

**FE** e-Front runners

Advanced Open Process Automation System

# MICREX-AX



**FUJI ELECTRIC** Fuji Electric

ECNO:884a

***Outstanding architecture,***

***Ease of operability and next-Generation potential.***

***The new MICREX-AX is a revolutionary development.***

The business environment is changing rapidly. MICREX-AX meets the modern needs for open architecture and reliability, and yet has a simple system configuration based on the MICREX architecture that has long been popular in process control. This next-generation open integration monitoring & control system offers the following main features:

## FEATURE



### 1 Functions of large-scale PAS from a PC

- Flexible PAS functions on a global-standard PC
- Ease of operability by mouse and touch panel
- Printout anywhere by a network printer



### 2 Open architecture for long-term compatibility

- By using a general-purpose PC and Ethernet LAN for controlling information, a wide-ranging, integrated system is achieved. Management, production, manufacturing, and physical flows are all controlled.
- Windows applications can be used to manipulate any plant data in a general-purpose database. Operation management, quality management and remote maintenance are easy to perform.
- OPC (OLE for Process Control) client can handle TAG data of ACS-2000 via Fuji OPC server.





### Simple and optimum EIC integration system

- A simple and optimum system configuration is constructed by the controller, which flexibly allocates the execution load of electrical and instrumentation control, and the integrated operator station which can display all information.
- The system helps rationalize management, planning, running, monitoring and maintenance.



### Versatile and flexible device configuration

- The ACS-2000 controller is suitable for large-scale systems, and the ACS-250 for medium to small-scale systems. The modular structure of controllers enhances their resistance to environmental conditions.
- Open PIO, IPU and FTK serve as I/O devices.
- The field bus enables a versatile system to be configured according to purpose and budget.

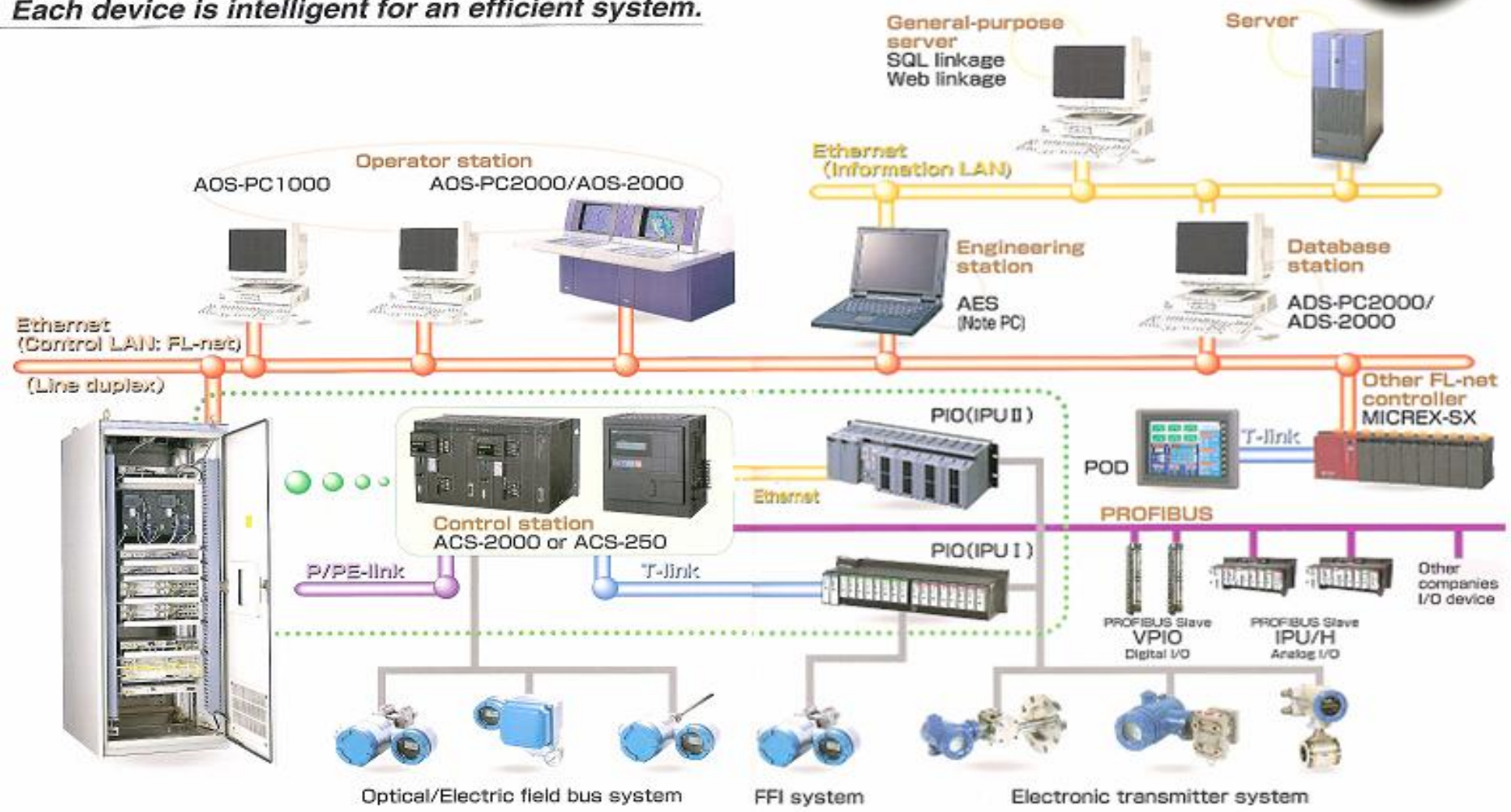


### Convenient engineering

Popular software resources and engineering tools (FPROCES) built together with the client are used. The integrated operation environment ensures convenient engineering and group engineering.

# Thoroughly elaborated sys

Coverage of large-scale to medium- and small-scale systems.  
Each device is intelligent for an efficient system.



# Highly reliable system.

**Cost-effective,**

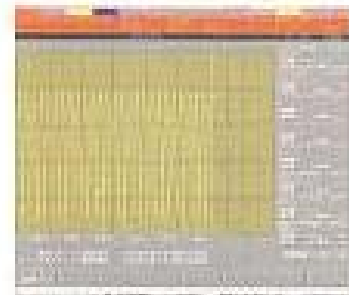
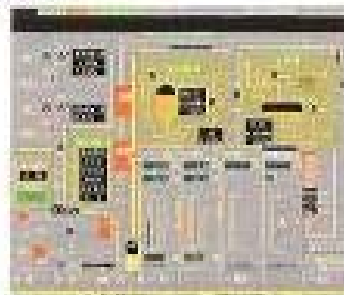
**fast and powerful.**

**The system offers tremendous value.**

## Operation

A general-purpose PC is used for MMI and database. The global-standard Windows2000 system is used, and links with Windows applications are possible.

### Example of Windows application



## Ethernet (control LAN)

### FL-net compatible (Note 2)

The FA link protocol is adopted with Ethernet for communication (physical layer, data link layer) based on UDP/IP.

Transmission within a specified time is guaranteed by avoiding collision via a master-less token method.

A common memory method (where nodes share information between themselves) is adopted.

Automatic connection and de-connection of nodes are available.

## Engineering

### The engineering support software FPROCES

built using a wealth of experience, allows software design and production to be carried out independent of the target machine. The consistent operation environment with multi-windows, mouse and icons is convenient for engineering.

### Excellent simulation function

Debugging can be performed without using actual equipment.

# Control



ACS of the EI integrated control station follows the conventional architecture for compatibility, and adopts the special purpose device with high reliability.

The existing controllers' program that was made by AES is available to ACS without modification. Intelligent control function such as the advanced control, the fuzzy logic control and the cohesion control, etc. can be installed to ACS.

And, ACS can connect with Fuji's reliable and acknowledged P/PE-link & T-link in addition to FL-net LAN, general purpose Ethernet, FF field bus, and PROFIBUS.

MICREX-SX is high performance PLC equipped with duplex function and instrumentation function. SX has an easy operativeness and high reliability of PLC.

SX can be connected with a lot of networks such as Ethernet, FL-net, DeviceNet, PROFIBUS, AS-Interface, P/PE-link, and T-link.



# I/O devices

## IPU I

The distributed PIO "IPU" is compact and can be mounted densely thanks to integration of the signal converter and AI/AO board, and relay and transistor circuits and DI board. It can be mounted on points distributed to different sites (remote PIO system). The 1-point module and multi-point module structure allows any input/output combination within a dedicated unit. A duplex configuration (T-link, AI/AO modules) is also possible.

## IPU II

The open IPU II is a distributed PIO which uses 10Mbps Ethernet as the I/O bus. Coexistence with IPU I (T-link/Profibus) is allowed, and selection according to uses is possible.

Each IPU II module of PIO, I/O bus and power supply can do full redundant configuration.

And, we also prepare resistant modules to environment as option.

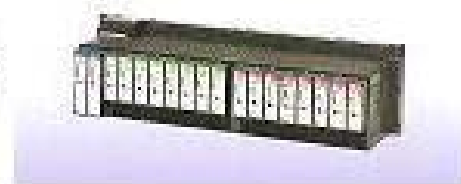
## Flexible mounting

Can be housed in a locker or mounted on a panel.

## EI integration

Electrical (E) control and instrumentation (I) control are integrated by a single controller.

## IPU I (Single point type)



## IPU II (Multi point type)



# Specifications of MICREX-AX

## Scale per system

16 operator stations  
1 database station (Module TAG (No. of loop): max. 8,640 points, BA status change: max. 61,440 points,  
User TAG: max. 32,752 points)  
20 control stations (a controller of 416 instruments is counted as 2 stations)  
8 remote monitoring operator stations  
8 network printers  
4 engineering stations  
4 other general-purpose PC or workstation  
\*ACS-PC1000 is a stand-alone system by one-PC that has both ACS-PC2000's function  
and ACS-PC2000's function. It can support Module TAG of max.4608 points and controller of max.16 stations.

## Ethernet (Information LAN)

Ethernet (TCP/IP) compatible (Note 1)  
Communication distance: Up to 500 m (extendable by repeater)  
Up to 255 stations connectable  
Communication function: Message transmission 1 : 1

Note: 1. Ethernet is a trademark of Xerox Corporation.

## Ethernet (control LAN)

Ethernet (UDP/IP) base FL-net compatible (Note 2)  
Communication distance: Up to 500 m (segment) (extendable by repeater)  
Up to 254 stations connectable (FL-net devices included)  
Communication function: Cycle transmission n : n, Message transmission 1 : 1 and 1 : n.

Note: 2. FL-net: FA control net.

## Operator station ACS-PC2000

Desk-top type and console housed type  
CRT: 1280 x 1024 dots (21-inch for console-housed type).  
Mouse operation (touch operation is optional).  
Controller: IBM compatible personal computer  
Keyboard: Dedicated or universal  
CPU: Celeron™, 450 MHz min. (Pentium®/P) 200MHz min.)  
Memory: 66 MB min.  
Hard Disk: 3.3 GB min.  
OS: Windows2000

## Database station ADS-PC2000

IBM compatible personal computer  
CPU: Pentium®/P) 350 MHz min.  
Memory: 128 MB min.  
Hard Disk: 4.3 GB min.  
OS: Windows2000  
Duplex (option) method: Parallel mounting duplex  
Printer: page printer (color page printer is optional)  
Network printer

## Control station ACS-2000/ACS-250

ACS-2000	ACS-250
Duplex (option) method: MPU unit redundancy SGM method warm standby	: Same as left
Memory capacity: Program 512 kw, Data 512 kw	: Program 256 kw, Data 256 kw
288 or 312 internal instruments	: 144 internal instruments
64/16 direct input/output points (512/128 points max.)	: -
Sub bus 8192/2048 via-link input/output points max.	: Same as left
IO bus: Ethernet, Token, PROFIBUS	: Same as left

## Engineering station AES (PROCES)

IBM compatible personal computer  
CPU: Pentium®/P) 450 MHz min.  
Memory: 64 MB min.  
OS: Windows2000

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## Fuji Electric Co., Ltd.

Gain City Bldg. East Tower,  
11-2, Osaki 1-chome, Bldg. Shinjyogawa-ku, Tokyo 141-0032, Japan  
Phone : 03(8435-7111)  
Telex : J22331 FUJIELEC

## Fuji Electric Systems Co., Ltd.

6-17, Sanbancho, Chiyoda-ku, Tokyo 100-0075, Japan  
Phone : 03(3615-7600)

Internet address : <http://www.fujielectric.co.jp>

Internet address : <http://www.fesys.co.jp>

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