Using the BAM-1020 with ESC Data Loggers

ESC 8816:

The BAM-1020 can be used with the ESC 8816 data logger to collect data at the last minute of the hour. This allows for the data value from the hour to be in the same hourly average as other data that was collected during that hour. In the Model 8800 the Channel Type D can be used. (see section on ESC 8800). Since, the ESC 8816 does not have a Channel Type D (Tape Input), it can be configured to perform the same function by using a Standard Average Channel, a Average Math Channel and a Digital Event Program.

1. Configure the Standard Average Channel (example: BAM_RAW) with the proper scaling for the tape sample output for volt full scale and engineering units. Configure the Base Averaging Interval for 1 minute. Write the Base Average to Math Constant K1. The value of K1 will update at the end of the Base Averaging Interval with the latest base average value.
2. Configure the Average math Channel (example BAM_AVG) with the equation K1=. Configure the Average #2 Interval for 1 hour averages and 14 days of storage time (example: Average #2 Interval, Storage: 1h , 14d 9h). The Average Math Channel only does one averaging calculation at the end of each averaging interval. Since K1 is updated every minute by BAM_RAW.
3. Configure the Digital Event Program (example: BAM) to turn on an output relay (example: output line 1) at the top of the hour for 5 seconds (5 seconds is the minimum allowed value) and to repeat every hour.
4. The hour averages of BAM_AVG will be the last 1 minute average from the BAM Sampler.

System Configuration Screen

Logger Date	:	05/10/00
Logger Time	:	12:10:16
Time Zone	:	
Logger ID Code	:	01
Station ID Code	:	
Logger Description	:	ESC 8816
Baud Rate – Ext. Modem	:	9600
Baud Rate – Port 1	:	9600
Baud Rate – Port 2	:	N/A
Baud Rate – Port 3	:	N/A
Parallel Port Timeout	:	5 s
Automatic Logout Time	:	10m
% For Valid Base Avg	:	100
% For Valid Ext. Avg	:	75
Debounce Digital Inputs ?	:	N
Default Dig. Inputs to OR ?	:	N
Math Update Rate	:	2
Alarm Deadband (% of limit)	:	0.0
Allow Auto Corr if Config'd?	:	Y

Standard Channel Configuration

Instrument Name	:	BAM_RAW
Analog Input Number	:	01
Report Channel Number	:	01
Volts Full Scale	:	1
High Input	:	.995 V
Low Input	:	-.005 V
High Output (E.U.s)	:	1000
Low Output (E.U.s)	:	0
Units	:	uGRAM
Base Avg. Interval, Storage	:	1m , 0s
Average #1 Interval, Storage	:	15m , 0s
Average #2 Interval, Storage	:	1h , 0s
Use 40CFR75 Validation (Y/N)	:	N

Average Validation Configuration

High-High Alarm Limit	(H)	:	1E+10
High Alarm Limit	(h)	:	1E+10
Low Alarm Limit	(l)	:	-1E+10
Low-Low Alarm Limit	(L)	:	-1E+10
High ROC Alarm Limit	(J)	:	1E+10
Low ROC Alarm Limit	(j)	:	1E+10
Floor Limit	(f)	:	-1E+10
Floor Value		:	0
Ceiling Limit	(c)	:	1E+10
Ceiling Value		:	0
Percent for valid Average		:	Default (100)
Average to Math Constant		:	K1

Configuration Channel Options

Name (Not editable)	:	BAM_RAW
Ch1 Number (not editable)	:	01
Decimal Positioner	:	00
Span for Cal Err	:	(not set)
Round Precision	:	(None)

Average Math Channel Configuration

Instrument Name	:	BAM_AVG
Report channel Number	:	02
Equation	:	K1

Units	:	uGRAMS
Base Avg. Interval, Storage	:	1m , 0s
Average #1 Interval, Storage	:	15m , 0s
Average #2 Interval, Storage	:	1h , 14d 9h
Round Constituents: (Y/N)	:	N
Use 40CFR75 OOC (Y/N)	:	N

Configuration Channel Options

Name (not editable)	:	BAM_AVG
Ch1 Number (not editable)	:	02
Decimal Positioner	:	00
Span for Cal Err	:	(not set)
Round Precision	:	(none)

Configuration Digital Event Program

Dig. Event Program Name	:	BAM
Starting Time	:	05/10/00 12:00:00 (See Notes)
Repeat Interval	:	1h
Output Line(s)	:	1,
Output Duration	:	5s
Disable During Cal (s)	:	(none)

Notes:

If the special early output mode is used on the BAM the digital event starting time should be set to 5 minutes before the hour. I.e. 11:55:00. This will automatically reset the BAM-1020 at a point 5 minutes before the hour. This mode is selected from the menu of the BAM-1020.

This special early output mode cannot be used with the 8800 ESC data logger.

ESC 8800:

See ESC 8800 Data Logger Engineering Manual TIN 2000-1140 section 4.4.3 for additional information. This procedure works with ESC 8800 Data Logger using CARB Software Version 3.0. It should be noted that output line 16 (Not Output line 8 as noted in the manual) is the output to the BAM-1020 timer reset input. This output will turn on for 1 second at the top of each hour. The last one-minute average of the hour will be recorded as the hourly average.

DCN#01> VERSION

CARB32 V3.02 – AUGUST 30, 1995

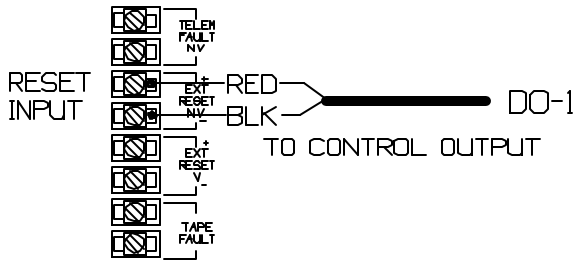
DCN#01> TIME
12:09:01

DCN#01> DATE
Wed – 05/10/00 DAY= 133

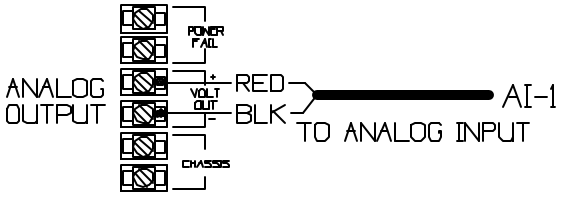
DCN#01> LIST 01

CHANNEL NUMBER:	01
CHANNEL NAME:	BAM
CHANNEL TYPE:	D
STORE HOURLY AVERAGES:	Y
HOURLY SIGMAS:	N
HOURLY % VALID:	N
HOURLY RANGE:	N
STORE AUX AVERAGES	N
CHANNEL UNITS:	
VOLTS FULL SCALE:	.995
SLOPE:	1000
INTERCEPT:	.0000
DECIMAL POSITIONER:	00
MAX READING:	9999.0
MIN READING:	-999.0
MAX RATE OF CHANGE:	5000
ALARMS INTERVAL (N,M,A,H):	N
BAD STATUS = XXXXXXXX XXXXXXXX	
CALIBRATION TYPE:	N
10-STEP CALIBRATION:	N
ON-LINE:	Y

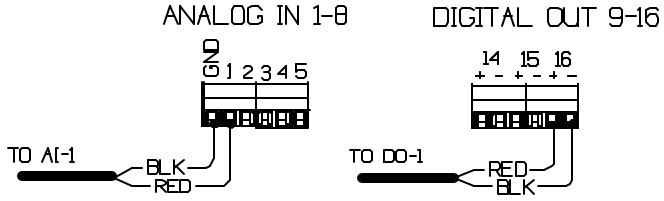
NOTE: When using the Model 8800 with the BAM-1020 the normal operating mode of the BAM-1020 must be used since the syncing output pulse from the ESC 8800 only occurs at the top of the hour.



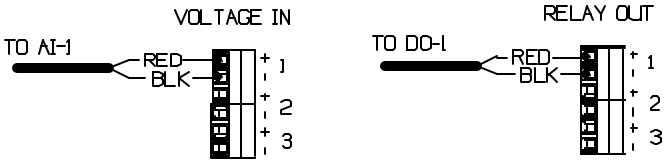
CONNECTIONS ON
BAM-1020 UNIT



TERMINALS ON BACK
OF BAM-1020



8800 CONNECTIONS



8816 CONNECTIONS