

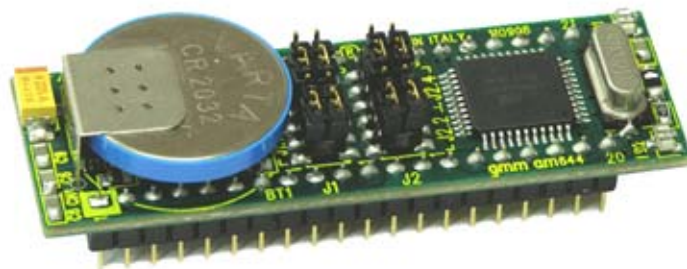
GAB H844

grifo® Analog BLOCK Housing, 8 analog in, 4 opto in, 4 Relays out

GMM AM644

grifo® Mini Module AT mega 644P

TECHNICAL MANUAL



grifo®

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GAB H844+GMM AM644 Rel. 5.00 Edition 03 December 2008

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TECHNICAL MANUAL

Couple between interface board of **Analog Block GAB H844** series and **Mini Modules** with **AVR** core with **40 pins GMM AMM644**, able to manage application that involve bot **Analog** and **Digital** signals.

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For specific informations on the components mounted on the card, please refer to the Data Book of the builder or second sources.

SYMBOLS DESCRIPTION

In the manual could appear the following symbols:



Attention: Generic danger

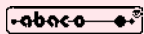


Attention: High voltage



Attention: ESD sensitive device

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GENERAL INDEX

COUPLE RISOURCES 1

COUPLE CONNECTIONS 1



FIGURES INDEX

FIGURE 1: CONNECTION TABLE (1 OF 5)	2
FIGURE 2: CONNECTION TABLE (2 OF 5)	3
FIGURE 3: CONNECTION TABLE (3 OF 5)	4
FIGURE 4: CONNECTION TABLE (4 OF 5)	5
FIGURE 5: CONNECTION TABLE (5 OF 5)	6

COUPLE RESOURCES

The **GAB H844 + GMM AM644** couple has the following resources:

Max. value voltage of A/D converter (Vmv):	2,5 V or 5,0 V
Conditioned analog inputs (0÷20mA, 4÷20 mA, 0÷Vmv, 0÷4*Vmv):	8
Direct analog inputs (0÷Vmv):	4
Relays output:	4
Otpocoupled digital inputs:	4
Buffered TTL digital inputs:	4
TTL multifunction signals:	6
Asynchronous serial line RS 232:	YES
Asynchronous serial line TTL:	YES
Asynchronous serial line RS 422:	YES
Asynchronous serial line RS 485:	YES
Asynchronous serial line Current Loop:	YES
Synchronous serial line I2C BUS:	YES, hardware
CAN interface:	NO
USB interface:	NO
Real Time Clock:	YES

It is important to note that the previous list shows the maximum available resources and some of these ones are not usable in the same time, as described in following figures.

COUPLE CONNECTIONS

In the following tables are reported all connections of all available signals for user of **GAB H844** respect to **GMM AM644** Mini Module. With these connections the user can manage all available resources both in hardware and in software.

If it needed a documentation more detailed, (connection diagram, signal location on connectors, power supply, jumpers configuration, software management, etc.) please, see technical manuals of the two modules contained in the couple.

In the tables are present some abbreviation and reference:

N.C. = Not Connected

N.M. = Not Mounted

*1 = to configure according to the performed connection.

GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM AM644 pin	GMM AM644 configuration	GMM AM644 signal name	Using on GMM AM644
CN1: Connector for relays outputs							
CN1.1	OUT A1	-	15	21	-	PC4 , PCINT20 , TDO	-
CN1.2	COMMON A	-	-	-	-	-	-
CN1.3	OUT A2	-	13	19	-	PC5 , PCINT21 , TDI	-
CN1.4	OUT B1	-	12	18	-	PB7 , PCINT15 , SCK	-
CN1.5	OUT B2	-	11	17	-	PC7 , PCINT23 , TOSC2	-
CN1.6	COMMON B	-	-	-	-	-	-
CN3: Connector for optocoupled digital inputs							
CN3.1	IN1	J35 in 1-2	16	22	-	PB1 , PCINT9 , T1 , CLKO	-
CN3.2	IN2	J36 in 1-2	17	23	-	PB0 , PCINT8 , T0 , XCK0	-
CN3.3	IN3	J37 in 1-2	18	24	-	PC2 , PCINT18 , TCK	-
CN3.4	IN4	J38 in 1-2	19	25	-	PC3 , PCINT19 , TMS	-
CN3.5	COM1	-	-	-	-	-	-
CN4: Connector for analog inputs							
CN4.1	AIN1	-	27	33	-	PA0 , PCINT0 , ADC0	-
CN4.2	AIN2	-	26	32	-	PA1 , PCINT1 , ADC1	-
CN4.3	AIN3	-	25	31	-	PA2 , PCINT2 , ADC2	-
CN4.4	AIN4	-	10	16	-	PA7 , PCINT7 , ADC7	-
CN4.5	AIN5	J31 in 1-2	23	29	-	PA3 , PCINT3 , ADC3	-
CN4.6	AIN6	J32 in 1-2	22	28	-	PA4 , PCINT4 , ADC4	-
CN4.7	AIN7	J33 in 1-2	21	27	-	PA5 , PCINT5 , ADC5	-
CN4.8	AIN8	J34 in 1-2	20	26	-	PA6 , PCINT6 , ADC6	-
CN4.9	AGND	-	14	20	-	GND	-
-	Vref	J11 in 2-3	1	7	-	Vref	-

FIGURE 1: CONNECTION TABLE (1 OF 5)

GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM AM644 pin	GMM AM644 configuration	GMM AM644 signal name	Using on GMM AM644	
CN5: Connector for asynchronous serial line in RS 232								
CN5.1	+5 VdcF	-	28	34	-	+Vdc POW	-	
CN5.2	-	J10 in 2-3	-	-	-	-	-	
CN5.3	TX RS232	J1, J9 N.C. J2, J3, J4 in 2-3 IC1, 2, 3, 4=N.M.	4	10	J1.1,2,3 in 2-3	TX0 RS232, TX0 TTL, PCINT25, PD1	-	
CN5.4	-		-	-		-	-	-
CN5.5	RX RS232		3	9		RX0 RS232, RX0 TTL, PCINT24, PD0	-	
CN5.6	-		-	-		-	-	-
CN5.7	GND	-	14	20	-	GND	-	
CN5.8	-	J11 in 2-3	-	-	-	-	-	
CN5: Connector for asynchronous serial line in TTL								
CN5.1	+5 VdcF	-	28	34	-	+Vdc POW	-	
CN5.2	-	J10 in 2-3	-	-	-	-	-	
CN5.3	TX TTL	J1, J9 N.C. J2, J3, J4 in 2-3 IC1, 2, 3, 4=N.M.	4	10	J1.1,2,3 in 1-2	TX0 RS232, TX0 TTL, PCINT25, PD1	-	
CN5.4	-		-	-		-	-	-
CN5.5	RX TTL		3	9		RX0 RS232, RX0 TTL, PCINT24, PD0	-	
CN5.6	-		-	-		-	-	-
CN5.7	GND	-	14	20	-	GND	-	
CN5.8	-	J11 in 2-3	-	-	-	-	-	

FIGURE 2: CONNECTION TABLE (2 OF 5)



GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM AM644 pin	GMM AM644 configuration	GMM AM644 signal name	Using on GMM AM644
CN5: Connector for asynchronous serial line in RS 422							
CN5.1	+5 VdcF	-	28	34	-	+Vdc POW	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	TX- RS422	J1, J9 *1	4	10	J1.1,2,3 in 1-2	TX0 RS232 , TX0 TTL , PCINT25 , PD1	-
CN5.4	TX+ RS422	J2, J3, J4 in 1-2	3	9		RX0 RS232 , RX0 TTL , PCINT24 , PD0	-
CN5.5	RX+ RS422	J5 in 2-3					
CN5.6	RX- RS422	IC3, 4=N.M. IC1, 2=MAX 483					
CN5.7	GND	-	14	20	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
-	DIR	-	24	30	-	PD5 , PCINT29 , OC1A	-
CN5: Connector for asynchronous serial line in RS 485							
CN5.1	+5 VdcF	-	28	34	-	+Vdc POW	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	-	J1, J9 *1	4	10	J1.1,2,3 in 1-2	TX0 RS232 , TX0 TTL , PCINT25 , PD1	-
CN5.4	-	J2, J3, J4 in 1-2	3	9		RX0 RS232 , RX0 TTL , PCINT24 , PD0	-
CN5.5	RXTX+ RS485	J5 in 1-2					
CN5.6	RXTX- RS485	IC2, 3, 4=N.M. IC1=MAX 483					
CN5.7	GND	-	14	20	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
-	DIR	-	24	30	-	PD5 , PCINT29 , OC1A	-

FIGURE 3: CONNECTION TABLE (3 OF 5)

GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM AM644 pin	GMM AM644 configuration	GMM AM644 signal name	Using on GMM AM644
CN5: Connector for asynchronous serial line in Current Loop							
CN5.1	+5 VdcF	-	28	34	-	+Vdc POW	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	TX- C.L.	J1, J9 N.C.	4	10	J1.1,2,3 in 1-2	TX0 RS232 , TX0 TTL , PCINT25 , PD1	-
CN5.4	TX+ C.L.	J2, J3, J4 in 1-2 IC1, 2=N.M. IC3=HP 4100 IC4=HP 4200	3	9		RX0 RS232 , RX0 TTL , PCINT24 , PD0	-
CN5.5	RX+ C.L.						
CN5.6	RX- C.L.						
CN5.7	GND	-	14	20	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
CN6: Connector for multifunction signals, CAN, etc.							
CN6.1	+5 Vdc	-	28	34	-	+Vdc POW	-
CN6.2	MM PIN 21	J33 in 2-3	21	27	-	PA5 , PCINT5 , ADC5	-
CN6.3	MM PIN 8	J8 N.C	8	14	-	PB5 , PCINT13 , MOSI	-
CN6.4	/INTRTC	-	5	11	-	/INTRTC	RTC+FRAM
CN6.5	MM PIN 9	J8 N.C.	9	15	-	PB6 , PCINT14 , MISO	-
CN6.6	MM PIN 23	J31 in 2-3	23	29	-	PA3 , PCINT3 , ADC3	-
CN6.7	GND	-	14	20	-	GND	-
CN6.8	MM PIN 22	J32 in 2-3	22	28	-	PA4 , PCINT4 , ADC4	-
CN7: Connector for USB interface -> NOT AVAILABLE							

FIGURE 4: CONNECTION TABLE (4 OF 5)



GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM AM644 pin	GMM AM644 configuration	GMM AM644 signal name	Using on GMM AM644
CN8: Connector for I2C BUS line							
CN8.1	+5 Vdc	-	28	34	-	+Vdc POW	-
CN8.2	SCL	-	6	12	-	PC0 , PCINT16 , SCL	RTC+FRAM
CN8.3	SDA	-	7	13	-	PC1 , PCINT17 , SDA	RTC+FRAM
CN8.4	GND	-	14	20	-	GND	-
CN9: Connector for multifunction signals, TTL inputs							
CN9.1	+5 Vdc	-	28	34	-	+Vdc POW	-
CN9.2	IN1 AUX	J35 in 2-3	16	22	-	PB1 , PCINT9 , T1 , CLK0	-
CN9.3	IN2 AUX	J36 in 2-3	17	23	-	PB0 , PCINT8 , T0 , XCK0	-
CN9.4	IN3 AUX	J37 in 2-3	18	24	-	PC2 , PCINT18 , TCK	-
CN9.5	IN4 AUX	J38 in 2-3	19	25	-	PC3 , PCINT19 , TMS	-
CN9.6	N.C.	-	-	-	-	-	-
CN9.7	GND	-	14	20	-	GND	-
CN9.8	MM PIN 20	J34 in 2-3	20	26	-	PA6 , PCINT6 , ADC6	-

FIGURE 5: CONNECTION TABLE (5 OF 5)