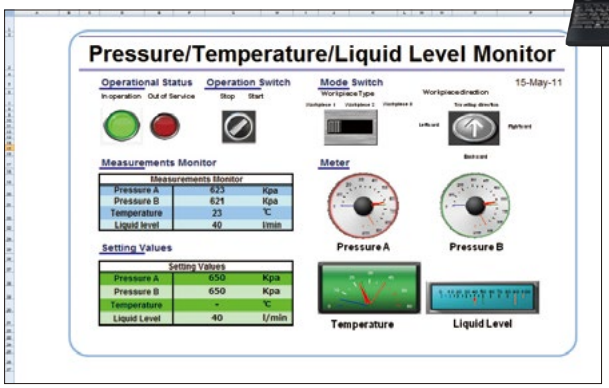
* Supported CPU units: KV-5500 / KV-5000 (Ver. 1.1 or later); KV-3000 (Ver. 2 or later)

1 Pressure/temperature/measurement system data collection

Conventionally, if there was no unit that matched the sensor interface when collecting data from a sensor device, it was necessary to perform programming on a PC. The KV-8000 Series has a diverse lineup of units. What's more, "KV COM+" can be used to easily perform logging and monitoring.



Sensor device data management



Sensor device monitoring screen

KV-8000 Series

Pressure value
A/D conversion unit

Temperature
Temperature input unit

Measured value
Ethernet/serial unit

Flow rate value
CC-Link DeviceNet™ unit

KV COM+

Data collection/monitoring function

Implemented with easy configuration in just 3 steps

The settings can be configured easily in just 3 steps: (1) set the PLC to connect to, (2) set the devices to log and the trigger, and (3) prepare the Excel format.

Automatic saving function

Saves Excel files and sheets with arbitrary triggers

It is possible to accumulate data by periodically saving files according to arbitrary triggers such as the period, time, and bit devices.

KV-8000 SERIES

High-speed A/D conversion with a buffering function

High-speed conversion that can even capture momentary changes

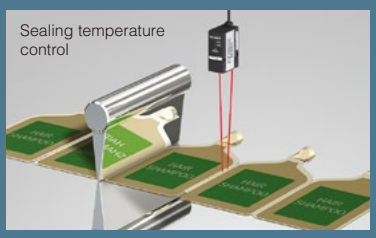
The KV-SAD04 can perform high-speed A/D conversion in as little as 10 µs, which increases the responsiveness of the overall system and thereby leads to improved productivity.

PROTOCOL STUDIO for Ethernet/serial

Ladder-free communication with various communication devices

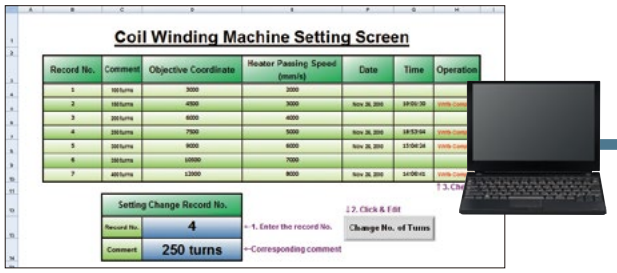
The format and command definitions and the transmission and reception processing that are all required for communication programs can be implemented in a ladder-free manner. The received data is automatically stored in devices, which makes it easy to perform communication.

Applications



2 Batch changes to the target coordinates and travel speed

There is no need to set the target coordinates and the travel speed individually, which enables tooling changes in batches.



Setting parameters such as the target coordinates and the speed

KV-X MOTION

KV-8000 Series +
KV-XHxxML

Coil winder

KVCOM+

Data folder function

Values can be written to DM in batches

It is possible to write values to the PLC in batches with a single operation by registering setting data for each product type in advance. This decreases the amount of time and effort that are required.

Monitoring function

Real-time monitoring of the current coordinates and the speed

The current coordinates and the operating speed can be monitored as a graph or as numeric values. This can be used in operation checks at the time of startup.

KV-X MOTION

Buffer memory rewriting

Changing parameters such as the target coordinates and the speed

Settings such as the target coordinates, the speed, and the acceleration/deceleration for each point can be changed during operation.

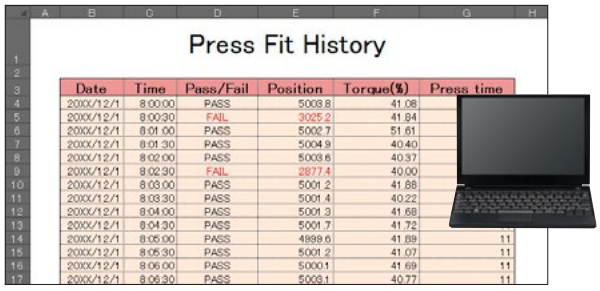
Dedicated instructions available

Easy buffer memory writing/reading

It is possible to rewrite settings just by using the dedicated instructions. There is no need to write complicated programs.

3 Retaining the inspection data during torque control

In addition to the torque values, the position coordinates are also saved on the PLC, which makes it possible to create high-quality inspection records.



Inspection data record during indentation

KV-X MOTION

KV-8000 Series +
KV-XHxxML

Part indenting machine

KVCOM+

PLC signals can be set as triggers

Using PLC signals to simultaneously log torque values and coordinates

The user can freely select the trigger to use in capturing the data in order to match the application. Some examples of triggers include the period and bit devices.

KV-X MOTION

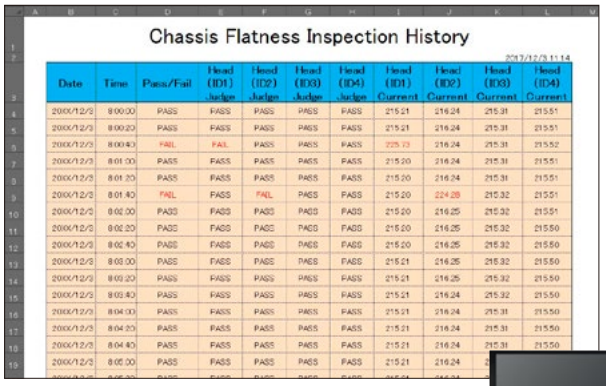
Torque control

Automatic storage of not only torque values but position coordinates as well

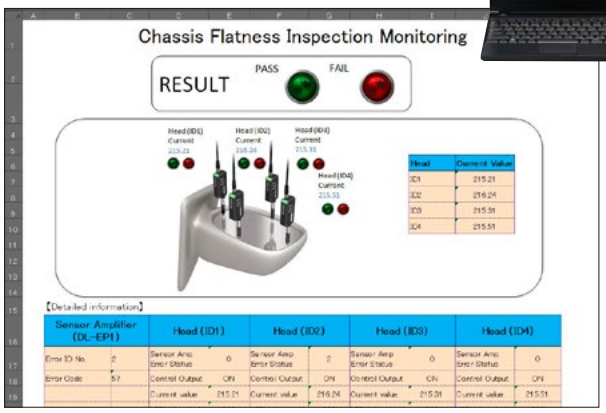
Position coordinates are saved on the PLC even during torque control, which makes it possible to perform control with the pushing torque + the travel range of the pushed object.

4 Enabling high-speed data collection that is also highly accurate

With conventional high-speed sampling, not all data was captured, which made it difficult to achieve high-speed sampling.
The KV sensor network and “KV COM+” can be used to perform high-speed data collection that is also highly accurate.



Data recording of inspection results



Inspection monitor screen

KV SENSOR NETWORK

KV-X COM

KV-8000 Series + KV-XLE02

DL-EP1

Contact sensor
GT2/GT Series

CCD laser sensor
IG Series

Laser detection sensor
IL Series

KV COM+

Real-time logging

High-speed sampling as fast as 10 ms

Even data that is prone to change subtly can be saved accurately with high-speed sampling.

Real-time tracing

Accurately catches the data before and after an event occurs

When an event occurs, the detailed data before and after the event is saved, which is useful in analysing the cause of the event.

KV-XLE02

KV sensor network

High-speed communication with various sensors and Ethernet cables

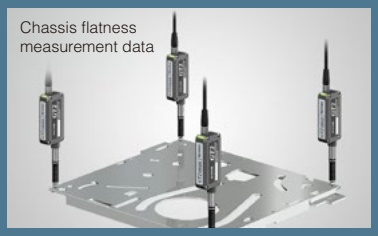
The high-speed processing with a transfer period of 0.5 ms and a maximum processing speed of 30000 pps makes it possible to perform data communication between a PLC and a sensor.

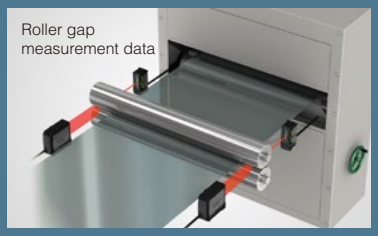
High speed and high accuracy

Faster than serial communication and more accurate than analogue

The Ethernet base combines the high speed of analogue and the high accuracy of serial to achieve high-speed communication that is also highly accurate.

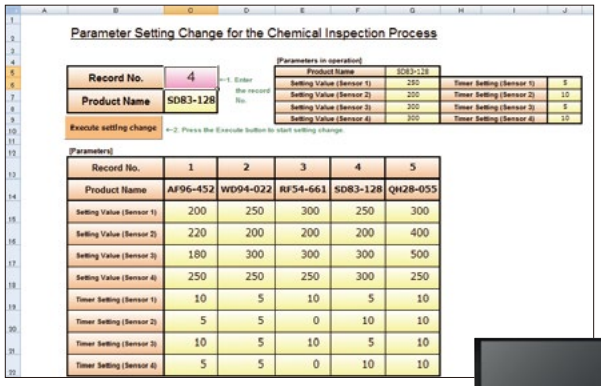
Applications



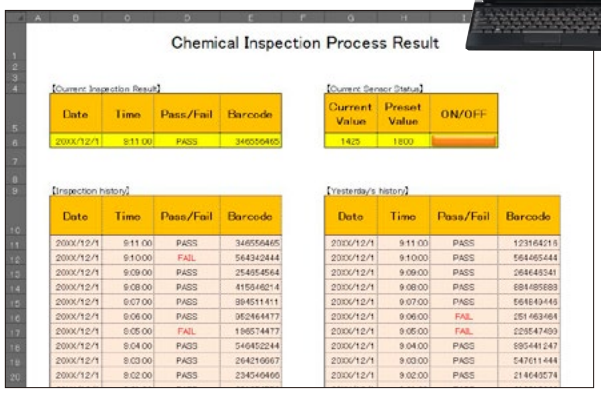


5 Batch tooling changes of sensor settings

Conventionally, each time that the product type was changed, time and effort were required in order to adjust the sensitivity of the sensor.
The KV sensor network and “KV COM+” can be used to perform tooling changes just by writing settings as a batch from a PC.



Sensor settings tooling change screen



Sensor judgement result records

KV SENSOR NETWORK

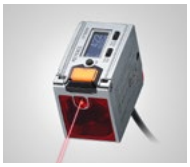
KV-X COM

KV-8000 Series + KV-XLE02

NU-EP1

Fibreoptic sensor
FS-neo Series

Laser sensor
LV-neo Series



TOF laser sensor
LR-T Series (via the MU-N)

Full-spectrum sensor
LR-W Series (via the MU-N)

KVCOM+

Data folder function

Values can be written to DM in batches

It is possible to write values to the PLC in batches with a single operation by registering setting data for each product type in advance. This decreases the amount of time and effort that are required.

Input auxiliary information acquisition function

Making it even easier to set the data folder

Values can be entered using the names of sensor parameters, so there is no need to be concerned about device numbers. This prevents mistakes when configuring settings.

KV-XLE02

Sensor setting batch transfer function

Using the KV sensor network to change settings from a PLC

Sensor settings can be assigned to arbitrary DMs, so it is possible to change the settings of multiple sensors as a batch from a PLC.

No program required

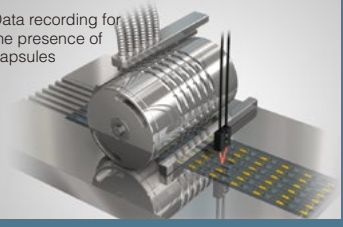
Easy connections between PLCs and sensors

Systems can be constructed with easy configuration: just select the sensor. There is no need to write troublesome programs.

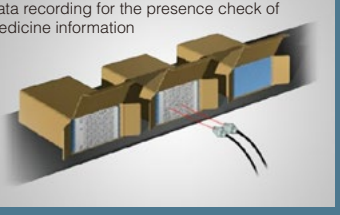
Applications

Tooling changes for targets having different product types

Data recording for the presence of capsules

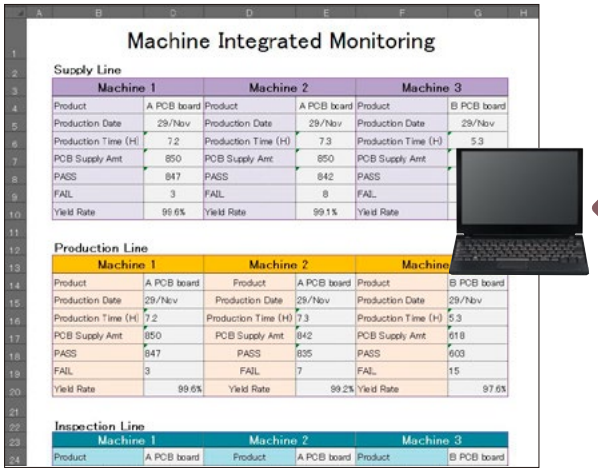


Data recording for the presence check of medicine information

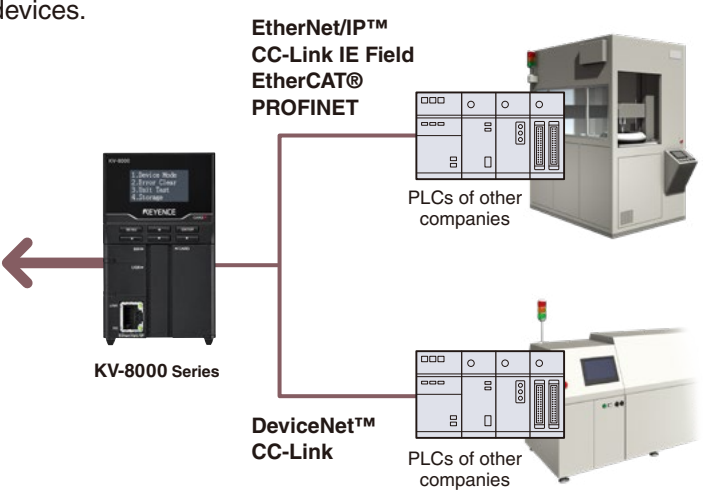


6 Production line monitoring

Conventionally, in order to monitor the desired data for each device, workers would patrol the worksite and check the data manually or specialised manufacturers would be contracted in order to construct a system. Both of these solutions were expensive “KV COM+” and the KV-8000 Series can be used to easily construct a simple system for monitoring various devices.



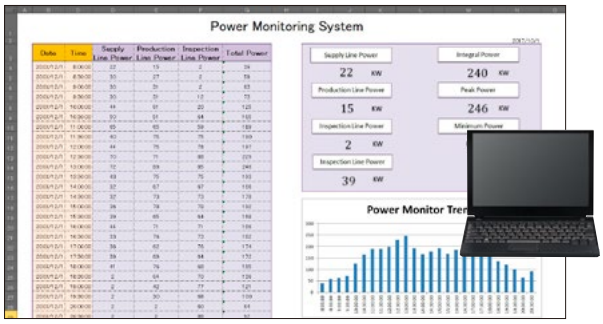
Batch monitoring of the operating state of various devices



*EtherNet/IP is a trademark or registered trademark of ODVA. CC-Link IE Field is a trademark or registered trademark of Mitsubishi Electric Corporation. EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany. PROFINET is a trademark or a registered trademark of the PROFIBUS Organisation. DeviceNet is a trademark or registered trademark of ODVA. CC-Link is a trademark or registered trademark of Mitsubishi Electric Corporation.

7 Monitoring the power

Changes to laws related to the conservation of energy have led to increased needs for monitoring the power of each and every device. “KV COM+” and the KV-8000 Series can be used to easily construct a system for monitoring power after devices have been installed.



Power monitoring screen for various devices

Installing the Power Measurement Unit KL-WH1 after the devices have all been installed makes it possible to acquire the power into a PLC in a program-free manner. Furthermore, it is also possible to use serial communication to easily interact with power measurement devices made by other manufacturers.

KV COM+

Real-time monitoring

Batch monitoring of selected data for each piece of equipment

It is possible to construct a system for monitoring each device from an office, which eliminates the need to physically visit the worksite in order to check devices.

Excel plugin

Makes it possible to create highly flexible monitoring screens

All editing is performed in Excel, so items such as the size and colour of the display as well as graph displays can be set in an easy and flexible manner.

KV-8000 SERIES

High affinity with PLCs of other companies

Support for various open networks

It is possible to establish data links not only between KEYENCE PLCs but also with PLCs of other companies, which provides the user with peace of mind.

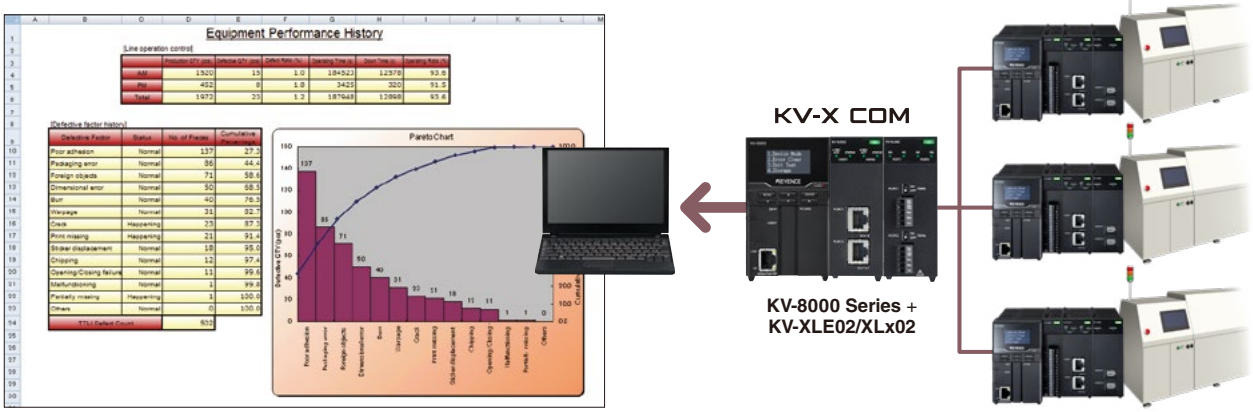
Simplified wiring unit

Connecting just to the sensor whose data needs to be accessed without needing to touch the existing PLC

Not only is it possible to connect existing PLCs to the KV, but it is also possible to use the KL-LINK simplified wiring system to directly connect equipment that has no PLC to the KV.

8 Line operation management

The operating status of each device—such as the alarm status of each device and the number of times that alarms have occurred—can be monitored from a remote office.
This information can be not only monitored but also saved as a history.



Alarm history and Pareto chart display for each device

KV COM+

Alarm function

Monitoring the alarm occurrence status and history of each device

The status of registered devices can be monitored and the number of times alarms have occurred on these devices, the accumulated alarm time for these devices, and the messages on these devices can be monitored and saved.

Pareto chart display

Displays information such as the details and count of error occurrences in an easy-to-understand manner

Frequent errors can be checked for each device. This can be used as the analysis data for improving the rate of operation of the devices.

KV-X COM

PLC link function

Enabling high-speed PLC links in a program-free manner

This makes it possible to link PLCs together over Ethernet—which conventionally required a socket communication program—in a program-free manner.

Large-capacity PLC links

The KV-XLE02 enables links between up to 64 units with up to 720k words

It is possible to read and write data between PLCs on the same network just by using KV-X COM settings. This makes it easy to create large-capacity PLC links.

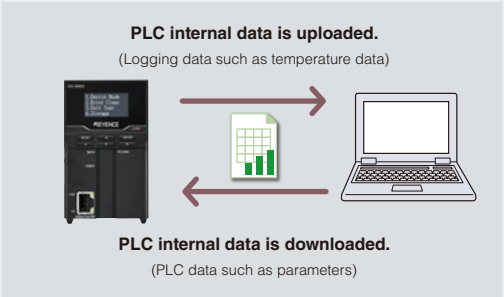
Useful PLC functions that only collect data when necessary

CPU built-in logging function

The PLC is standard-equipped with an SD card slot. What's more, the logging is set with easy configuration: just use the dedicated wizard to set the file name, logging device, and trigger conditions.

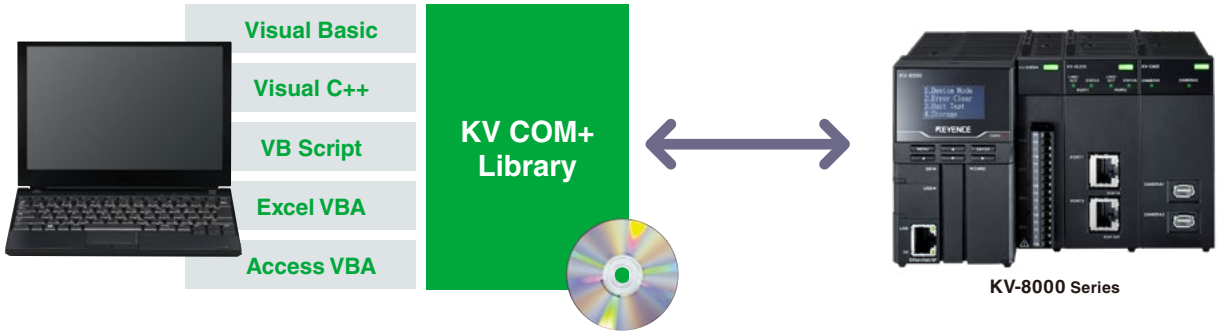
FTP client/server function

The data collected on the SD card can be uploaded to a PC with user-defined timing. It is also possible to read files from a PC to the PLC.



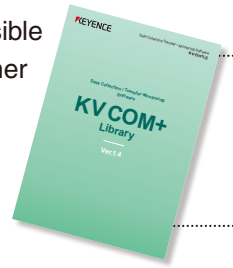
9 Embedding in the company's existing applications

Conventionally, a communication program was required to link a PLC with applications developed by a company.
"KV COM+ Library" can be used to reduce the amount of time and effort that goes into developing communication programs.



What is KV COM+ Library? An ActiveX library for communicating with the KV Series

"KV COM+ Library" is software that makes it possible to connect a PLC to a PC in a program-free manner by embedding "KV COM+ Library" in applications developed by the user in VB, VC, and other languages when exchanging data between the PC and the PLC. There is no need to worry about bothersome communication protocols such as Ethernet communication and serial communication.



Supported development languages

- Visual Basic 6.0 2013/2012/2010/2008/2005/.NET 2003
- Visual C++ 6.0 2013/2012/2010/2008/2005/.NET 2003
- Excel 2016/2013/2010/2007/2003/2002/2000
- Access 2016/2013/2010/2007/2003/2002/2000
- VB Script*1

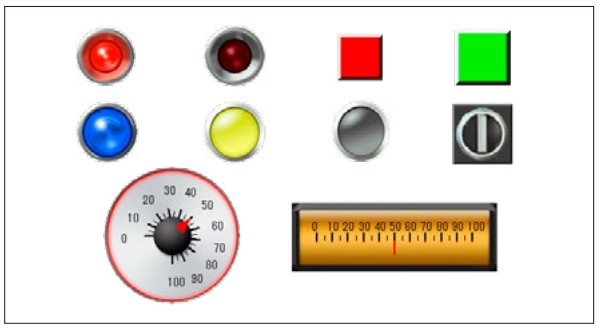
*1 Only DBComm Manager is supported.

Supported operating systems

- Windows 10
- Windows 8
- Windows 7

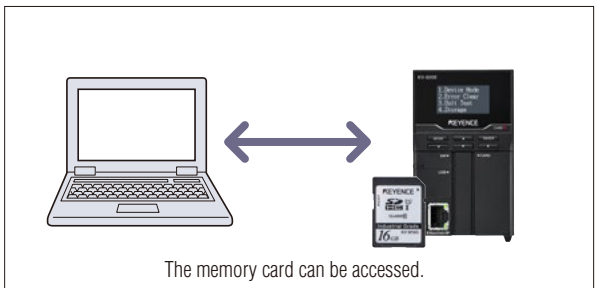
GUI components enhance the visibility

Using GUI components increases the visibility on a PC and also greatly improves the operability. These GUI components also eliminate the time and effort required to create switches, lamps, and other components.



Read/write files on an SD card

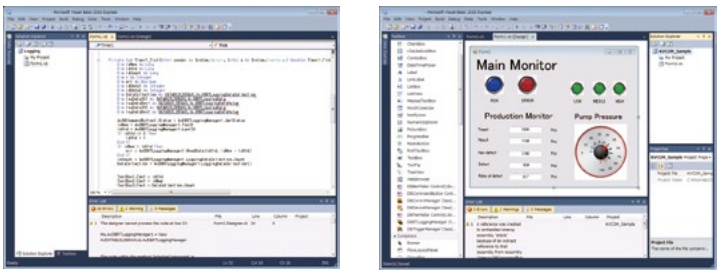
The user can access the SD card in the PLC to read the files of the logged data and to write files to the SD card from the PC.



The memory card can be accessed.

Program and screen examples

Users can create highly visible screens that match their intended image by using the "KV COM+ Library" GUI components and performing programming as usual in Visual Basic.

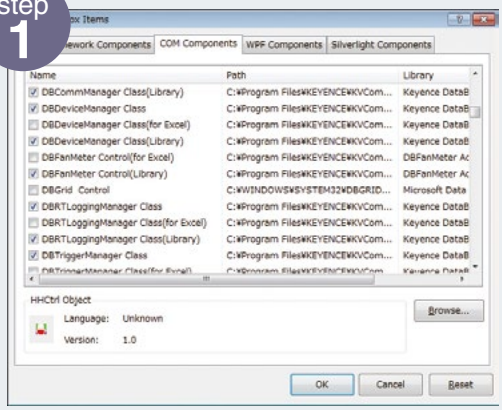


Just a few steps for setup

Most attributes can be set via the attribute screen easily, so it is unnecessary to integrate complicated communication programs, thus reducing coding workload significantly.

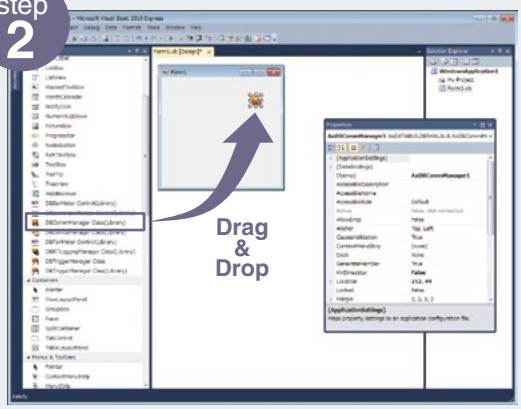
Program example of using Visual Basic to read PLC device values

step 1



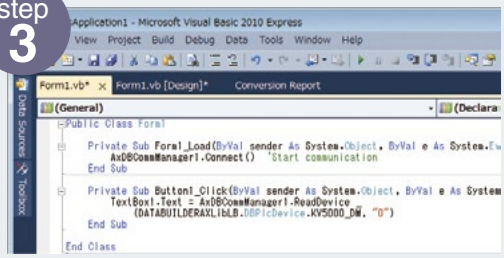
Register components from the COM component tab.

step 2



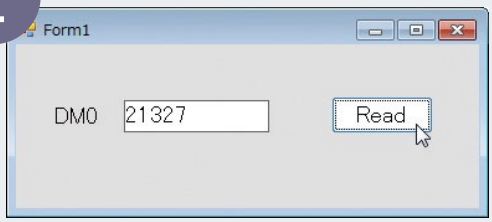
Paste ActiveX controls into form,
perform communication settings via attribute.

step 3



Prepare the program to read the device.

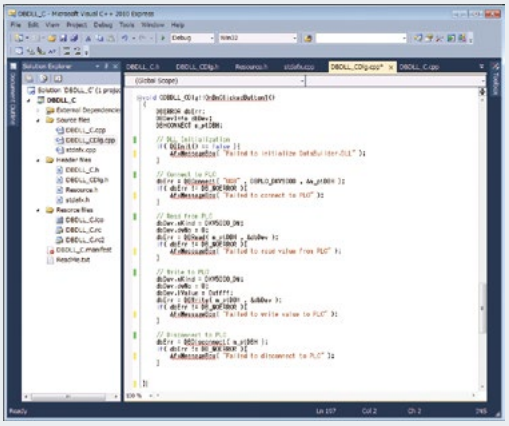
step 4



Only these settings are required for reading.

Visual C++ programming example

Not only Visual Basic, communication connection/disconnection , device read/write etc can also be achieved easily in Visual C++, regardless of the to communication protocol used.



KV COM+ and Visual C++ functions

Classification	Operation	Details
Communication	Connection	Connect with PLC.
	Disconnection	Disconnect from PLC.
Device	Binary read	Read device in binary (value).
	Text read	Read device in text (character string).
	Binary write	Write to the device in binary (value).
	Text write	Write to the device in text (character string).
	Acquire notes	Acquire device notes.
Operating state	Acquire status	Acquire PLC RUN/PROG status.
	Set state	Set PLC RUN/PROG status.
Alarm	Acquire current status	Acquire current PLC error.
	Acquire history record	Acquire error history record in PLC.
	Cancellation	Cancel current PLC error.
Memory card	Read file	Transfer files on the memory card to the PC.
	Write file	Transfer PC files to the memory card.
	Copy file	Copy files on the memory card.
	Acquire document status	Acquire time stamp etc states of files on the memory card.
	Delete file	Delete files on the memory card.
	Change file name	Change file name on the memory card.
	Acquire file quantity	Acquire file quantity of designated directory on the memory card.
	Acquire document list	Acquire file name list of designated directory on the memory card.
	Create directory	Create new directory under the designated directory on the memory card.
	Delete directory	Delete existing directory under the designated directory on the memory card.
	Acquire remaining capacity	Acquire remaining capacity of the memory card.
Other	Set clock	Set PLC clock.
	Type query	Query PLC type.

< Introduction of related products >

Programmable controller

KV-8000 SERIES

Modular type **KV-8000 Series**

Fusion of superior processing ability with the Machine Operation Recorder function

- Improved high-speed performance × responsiveness × synchronicity
- Freely customisable large-capacity CPU memory
- Records all the information before and after a problem occurs
- Equipped with an autonomous unit and a high-speed unit capable of utilising the CPU unit's capabilities

Touch Panel Display

VT5 SERIES

Touch Panel Display **VT5 Series**
Large type: **VT5-X**, small/medium type: **VT5-W**

"One level higher" ability for representation and ease-of-use

- High visibility with 16 million colours
- High resolution LCD adopted for all sizes
- Speech synthesis function that can be used with text input only
- Automatic multi-language translation

Software List/Specification

•Software List

Name	Type	Model	Comment
Data Collection / Transfer·Monitoring Software	Downloadable	**KV-DH1E-DL**	KV COM+ for Excel
		KV-DH1E-DL5	KV COM+ for Excel (5 Licences)
		KV-DH1LE-DL	KV COM+ Library
		KV-DH1LE-DL5	KV COM+ Library (5 Licences)
	Packaged (CD-ROM)	**KV-DH1E**	KV COM+ for Excel
		KV-DH1E-5	KV COM+ for Excel (5 Licences)
		KV-DH1LE	KV COM+ Library
		KV-DH1LE-5	KV COM+ Library (5 Licences)

•Software operating environment

Software	Supported OS	Supported language	Free space in hard disk
KV COM+ for Excel	Windows 10/8 (including 8.1)/7	Microsoft Excel 2016/2013/2010/2007/2003/2002/2000*2	200 MB or more
KV COM+ Library*1	Windows 10/8 (including 8.1)/7	Visual Basic 2013/2012/2010/2008/2005, .NET2003, VB6.0 Visual C++ 2013/2012/2010/2008/2005, .NET2003, VC6.0 Microsoft Office Excel 2016/2013/2010/2007/2003/2002/2000 Access 2016/2013/2010/2007/2003/2002/2000 VB Script*3	200 MB or more

*1 KV COM+ Library cannot be used to create 64-bit compatible applications. *2 Excluding Microsoft Office Excel 2016/2013/2010 64-bit edition.
*3 Only supports DBCommManager.

Frequently Asked Questions

FAQ

www.keyence.com/controlfaq

KEYENCE

Please visit: www.keyence.com

SAFETY INFORMATION
Please read the instruction manual carefully in order to safely operate any KEYENCE product.

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