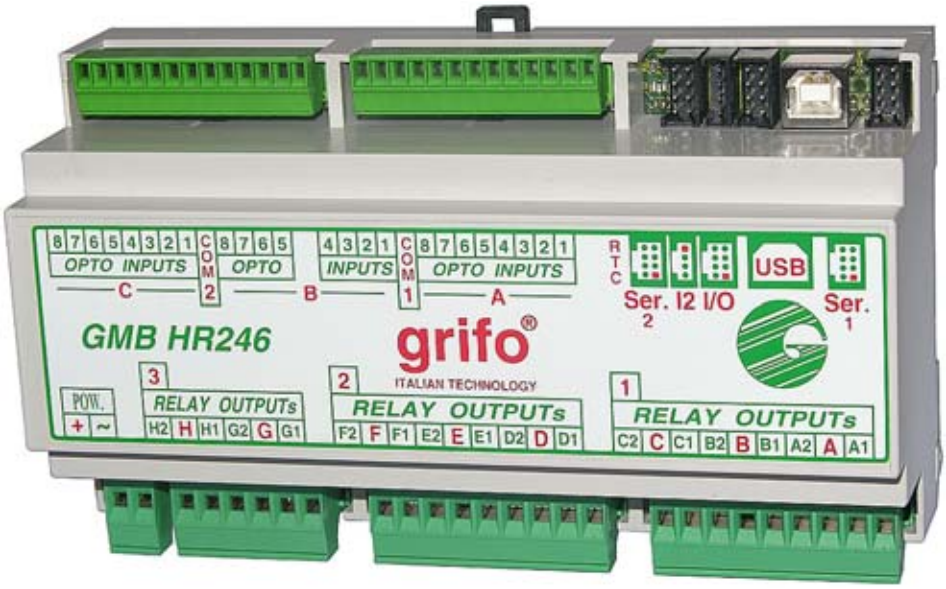
GMB HR246

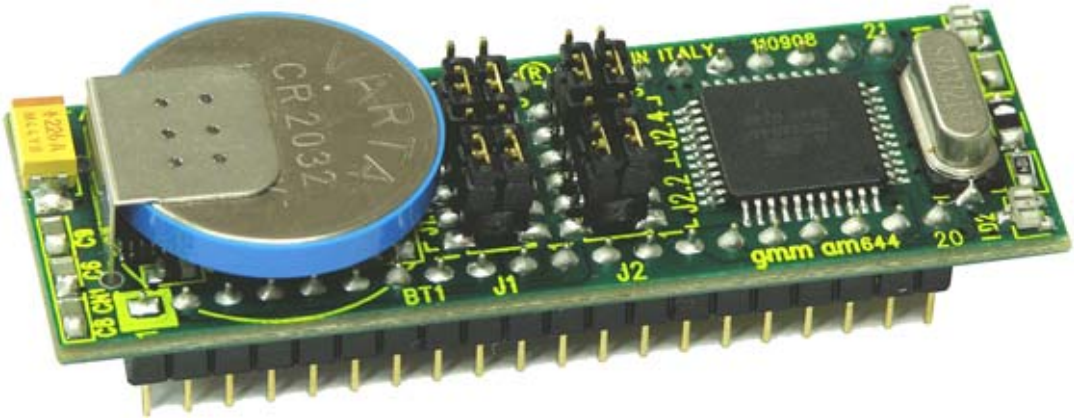
grifo® Mini BLOCK Housing, 24 Opto Input, 16 Relay Outputs

GMM AM1284

grifo® Mini Module Atmel AT mega 1284

TECHNICL MANUAL





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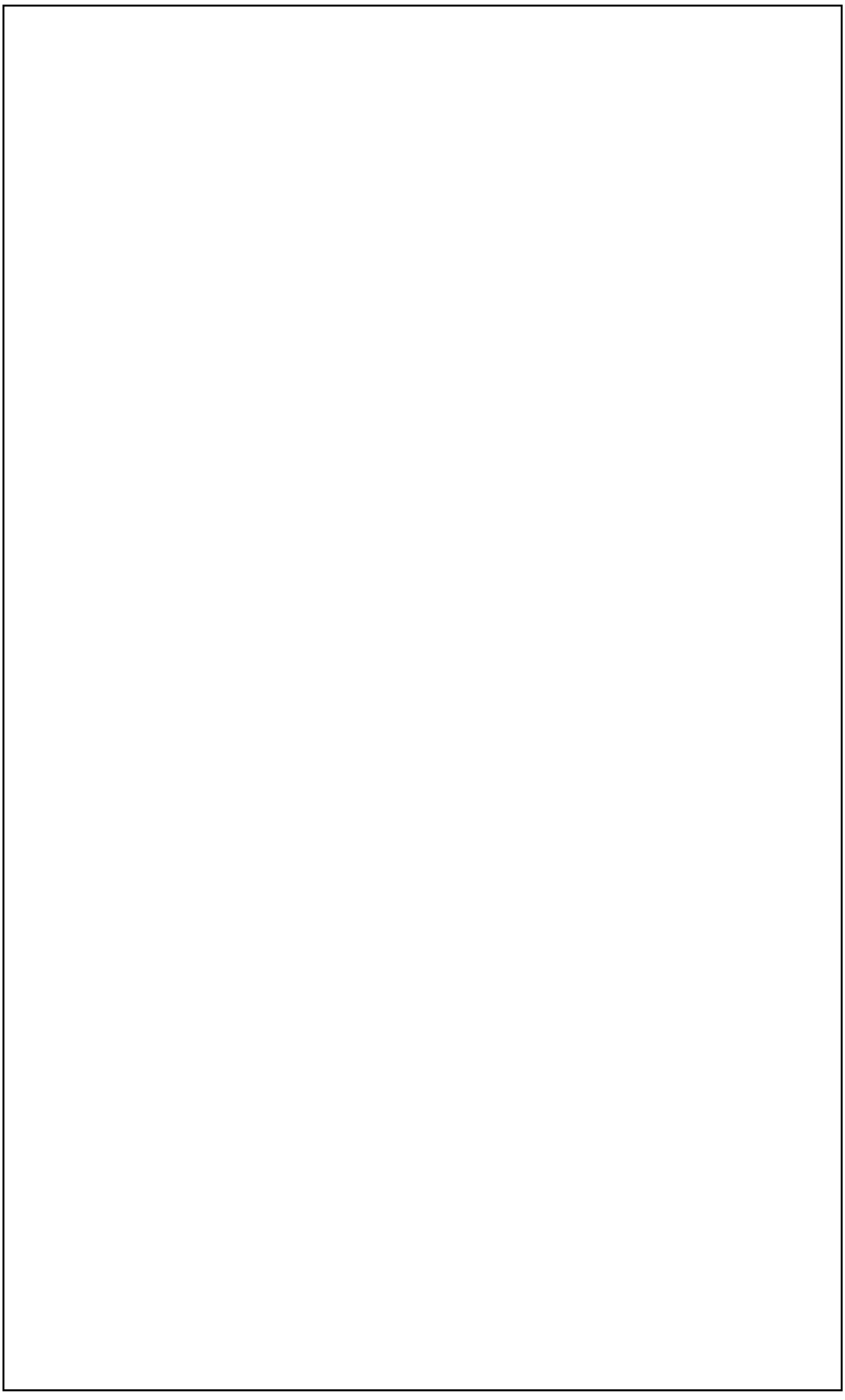
GMB HR246+GMM AM1284 Rel. 5.00 *Edition 08 September 2011*



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Couple between interface board of **Digital Block GMB HR246** seriesand **Mini Modules** with **AVR Core** with **40** pin **GMM AM1284**, able to manage application that involves bot **Digital** an **Analog Signals** and line **Communication**.

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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

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GENERAL INDEX

INDICE DELLE FIGURE

COUPLE RESOURCES

The **GMB HR246** + **GMM AM1284** couple has the following resources:

Relay Outputs:	**16**
Optocoupled Inputsi:	**23**
Optocoupled Inputsi 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**
Lithium Batterye:	**YES**
Real Time Clock:	**YES**
FRAM:	**YES**

It is importatn 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 HR246** 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 configurate according to the performed connection.

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN1: Connector for Optocoupled Digital Inputs - A, B Group							
CN1.1	IN1-A	-	32	32	-	PA0 , ADC0	-
CN1.2	IN2-A	-	31	31	-	PA1 , ADC1	-
CN1.3	IN3-A	-	25	25	-	PD2 , INT0	-
CN1.4	IN4-A	-	24	24	-	PD3 , INT1	-
CN1.5	IN5-A	-	23	23	-	PB0 , XCK , T0	-
CN1.6	IN6-A	-	22	22	-	PB1 , T1	-
CN1.7	IN7-A	-	21	21	-	PA2 , ADC2	-
CN1.8	IN8-A	-	19	19	-	PA3 , ADC3	-
CN1.9	COM1	-	-	-	-	-	-
CN1.10	IN1-B	-	1	1	-	PA4 , ADC4	-
CN1.11	IN2-B	-	2	2	-	PA5 , ADC5	-
CN1.12	IN3-B	-	3	3	-	PC2 , TCK	-
CN1.13	IN4-B	-	4	4	-	PC3 , TMS	-

FIGURE 1: CONNECTION TABLE (1 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN2: Connector for Optocoupled Digital Inputs - C, D Group							
CN2.1	IN5-B	-	35	35	-	PD4	-
CN2.2	IN6-B	-	36	36	-	PD6	-
CN2.3	IN7-B	-	37	37	-	PD7	-
CN2.4	IN8-B	-	38	38	-	-	-
CN2.5	COM2	-	-	-	-	-	-
CN2.6	IN1-C	-	12 ; 13	12 ; 13	-	P0	-
CN2.7	IN2-C	-	12 ; 13	12 ; 13	-	P1	-
CN2.8	IN3-C	-	12 ; 13	12 ; 13	-	P2	-
CN2.9	IN4-C	-	12 ; 13	12 ; 13	-	P3	-
CN2.10	IN5-C	-	12 ; 13	12 ; 13	-	P4	-
CN2.11	IN6-C	-	12 ; 13	12 ; 13	-	P5	-
CN2.12	IN7-C	-	12 ; 13	12 ; 13	-	P6	-
CN2.13	IN8-C	-	12 ; 13	12 ; 13	-	P7	-
CN3: Connector for Relays Outputs - A, B, C Group							
CN3.1	OUT A1	-	29	29	-	PA3	-
CN3.2	COMMON A	-	-	-	-	-	-
CN3.3	OUT A2	-	28	28	-	PA4	-
CN3.4	OUT B1	-	27	27	-	PA5	-
CN3.5	COMMON B	-	-	-	-	-	-
CN3.6	OUT B2	-	26	26	-	PA6	-
CN3.7	OUT C1	J8 in 2-3	14	14	-	PB5	-
CN3.8	COMMON C	-	-	-	-	-	-
CN3.9	OUT C2	J7 in 2-3	15	15	-	PB6	-

FIGURE 2: CONNECTION TABLE (2 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN4: Connector for Relays Outputs - D, E, F Group							
CN4.1	OUT D1	-	18	18	-	PB7	-
CN4.2	COMMON D	-	-	-	-	-	-
CN4.3	OUT D2	J6 in 4-5	16	16	-	PA7	
CN4.4	OUT E1	-	12 ; 13	12 ; 13	-	IN0	-
CN4.5	COMMON E	-	-	-	-	-	-
CN4.6	OUT E2	-	12 ; 13	12 ; 13	-	IN1	-
CN4.7	OUT F1	-	12 ; 13	12 ; 13	-	IN2	-
CN4.8	COMMON F	-	-	-	-	-	-
CN4.9	OUT F2	-	12 ; 13	12 ; 13	-	IN3	-
CN5: Connector for Relays Outputs - G, H Group							
CN5.1	OUT G1	-	12 ; 13	12 ; 13	-	IN4	-
CN5.2	COMMON G	-	-	-	-	-	-
CN5.3	OUT G2	-	12 ; 13	12 ; 13	-	IN5	-
CN5.4	OUT H1	-	12 ; 13	12 ; 13	-	IN6	-
CN5.5	COMMON H	-	-	-	-	-	-
CN5.6	OUT H2	-	12 ; 13	12 ; 13	-	IN7	-
CN6: Connector for Power Supply							
CN6.1	Vac or +Vdc	-	-	-	-	-	-
CN6.2	GND	-	20	20	-	GND	-

FIGURE 3: CONNECTION TABLE (3 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN7: Connector for Asynchronous Serial Line 1 (Principal Line) in RS 232							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	Vopto A	-	-	-	-	-	-
CN7.3	TX RS232	J18, J20 N.C. J17, J19, J21 in 2-3	10	10	Jumpers J1.1 = 2-3	PDO , TXD RS232 , TXD TTL	-
CN7.4	-		-	-		-	-
CN7.5	RX RS232	IC21, 25=N.M. IC22, 26=N.M.	9	9	J1.2 = 2-3 J1.3 = 2-3	PD1 , RXD RS232 , RXD TTL	-
CN7.6	-		-	-		-	-
CN7.7	GND	-	20	20	-	GND	-
CN7.8	Vopto B	-	-	-	-	-	-
CN7: Connector for Asynchronous Serial Line 1 (Principal Line) in TTL							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	Vopto A	-	-	-	-	-	-
CN7.3	TX TTL	J18, J20 N.C. J17, J19, J21 in 2-3	10	10	Jumpers J1.1 = 1-2	PDO , TXD RS232 , TXD TTL	-
CN7.4	-		-	-		-	-
CN7.5	RX TTL	IC21, 25=N.M. IC22, 26=N.M.	9	9	J1.2 = 1-2 J1.3 = 1-2	PD1 , RXD RS232 , RXD TTL	-
CN7.6	-		-	-		-	-
CN7.7	GND	-	20	20	-	GND	-
CN7.8	Vopto B	-	-	-	-	-	-

FIGURE 4: CONNECTION TABLE (4 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN7: Connector for Asynchronous Serial Line 1 (Principal Line) in RS 422							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	Vopto A	-	-	-	-	-	-
CN7.3	TX- RS422	J18, J20 *1 J17, J19, J21 in 1-2 J22 in 2-3 IC21, 25=MAX 483 IC22, 26=N.M	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-
CN7.4	TX+ RS422						
CN7.5	RX+ RS422		9	9		PD1 , RXD RS232 , RXD TTL	-
CN7.6	RX- RS422						
CN7.7	GND	-	20	20	-	GND	-
CN7.8	Vopto B	-	-	-	-	-	-
-	DIR	J6 in 1-2	17	17	-	PD7 , OC2	-
CN7: Connector for Asynchronous Serial Line 1 (Principal Line) in RS 485							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	Vopto A	-	-	-	-	-	-
CN7.3	-	J18, J20 *1 J17, J19, J21 in 1-2 J22 in 1-2 IC21=MAX 483 IC22, 25, 26=N.M	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-
CN7.4	-						
CN7.5	RXTX+ RS485		9	9		PD1 , RXD RS232 , RXD TTL	-
CN7.6	RXTX- RS485						
CN7.7	GND	-	20	20	-	GND	-
CN7.8	Vopto B	-	-	-	-	-	-
-	DIR	J6 in 1-2	17	17	-	PD7	-

FIGURE 5: CONNECTION TABLE (5 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN7: Connector for Asynchronous Serial Line 1 (Principal Line) in Current Loop							
CN7.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN7.2	Vopto A	-	-	-	-	-	-
CN7.3	TX- C.L.	J18, J20 N.C. J17, J19, J21 in 1-2 IC21, 25=N.M. IC22=HP 4200 IC26=HP 4100	10	10	Jumpers J1.1 = 1-2 J1.2 = 1-2 J1.3 = 1-2	PDO , TXD RS232 , TXD TTL	-
CN7.4	TX+ C.L.						
CN7.5	RX+ C.L.		9	9		PD1 , RXD RS232 , RXD TTL	-
CN7.6	RX- C.L.						
CN7.7	GND	-	20	20	-	GND	-
CN7.8	Vopto B	-	-	-	-	-	-
CN8: Connector for USB -> NOT AVAILABLE							
CN8.1	-	-	-	-	-	-	-
CN8.2	USBL	-	12	12	-	-	-
CN8.3	USBH	-	13	13	-	-	-
CN8.4	GND	-	20	20	-	GND	-
CN9: Connector for I/O TTL, A/D, PWM, CAN, etc.							
CN9.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN9.2	MM PIN 5	-	5	5	-	-	-
CN9.3	MM PIN 14	J8 in 1-2 ; J10 in 2-3	14	14	-	PB5	-
CN9.4	/INTRTC	-	11	11	-	RTC - /INT	-
CN9.5	MM PIN 15	J7 in 1-2 ; J9 in 2-3	15	15	-	PB6	-
CN9.6	MM PIN 30 , PWM	-	30	30	-	PD5 - PWM	-
CN9.7	GND	-	20	20	-	GND	-
CN9.8	MM PIN 33 , A/D	J5 in 1-2 J5 select. range	33	33	-	PA0 , ANC0	-

FIGURE 6: CONNECTION TABLE (6 OF 7)

GMB HR246 Connector Pin	GMB HR246 Signal Name	GMB HR246 Configuration	ZC1 Pin	GMM AM1284 Pin	GMM AM1284 Configuration	GMM AM1284 Signal Name	Use on GMM AM1284
CN10: Connector for I2C BUS Line							
CN10.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN10.2	SCL	-	12	12	-	PC0 , SCL	I2C BUS
CN10.3	SDA	-	13	13	-	PC1 , SDA	I2C BUS
CN10.4	GND	-	20	20	-	GND	-
CN11: Connector for Asynchronous Serial Line 2 (Secondary Line) -> NOT AVAILABLE							
CN11.1	+5 Vdc	-	34	34	-	+Vdc POW	-
CN11.2	Vopto A	-	-	-	-	-	-
CN11.3	TX1	-	39	39	-	TX1	-
CN11.4	-		-	-		-	-
CN11.5	RX1		40	40		RX1	-
CN11.6	-		-	-		-	-
CN11.7	GND	-	20	20	-	GND	-
CN11.8	Vopto B	-	-	-	-	-	-

FIGURE 7: CONNECTION TABLE (7 OF 7)