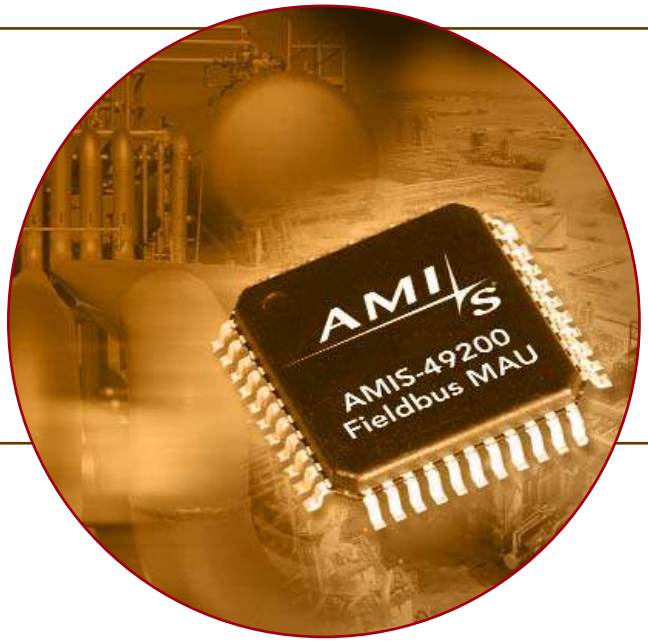
AMIS-49200 - Fieldbus MAU Chip Feature Sheet

AMI Semiconductor

AMIS-49200 Fieldbus MAU Chip

Key Features



- IEC-61158-2, H1 (ISA-S50.02-1992), Type 111 and Type 112 (FF-816) compliant
- -40°C to 85°C
- 44-pin plastic LQFP (Green/RoHS compliant)
- Low current consumption: 500µA typical
- Standard MDS/MAU interface
- 31.25kbps voltage mode
- Dual voltage regulators (3 and 6.2V)
- Voltage level monitoring

Product Description

The AMIS-49200 Fieldbus Medium Attachment Unit (MAU) can be used in applications that meet the Foundation Fieldbus and Profibus PA standards. It is compatible with requirements of the IEC-61158-2, H1 (ISA-S50.02-1992, EN 50170 (formerly DIN 19245)) physical layer standard.

The AMIS-49200 Fieldbus MAU is a near pin-for-pin replacement for Yokogawa µSAA22Q. This includes the elimination of some capabilities and specifications of the µSAA22Q.

In most applications, the AMIS-49200 can be used as a replacement for the µSAA22Q. Some external component values may have to be changed but, in most cases, the layout of the circuit board will not have to change.

Normal Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Analog Supply Voltage	VCC	4.75	5	6.2	V	Supply voltages are configurable or can be supplied from off-chip
Digital Supply Voltage	VDD	2.7	3	VCC - 1.1V	V	Supply voltages are configurable or can be supplied from off-chip
Operating Temperature	$T_{operating}$	-40		85	°C	
Current Compensation	ICC		500	800	µA	25°C, SHUNT current = 1mA, No current from series regulator

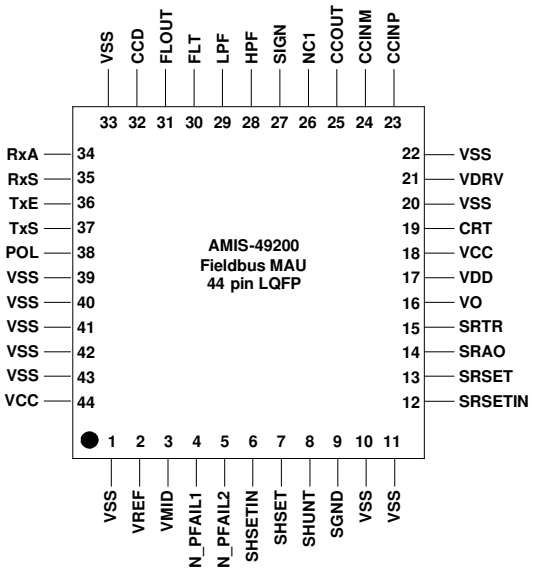
CMOS Parameter Specifications

CMOS Parameter Specs	Symbol	Min.	Max.	Units
Input High Voltage	V_{IH}	0.7 • V_{DD}	V_{DD}	V
Input Low Voltage	V_{IL}	0	0.3 • V_{DD}	V
Input High Current	I_{IH}		1	µA
Input Low Current	I_{IL}		-1	µA
Schmitt Negative Threshold	Vt-	0.2 • V_{DD}		V
Schmitt Positive Threshold	Vt+		0.8 • V_{DD}	V
Schmitt Hysteresis	Vh	1		V

Ordering Codes

Marketing Name	Description	Device No.
AMIS-49200	Fieldbus MAU Chip	19699-002-XTD (tray) or -XTP (tape & reel)
EVK-49200	AMIS-49200 Evaluation Kit	EVK-49200

44 PIN LQFP Pin Diagram and Cross-Reference Table



Pin No.	µSAA22Q	AMIS-49200
1	NC	TEST1
11	NC	GND
18	VCC	VCC
22	NC	GND
26	NC	TEST2
33	NC	GND
39	JAB/	GND
41	CJB	TEST3
42	VTX	TEST4
43	VSL	TEST5
44	VCC	VCC

Differences between the AMIS-49200 Fieldbus MAU and the Yokogawa µSAA22Q are listed in the cross-reference table.

Pins 11, 22 and 33 may be left N/C, however, we recommend connecting them to ground to improve noise immunity.

Pin 39 is the ground for the voltage reference and must be connected to system ground.

TEST1 – TEST5 must be connected to ground.

The AMIS-49200 was designed to have excellent EMC performance. In order to achieve the full performance, VCC Pins 18 and 44 should be connected together.

Block Diagram