TECHNICAL BULLETIN

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[Title] Guidelines for improving the communication performance when using the BMOV script function (continuous device operation) **[Date of Issue]** May, '04
[Relevant Models] GOT-A900 series

Thank you for your continued support of Mitsubishi Graphic Operation Terminal GOT series (GOT).

If using the script function BMOV instruction (many times) to read device values from the PLC CPU into the GOT internal devices, this may cause the performance of the GOT display refresh and screen change by use of the touch switch to slow down considerably. This bulletin provides guidelines for using the GOT in order to improve the monitoring performance by reducing the number of times to communicate with the PLC CPU using the BMOV instruction.

1. Reducing the communication time when using BMOV instruction

With the script function, the GOT only reads*2 a batch of device values from the PLC CPU direct address*1, regardless of script execution condition, or conditional 'if' or 'switch' statements.

Also, when using the BMOV instruction to read devices from the PLC CPU, communication with the PLC CPU from the GOT is done one or more times for each instruction*2, depending on the amount of data.

Therefore, in order to reduce the communication time, it is recommend to read a batch of values from the source devices into a TMP (Temporary work) area before transferring the data to the GOT internal devices.

*1: When device offset is specified, the offset device becomes the direct device address.

*2: The screen script function applies only to the currently displayed screen on the GOT.

The following counter measures should be taken into consideration.

(1) The batch of divided blocks are read from the PLC CPU to the GOT internal memory during one communication processing. The script is then customized as to split the batch of devices into separate blocks and transferred to the TMP and then to the GOT internal devices, such as GD. For details, refer to item 2.(1) Reading a batch of device values into TMP.

(2) The batch of divided blocks (for each 'if' and 'switch' statement) are read from the PLC CPU to the GOT internal memory during one communication processing. The script is then customized as to split the batch of devices according to the 'if' and 'switch' statements and transferred to the TMP and then to the GOT internal devices, such as GD.
For details, refer to item 2.(2) Reading BMOV in a batch of steps within a script.

(3) When reading a batch of devices from the PLC CPU to the TMP, make sure the devices fall within the specified range, as shown in the table below. If the number of words is greater than the specified reference, the number will be automatically divided and then transferred.

Connected PLC CPU	Number of words transferred by BMOV for each communication processing
QCPU (bus connection only)	960 words
Motion controller CPU (Q mode)	
QCPU (other than bus connection)	480 words
QnACPU	
Motion controller CPU (A mode)	
MELDAS C6/C64	
ACPU	64 words
FXCPU	

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2. Script solution examples

(1) Reading a batch of device values into TMP

This solution saves the communication time by reducing the communication between GOT internal memory and PLC CPU down to just once, where it took 3 times to do the same processing before.
(When transferring from TMP to GOT internal devices (e.g., GD), the internal memory*1 does not communicate with PLC CPU.)
*1: System area used for communication processing. The user is not permitted access to this area.

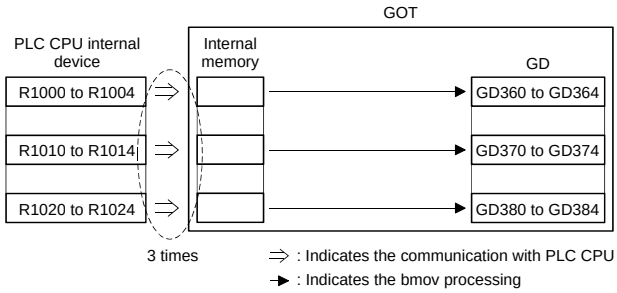
[Normal process]

(a) Processing outline

Device values are transferred from R1000 to R1004, R1010 to R1014 and R1020 to R1024 into GD360 to GD364, GD370 to GD374 and GD380 to GD384, respectively.

(b) Script description

```
bmov([w:R1000],[w:GD360],5);
bmov([w:R1010],[w:GD370],5);
bmov([w:R1020],[w:GD380],5);
```



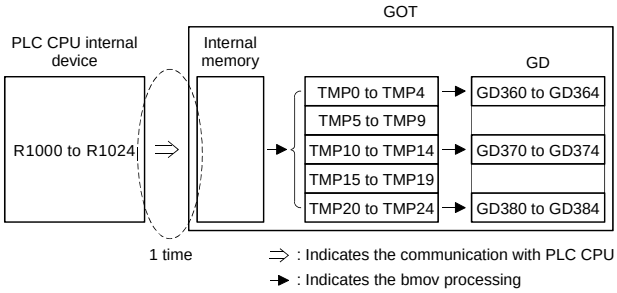
[Solution applied]

(a) Processing outline

Device values are transferred from R1000 to R1024 into TMP0 to TMP24 within GOT at once. Then they are transferred from TMP0 to TMP24 into GD360 to GD364, GD370 to GD374 and GD380 to GD384, respectively, as shown below.

(b) Script description

```
bmov([w:R1000],[w:TMP0],25);
bmov([w:TMP0],[w:GD360],5);
bmov([w:TMP10],[w:GD370],5);
bmov([w:TMP20],[w:GD380],5);
```



(2) Reading BMOV in a batch of steps within a script

This solution saves the communication time by reducing the communication between GOT internal memory and PLC CPU to just once, where it took 10 times to do the same processing before.
(When reading internal devices within PLC CPU in 'if' or 'switch' statement, the internal memory communicates with PLC CPU regardless of the execution condition. When transferring from TMP to GOT internal devices (e.g., GD), the internal memory does not communicate with PLC CPU.)

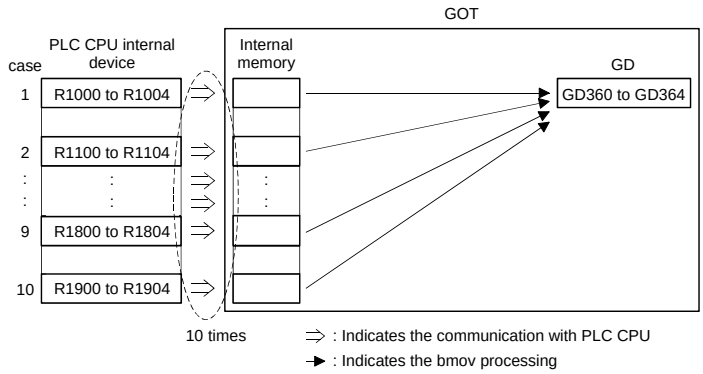
[Normal process]

(a) Processing outline

Device values are transferred from R1000 to R1004, … and R1900 to R1904 into GD360 to GD364 depending on the amount of data.

(b) Script description

```
switch([w:D1000]){
   case 1:bmov([w:R1000],[w:GD360],5);
          break;
   case 2:bmov([w:R1100],[w:GD360],5);
          break;
     :
   case 9:bmov([w:R1800],[w:GD360],5);
          break;
   case 10:bmov([w:R1900],[w:GD360],5);
          break;
}
rst([b:GB1000]);
```



[Solution applied]

(a) Processing outline

A batch of device values is transferred from R1000 to R1904 into TMP0 to TMP904 within GOT once, and then it is transferred from TMP0 to TMP904 into GD360 to GD364 depending on the amount of data.

(b) Script description

```
bmov([w:R1000],[w:TMP0],905);
switch([w:D1000]){
   case 1:bmov([w:TMP0],[w:GD360],5);
          break;
   case 2:bmov([w:TMP100],[w:GD360],5);
          break;
     :
   case 9:bmov([w:TMP800],[w:GD360],5);
          break;
   case 10:bmov([w:TMP900],[w:GD360],5);
          break;
}
rst([b:GB1000]);
```