

The FAST-Bus extension modules FM211, FM212, FS211/x and FS212/x are designed to connect stations over long distances, using the FAST-Bus technology. The FM modules are the FAST-Bus masters and has one (FM211) or two interface(s) (FM212) for fiber optic connection to a slave module.

The FS modules are the FAST-bus slaves with one (FS 211) or two (FS 212) interfaces. The Slave modules FS21x/N have an integrated power supply, which delivers all necessary voltages for the slave backplane.



Each FAST-Bus sub station may be extended with several BE sub stations. It is also allowed to use several FAST-Bus master modules in one station. With the FAST-Bus master modules access to the extended address range is also possible.

Up to 14 intermediate stations with FS212 and a final station with FS211 or FS212 can be connected to a basis station with FM21x. Thus a total number of 15 sub stations can be connected.



remark: FAST-Bus-Module with a production date from calendar week 42/2001 onwards are equipped with jumpers for selecting the transmission media (HCS or PMMA). The jumpers are located on the inner side of the module. The possible settings are described directly beside the jumpers.

With modules with 2 channels both channels can be adjusted separately. Old modules without jumpers can be combined with or replaced by new modules.



attention: The jumpers must be set properly according to the applied transmission medium. Problems may occur, if the operation mode and the transmission medium do not match.

Features

- one FAST-Bus expansion interface for FM211 (master for one FAST-Bus line)
- two FAST-Bus expansion interfaces for FM212 (master for two FAST-Bus lines)
- one FAST-Bus expansion interface for FS 211 (slave for final stations)
- two FAST-Bus expansion interfaces for FS 212 (slave for intermediate stations or final stations)
- integrated power supply (FS21x/N), 3 pin connector for the external power supply

FAST-Bus Expansion Module	FM211	FM212	FS211	FS212	FS211/N	FS212/N
Distance to the next module	max. 50 m (PMMA, plastic fibre optic) max. 150 m (HCS, glass fibre optic)					
Signal delay	max. 3,5 µs for the basis station + 1,4 µs for each sub station					
state indicating LEDs	RDY yellow, RUN green, ERR red				RDY yellow, RUN green, ERR red, POWER green	
error messages	yes					
isolation towards bus	by fiber optic cable					
number of interfaces	1	2	1	2	1	2
interface type	fiber optic					
power supply	internal, via backplane BS 2xx				integrated power supply	
current consumption via backplane	600 mA	700 mA	600 mA	700 mA	-	
integrated power supply	no				yes	
output voltages / maximum current	-				5 V DC / 2A + 15 V DC / 250 mA - 15 V DC / 200 mA	
isolation voltages input / bus	-				yes, up to 500 V AC	

isolation voltages input / ground	-	yes, up to 100 V AC
isolation voltages bus / ground	-	no

The power supply in the FS21x/N modules is an isolated DC/DC converter, which generates the voltages for the slave backplane. It is automatically detected, if an NT250 module is installed on the backplane. If the power of the slave mains adapter is not sufficient, a NT250 module can be used for the supply.

State Indicating LEDs

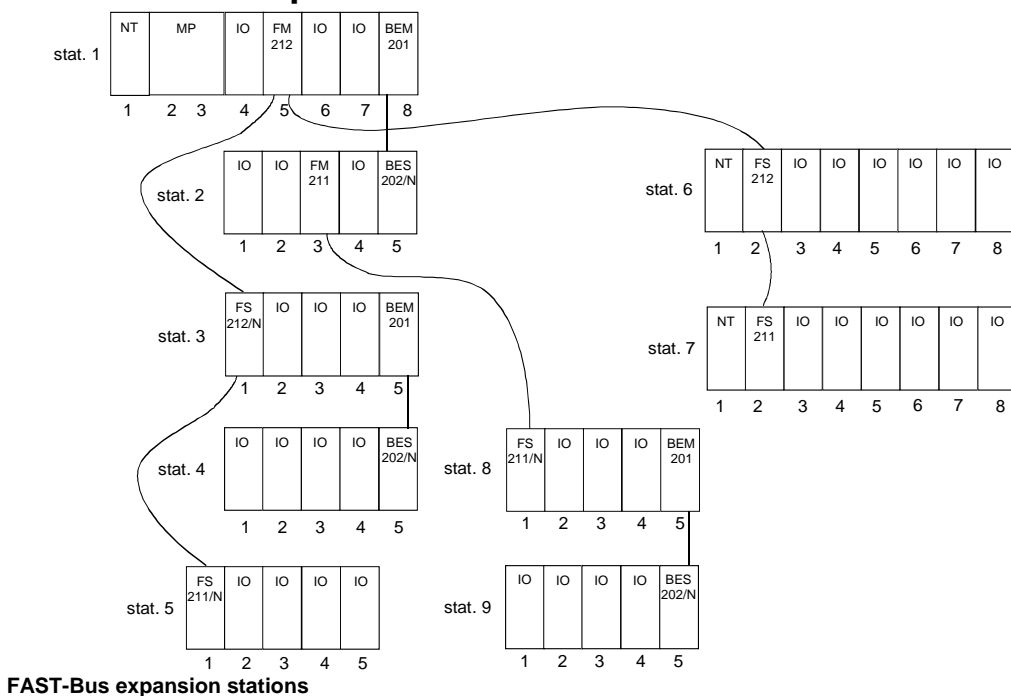
LED	off	on
yellow (RDY)	ID register has not yet been accessed by the CPU	ID register has been successfully accessed by the CPU
green (RUN)	no connection to other FAST-Bus modules (FM+FS) or data transmission failure on at least one configured FAST-Bus lines (FM)	data transmission to at least one FAST-Bus module ok
red (ERROR)	no error-interrupt occurred	interrupt has occurred, but not yet been serviced
green (POWER) FS21x/N	one or more voltages are not in the specified range	all voltages are in the specified range

RDY, RUN and ERROR LEDs will be on for approximately 0.5 seconds after power-up.

External Power Supply (FS 21x/N)

External Power Supply	Description
input voltage, nominal	24 V DC
input voltage, range	18 .. 34 V DC
input voltage, peak value, if t < 1 s / min	40 V DC
starting current	< 5 A @ t < 0.5 ms
current consumption (with maximum bus load)	typ. 1.200 mA @ 24 V DC
polarity reversal protection	yes

Setup of FAST-Bus Expansion Stations



FAST-Bus expansion stations



remark: The FAST-Bus expansion modules must not be placed on the expansion part of the backplane, if backplanes with 36-pin connectors are used.



remark: Expansion of a BES - sub station with FM 21x has not been implemented yet.



remark: On a final station, either a FS211/x or a FS212/x may be used.

Numbering of the Stations

- the base station with the processor module is station number 1.
- a BEM module has the higher priority for the numbering than an FM module.
- on FAST-Bus modules the "A" line has the higher priority than the "B" line.
- if more than one FM is located in one station, then the numbering goes from left to right

Based on the example in the previous picture this means:

The station connected to the BEM module of station 1 gets number 2. Numbering continues on the "A" line of the FM module with station number 3. As station number 3 contains a BEM module, the station connected to this BEM module gets number 4 (BEM is higher than FM/FS).

Now the numbering continues on the "B" line of the FS module of station 3. The station connected to this gets the number 5. Now the "A" line of the FM module of station 1 is complete.

Now the "B" line of the FM module of station gets numbered. The station directly connected to the FM module gets number 6 and the station connected to this is number 7.

Pin Assignments of the Power Supply

Connector	Pin	Signal	Description
	1	+	external power supply + 24 V DC
	2	-	external power supply ground
	3		functional earthing

Order Codes for Modules and Accessories

Order Code	Order #	Description
RMFM211	0067540.001	FAST-Bus Master, 1 fiber optic interface
RMFM212	0067541.001	FAST-Bus Master, 2 fiber optic interfaces
RMFS211	0067542.001	FAST-Bus Slave, 1 fiber optic interface
RMFS211/N	0067544.001	FAST-Bus Slave, 1 fiber optic interface, integrated power supply 17 W
RMFS212	0067543.001	FAST-Bus Slave, 2 fiber optic interfaces
RMFS212/N	0067545.001	FAST-Bus Slave, 2 fiber optic interfaces, integrated power supply 17 W
RMKZ51/03B	0067503.001	KZ51/03 with label strips
???		plastic fiber optic cable with connectors (max. 50 m) ready-made
???		HCS duplex cable with outer jacket and 2 HCS fibers, per meter

Rittmeyer AG Grienbachstr. 39 Postfach 2558 CH-6302 Zug	Rittmeyer GmbH Postfach 1908 DE-70709 Fellbach Raiffeisenplatz 6 DE-70736 Fellbach	Rittmeyer Ges.m.b.H Walküregasse 11/2/1 Postfach 73 AT-1152 Wien	Rittmeyer Italiana s.r.l. Via Valbona 43 IT-24010 Ponteranica (BG)	Rittmeyer S.A. Calle Julián Camarillo 26-3 ^o Apartado 35145 ES-28037 Madrid
--	--	---	--	---