Cermate

Technical Document

Version 1.0

January, 2017

PM Designer Function Guide

TN025S

數據收集器記憶體位址計算方式與應用

How to count the Data Logger buffer size and application

◎Revision Record

Revision	Date	Content	Owner

前言 (Preface)

此技術文件是說明 PM Designer 內的 Data Logger 的記憶體位址如何計算與應用 .

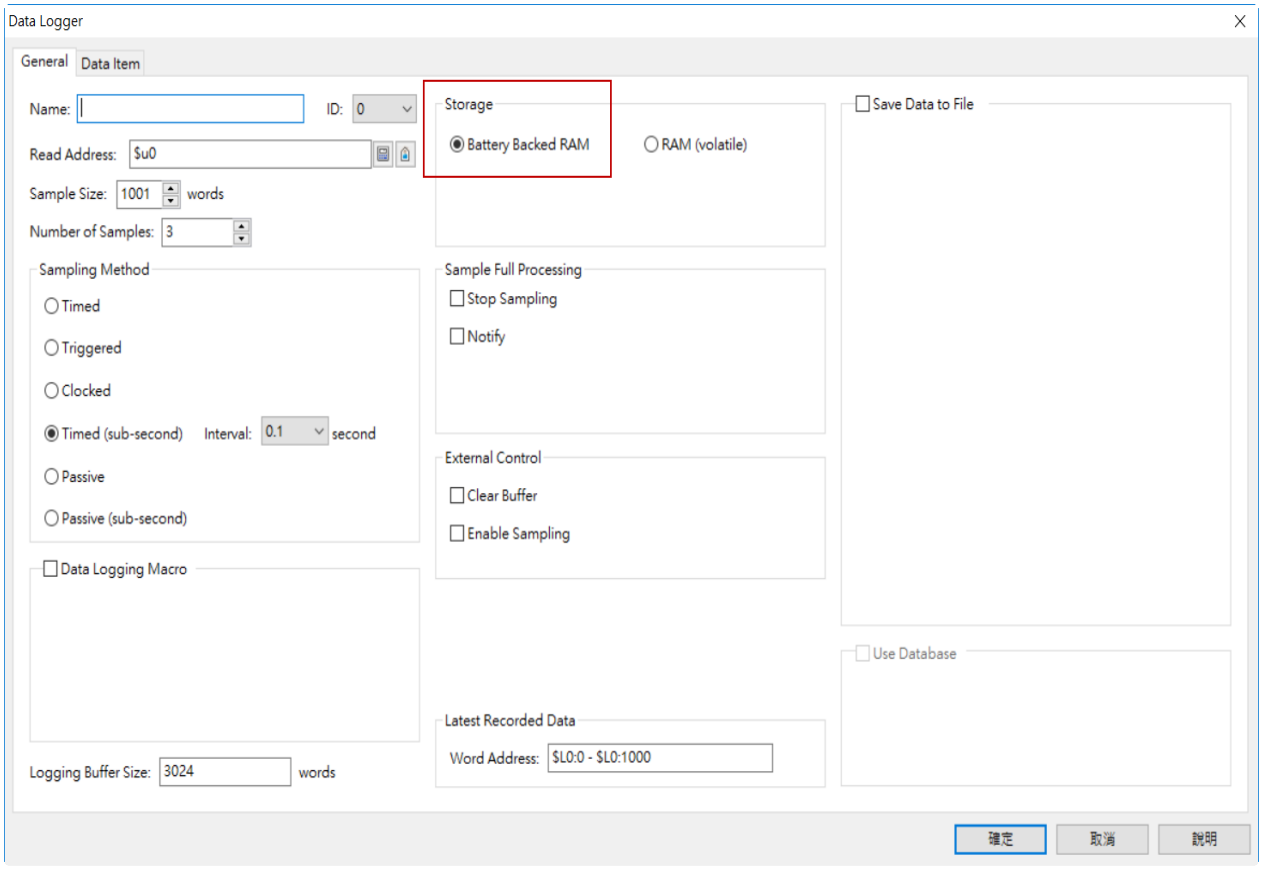
This tech note explicated how to count the buffer size in the Data Logger .

本文使用 **Ver. 2.1.7.42** 測試說明

This tech note do test by using **Ver. 2.1.7.42** .

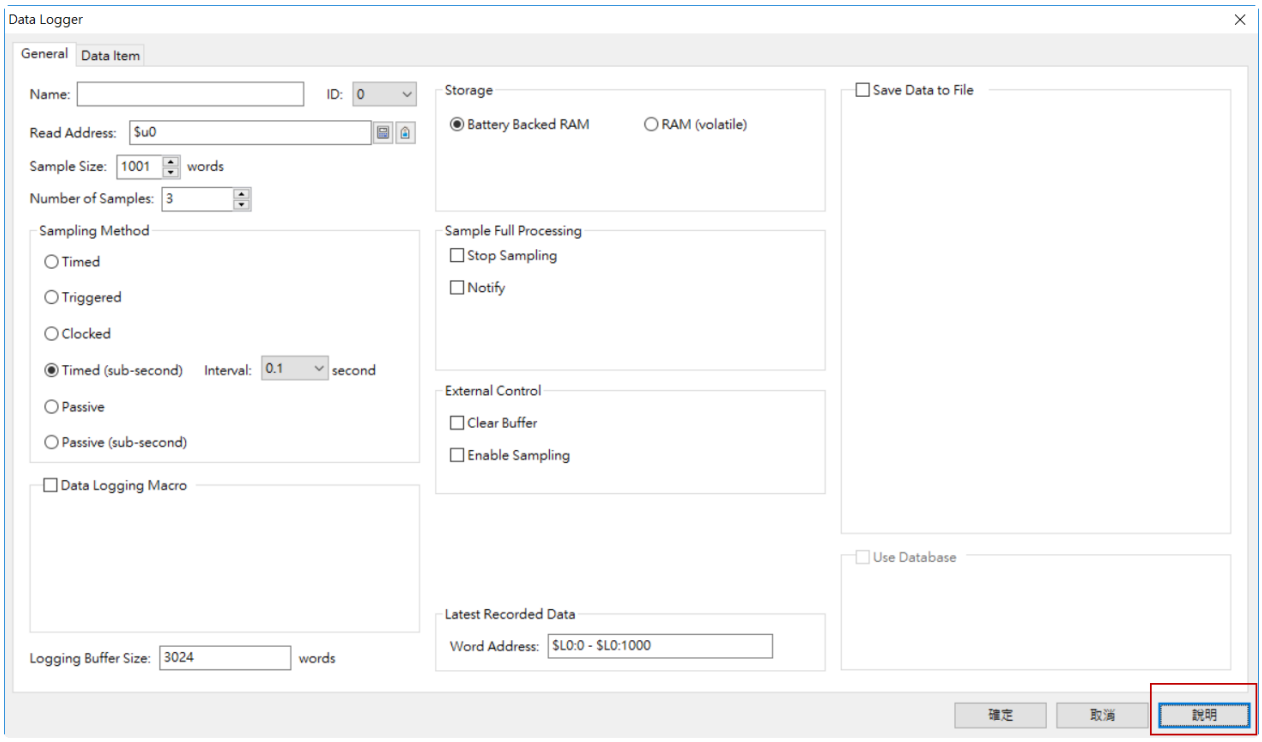
步驟 1 ： 由於屏通 HMI 所提供的電池保護記憶體為 1MB 和 128KB，所以將 Data Logger 的資料使用電池保護記憶體儲存的前提下，需要計算 Buffer 的容量，否則 Compile 會出現錯誤．

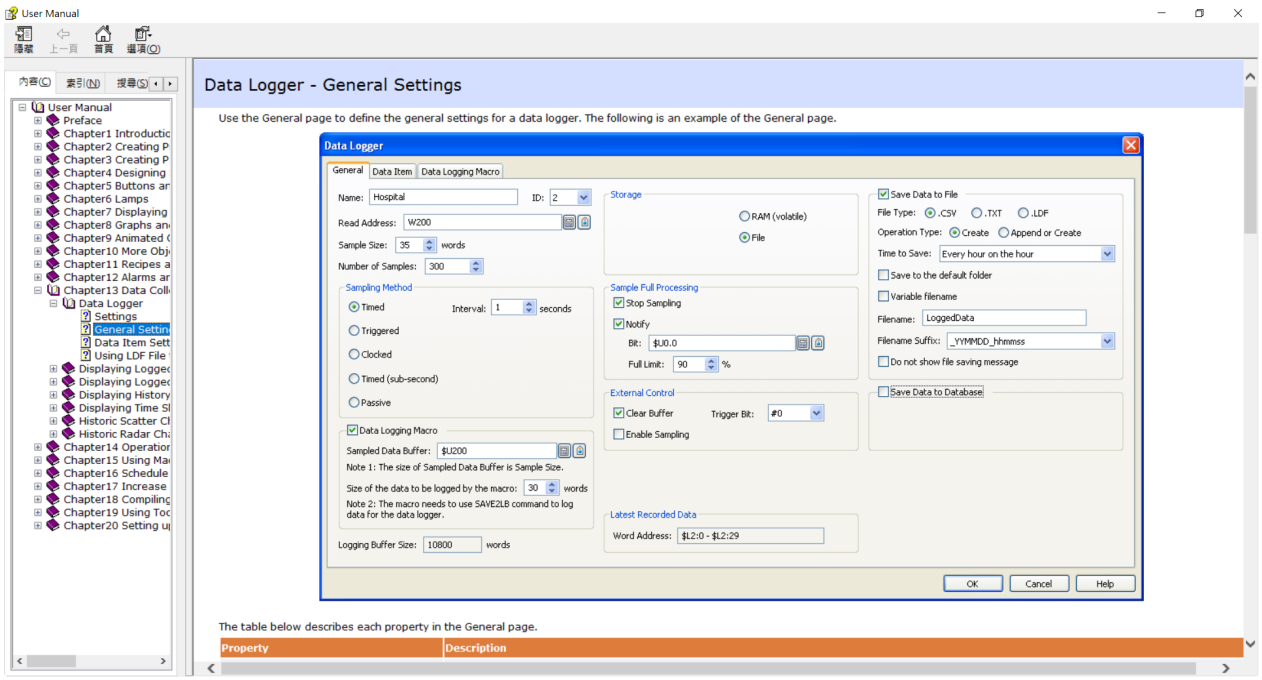
Step 1： Because the BBSRAM (Battery Backup Memory) only supply the 1MB and 128KB in Cermate HMI .
We needed to count the capacity of buffer if we want to used the BBSRAM to prevent the data volatilized after power off .



步驟 2 ：右下角的說明可以打開用戶手冊，裡面有更多細節可供參考 .

Step 2 : You can click the button in the lower right to opening the user manual , there are more detail you can check it .



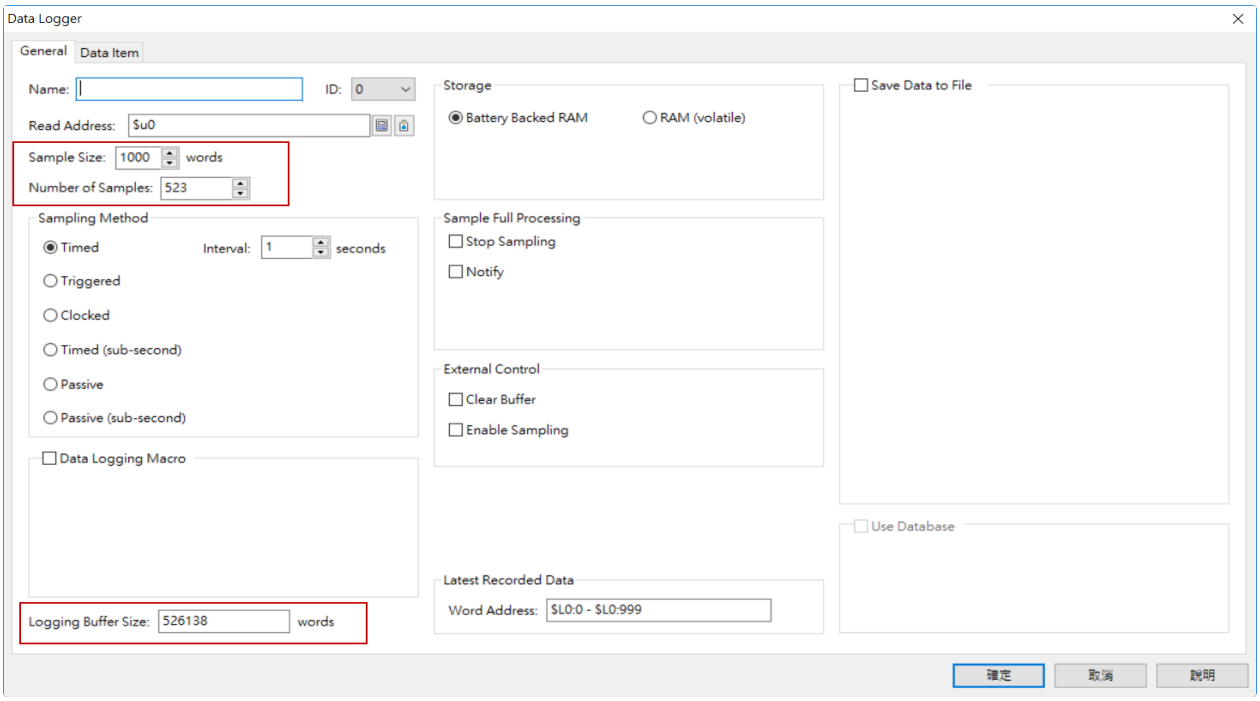


步驟 3 ：**Logging Buffer Size** 計算 ：

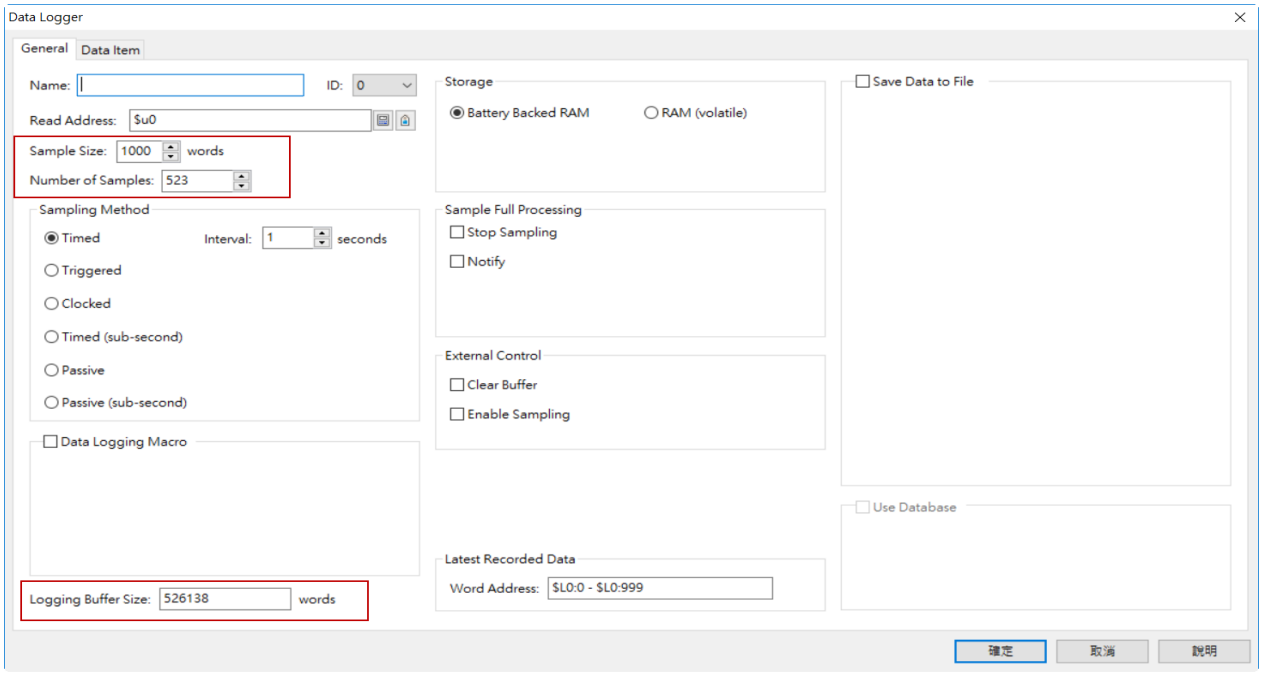
Step3 : **Count the Logging Buffer Size** :

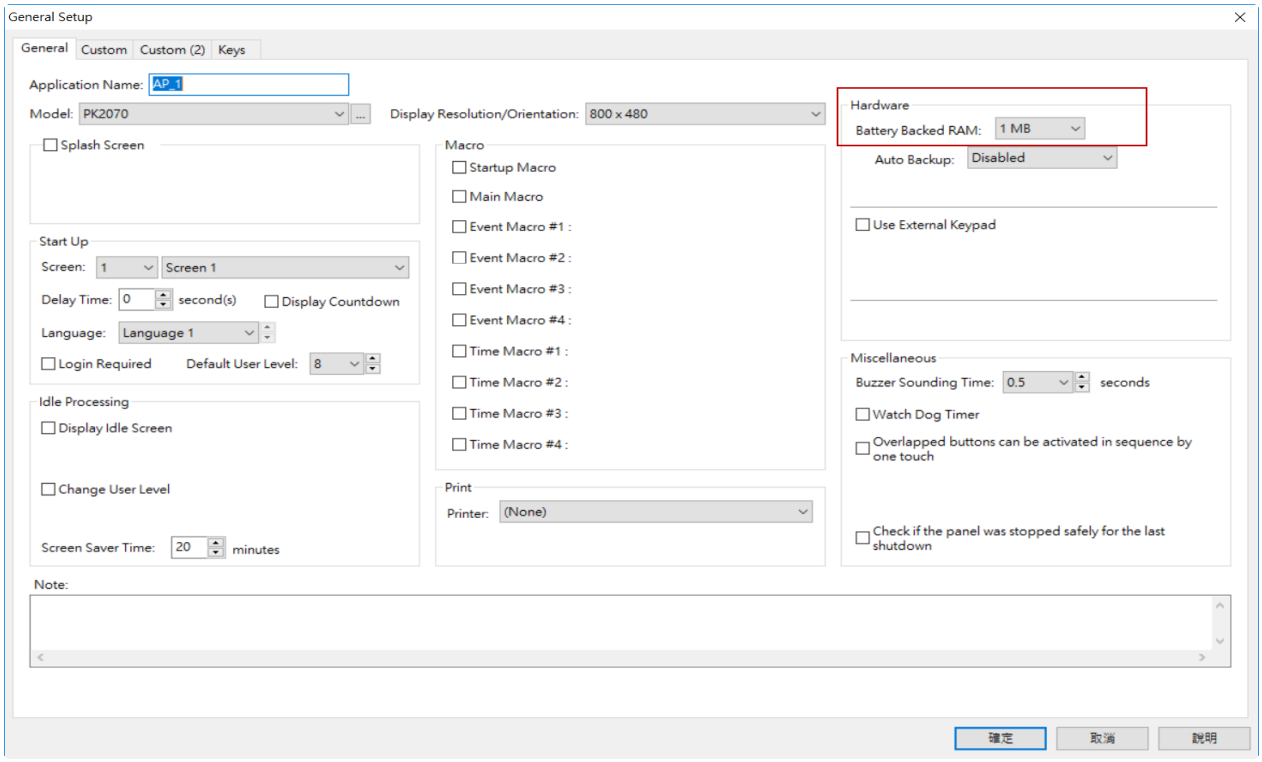
1 Word = 2 Bytes = 16 bits.
1 MB = 1024K Bytes = 512K Words
128 KB = 64 K Words

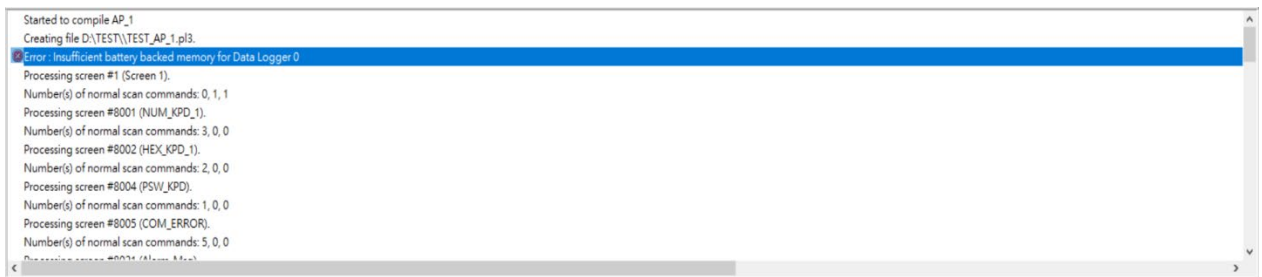
Sampling Method	Clocked	5x	The following moments of every hour: 00:00, 05:00, 10:00, 15:00, 20:00, 25:00, 30:00, 35:00, 40:00, 45:00, 50:00, 55:00
		10x	The following moments of every hour: 00:00, 10:00, 20:00, 30:00, 40:00, 50:00
		15x	The following moments of every hour: 00:00, 15:00, 30:00, 45:00
		30x	The following moments of every hour: 00:00, 30:00
		60x	Every hour on the hour
	Timed (sub-second)	The data logger samples data periodically at a rate specified in the Interval field. You can select an interval between 0.1 and 0.9 seconds for the Interval field. For example, if you want the data logger to sample data every 0.5 seconds, select 0.5 for the Interval field. The sub-second sampling requires high data acquisition performance. As there are many factors that can affect performance, it is not guaranteed that the specified sampling rate can be attained.	
	Passive	The data logger does not sample data, but receives data from primary data logger by using SAVE2LB macro command or a LDF/CSV/TXT file. For details about the passive method, please see Section 13.1.4. Using File to Save Logged Data.	
Data Logging Macro	Data Logging Macro	Check the option to log processed data instead of original data. For details about the data logging macro, please see Section 13.1.5. Using Data Logging Macro to log processed data.	
	Sampled Data Buffer	Specifies the variable representing the data buffer for data logging macro to save the sampled data. The buffer size is the sample size. Click to enter an address for this field. Click to select a tag for this field.	
	Size of the data to be logged by the macro	Specifies the size of the data to be logged by the macro.	
Logging Buffer Size		The size of the logging buffer. The unit is word. The formula to calculate the size is:	
		Sampling Method / Record Size / Logging Buffer Size / Remark	
		Timed (sub-second) / Odd Number / Number of Samples * (Record Size + 6 + 1) / The number 6 is the size of the time stamp. The number 1 is to make each record double-word aligned.	
		Timed (sub-second) / Even Number / Number of Samples * (Record Size + 6)	
		All Others / Odd Number / Number of Samples * (Record Size + 5) / The number 5 is the size of the time stamp. The number 1 is to make each record double-word aligned.	
		All Others / Even Number / Number of Samples * (Record Size + 5 + 1)	
		Note: If the Data Logging Macro is used, the record size will be the size of the data to be logged by the macro. Otherwise the record size is the sample size.	
Storage	Battery Backed RAM	Check this option so the logging buffer of the data logger will be located in the battery backed RAM. The logged data will not be lost after power down if the battery backed RAM is used as the logging buffer.	
	RAM (volatile)	Check this option so the logging buffer will be located in an ordinary RAM, and the data logger will clear the logging buffer whenever the target panel is powered up.	
	Flash Memory	The X series HMI unit allows the data loggers to save the collected data in the flash memory. This feature enlarges the non-volatile storage for real-time data collection from 1 MB to 100 MB.	
	File	Check this option so the logging buffer will be located in the specified file.	
Sample Full Processing	Stop Sampling	Check the option if you want the data logger to stop sampling data when the logging buffer is full.	
	Notify	Check the option if you want the data logger to set the bit specified in the Bit field to On when the number of collected samples exceeds the limit specified in the Full Limit field.	
	Bit	Available when the Notify field is checked. Specifies the bit for the sample full notification. Click to enter an address for this field. Click to select a tag for this field.	
	Full Limit	Available when the Notify field is checked. Select a percentage as the full limit. When the ratio of collected samples to maximum samples specified in the Number of Samples field exceeds the percentage, the data logger sets the bit specified in the Bit field to On.	
	Clear Buffer	Check this option so the data logger can be controlled to clear its logging buffer with the trigger bit specified in the Trigger Bit field.	



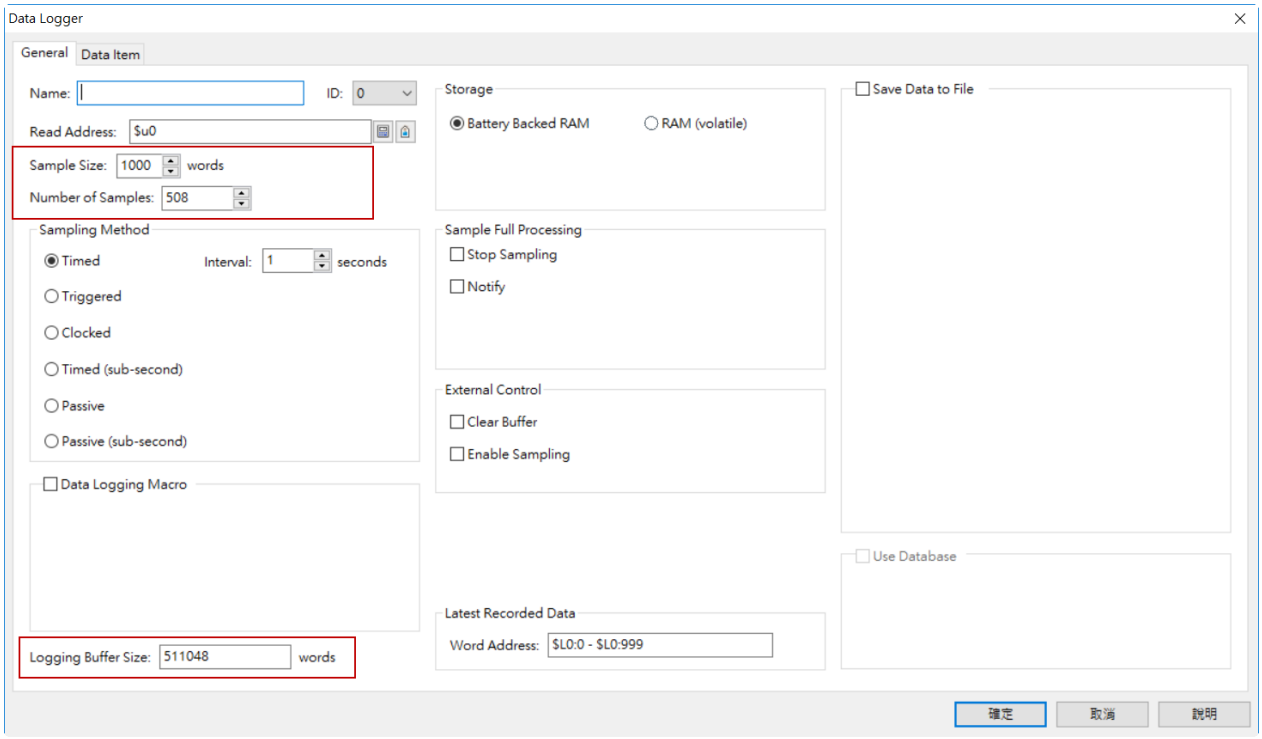
e.g.1 : BBSRAM = 1MB , Compile Fail .

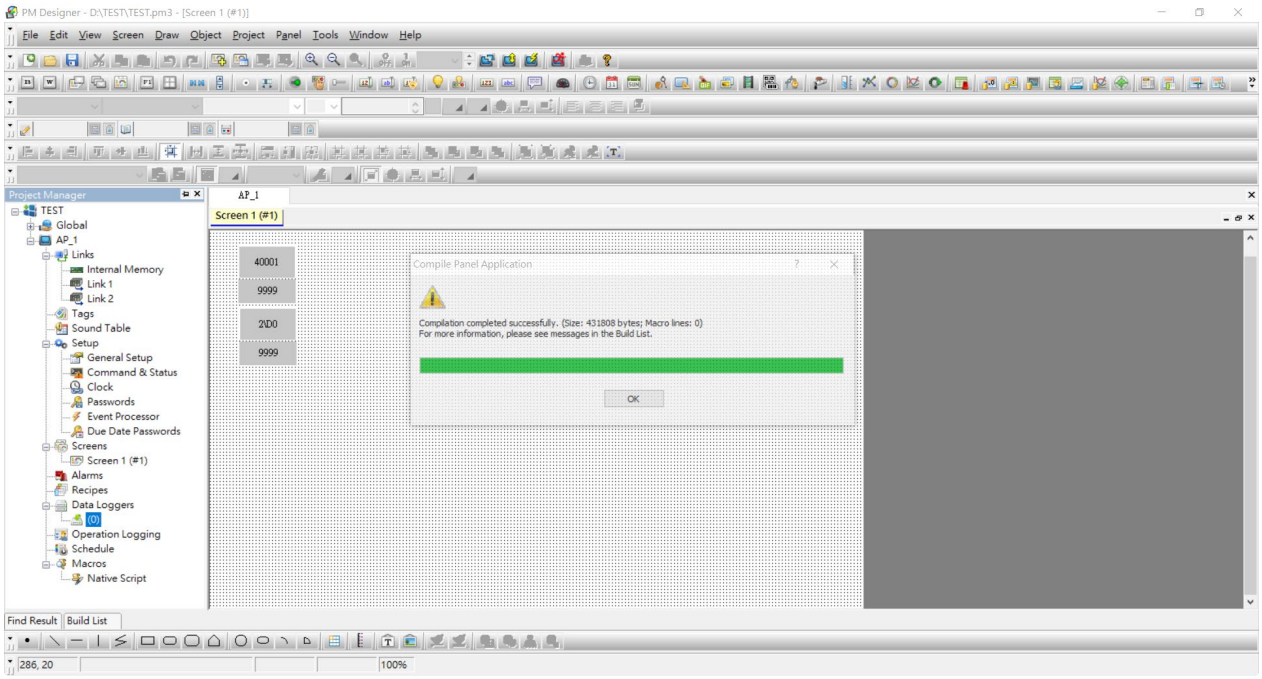






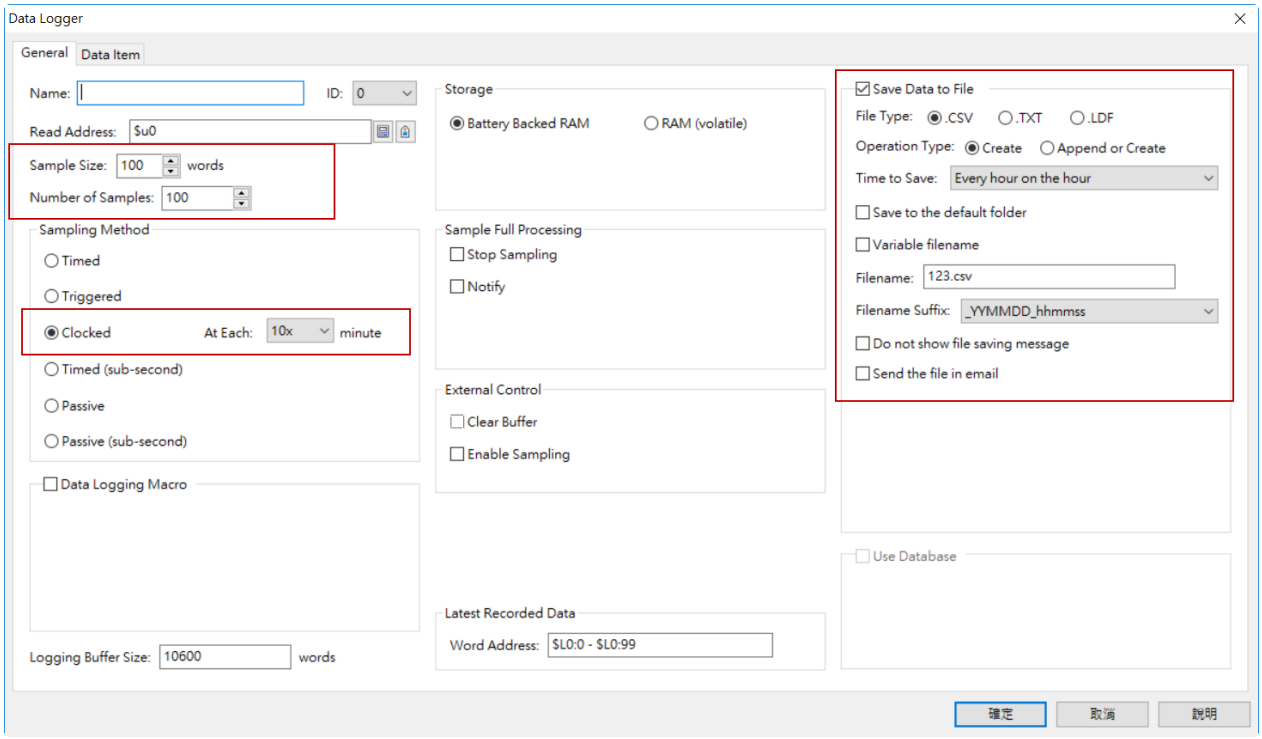
e.g.2 : BBSRAM = 1MB , Compile Success .





步驟 4：**由於 BBSAM** 的工作方式是暫時存在 HMI 內部，但是在超過取樣總數後舊的資料會被新的所覆蓋，所以建議使用 CSV 檔儲存至 C (HMI 內部記憶體) / D (SD 卡) / E (USB) .

Step 4 : Because the data is saving to **BBSRAM** temporary , the old data would be covered by news , so we suggested that saving the data in the C (**HMI internal Memory**) / D (**SD Card**) / E (**USB Stick**) by CSV file .



e.g.1: BBSRAM = 128 KB .

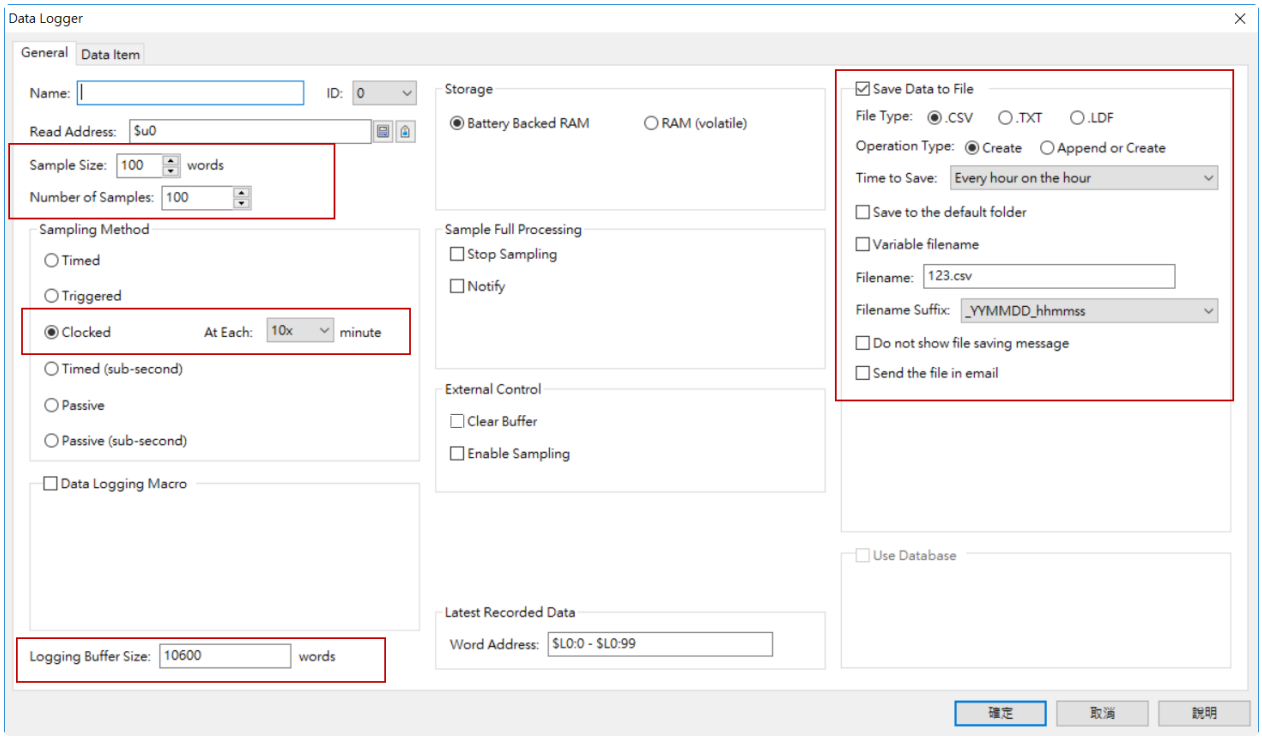
取樣緩衝區大小 = 10600 Words / 每次取樣 , 每 10 分鐘取樣一次.

Logging Buffer Size = 10600 Words / every time , Sampling every 10 minutes .

1 Day = 24hr = 1440 min .

Total times in one Day = 1440 / 10 = 144 次 (times) .

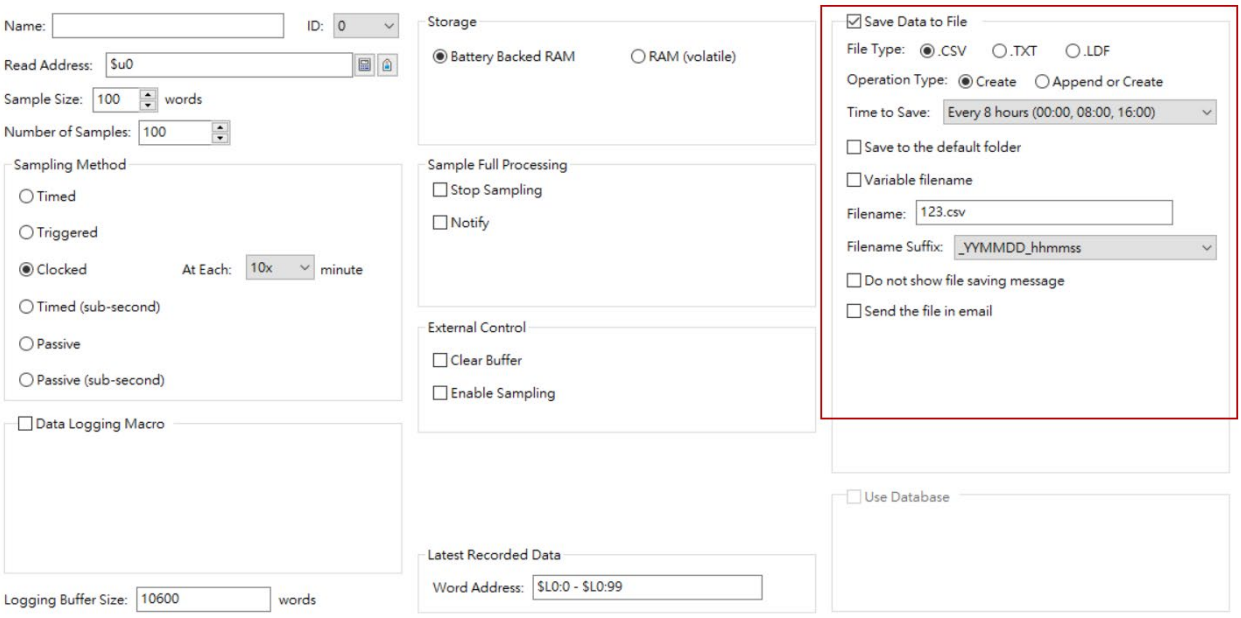
BBSRAM = 128 KB = 64 K Words .
Logging Buffer Size = 10600 Words = 10.6 K Words .



64 K / 10.6K = 48.3 次 (times) .

總結 ： 從上面的算式可以得知， 只要超過 48.3 x 10 分鐘後 ， 舊資料就會開始被覆蓋 ， 所以我們設定儲存到 CSV 的時間必須短於這個時間才能確保資料不會遺失 ． 在這個例子裡建議是八小時存一次即可 ．

Summarize : According the description foregoing , the old data would be covered after 48.3 x 10 minutes , so the period that we set to saving the CSV file , it must be shorter than 48.3 x 10 minutes .
In this case , we suggested that set the **Time to Save** to Every 8 hours .



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