

FBR-100AN/FBR-100

Smart Connectivity for Factory Machines

Bridges factory machines and monitoring systems using MTConnect.



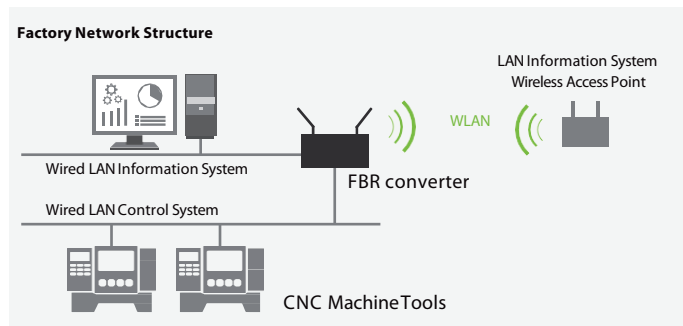
Product Summary

FBR converter 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 converter 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 converter 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 multiple 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 FBR-100AN's wireless (IEEE 802.11a/b/g/n).



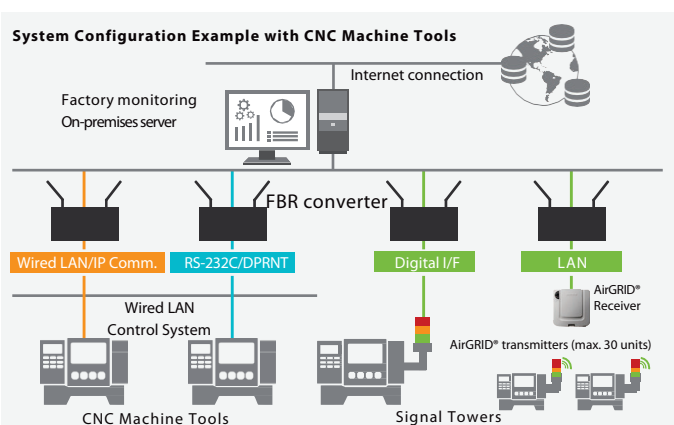
Retrieve Machine Operation Data

FBR converter 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 converter'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 accessed only through signal-towers.

*1: CNC devices of FANUC and Brother Industries are supported (as of March 2022).

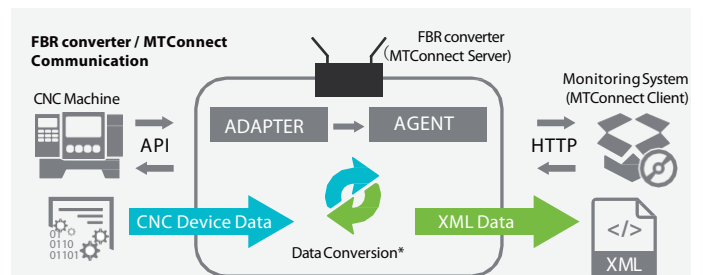
*2: One unit of FBR converter can collect the information of up to three CNC machine tools. When FBR converter connects to multiple machine tools, the collectable amount of PMC data will be limited.

*3: DPRINT is used for the communication. The specification of RS-232C interface may vary depending on machine tool makers.



MTConnect Protocol Support

FBR converter supports MTConnect protocol for communication. 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 converter.

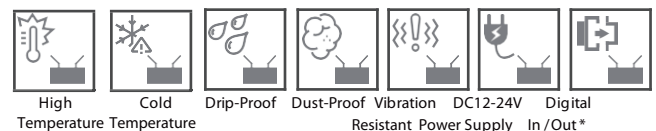


* The following tools are available from Silex for the conversion of CNC Device Data to MT Connect XML data:

- 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.

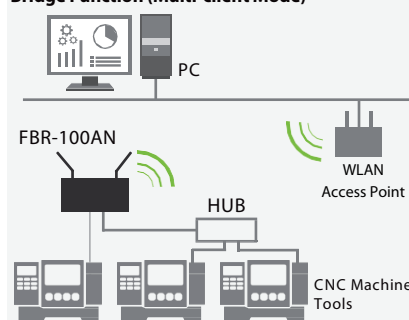


*Can be mounted using a commercially available DIN rail mounter.

Wired-to-Wireless LAN bridge function

FBR-100AN 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.

Bridge Function (Multi-client Mode)



*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.

Product Specifications

Model	FBR-100AN (Wireless LAN model)	FBR-100 (Wired LAN model)
Wired LAN Interface	RJ-45 x 2 ports (MAC address x 2) 10BASE-T/100BASE-TX/1000BASE-T (Auto-recognition)	
Wireless LAN Interface	IEEE 802.11a/b/g/n 2T x 2R	N/A
Device Interfaces	D-Sub9 male x 1 port (RS-232C/422A/485 ^{*1} , configurable) Digital input: 3 bits (Input from external equipment such as a signal tower)	
Switch	PUSH switch x 1 (For factory reset) DIP switch: 4 bits (For device setting)	
LED	Two-color LED x 4	
Operating Environment	Temperature: -20 to +50°C ^{*2} Humidity: 20 to 90%RH (No condensation)	
Storage Condition	Temperature: -20 to +55°C Humidity: 20 to 90%RH (No condensation)	
Power Supply	AC Adapter (sold separately) or DC 12 - 24V	
Power Consumption	24V/0.28A, 12V/0.54A	24V/0.15A, 12V/0.28A
Dimensions	230 x 105 x 36 mm (Excluding antennas)	
Weight	450g (Excluding antennas)	440g
Package Contents	Main unit, Standard pole antennas (only FBR-100AN), Warranty, 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 7 Class-A EU/UK: EN55032 Class-A, EN301489-1/-17(FBR-100AN) EN55035(FBR-100) [Radio cert] Certified in Japan, US, Canada, and EU/UK (only for FBR-100AN) [RoHS] Compliant with EU RoHS Directive	
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 (with included protective caps and 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±2°C / 80±5%RH / 15 ppm (H2S hydrogen sulfide gas) / 96H	
Wi-Fi security	Open/Shared (WEP) WPA-PSK/EAP (AUTO) WPA2-PSK/EAP (AES/AUTO) IEEE 802.1X Authentication	N/A
Supported Software	Client software that supports MTConnect ver.1.3.1 and later verified software: • Fanuc MT-LINKi ver.3.6 and later • IQ Edgecross MTConnect Data Collector ver 1.1.3.0 and later • Device Explorer OPC server V6.2.0 and later and Device Gateway V2.2.0 and later (Takebishi) • IoT Data Share Ver.1.14.1 and later (Denso wave)	
Supported Hardware	Supported CNC device: Fanuc's and Brother Industries' CNC devices ^{*4} Supported signal towers: Patlite's AirGRID ^{*5}	
Warranty	5 years	

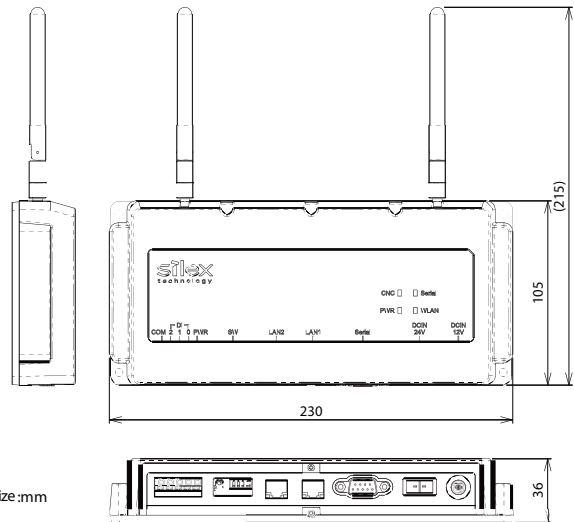
*1: To use RS-485, a communication program is additionally needed.
*2: Able to operate at a temperature of max. 55°C when a sizeable amount of data (dozens Mbps) is not consecutively sent or received over the wireless LAN.
*3: As of February 2022.
*4: Please check FBR converter's application note for supported CNC devices.
*5: Any maker's signal towers can be used via the digital interface of FBR converter.

Accessories / License / Software (Sold Separately)

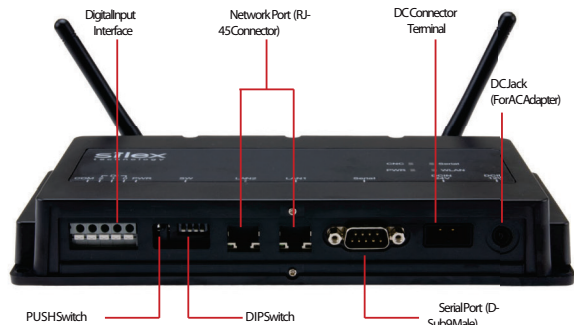
Product	Model	Description	Price
AC Adapter	WB-18D12RU-ECAA	AC adapter and power code supporting JP, US, EU and CN	Open
Antenna	Dust/Waterproof Antenna	IP 67 rated antenna x 1, 2.9m cable x 1	Open
License	Activation for Brother Industries CNC Devices ^{*6}	Activation key to enable connection with Brother Industries' CNC devices	Open
License	Activation for Murata Machinery's machine tools ^{*6}	Activation key to monitor Murata Machinery's original system	Open
License	Activation for OPC UA Communication ^{*6}	Activation key to enabling OPC UA Communication	Open
License	Activation for ModbusTCP Communication ^{*6}	Activation key to enabling ModbusTCP communication	Open
License	Development kit	Development environment, DVD including documentation	Open

*6: Required per main unit.

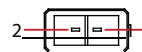
Mechanical Specification (Antenna is included in only FBR-100AN)



External Interfaces (Antenna is included in only FBR-100AN)



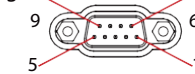
DC Connector Pin Layout



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

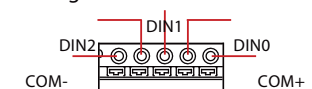
DC connector used: J02 502B-F32SK-GGX (LF) (AU)
Use JST JFA connector J300 series F32FSS-02V4X for connection to this connector.

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	
DIN2	On: The external input is High.

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

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