

GMB HR84

grifo® Mini BLOCK Housing, 8 Opto Input, 4 Relay Outputs

GMM AM328

grifo® Mini Module AT mega 328

TECHNICAL MANUAL



grifo®

ITALIAN TECHNOLOGY

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

E-mail: grifo@grifo.it

<http://www.grifo.it>

<http://www.grifo.com>

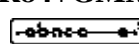
Tel. +39 051 892.052 (r.a.) FAX: +39 051 893.661



GMB HR84+GMM AM328

Rel. 5.00

Edition 19 August 2011

 GPC®, grifo®, are trade marks of grifo®



GMB HR84

grifo[®] Mini BLOCK Housing, 8 Opto Input, 4 Relay Outputs

GMM AM328

grifo[®] Mini Module AT mega 328

TECHNICAL MANUAL

Couple between interface board of **Digital Block GMB HR84** series and **Mini Modules** with **AVR Core** with **28 pins GMM AM328**, able to manage application that involves both **Digital** and **Analog Signals** and line **Communication**.

grifo[®]

ITALIAN TECHNOLOGY

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

E-mail: grifo@grifo.it

<http://www.grifo.it>

<http://www.grifo.com>

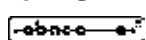
Tel. +39 051 892.052 (r.a.) FAX: +39 051 893.661



GMB HR84+GMM AM328

Rel. 5.00

Edition 19 August 2011



, GPC[®], **grifo**[®], are trade marks of **grifo**[®]

DOCUMENTATION COPYRIGHT BY **grifo®**, ALL RIGHTS RESERVED

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, either electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written consent of **grifo®**.

IMPORTANT

Although all the information contained herein have been carefully verified, **grifo®** assumes no responsibility for errors that might appear in this document, or for damage to things or persons resulting from technical errors, omission and improper use of this manual and of the related software and hardware.

grifo® reserves the right to change the contents and form of this document, as well as the features and specification of its products at any time, without prior notice, to obtain always the best product.

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

Trade Marks

, GPC®, **grifo®** : are trade marks of **grifo®**.

Other Product and Company names listed, are trade marks of their respective companies

GENERAL INDEX

COUPLE RESOURCES 1

COUPLE CONNECTIONS 1



INDICE DELLE FIGURE

FIGURE 1: CONNECTIONI TABLE (1 OF 7) 2
FIGURE 2: CONNECTIONI TABLE (2 OF 7) 3
FIGURE 3: CONNECTIONI TABLE (3 OF 7) 4
FIGURE 4: CONNECTIONI TABLE (4 OF 7) 5
FIGURE 5: CONNECTIONI TABLE (5 OF 7) 6
FIGURE 6: CONNECTIONI TABLE (6 OF 7) 7
FIGURE 7: CONNECTIONI TABLE (7 OF 7) 8



COUPLE RESOURCES

The **GMB HR84 + GMM AM328** couple has the following resources:

Relay Outputs:	. . . . .	4
Optocoupled Inputs:	. . . . .	8
Optocoupled Inputs Type:	. . . . .	NPN , PNP, Powered
Multifunction Signals I/O TTL, A/D, PWM, CAN, etc.:	. . . . .	5
Analog Input (0÷Vfs, 0÷4*Vfs):	. . . . .	1
Max. Value Voltage of A/D Converter (Vfs):	. . . . .	2,5 V o 10,0 V
Serial Line in RS 232:	. . . . .	1
Serial Line in TTL:	. . . . .	1
Serial Line in RS 422:	. . . . .	1
Serial Line in RS 485:	. . . . .	1
Serial Line in Current Loop:	. . . . .	1
Serial Line in I2C BUS:	. . . . .	YES
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.

COUPLE CONNECTIONS

In the following tables are reported connections of all user available signals on **GMB HR84** related to **GMM AM328 Mini Module**. With these connections the user can manage all available resources either by hardware and by software.

When a more detailed documentation is required (connection diagrams, signals 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 the following abbreviations and references:

N.C. = Not Connected

N.M. = Not Mounted

*1 = to configure according to the performed connection.

GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN1: Connector for Relays Outputs							
CN1.1	OUT A1	-	23	23	-	PB.0	-
CN1.2	COMMON A	-	-	-	-	-	-
CN1.3	OUT A2	-	22	22	-	PB.2	-
CN1.4	OUT B1	-	21	21	-	PD.6	-
CN1.5	OUT B2	-	20	20	-	PD.7	-
CN1.6	COMMON B	-	-	-	-	-	-

FIGURE 1: CONNECTION TABLE (1 OF 7)

GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN2: Connector for Asynchronous Serial Line in RS 232							
CN2.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	TX RS232	J1, J9, N.C. J2, J3, J4 in 2-3 J5, J7, Indifferent	4	4	Dip Switch	PDO , TXD RS232 , TXD TTL	-
CN2.4	-		-	-	DSW 1,1 = ON	-	-
CN2.5	RX RS232		3	3	DSW 1,2 = ON	PD1 , RXD RS232 , RXD TTL	-
CN2.6	-		-	-	DSW 1,3 = OFF	-	-
CN2.7	GND	-	14	14	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-
CN2: Connector for Asynchronous Serial Line in TTL							
CN2.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	TX TTL	J1, J9, N.C. J2, J3, J4 in 2-3 J5, J7, Indifferent	4	4	Dip Switch	PDO , TXD RS232 , TXD TTL	-
CN2.4	-		-	-	DSW 1,1 = OFF	-	-
CN2.5	RX TTL		3	3	DSW 1,2 = OFF	PD1 , RXD RS232 , RXD TTL	-
CN2.6	-		-	-	DSW 1,3 = ON	-	-
CN2.7	GND	-	14	14	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-

FIGURE 2: CONNECTION TABLE (2 OF 7)



GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN2: Connector for Asynchronous Serial Line in RS 422							
CN2.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	TX- RS422	J1, J9, N.C. J2, J3, J4 in 1-2 J5 in 2-3	4	4	Dip Switch DSW 1,1 = OFF	PDO, TXD RS232, TXD TTL	-
CN2.4	TX+ RS422	J7 (*)	-	-	DSW 1,2 = OFF		
CN2.5	RX+ RS422	IC3, IC4=N.M.	3	3	DSW 1,3 = ON	PD1, RXD RS232, RXD TTL	-
CN2.6	RX- RS422	IC1, IC2=MAX 483	-	-	DSW 1,4 = ON		
CN2.7	GND	-	14	14	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-
-	DIR	J7 in 1-2	11	11	-	PD7, OC2	-
CN2: Connector for Asynchronous Serial Line in RS 485							
CN2.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	-	J1, J9, N.C. J2, J3, J4, J5 in 1-2	4	4	Dip Switch DSW 1,1 = OFF	PDO, TXD RS232, TXD TTL	-
CN2.4	-	J7 (*)	-	-	DSW 1,2 = OFF		
CN2.5	RXTX+ RS485	IC2, IC3, IC4=N.M.	3	3	DSW 1,3 = ON	PD1, RXD RS232, RXD TTL	-
CN2.6	RXTX- RS485	IC1 = MAX 483	-	-	DSW 1,4 = ON		
CN2.7	GND	-	14	14	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-
-	DIR	J7 in 2-3	11	11	-	PD7, OC2	-

FIGURE 3: CONNECTION TABLE (3 OF 7)

GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN2: Connector for Asynchronous Serial Line in Current Loop							
CN2.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	TX- C.L.	J1, J9, N.C. J2, J3, Indifferent J4 in 1-2 J5, J7 Indifferent IC3=HP 4200 IC4=HP 4100	4	4	Dip Switch DSW 1,1 = OFF DSW 1,2 = OFF DSW 1,3 = ON DSW 1,4 = ON	PDO , TXD RS232 , TXD TTL	-
CN2.4	TX+ C.L.						
CN2.5	RX+ C.L.		3	3			
CN2.6	RX- C.L.						
CN2.7	GND	-	14	14	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-

FIGURE 4: CONNECTION TABLE (4 OF 7)



GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN3: Connector for I2C BUS Line							
CN3.1	+5 Vdc	-	28	28	-	+Vdc POW	+5 Vdc
CN3.2	SCL	-	6	6	-	PC.5 , SCL	I2C BUS
CN3.3	SDA	-	7	7	-	PC.4 , SDA	I2C BUS
CN3.4	GND	-	14	14	-	GND	GND
CN7: Connector for USB -> NOT AVAILABLE							
CN7.1	-	-	-	-	-	-	-
CN7.2	USBL	-	-	-	-	-	-
CN7.3	USBH	-	-	-	-	-	-
CN7.4	GND	-	-	-	-	-	-

FIGURE 5: CONNECTION TABLE (5 OF 7)

GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN4: Connector for Multifunction Signals I/O TTL, A/D, PWM, CAN, etc.							
CN4.1	+5 Vdc	-	28	28	-	+Vdc POW	-
CN4.2	MM PIN 12	-	12	12	-	CLK/PSI	-
CN4.3	MM PIN 8	-	8	8	-	MOSI	-
CN4.4	-	-	-	-	-	-	-
CN4.5	MM PIN 9	-	9	9	-	MISO	-
CN4.6	MM PIN 24 , PWM	-	24	24	-	OC1.A	-
CN4.7	GND	-	14	14	-	GND	-
CN4.8	MM PIN 27 , A/D	-	27	27	-	ADC./	-
CN5: Connector for Power Supply							
CN5.1	Vac oppure +Vdc	-	-	-	-	-	-
CN5.2	GND	-	14	14	-	GND	-

FIGURE 6: CONNECTION TABLE (6 OF 7)

GMB HR84 Connector Pin	GMB HR84 Signal Name	GMB HR84 Configuration	ZC1 Pin	GMM AM328 Pin	GMM AM328 Configuration	GMM AM328 Signal Name	Use on GMM AM328
CN6: Connector for Optocoupled Digital Inputs							
CN6.1	IN1	-	26	26	-	PC.0	-
CN6.2	IN2	-	27	27	-	PC.1	-
CN6.3	IN3	-	19	19	-	PD.2 , INT0	-
CN6.4	IN4	-	18	18	-	PD.3 , INT1	-
CN6.5	IN5	-	17	17	-	PD.4 , T0	-
CN6.6	IN6	-	16	16	-	PD.5 , T1	-
CN6.7	IN7	-	15	15	-	PC.2	-
CN6.8	IN8	-	13	13	-	PC.3	-
CN6.9	COMUNE	-	-	-	-	-	-

FIGURE 7: CONNECTION TABLE (7 OF 7)