

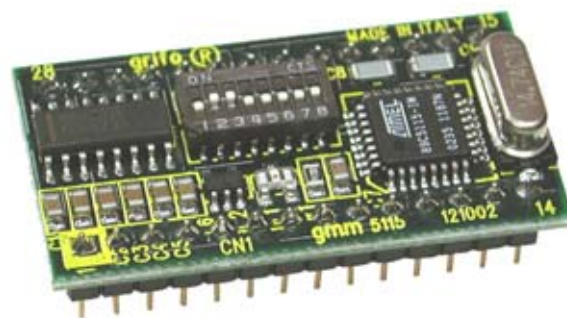
# GAB H844

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

# GMM 5115

grifo® Mini Module AT89c5115

## TECHNICAL MANUAL



**grifo®**

ITALIAN TECHNOLOGY

Via dell' Artigiano, 8/6  
40016 San Giorgio di Piano  
(Bologna) ITALY

E-mail: [grifo@grifo.it](mailto:grifo@grifo.it)

<http://www.grifo.it>

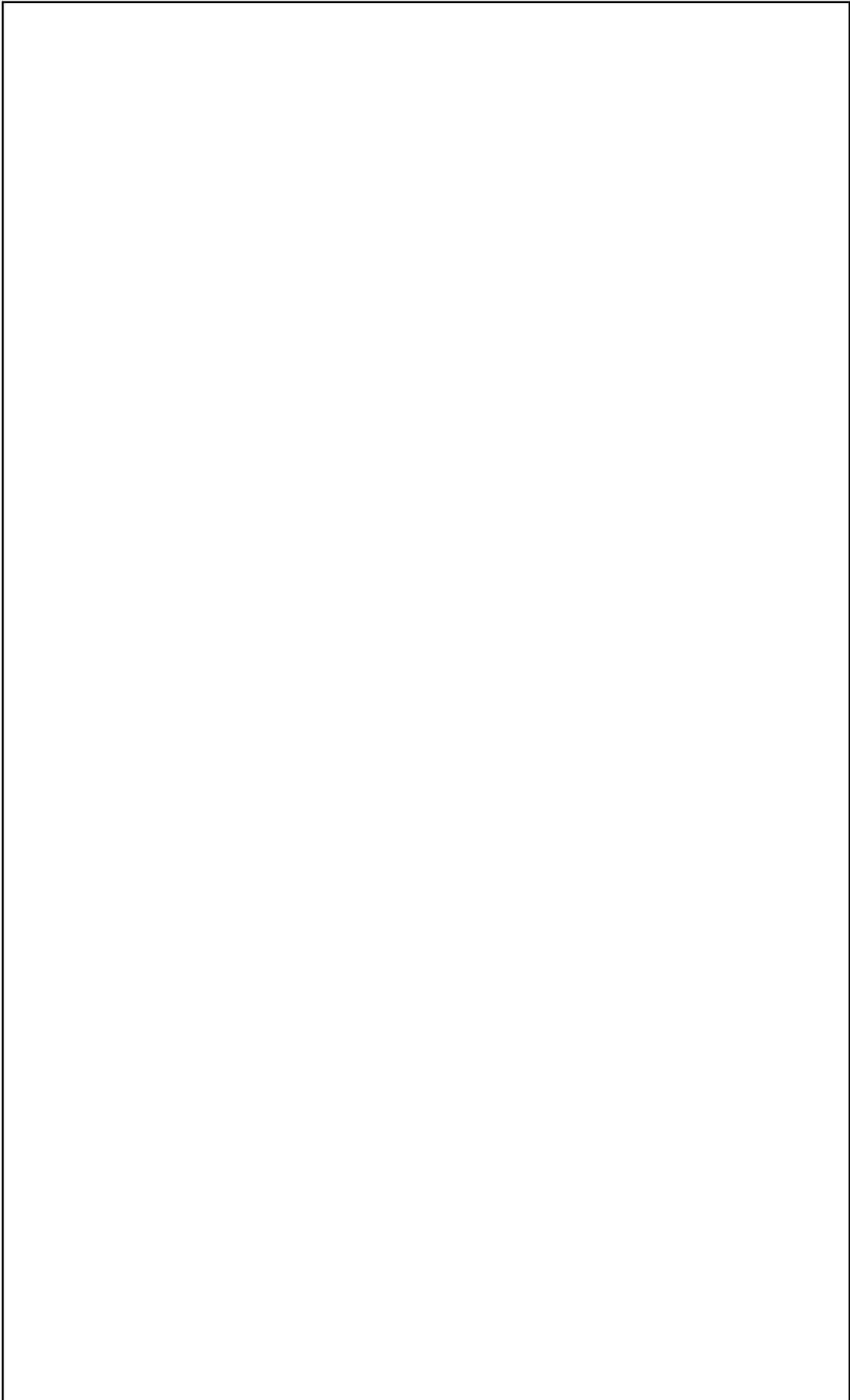
<http://www.grifo.com>

Tel. +39 051 892.052 (a.r.) FAX: +39 051 893.661



GAB H844+GMM 5115 Rel. 5.00 Edition 01 December 2008

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

# GMM 5115

**grifo®** Mini Module AT89c5115

## TECHNICAL MANUAL

Couple between interface board of **Analog Block GAB H844** series and **Mini Modules** with **8051** core with **28 pins GMM 5115**, able to manage application that involve bot **Analog** and **Digital** signals.

**grifo®**

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E-mail: [grifo@grifo.it](mailto:grifo@grifo.it)

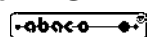
<http://www.grifo.it>

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Tel. +39 051 892.052 (a.r.) FAX: +39 051 893.661



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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

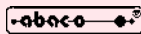


Attention: High voltage



Attention: ESD sensitive device

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## COUPLE RESOURCES

The **GAB H844 + GMM 5115** couple has the following resources:

Max. value voltage of A/D converter (Vmv):	2,5 V
Conditioned analog inputs (0÷20mA, 4÷20 mA, 0÷Vmv, 0÷4*Vmv):	6
Direct analog inputs (0÷Vmv):	4
Relays output:	2
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, software
CAN interface:	NO
USB interface:	NO
Real Time Clock:	NO

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.

## ISP PROGRAMMING

On **GAB H844 + GMM 5115** couple You can easily select the operative mode, directly by one of field connectors, as follow:

- CN4.1 not connected -> **RUN** mode: application program is executed.
- CN4.1 connected to CN4.9 -> **DEBUG** mode: boot loader is executed, that allows to update the on board memories of the Mini Modules, through a normal PC connected with RS 232 serial line, that execute the **FLIP**.

To connect 1 and 9 pins of CN4, during the power on of the boards, the user can use a switch, a jumper, a button, etc.

## COUPLE CONNECTIONS

In the following tables are reported all connections of all available signals for user of **GAB H844** respect to **GMM 5115** 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 5115 pin	GMM 5115 configuration	GMM 5115 signal name	Using on GMM 5115
<b>CN1: Connector for relays outputs</b>							
CN1.1	OUT A1	-	15	15	-	P3.6	-
CN1.2	COMMON A	-	-	-	-	-	-
CN1.3	OUT A2	-	13	13	-	P3.7	-
CN1.4	OUT B1	-	12	12	-	-	DSW1.8
CN1.5	OUT B2	-	11	11	-	-	Com DSW1
CN1.6	COMMON B	-	-	-	-	-	-
<b>CN3: Connector for optocoupled digital inputs</b>							
CN3.1	IN1	J35 in 1-2	16	16	-	P3.5, T1	-
CN3.2	IN2	J36 in 1-2	17	17	-	P3.4, T0	-
CN3.3	IN3	J37 in 1-2	18	18	-	P3.3, /INT1	-
CN3.4	IN4	J38 in 1-2	19	19	-	P3.2, /INT0	-
CN3.5	COM1	-	-	-	-	-	-
<b>CN4: Connector for analog inputs</b>							
CN4.1	AIN1	-	27	27	-	-	DL1, DSW1.1
CN4.2	AIN2	-	26	26	-	P1.1, ADC1, T2EX	-
CN4.3	AIN3	-	25	25	-	P1.2, ADC2, ECI	-
CN4.4	AIN4	-	10	10	-	-	DSW1.7
CN4.5	AIN5	J31 in 1-2	23	23	-	P1.4, ADC4, CEX1	-
CN4.6	AIN6	J32 in 1-2	22	22	-	P1.5, ADC5	-
CN4.7	AIN7	J33 in 1-2	21	21	-	P1.6, ADC6	-
CN4.8	AIN8	J34 in 1-2	20	20	-	P1.7, ADC7	-
CN4.9	AGND	-	14	14	-	GND	-
-	Vref	J11 in 2-3	1	1	-	Vref	-

FIGURE 1: CONNECTION TABLE (1 OF 5)



GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM 5115 pin	GMM 5115 configuration	GMM 5115 signal name	Using on GMM 5115	
<b>CN5: Connector for asynchronous serial line in RS 232</b>								
CN5.1	+5 VdcF	-	28	28	-	+5 Vdc	-	
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	4	DSW1.2,3 ON DSW1.4,5 OFF	TxD RS232, TxD TTL, P3.1	-	
CN5.4	-		-	-		-	-	-
CN5.5	RX RS232		3	3		-	RxD RS232, RxD TTL, P3.0	-
CN5.6	-		-	-		-	-	-
CN5.7	GND	-	14	14	-	GND	-	
CN5.8	-	J11 in 2-3	-	-	-	-	-	
<b>CN5: Connector for asynchronous serial line in TTL</b>								
CN5.1	+5 VdcF	-	28	28	-	+5 Vdc	-	
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	4	DSW1.2,3 OFF DSW1.4,5 ON	TxD RS232, TxD TTL, P3.1	-	
CN5.4	-		-	-		-	-	-
CN5.5	RX TTL		3	3		-	RxD RS232, RxD TTL, P3.0	-
CN5.6	-		-	-		-	-	-
CN5.7	GND	-	14	14	-	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 5115 pin	GMM 5115 configuration	GMM 5115 signal name	Using on GMM 5115
<b>CN5: Connector for asynchronous serial line in RS 422</b>							
CN5.1	+5 VdcF	-	28	28	-	+5 Vdc	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	TX- RS422	J1, J9 *1	4	4	DSW1.2,3 OFF DSW1.4,5 ON	TxD RS232, TxD TTL, P3.1	-
CN5.4	TX+ RS422	J2, J3, J4 in 1-2 J5 in 2-3	3	3			
CN5.5	RX+ RS422	IC3, 4=N.M.				RxD RS232, RxD TTL, P3.0	-
CN5.6	RX- RS422	IC1, 2=MAX 483					
CN5.7	GND	-	14	14	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
-	DIR	-	24	24	-	P1.3, ADC3, CEX0	-
<b>CN5: Connector for asynchronous serial line in RS 485</b>							
CN5.1	+5 VdcF	-	28	28	-	+5 Vdc	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	-	J1, J9 *1	4	4	DSW1.2,3 OFF DSW1.4,5 ON	TxD RS232, TxD TTL, P3.1	-
CN5.4	-	J2, J3, J4 in 1-2 J5 in 1-2	3	3			
CN5.5	RXTX+ RS485	IC2, 3, 4=N.M.				RxD RS232, RxD TTL, P3.0	-
CN5.6	RXTX- RS485	IC1=MAX 483					
CN5.7	GND	-	14	14	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
-	DIR	-	24	24	-	P1.3, ADC3, CEX0	-

FIGURE 3: CONNECTION TABLE (3 OF 5)

GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMMI 5115 pin	GMM 5115 configuration	GMM 5115 signal name	Using on GMM 5115
<b>CN5: Connector for asynchronous serial line in Current Loop</b>							
CN5.1	+5 VdcF	-	28	28	-	+5 Vdc	-
CN5.2	-	J10 in 2-3	-	-	-	-	-
CN5.3	TX- C.L.	J1, J9 N.C.	4	4	DSW1,2,3 OFF DSW1,4,5 ON	TxD RS232, TxD TTL, P3.1	-
CN5.4	TX+ C.L.	J2, J3, J4 in 1-2 IC1, 2=N.M.	3	3			
CN5.5	RX+ C.L.	IC3=HP 4100					
CN5.6	RX- C.L.	IC4=HP 4200					
CN5.7	GND	-	14	14	-	GND	-
CN5.8	-	J11 in 2-3	-	-	-	-	-
<b>CN6: Connector for multifunction signals, CAN, etc.</b>							
CN6.1	+5 Vdc	-	28	28	-	+5 Vdc	-
CN6.2	MM PIN 21	J33 in 2-3	21	21	-	P1.6, ADC6	-
CN6.3	MM PIN 8	J8 N.C.	8	8	-	P4.0	-
CN6.4	/INTRTC	-	5	5	-	-	DSW1.6
CN6.5	MM PIN 9	J8 N.C.	9	9	-	P4.1	-
CN6.6	MM PIN 23	J31 in 2-3	23	23	-	P1.4, ADC4, CEX1	-
CN6.7	GND	-	14	14	-	GND	-
CN6.8	MM PIN 22	J32 in 2-3	22	22	-	P1.5, ADC5	-
<b>CN7: Connector for USB interface -&gt; NOT AVAILABLE</b>							

FIGURE 4: CONNECTION TABLE (4 OF 5)



GAB H844 connector. pin	GAB H844 signal name	GAB H844 configuration	ZC1 pin	GMM 5115 pin	GMM 5115 configuration	GMM 5115 signal name	Using on GMM 5115
<b>CN8: Connector for I2C BUS line</b>							
CN8.1	+5 Vdc	-	28	28	-	+5 Vdc	-
CN8.2	SCL	-	6	6	-	P2.1	-
CN8.3	SDA	-	7	7	-	P2.0	-
CN8.4	GND	-	14	14	-	GND	-
<b>CN9: Connector for multifunction signals, TTL inputs</b>							
CN9.1	+5 Vdc	-	28	28	-	+5 Vdc	-
CN9.2	IN1 AUX	J35 in 2-3	16	16	-	P3.5 , T1	-
CN9.3	IN2 AUX	J36 in 2-3	17	17	-	P3.4 , T0	-
CN9.4	IN3 AUX	J37 in 2-3	18	18	-	P3.3 , /INT1	-
CN9.5	IN4 AUX	J38 in 2-3	19	19	-	P3.2 , /INT0	-
CN9.6	N.C.	-	-	-	-	-	-
CN9.7	GND	-	14	14	-	GND	-
CN9.8	MM PIN 20	J34 in 2-3	20	20	-	P1.7 , ADC7	-

FIGURE 5: CONNECTION TABLE (5 OF 5)