

July 20, 1999

Dear Customer:

As a valued user of our Media Pro 2000 and Media Pro 4000 products and software, we feel it is important that we communicate to you the status of our Year 2000 compliance at Anitech Systems, Inc.

Needless to say, the millennium rollover represents a challenge to all computer based systems, and we want to ensure proper and uninterrupted operation of our equipment into the next century.

We have performed extensive testing on our only date sensitive equipment:

Real Time Clock	RTC-1248Y
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I am pleased to report that all of our products, including the Real Time Clock when used with an ICM or IMC, have performed the crossover to the Year 2000 perfectly as the firmware will set the clock to the correct century 1998 through 2097. I have included a copy of our Media Pro 4000 Brief, explaining the Real Time Clock Use and Y2K, for your reference.

It is important to note, however, that we are unable to certify the Year 2000 compliance status of underlying operating systems, whether Windows 95 or Windows 98, and the computer it is running on. We suggest that you obtain Year 2000 compliance information from each manufacturer for those products.

We look forward to serving your future needs well into the 21st Century.

Sincerely,

Mary Mayfield
Office Manager

Real Time Clock Use and Year 2000 Compliance

1) THE CLOCK/CALENDAR

- a) If a real-time clock is installed, the clock/calendar values are read from the hardware clock at initialization (reset or power-on) and reloaded once per hour thereafter.
 - 1) If a real-time clock is installed, the clock/calendar values are read from the hardware clock at initialization (reset or power-on) and reloaded once per hour thereafter.
 - 2) The hardware clock does not have a century register, but the firmware provides an integer for the year and will set it to the correct century 1998 through 2097.

- b) If no real-time clock module is installed, the operation is maintained by firmware.
 - 1) With no hardware clock, the internal clock starts from zero at each reset or restart.
 - 2) The clock operates on the internal 30Hz frame counter, which can be expected to be accurate to a few seconds per day; basically, this is the same accuracy as the hardware clock, but lacks the advantage of non-volatility AND running on battery.
 - 3) Note that the 30Hz clock becomes slaved to video at 29.97 if the video sync input is connected. In that case, the accuracy attaches to the video rate.

- c) Note that the calendar, with or without a hardware clock, is cognizant of the number of days in each month, and of leap year.

2) The clock may be set as a 'port' resource by using the SET command:

- a) The clock/calendar operations of the ICM have been assigned to port 0.
- b) SET @R0,17,0 DEVICE 2 TO 1998 ; for the year
SET @R0,17,0 DEVICE 3 TO 10 ; for the month, 1-12
SET @R0,17,0 DEVICE 4 TO 12 ; for the date, 1-31
SET @R0,17,0 DEVICE 5 TO 3 ; for the day, 1-7 (1=Sunday)
SET @R0,17,0 DEVICE 1 TO hh:mm:ss.ff ;for the clock
- c) If a hardware clock is installed, it is set in the DEVICE 1 access, so that should ordinarily be the last action when it is necessary to set the entire clock/calendar.

3) The clock/calendar access is with the status mechanism for the same port:

- a) LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 1 BYTE 0-3 ; FRAME_OF_DAY
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 2 BYTE 0-1 ; YEAR
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 3 BYTE 0-0 ; MONTH
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 4 BYTE 0-0 ; DATE
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 5 BYTE 0-0 ; DAY
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 6 BYTE 0-0 ; HOUR
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 7 BYTE 0-0 ; MINUTE
LOAD [@Vv,@Ii,@Oo] WITH @R0,17,0 STATUS 8 BYTE 0-0 ; SECOND

- b) Note: Religious persuasions aside, the choice of day 1 corresponding to Sunday appears to be a standard, and literature from Dallas and Allen-Bradley was reviewed before adopting this convention in the Media Pro 4000. The only place this is hard-coded is in the display of the clock and system frame in the maintenance menu system, where the abbreviation 'Sun' corresponds to value 1 for this status.

- 4) There is currently no mechanism for directly using the clock/calendar to 'trigger', 'schedule', or 'synchronize' cues.
- 5) The FRAME_OF_DAY, if DISPLAYed with the %T specification, will show as an 'ordinary' 24 bit clock, with 30/s frame extension.
- 6) Year 2000 Compliance was tested on a ICM-4020 (11045-A) with Boot: ICMBT228.cod and Firmware 3220116T.cod.

a) Rollover Tests, with ICM powered on and running.

- 1) Rollover to January 1st, 1999 - Passed.
- 2) Rollover to January 1st, 2000 - Passed.
- 3) Rollover to January 1st, 2001 - Passed.
- 4) Rollover to January 1st, 2097 - Passed.

b) Rollover Tests, with ICM powered off.

- 1) Rollover to January 1st, 1999 - Passed.
- 2) Rollover to January 1st, 2000 - Passed.
- 3) Rollover to January 1st, 2001 - Passed.
- 4) Rollover to January 1st, 2097 - Passed.

7) Example Cue for setting the Date & Time.

```
;Set_RTC  
;  
Set 'ICMRTC' Device 2 to 1999; Year  
Set 'ICMRTC' Device 3 to 1; Month  
Set 'ICMRTC' Device 4 to 1; Date  
Set 'ICMRTC' Device 5 to 6; Day (1=Sunday)  
Set 'ICMRTC' Device 1 to 00:00:00.00; Time  
;
```

8) Example cue for retrieving and displaying the date & time.

```
;Display_RTC
;
LOOP: Display "" Row 0 Column 0; Clear Line
Display "" Row 1 Column 0; Clear Line
Display "" Row 2 Column 0; Clear Line
;
Load 'Year' with 'ICMRTC' Status 2 Byte 0-1; Year @v000
Load 'Month' with 'ICMRTC' Status 3 Byte 0-0; Month @v001
Load 'Date' with 'ICMRTC' Status 4 Byte 0-0; Date @v002
Load 'Hour' with 'ICMRTC' Status 6 Byte 0-0; Hour @v003
Load 'Minute' with 'ICMRTC' Status 7 Byte 0-0; Minute @v004
Load 'Second' with 'ICMRTC' Status 8 Byte 0-0; Second @v005
;
Load 'DOW' with 'ICMRTC' Status 5 Byte 0-0; Day of Week @v006
;
Load 'FOD' with 'ICMRTC' Status 1 Byte 0-3; Frame of Day @v007
;
Display "%d0" Row 0 Column 16; Year
Display "%d2" Row 0 Column 13; Date
;
If 'Month' != 1 GoTo FEB;
Display "January" Row 0 Column 0; Month
GoTo DAY;
FEB: If 'Month' != 2 GoTo MAR;
Display "February" Row 0 Column 0; Month
GoTo DAY;
MAR: If 'Month' != 3 GoTo APR;
Display "March" Row 0 Column 0; Month
GoTo DAY;
APR: If 'Month' != 4 GoTo MAY;
Display "April" Row 0 Column 0; Month
GoTo DAY;
MAY: If 'Month' != 5 GoTo JUN;
Display "May" Row 0 Column 0; Month
GoTo DAY;
JUN: If 'Month' != 6 GoTo JUL;
Display "June" Row 0 Column 0; Month
GoTo DAY;
JUL: If 'Month' != 7 GoTo AUG;
Display "July" Row 0 Column 0; Month
GoTo DAY;
AUG: If 'Month' != 8 GoTo SEP;
Display "August" Row 0 Column 0; Month
GoTo DAY;
SEP: If 'Month' != 9 GoTo OCT;
```

```

Display "September" Row 0 Column 0; Month
GoTo DAY;
OCT: If 'Month' != 10 GoTo NOV;
Display "October" Row 0 Column 0; Month
GoTo DAY;
NOV: If 'Month' != 11 GoTo DEC;
Display "November" Row 0 Column 0; Month
GoTo DAY;
DEC: If 'Month' != 12 GoTo INV;
Display "December" Row 0 Column 0; Month
GoTo DAY;
INV: Display "%d1 Invalid" Row 0 Column 0; Month
GoTo DAY;
;
DAY: If 'DOW' != 1 GoTo MON;
Display "Sunday" Row 1 Column 0; Day
GoTo Time;
MON: If 'DOW' != 2 GoTo TUE;
Display "Monday" Row 1 Column 0; Day
GoTo Time;
TUE: If 'DOW' != 3 GoTo WED;
Display "Tuesday" Row 1 Column 0; Day
GoTo Time;
WED: If 'DOW' != 4 GoTo THU;
Display "Wednesday" Row 1 Column 0; Day
GoTo Time;
THU: If 'DOW' != 5 GoTo FRI;
Display "Thursday" Row 1 Column 0; Day
GoTo Time;
FRI: If 'DOW' != 6 GoTo SAT;
Display "Friday" Row 1 Column 0; Day
GoTo Time;
SAT: If 'DOW' != 7 GoTo BDD;
Display "Saturday" Row 1 Column 0; Day
GoTo Time;
BDD: Display "%d6 Invalid" Row 1 Column 0; Day
GoTo Time;
Time: Display "%d3" Row 1 Column 10; Hour
Display ":%d4" Row 1 Column 12; Minute
Display ":%d5" Row 1 Column 15; Second
;
Display "%T7" Row 2 Column 0; Frame of Day
;
GoTo LOOP;
;

```

9) Resulting Display

January 1 1999
Friday 0 :0 :0
00:00:00.00

10) The Real Time Clock Date & Time can also be set through the HMT (Hand held Maintenance Terminal) System Menu.

11) On a ICM-4020 (11045-A) The Real Time Clock Should be Installed in U30 (Ram chip TC551001) {farthest from the Front Panel}.

Specifications subject to change at any time.

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