When it **Absolutely Must** Connect

FBR-100AN

Smart Connectivity for Factory Machines

Bridges factory machines and monitoring systems using MTConnect.

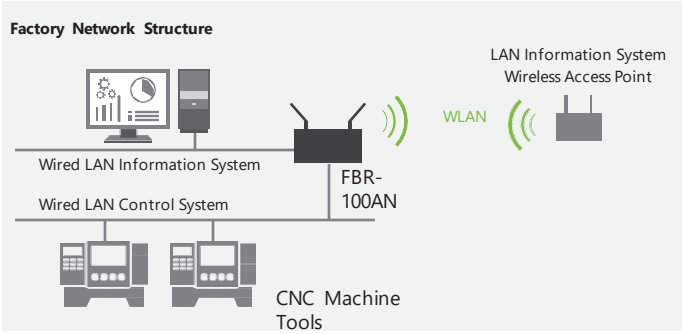
Product Summary

FBR-100AN monitors operation of CNC machines, and transfers data to the factory monitoring system/server. It supports MTConnect communication protocol, which is used by major manufacturers to efficiently connect machines with their host systems. FBR-100AN translates the machine protocol for the monitoring host, which traditionally is done using a PC. It also supports wireless bridge functionality which eliminates the use of wiring and cables in the factory. FBR-100AN allows machine tool manufacturers, system integrators, and their users to collect machine tool operation data in the factory and connect to a more sophisticated wired /wireless LAN system.

Features

Connect to Multiple Networks in the Factory

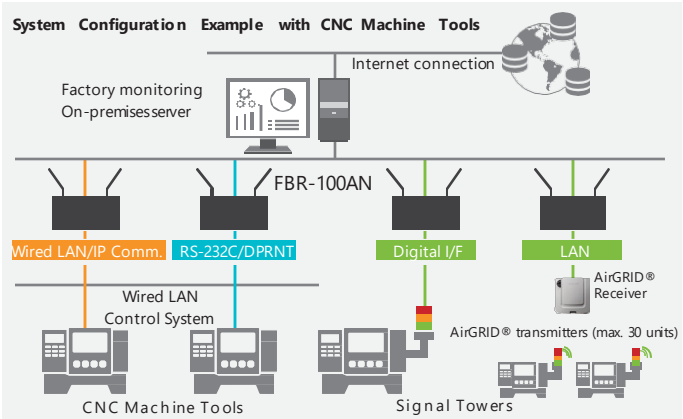
This product supports three LAN interfaces. By using two independent wired LAN ports, it is possible to connect to a factory network divided into information and control systems. In addition, you can connect to the network without worrying about the installation location of the machine by using the wireless (IEEE 802.11a/b/g/n).



Retrieve Machine Operation Data

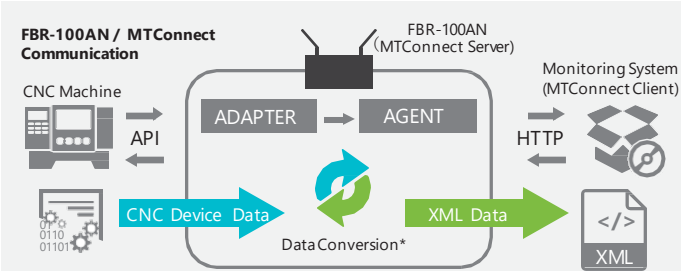
FBR-100AN can directly connect to FANUC and other makers' CNC devices*1 to monitor machine tools' operation data*2 including NC programs and PMC data. The wired LAN and RS-232C*3 interfaces can be used to connect with CNC devices. FBR-100AN's digital input interface or the wired LAN interface connected with PATLITE's AirGRID® allows the user to obtain legacy machines' information, which can be accessible only through signal-towers.

*1: CNC devices of FANUC and Brother Industries are supported (as of Aug 2020).
*2: One unit of FBR-100AN can collect the information of up to three CNC machine tools. When FBR-100AN connects to multiple machine tools, the collectable amount of PMC data will be limited.
*3: DPRNT is used for the communication. The specification of RS-232C interface may vary depending on machine tool makers.



MTConnect Protocol Support

FBR-100AN supports MTConnect protocol for comunication. This protocol is widely adopted by machine tool manufacturers in the United states. By using the MTConnect monitoring system used by the company, machine operation data can be efficiently transferred to the host system with the FBR-100AN.



*The following tools are available from Silex for the conversion of CNC Device Data to MT Connect XML data:
- Point File Creation Tool
- Device Information Creation Tool

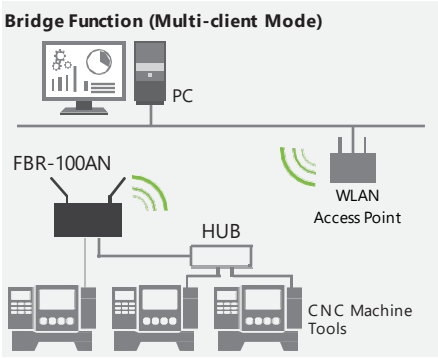
Ideal for Factory Use

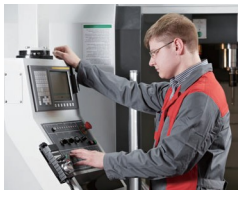
The product supports the operating temperature, drip-proof, vibration-proof, DC power input/surge treatment, DIN rail mounting required in general factories.

*Can be mounted using a commercially available DIN rail mounter.

Wired-to-Wireless LAN bridge function

FBR-100 can convert the wired LAN interface of CNC devices to the wireless LAN*4, so that the user can access CNC devices and change programs via the wireless LAN.





*4: FBR-100AN bridges up to 16 wired-LAN devices. Its wireless LAN port and two wired LAN ports can be configured and used individually.

Smart Connectivity for CNC Machines — FBR-100AN

Product Specifications

Wired LAN	RJ-45 x 2 ports (MAC address x2) 10Base-T/100Base-TX/1000Base-T (Auto-recognition)
Wireless LAN	IEEE 802.11a/b/g/n, 2Tx2R (External antenna)
Device Interfaces	D-Sub9 male x 1 port (RS-232C/422A/485 *1, Switchable) Digital input: 3 bits
Switch	PUSH switch x1 (For factory reset) DIP switch: 4 bits (For device settings)
LED	Two-color LED x 4
Operating Environment	Temperature: -20 to +50ºC *2 Humidity: 20 to 90%RH(No condensation)
Storage Condition	Temperature: -20 to +55ºC Humidity: 20 to 90%RH (No condensation)
Power Supply	Power supply: AC adapter (Sold separately) and 12-24VDC Power consumption: 24V/0.28A, 12V/0.54A
Dimensions	230 x 105 x 36 mm (Excluding antennas)
Weight	450 g (Excluding antennas)
Package Contents	Main unit, Standard pole antennas, Setup guide, Simplified Declaration of Conformity, GPL inquiry sheet
Regulatory Compliance *3	[EMC] Japan: VCCI Class-A US: FCC Part15 Subpart B Class-A Canada: ICES-003 Issue 6 Class-A EU: EN55032 Class-A, EN301489-17 [Radio cert] Certified in Japan, US, Canada, and EU [RoHS] Compliant with EU RoHS Directive
Supported Software	Client software that supports MTConnect ver.1.3.1 and later (Performance-verified software: Fanuc MT-LINKi ver.3.6 and later)
Supported Hardware	Supported CNC device: Fanuc's and Brother Industries' CNC devices*4 Supported signal towers: Patlite's AirGRID® *5
System	CPU: NXP i.MX6 SoloX RAM: 256MB Embedded storage: eMMC 2 GB (Pseudo SLC: 1.2 GB available to the user)
Enclosure	Plastic case
Dust/Waterproof	Compliant with IP53 (including protective caps/connectors for wall mounting)
Shock Resistant	Sinusoidal: 1.0G (XY direction) 10 to 500 Hz
Antistatic, Noise	Antistatic: Contact discharge ±4 kV, Air discharge ±8 kV Noise immunity: Power line ±2 kV, Signal line ±1 kV
Corrosive Gas Resistance	40±2ºC / 80±5%RH / 15 ppm (H2S hydrogen sulfide gas) / 96H
Security	Open/Shared (WEP) WPA-PSK/EAP (AUTO) WPA2-PSK/EAP (AES/AUTO) IEEE 802.1X Authentication (EAP-TLS/TTLS/FAST, PEAP/LEAP, Wireless LAN only)
Warranty	5 years

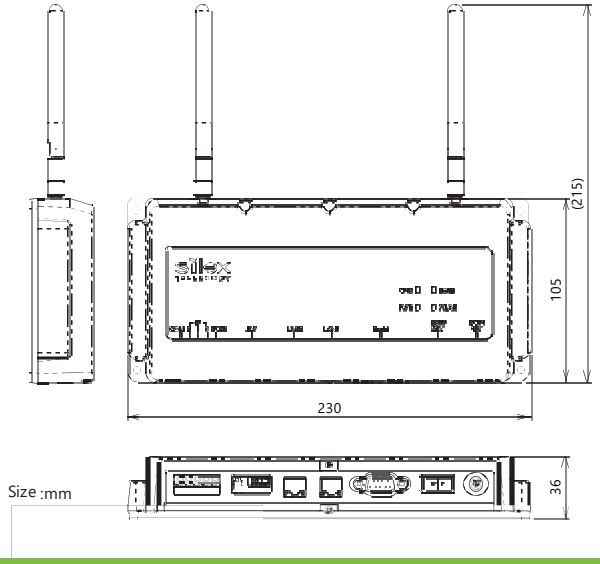
*1: To use RS-485, a communication program is additionally needed.
*2: Able to operate at a temperature of max. 55ºC when a sizeable amount of data (dozens Mbps) is not consecutively sent or received over the wireless LAN.
*3: For wireless LAN, the region code setting must be changed for overseas use. The edit software will be prepared per maker of machine tools to rewrite the setting. Please contact silex for the license conditions.
*4: Please check FBR-100AN's manual for supported CNC devices.
*5: Any maker's signal towers can be used via the digital interface of FBR-100AN.

Accessories / License / Software

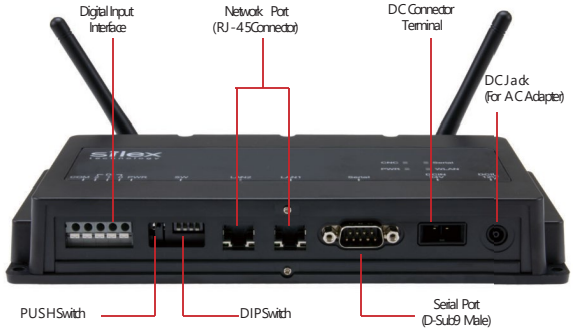
Item	Name	Contents
AC adapter (Sold separately)	WB-18D12RU-ECAA	AC adapter and power code unit supporting JP, US, and EU
Antenna (Sold separately)	Dust/Waterproof antenna	IP67 supported antenna x 1, Cable (2.9m) x 1
License (Sold separately)	Activation for Brother Industries' CNC devices *6	Activation key to enable connection with Brother Industries' CNC devices
License (Sold separately)	Activation for Murata Machinery's machine tools *6	Activation key to monitor Murata Machinery's original system
Software (Sold separately)	Development kit	Development environment, DVD including documentation

*6: Required per main unit.

Mechanical Specification



External Interfaces

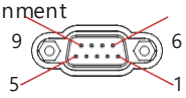


■ DC Connector Pin Layout

DC connector used: J02 S02B-F32SK-GGXR (LF)(AU)
Use JST JFA connector J300 series F32FSS-02V-KX for connection to this connector.

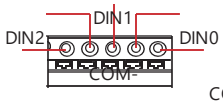
PIN	Signal	Description
1	DCIN	DC 12-24Vin±5%
2	GND	GND

■ Serial Port Pin Assignment



PIN	RS-232C	RS-422A/RS-485
1	DCD [in]	TxD- [out]
2	RxD [in]	TxD+ [out]
3	TxD [out]	RxD+ [in]
4	DTR [out]	RxD- [in]
5	GND [-]	GND [-]
6	DSR [in]	
7	RTS [out]	
8	CTS [in]	
9	RI [in]	

■ Digital Input Pin Assignment



Signal	Comments
DIN0	On: The external input is low.
DIN1	Ou: The external input is High.
DIN2	

Any questions about the product?
Contact our customer support team!

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