

UNIPULSE CORPORATION

UL120 Data Logger with ATA-FLASH card

UL120 is designed for logging or collecting a great variety data of nature phenomenon with hybrid sensors. For example: the temperature, humidity, and wind velocity regarding to meteorological observation. It widely contributes to protection of the environment, such as air/water pollution, ambient noise, engine exhaust gas investigation. Chemical reaction analyzing to factory preservation. Vibration, torque mechanical examination to subsidence of ground, volcano and earthquakes survey. Correspondence to different applications the sensor will be thermocouple, load cell, resistance temperature detector, wind gauge to pulse and etc. The logged data format is text file available for PCMCIA standard to computer.

Main features:

- * Possesses 16 channels for single-end voltage input and enables to select various sensors such as load cell differential signal, thermocouple, PT 100 and so on.
- * ATA-FLASH CARD is used as a recording media and the data can be stored in CSV text style. This realizes quick and accurate data processing by PC installed Windows or MacOS.
- * Three power sources (AC/ DC/ Storage battery) can be adaptable for the operation in various occasion.
- * High performance AD converter is installed in UL 120 for acquiring the accurate and reliable data.
- * Liquid crystal display helps your operation with clear indication.



UL 120 Specifications

1999/04/26 Rev. 1.00

Analog input

1) Number of input channels

16 channels for Single end input or 8 channels for differential input
Intermixed operation is available.

In case of differential input, each set of differential input must be consisted 1-2ch, 3-4ch, - - -
15-16ch.

2) Range of input

+ or -5mV, + or -50mV, + or -500mV + or -5V

3) Type of input

Direct-current voltage, Thermocouple (K,E,J,T,R), Pt100,
Bridge input (6 lines, 4 lines full, 3 lines, 2 lines, AC half bridge)

4) Input resistance

10 M ohm

5) Indicated data

Maximum 5 digit indication (maximum indication 10000)

Position of decimal point is movable.

Temperature measuring : 4 digit indication

Indicated resolution : 0.1D.Celsius

6) Accuracy

Input voltage (5V, 500mV, 50mV range) + or -0.033% FS

Input Voltage (5mV range) + or -0.1% FS

Thermocouple input (K, E, J, T) + or -0.05% rdg, within + or -1.0D.Celsius

Thermocouple input (R) + or -0.1% rdg, within + or -3.0D.Celsius

Pt100 input + or - 0.1% rdg, within + or -0.5D.Celsius

Pulse Input

1) Number of channels

8 bit counter 4 channels or 16 bit counter 2 channels, intermixed operation is available.

16 bit counter uses a set of 1-2 ch. or 3-4 ch.

2) Input type

TTL, OPEN C, CONTACT, AC LOW LEVEL

3) Measured frequency range(duty 50%)

*When it is used as a frequency counter.

16 bit : 100Hz ~ 250Hz(100 Hz unit) or 1 Hz ~ 65Hz(1Hz unit, 1 second sampling ~)

8 bit : 100 Hz ~ 25.5Hz(100 Hz unit) or 1 Hz ~ 255Hz(1 Hz unit, 1 second sampling ~)

*When it is used as integrated counter.

16 bit : 65535 count

8 bit : 255 count

***Low level AC mode**

Zero cross comparator is used.

Hysteresis about 1.5mV

Both of them are used as an integrated counter or a frequency counter.

When it is used as an integrated counter, It registers the total value of each setting time.
(settled term)

When it is used as a frequency counter,

Hi frequency : the frequency of an instant of sampling

Low frequency : the integrated value divided by interval time

Example of a subject : an anemometer, a rain gauge, a revolution gauge, rotary encoder and
magnetic pulse encoder etc.

Exciter output

1) Number of channels

4 channels Out put for acquiring the data in a same period.

2) Output voltage

Possible setting range : within +/-5V

Set a type of plus side fixed output and a type of rectangular output with plus-minus.

Output current : 30mA

3) Accuracy

+/-0.1 %

Supply power source for a sensor

1) Number of channels

2 channels : output at all times except in the state of sleep.

2) Output voltage

+5V fixed, +12V

On condition that, +12V output is depend on the logger source voltage(battery, external power source)

Output current : 100mA

Analog output

1) Number of channels

2 channels

2) Output Voltage

Output the range of +/-5V for any optional input channels.

There are two setting of output and not output.

3) Accuracy : +/-0.1 %

Digital input

1) Numbers of channels

8 channels

2) Input voltage

5V(H), 0V(L)

Digital output

1) Number of output channels

8 channels

2) Out put level

TTL output

3) Bit assign

CH1 Logging in progress (H)

CH2 Started first logging (H)

CH3 Power ON of main device while logging process (H)

CH4 Data sampling(H)

CH5 When one of the input value over alarm upper limit (H)

CH6 When one of the input value over alarm lower limit.(H)

CH7,8 Reserve

Function

1) Start

Timer start : Start switch ON. Then first logging starts after setting time passed.

Setting Date, Hour and Minute (0 minute ~ 99 days 23 hours 59 seconds)

Date start : Start switch ON. After it become the setting date and hour, first logging will start.

Setting Year, Month, Date, Hour and Second (within 1 year from the start ON)

Alarm start : Start Switch ON. Data sampling is carried out at intervals of the setting time.

When it exceeds the alarm value, first logging will start.

Setting (1 second ~ 24 hours) of Intervals (Hour, Minute, Second) for Data sampling

Event start : Start switch ON. After event signal turns ON, first logging will start.

2) Logging

Intervals of a moment value : Collecting the data at the intervals of setting time and recording them

(short) Interval (10 ~ 990 msec, 10 msec unit)

(normal) interval (1 sec. ~ 24h. 1 sec unit)

Interval of statistic value : After collecting the data of set times at set intervals, record the average, maximum and minimum value at the intervals

(short) Interval (10 ~ 990 msec, 10 msec unit)

Sampling time (1 sec ~ 10 min, 1 sec unit)

Sampling numbers (1 ~ 60000 times)

(normal) Interval (1 sec ~ 24 hours, 1 sec unit)

Sampling time (1 sec ~ 24 hours, 1 sec unit)

Sampling numbers (1 ~ 86400 times)

Event moment value : Collecting and recording the data accompany with the event signal input

Event statistic value : Input event signal then collecting the data and recording maximum, minimum and average value.

(short) Sampling time (10~990 msec, 10 msec unit)

Sampling numbers (1~60000 times)

(normal) Sampling time (1 sec~24 hours, 1 sec unit)

Sampling numbers (1~86400 times)

3) Stop

Endless : Collecting the data until the start switch turns OFF.

When the memory of card becomes full capacity, the memories will be erased from the older ones in turn.

Memory full : When the memory of the card becomes full capacity, the logging will be terminated.

Timer stop : The logging will be terminated when set time passed after start switch turned ON.

Setting interval (hr, sec and sec) : 1 min ~ 99 days 23 hours 59 seconds

Date stop : The logging will be terminated when reaches the indicated date and hour.

Setting of year, month, date, hour and minute (within 1 year range after start switch ON)

4) Pre heat

Delay collecting the data at the same rate of the setting time from indicated logging timing.

Setting the preheat time (0 sec ~ 1 hr, 1 second unit)

5) Designating the file size

Making out the file after the logging started. For eliminating the large size of files, to make out the new files when the size of files become a certain sizes.

Size of renewal logging file

128k, 256k, 512k, 1M, 1 day, endless

6) Real time

Data recording and data transmission from the communication port are carried out at the same time.

7) Power source ON / OFF while logging

Setting of partial power source OFF for economizing power consumption while logging

When power OFF, set OFF at the timing of certain period passed. (0 sec ~ 10 min, 1 sec unit)

8)Setting method (*)

Transfer the setting value in the logger to the card.

Making out the file of setting value in the card, then upload from the file.

Loading to the card, store command (key operation)

9) Data processing

a) Analog input

Enabling to pursue the inter channel calculation. (addition and subtraction) (*)

b) Pulse data

Expanding the domain of the possible measuring frequency (low frequency domain) (*)

Enabling to set the scale at the integrated counter.(***ml per 1 count etc.) (*)

10) ATA card data (*)

ATA card capacity, indicating the memory balance

Memory card capacity : 16M bytes,20M bytes, 40M bytes, 80M bytes, 110 M bytes...etc.

Recording data

1) Record medium

PCMCIA ATA card

(In conformity to PCMCIA R2.1 JEIDA Ver4.2)

2) Fat file system

In conformity to DOS interface guide line Ver1.1

3) File format

Text file (CSV format)

(It is available to use with computation software of MS Excel or Lotus 123.)

4) Data content

Time data : Starting time, Closing time, Closing state ...etc.

Add up data : Logging time (Recording by years, months, days, hours, and seconds)

Numbers of logging

Logging data : Each recorded data

Communication

1) Standard

In conformity to RS-232

2) Transmission speed

38400/ 19200/ 9600/ 4800bps

3) Bit configuration

Stop : 1/ 2 bit

Data length : 7/ 8 bit

Parity : NON/ ODD/ EVEN

4) Connector

D-Sub 9 pin

Time

1) Display / Record

Year, Month, Day, Hour, Minute and Second (year displayed in two latter digit)

2) Accuracy

Monthly differential +/-30 sec. (25D.Celsius)

Monthly differential +/-1min./ -5min.(-10 ~ +50D.Celsius)

Power source

Selecting automatically higher voltage of either self contained battery or external power source

1) Self contained battery

Lead storage battery

2) Charge system

Trickle charge

3) External power source

Individual AC adapter (DC15V) or outside battery

4) Back up battery

Display

1) Indicator

LCD module

2) Operation display

LED (red) X 1

Blinks while logging

Key

Inputting a setting value etc.

Key used : membrane key (drip-proof)

Switch

1) Power source switch

Power source switch ON/ OFF

2) Start switch

Logging starts when switch turned ON.

General performance

1) Accuracy guaranteed at following temperature range.

0 ~ 40 Celsius (humidity below 90%RH, without condensation)

2) Operation temperature range

-10 ~ 50 Celsius (humidity below 90%RH, without condensation)

3) Outer size

Almost same size as 230W x 150H x 70D mm

4) Weight

About 2 kgs

Composition

Main body, AC adapter, Battery charger, (option)