

GMB HR168

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

GMM ACB

grifo® Mini Module AT 89C51AC2

TECHNICAL MANUAL



grifo®

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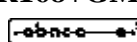
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GMB HR168+GMM ACB

Rel. 5.00 Edition 12 August 2011

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Couple between interface board of **Digital Block GMB HR168** series and **Mini Modules** with **8051 Core** with **40 pins GMM ACB**, able to manage application that involves both **Digital** and **Analog Signals** and line **Communication**.

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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 **GMB HR168 + GMM ACB** couple has the following resources:

Relay Outputs:	.	.	.	.	.	.	.	.	.	8
Optocoupled Inputs:	.	.	.	.	.	.	.	.	.	16
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, Firmware
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 HR168** related to **GMM ACB 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 HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
CN1: Connector for Optocoupled Digital Inputs							
CN1.1	IN1-A	-	32	32	-	P1.1	-
CN1.2	IN2-A	-	31	31	-	P1.2	-
CN1.3	IN3-A	-	25	25	-	P3.2	-
CN1.4	IN4-A	-	24	24	-	P3.3	-
CN1.5	IN5-A	-	23	23	-	P3.4	-
CN1.6	IN6-A	-	22	22	-	P3.5	-
CN1.7	IN7-A	-	21	21	-	P3.6	-
CN1.8	IN8-A	-	19	19	-	P3.7	-
CN1.9	COMMON	-	-	-	-	-	-
CN2: Connector for Optocoupled Digital Inputs							
CN2.1	IN1-B	-	1	1	-	P0.0	-
CN2.2	IN2-B	-	2	2	-	P0.1	-
CN2.3	IN3-B	-	3	3	-	P0.2	-
CN2.4	IN4-B	-	4	4	-	P0.3	-
CN2.5	IN5-B	-	35	35	-	P0.4	-
CN2.6	IN6-B	-	36	36	-	P0.5	-
CN2.7	IN7-B	-	37	37	-	P0.6	-
CN2.8	IN8-B	-	38	38	-	P0.7	-
CN2.9	COMMON	-	-	-	-	-	-

FIGURE 1: CONNECTION TABLE (1 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
CN3: Connector for Relays Outputs							
CN3.1	OUT A1	-	29	29	-	P1.4	-
CN3.2	COMMON A	-	-	-	-	-	-
CN3.3	OUT A2	-	28	28	-	P1.5	-
CN3.4	OUT B1	-	27	27	-	P1.6	-
CN3.5	COMMON B	-	-	-	-	-	-
CN3.6	OUT B2	-	26	26	-	P1.7	-
CN3.7	OUT C1	-	14	14	-	P4.0	-
CN3.8	COMMON C	-	-	-	-	-	-
CN3.9	OUT C2	-	15	15	-	P4.1	-
CN4: Connector for Relays Outputs							
CN3.1	OUT D1	-	18	18	-	P2.2	-
CN3.2	COMMON D	-	-	-	-	-	-
CN3.3	OUT D2	-	16	16	-	P2.4	-

FIGURE 2: CONNECTION TABLE (2 OF 7)

GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
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, Indifferent	10	10	Dip Switch	PDO, TXD RS232, TXD TTL	-
CN6.4	-		-	-	DSW 1-2 = ON	-	-
CN6.5	RX RS232		9	9	DSW 1-4 = ON	PD1, RXD RS232, RXD TTL	-
CN6.6	-		-	-	DSW 1-3 = OFF	-	-
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, Indifferent	10	10	Dip Switch	PDO, TXD RS232, TXD TTL	-
CN6.4	-		-	-	DSW 1-2 = OFF	-	-
CN6.5	RX TTL		9	9	DSW 1-4 = OFF	PD1, RXD RS232, RXD TTL	-
CN6.6	-		-	-	DSW 1-3 = ON	-	-
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 ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
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 J6=1-2	10	10	Dip Switch DSW 1-2= OFF DSW 1-4= OFF	PDO , TXD RS232 , TXD TTL	-
CN6.4	TX+ RS422		9	9			
CN6.5	RX+ RS422	IC10=MAX 483 IC11=MAX 483	20	20	DSW 1-3 = ON DSW 1-5 = ON	PD1 , RXD RS232 , RXD TTL	-
CN6.6	RX- RS422		11	11			
CN6.7	GND	-	-	-	-	GND	-
CN6.8	Vopto B	-	-	-	-	-	-
-	DIR	J10 = L Trans. ON J10 = H Trans. OFF	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 J6=1-2	10	10	Dip Switch DSW 1-2= OFF DSW 1-4= OFF	PDO , TXD RS232 , TXD TTL	-
CN6.4	-		9	9			
CN6.5	RXTX+ RS485	IC10=MAX 483 IC11=NM	20	20	DSW 1-3 = ON DSW 1-5 = ON	PD1 , RXD RS232 , RXD TTL	-
CN6.6	RXTX- RS485		11	11			
CN6.7	GND	-	-	-	-	GND	-
CN6.8	Vopto B	-	-	-	-	-	-
-	DIR	J10 = Trans. (L) J10 = Recive (H)	11	11	-	PD7 , OC2	-

FIGURE 4: CONNECTION TABLE (4 OF 7)



GMB HR168 Connector Pin	GMB HR168 Signal Name	GMB HR168 Configuration	ZC1 Pin	GMM ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
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.	10	10	Dip Switch DSW 1-2= OFF DSW 1-4= OFF	PDO, TXD RS232, TXD TTL	-
CN2.4	TX+ C.L.	J5, Indifferent J6 in 1-2 J7 in 1-2	9	9	DSW 1-3 = ON DSW 1-5 = ON	PD1, RXD RS232, RXD TTL	-
CN2.5	RX+ C.L.	J8 in 1-2	20	20	-	GND	-
CN2.6	RX- C.L.	IC12=HP 4200 IC8=HP 4100	-	-	-	-	-
CN2.7	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 ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
CN7: Connector for Multifunction Signals I/O TTL, A/D, PWM, CAN, etc.							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	MM PIN 5	-	5	5	-	P2.6	-
CN7.3	MM PIN 14	-	14	14	-	P4.0	-
CN7.4	MM PIN 11	-	11	11	-	P2.5	-
CN7.5	MM PIN 15	-	15	15	-	P4.1	-
CN7.6	MM PIN 30 , PWM	-	30	30	-	P1.3	-
CN7.7	GND	-	20	20	-	GND	-
CN7.8	MM PIN 33 , A/D	-	33	33	-	P1.0	-
CN5: Connector for Power Supply							
CN5.1	Vac or +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 ACB Pin	GMM ACB Configuration	GMM ACB Signal Name	Use on GMM ACB
CN8: Connector for I2C BUS Line							
CN8.1	+5 Vdc	-	34	34	-	+Vdc POW	+5 Vdc
CN8.2	SCL	-	12	12	-	P2.0 , SCL	I2C BUS
CN8.3	SDA	-	13	13	-	P2.1 , 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	-	ALE	-
CN9.4	USB-DL	-	14	14	-	P4.0	-
CN9.5	RX-2	-	40	40	-	PSEN	-
CN9.6	USB-DH	-	15	15	-	P4.1	-
CN9.7	GND	-	20	20	-	GND	-
CN9.8	GND	-	20	20	-	GND	-

FIGURE 7: CONNECTION TABLE (7 OF 7)