

GMB HR168

grifo® Mini BLOCK Housing, 16 Opto Input, 8 Relay Outputs

GMM AM1284

grifo® Mini Module AT mega 1284

TECHNICAL MANUAL



grifo®

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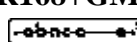
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GMB HR168+GMM AM1284 Rel. 5.00 Edition 14 August 2011

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Couple between interface board of **Digital Block GMB HR168** series and **Mini Modules** with **AVR Core** with **40 pins GMMAM1284**, able to manage application that involves both **Digital** and **Analog Signals** and line **Communication**.

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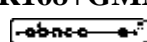
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For specific informations on the components mounted on the card, please refer to the Data Book of the builder or second sources.

SYMBOLS DESCRIPTION

In the manual could appear the following symbols:



Attention: Generic danger

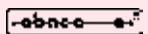


Attention: High voltage



Attention: ESD sensitive device

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GENERAL INDEX

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COUPLE RESOURCES

The **GMB HR168 + GMM AM1284** couple has the following resources:

Relay Outputs:	8
Optocoupled Inputs:	15
Optocoupled Inputs Type:	NPN , PNP, Powered
Multifunction Signals I/O TTL, A/D, PWM, CAN, etc.:	6
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
LITIUM Battery	YES
Real Time Clock:	YES
FRAM	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 connections of all user available signals on **GMB HR168** related to **GMM AM1284 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.

GMM HR168 Connector Pin	GMM HR168 Signal Name	GMM HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN1: Connector for Optocoupled Digital Inputs							
CN1.1	IN1-A	-	32	32	-	PA.1	-
CN1.2	IN2-A	-	31	31	-	PA.2	-
CN1.3	IN3-A	-	25	25	-	PC.2	-
CN1.4	IN4-A	-	24	24	-	PC.3	-
CN1.5	IN5-A	-	23	23	-	PB.0	-
CN1.6	IN6-A	-	22	22	-	PB.1	-
CN1.7	IN7-A	-	21	21	-	PC.4	-
CN1.8	IN8-A	-	19	19	-	PC.5	-
CN1.9	COMUNE	-	-	-	-	-	-
CN2: Connector for Optocoupled Digital Inputs							
CN2.1	IN1-B	-	1	1	-	PB.4	-
CN2.2	IN2-B	-	2	2	-	PB.3	-
CN2.3	IN3-B	-	3	3	-	PB.2	-
CN2.4	IN4-B	-	4	4	-	PC.6	-
CN2.5	IN5-B	-	35	35	-	PD.4	-
CN2.6	IN6-B	-	36	36	-	PD.6	-
CN2.7	IN7-B	-	37	37	-	PD.7	-
CN2.8	IN8-B	-	38	38	-	-	-
CN2.9	COMUNE	-	-	-	-	-	-

FIGURE 1: CONNECTION TABLE (1 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN3: Connector for Relays Outputs							
CN3.1	OUT A1	-	29	29	-	PA.3	-
CN3.2	COMMON A	-	-	-	-	-	-
CN3.3	OUT A2	-	28	28	-	PA.4	-
CN3.4	OUT B1	-	27	27	-	PA.5	-
CN3.5	COMMON B	-	-	-	-	-	-
CN3.6	OUT B2	-	26	26	-	PA.6	-
CN3.7	OUT C1	-	14	14	-	PB.5	-
CN3.8	COMMON C	-	-	-	-	-	-
CN3.9	OUT C2	-	15	15	-	PB.6	-
CN4: Connector for Relays Outputs							
CN3.1	OUT D1	-	18	18	-	PB.7	-
CN3.2	COMMON D	-	-	-	-	-	-
CN3.3	OUT D2	-	16	16	-	PA.7	-

FIGURE 2: CONNECTION TABLE (2 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284	
CN6: Connector for Asynchronous Serial Line in RS 232 (1)								
CN6.1	+5 Vdc	-	34	34	-	+Vdc POW	-	
CN6.2	Vopto A	-	-	-	-	-	-	
CN6.3	TX RS232	J3, J4, N.C. J6, J7, J8 in 2-3 J5, Indifferente	10	10	Jumpers J1.1 = 2-3 J1.2 = 2-3 J1.3 = 2-3	PDO , TXD RS232 , TXD TTL	-	
CN6.4	-		-	-		-	-	-
CN6.5	RX RS232		9	9		PD1 , RXD RS232 , RXD TTL	-	
CN6.6	-		-	-		-	-	-
CN6.7	GND	-	20	20	-	GND	-	
CN6.8	Vopto B	-	-	-	-	-	-	
CN6: Connector for Asynchronous Serial Line in TTL								
CN6.1	+5 Vdc	-	34	34	-	+Vdc POW	-	
CN6.2	Vopto A	-	-	-	-	-	-	
CN6.3	TX TTL	J3, J4, N.C. J6, J7, J8 in 2-3 J5, Indifferente	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-	
CN6.4	-		-	-		-	-	-
CN6.5	RX TTL		9	9		PD1 , RXD RS232 , RXD TTL	-	
CN6.6	-		-	-		-	-	-
CN6.7	GND	-	20	20	-	GND	-	
CN6.8	Vopto B	-	-	-	-	-	-	

FIGURE 3: CONNECTION TABLE (3 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284	
CN6: Connector for Asynchronous Serial Line in RS 422								
CN6.1	+5 Vdc	-	34	34	-	+Vdc POW	-	
CN6.2	Vopto A	-	-	-	-	-	-	
CN6.3	TX- RS422	J3, J4 (*) J7, J8 in 1-2 J5= 2-3	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-	
CN6.4	TX+ RS422							
CN6.5	RX+ RS422	J6=1-2 IC10=MAX 483 IC11=MAX 483	9	9			PD1 , RXD RS232 , RXD TTL	-
CN6.6	RX- RS422							
CN6.7	GND	-	20	20	-	GND	-	
CN6.8	Vopto B	-	-	-	-	-	-	
-	DIR	J10 = L Trasm. Att. J10 = H Trasm. Dis.	11	11	-	PD7 , OC2	-	
CN6: Connector for Asynchronous Serial Line in RS 485								
CN6.1	+5 Vdc	-	34	34	-	+Vdc POW	-	
CN6.2	Vopto A	-	-	-	-	-	-	
CN6.3	-	J3, J4 (*) J7, J8 in 1-2 J5= 1-2	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-	
CN6.4	-							
CN6.5	RXTX+ RS485	J6=1-2 IC10=MAX 483 IC11=NM	9	9			PD1 , RXD RS232 , RXD TTL	-
CN6.6	RXTX- RS485							
CN6.7	GND	-	20	20	-	GND	-	
CN6.8	Vopto B	-	-	-	-	-	-	
-	DIR	J10 = L Trasmissione J10 = H Ricezione	11	11	-	PD7 , OC2	-	

FIGURE 4: CONNECTION TABLE (4 OF 7)



GMM HR168 Connector Pin	GMM HR168 Signal Name	GMM HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN6: Connector for Asynchronous Serial Line in Current Loop							
CN2.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN2.2	Vopto A	-	-	-	-	-	-
CN2.3	TX- C.L.	J3, J4, N.C. J5, Indifferente J6 in 1-2 J7 in 1-2 J8 in 1-2 IC12=HP 4200 IC8=HP 4100	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-
CN2.4	TX+ C.L.		9	9			
CN2.5	RX+ C.L.		20	20			
CN2.6	RX- C.L.		-	-			
CN2.7	GND	-	20	20	-	GND	-
CN2.8	Vopto B	-	-	-	-	-	-

FIGURE 5: CONNECTION TABLE (5 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	MM PIN 5	-	5	5	-	N.C.	-
CN7.3	MM PIN 14	-	14	14	-	PB.5	-
CN7.4	MM PIN 11	-	11	11	-	INT RTC	-
CN7.5	MM PIN 15	-	15	15	-	PB.6	-
CN7.6	MM PIN 30 , PWM	-	30	30	-	PD.5	-
CN7.7	GND	-	20	20	-	GND	-
CN7.8	MM PIN 33 , A/D	-	33	33	-	PA.0	-
CN5: Connector for Power Supply							
CN5.1	Vac oppure +Vdc	-	-	-	-	-	-
CN5.2	GND	-	20	20	-	GND	-

FIGURE 6: CONNECTION TABLE (6 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN8: Connector for I2C BUS Line							
CN8.1	+5 Vdc	-	34	34	-	+Vdc POW	+5 Vdc
CN8.2	SCL	-	12	12	-	PC.0, SCL	I2C BUS
CN8.3	SDA	-	13	13	-	PC.1, SDA	I2C BUS
CN8.4	GND	-	20	20	-	GND	GND
CN9: Connector for Asynchronous Serial Line in RS 232 (2), USB, ecc.							
CN9.1	+5 Vdc	-	34	34	-	+5 Vdc	-
CN9.2	(+5 Vdc USB)	-	-	-	-	-	-
CN9.3	TX-2	-	39	39	-	TX (2)	-
CN9.4	USB-DL	-	14	14	-	PB.5	-
CN9.5	RX-2	-	40	40	-	RX (2)	-
CN9.6	USB-DH	-	15	15	-	PB.6	-
CN9.7	GND	-	20	20	-	GND	-
CN9.8	GND	-	20	20	-	GND	-

FIGURE 7: CONNECTION TABLE (7 OF 7)