

VB-RTC / VB-MP1R / VB-DB1R Memory Card Slot Expansion Card User Manual

◆ Summary Function Instruction of Cards

- **VB-RTC:** Real Time Clock Expansion Card
Counts the Year, Month, Day, Hour, Minute, Seconds and the day of a week accurately.
- **VB-MP1R:** Program Memory Card (RTC included)
Could store or duplicate a user program, comments, setting of Com. Port #2 and the VB's File Registers.
- **VB-DB1R:** Data Bank Expansion Card (RTC included)
Use SRAM + Lithium batteries to store 128K words latched data for the VB series.

◆ Important Notes

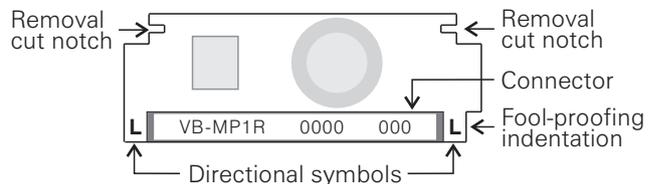
- This manual should be read and understood before attempting to install or maintain a PLC. During the operation should pay attention on the safety.
- Cut all power OFF and prevent electrostatic discharge during installation or wiring, to avoid electric shock or product damage. Contact grounding metal to remove the static electricity on user body or clothes before touching the expansion card.
- All circuits are prohibited to contact an electric conductor, dust, powder or liquid, also the condensation is not allowed. Use a clean and soft insulator to package if it is exposed.

◆ Install Expansion Card to the Memory Card Slot

- (1). Switch power OFF then open the right side cover of the PLC Main Unit.
- (2). Verify the direction of expansion card, battery and "L" symbols should on the left of the slot.
- (3). Perpendicularly push the card into the slot by proper strength (6~8 Kg.); be careful not to damage components.
- (4). Make sure the expansion card joins to the slot connector tightly, then restore the cover to finish the installation.

◆ Remove Expansion Card from the Memory Card Slot

Switch power OFF before remove the right cover. There are cut notches on top of the card. Please use the appended clip or an IC clip to clasp the card then pull out perpendicularly.



◆ Access the RTC (Real Time Clock) Unit in a VB-MP1R, VB-DB1R or VB-RTC Card

Reading the time of the RTC

If a RTC has been installed in a Main Unit, the PLC will automatically read and storage (S, M, H, D, M, Y and W) data into D9013~D9019 for PLC user.

Also can use the TRD instruction (FNC166) to read the RTC and store in specific registers.

(Please refer to the Programming Manual of the M, VB and VH series PLC)

Setting the time of the RTC

The user can adjust the RTC in 2 ways:

- (1). Use the "System -- Real Time Clock Setting..." function in the Ladder Master to adjust.
- (2). Use the TWR instruction (FNC167) to adjust the RTC. This method can adjust the time by peripheral devices like the HMI etc.

(Please refer to the Programming Manual of the M, VB and VH series PLC)

- The RTC accuracy: ± 2 minute/month (at 25°C, <85%RH)

Notice

When the PLC detects low battery voltage at the RTC, the M9005 turns ON. Please replace a new RTC as soon as possible. If the battery fails, the counted time would disappear. (the battery life is around 5 years at 25°C, 85%RH)

◆ Instruction for the VB-MP1R to Storage or Duplicate Program

There are 3 switches on the VB-MP1R expansion card and their functions are described below:

WE		WP	#3 WE / WP Card's Write Prohibit ; WE (ON): Enable to write / WP: Prohibit write to the card
P▶M			#2 P▶M Program Upload ; If #2 is ON, duplicates the program from PLC to VB-MP1R.
M▶P			#1 M▶P Program Download ; If #1 is ON, duplicates the program from VB-MP1R to PLC.

Switch\Function		PLC Upload to VB-MP1R	VB-MP1R Download to PLC	Run by VB-MP1P Program
Position	WE/WP(#3)	WE (ON Left)	*	*
	P▶M(#2)	P▶M(ON Left)	OFF (Right)	OFF (Right)
	M▶P(#1)	OFF (Right)	M▶P (ON Left)	OFF (Right)
Operating Instructions		(1). Switch OFF the PLC power, flip over Main Unit's left cover and put the first STOP / RUN switch to the STOP position (refer to the printed symbol at the VB's cover behind or VH's circuit board.) (2). Correctly select a function and install the VB-MP1R. (3). When the PLC power ON, it is according to the U/D setting to duplicate the program. First the ERR LED on the Main Unit blinks 3 times then goes OFF. Afterward, the ERR LED turns ON when the duplicate is finished (depends on the program size, the duration < 1 minute); It's blinking if error happens. (4). Switch power OFF then remove the VB-MP1R card. (5). Put the first switch to the RUN position and restore both side cover back. Observe all safety and accident prevention regulations before turn ON the PLC power.		(1). Switch OFF the PLC power. Select the function then install VB-MP1R. Observe all safety and accident prevention regulations before turn ON the power. ● A PLC appoints the installed VB-MP1R become its program memory. Use a programming tool (ex. the Ladder Master) to up/down load the user program, change password and set CP2 are for the card's memory only.

* If the WE / WP write prohibit switch is on the WP (OFF, Right), any rewrites operation of the card will be prohibited (ex. to download user program, change password or set CP2) so that could keep all settings for storage. Otherwise, to change the card's program or settings that must let the switch to the WE (Left).

Notice

- The causes of error when a PLC duplicates a program from or to a VB-MP1R:
 - (1).The source program has been set a password or the prohibit to upload function. (ERR LED blinking)
 - (2).Duplicate a program to the card, but its WE / WP (#3) switch is OFF (WP, Right). (ERR LED blinking)
 - (3).The P▶M (#2) and M▶P (#1) switches are both ON (Left). (ERR LED blinking)
 - (4).The VB-MP1R is improperly installed, unstable connection, damaged or the PLC is malfunctioned.
- A user program should not be used for the other different type of PLC that by the way of a VB-MP1R.
- If the program in a VB-MP1R had a new function, that is unable to process at an unsupported old PLC.
- The initialize function of a programming tool (ex. the Ladder Master) is influencing to the memory in the PLC not to the card.
- A PLC performs a brand new card will cause its ERR blinking. Install a user program before the PLC run.
- When the PLC detects low battery voltage at the card, the M9005 turns ON. Please replace a new card as soon as possible. If the battery fails, the counted time would disappear, but would not cause the user program or setting of CP2 lost. (the battery life is around 5 years at 25°C, 85%RH)

◆ Instruction for the VB-DB1R

- This VB-DB1R is designed for the VB series PLC only. Its rewrite number of times is no limit.
- Use the DBRD instruction (FNC 90) to read data from the VB-DB1R to PLC or use the DBWR instruction (FNC 91) to write data from the PLC to VB-DB1R. (Please refer to the Programming Manual of the M, VB and VH series PLC)
- Use the programming tool (Ladder Master: System~Data Bank Access; PLCmate: PLC Data~Data Bank) to read, edit, rewrite or save the card data.
- Use the PLC Backup and PLC Loader functions could duplicate the data of all VB-DB1R.

Notice

When the PLC detects low battery voltage at the VB-DB1R, the M9005 turns ON. Please duplicate its data and replace a new card as soon as possible. If the battery fails, the counted time and all the data bank would disappear. (the battery life is around 5 years at 25°C, 85%RH)