

Control Block And Status Block Reference Guide

This chapter describes the general information that you need for programming your PLC to talk with the Workstation. You can find detailed information for connecting specific PLCs' to the Workstation in the Appendix P.

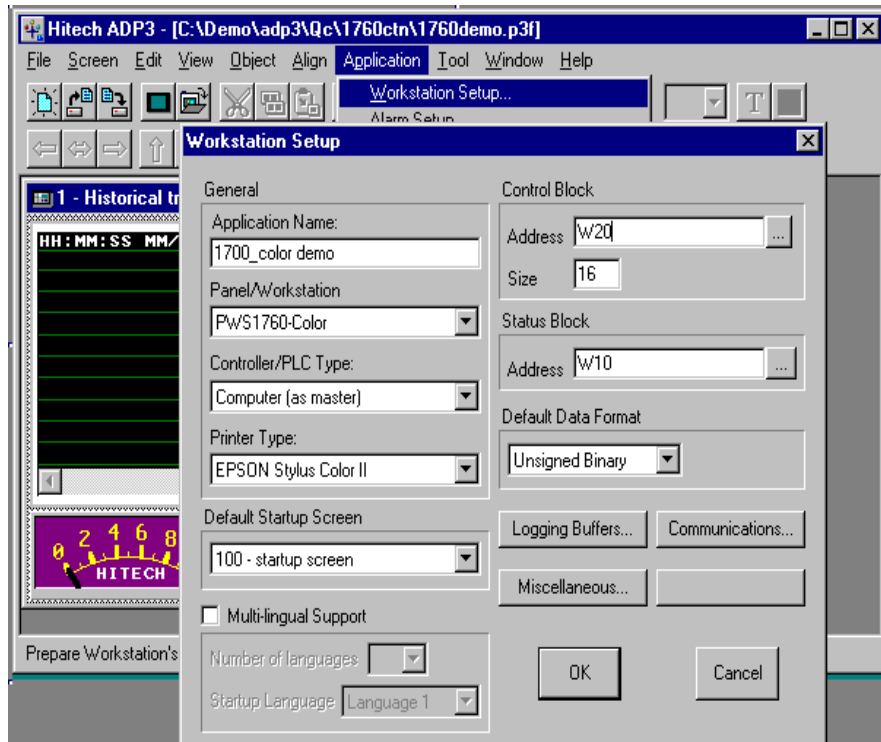


Figure 3-1 Specify the starting address of Control Block and Status Block

1. Control Block

The control block enables the PLC to control actions on the Workstation through the PLC program; for example, change screen, print out, hardcopy, recipe transmission and so on. The minimum number of words used in the control block is 2. The maximum number of words used is 32 Words. The size of the control block varies according to the functionality required. If recipe functionality is used, the minimum length is 6 Words.

The Control Block is a block of contiguous registers in your PLC that you use to control the Workstation. For example, to request the Workstation to display another screen, you simply set the first word of Control Block to that screen's number. The members of Control Block are shown in the following table:

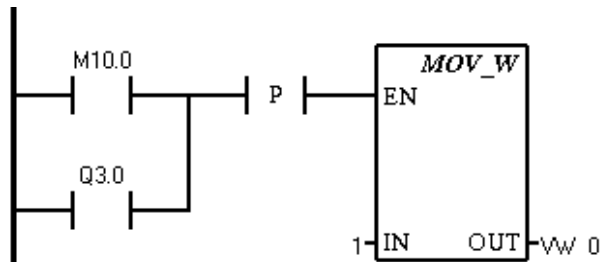
Word#	Member	Ex. S7-200	Ex. FX2
Dn	Screen Number Register (SNR)	VW0	D0
Dn+1	Command Flag Register (CFR)	VW2	D1
Dn+2	Logging Buffer Control Register #1	VW4	D2
Dn+3	Logging Buffer Control Register #2	VW6	D3
Dn+4	Logging Buffer Control Register #3	VW8	D4
Dn+5	RCPNo Number Register (RNR)	VW10	D5
Dn+6	General User Area Register (GUAR)	VW12=cb6,	D6=cb6,
And	User's application registers	VW14=cb7,	D7=cb7,
above	
	CBm, m must not exceed 32.	VW18=cb9,	D9=cb9,
	

The functions of word Dn through Dn+m (word n+m) in the Control Block will be discussed in the following sections.

1-1. Screen Number Register

Your PLC can request the Workstation to display another screen by setting Screen Number Register (SNR) to the number of that screen. The Workstation clears the SNR (Dn) to zero before changing screen. If the screen specified by the SNR doesn't exist, the Workstation does nothing but clears the SNR (Dn=0).

The value of SNR can be in BCD or binary format. See Chapter 1, section 6-8-1 to specify Default Data Format for the format.



For example, to request the Workstation to display another screen, you simply set the first word, VW0, of the Control Block to that screen's number (1-255).

The value of data register SNR (Dn) and the functions are as following:

Dn 16-Bit # (00-15)	FUNCTION
BIT9= BIT0	The first 10bits are used for deciding to change screen
BIT10	Reserved, this bit should be off
BIT 13=off, 12=off, 11=off	No language was selected
BIT 13=off, 12=off, 11=on	Language1
BIT 13=off, 12=on, 11=off	Language2
BIT 13=off, 12=on, 11=on	Language3
BIT 13=on, 12=off, 11=off	Language4
BIT 13=on, 12=off, 11=on	Language5
BIT 13=on, 12=on, 11=off	Reserved
BIT 13=on, 12=on, 11=on	Reserved
BIT 14	Back light was turned off when set to 1
BIT 15	Back light was turned on when set to 1

1-2.
Command
Flag Register

The functions of the bits in CFR are summarized in the following table:

Dn+1 16-Bit#(00-15)		Function
Bit	0=V3.0	Alarm History Buffer Clear Flag
	1=V3.1	Alarm Frequency Buffer Clear Flag
	2=V3.2	Print Change Paper Flag (Form Feed Flag)
	3=V3.3	Hardcopy Flag
	4=V3.4	Recipe Write Flag, Data send from PWS to PLC
	5=V3.5	RCPNO Change Flag
	6=V3.6	Recipe Read Flag, Data send from PLC to PWS
	7=V3.7	Buzzer Action Control
	8=V2.0	Clear Flag #1
	9=V2.1	Clear Flag #2
	10=V2.2	Clear Flag #3
	11=V2.3	Clear Flag #4
	12=V2.4	Trigger Flag #1
	13=V2.5	Trigger Flag #2
	14=V2.6	Trigger Flag #3
	15=V2.7	Trigger Flag #4

1-2-1. Alarm History Buffer Clear Flag

To clear the Alarm History Buffer, set bit 0 of the Command Flag Register (CFR) to 1. The Workstation clears the buffer and sets bit 0 of the General Status Register (GSR) to 1 when it sees bit 0 of CFR changes to 1. After clearing the buffer, the Workstation resets bit 0 of GSR.

The Workstation does not reset this flag, so the PLC has to reset the flag before requesting the Workstation to clear the buffer again. Be sure to set the flag long enough for the Workstation to see it.

You can use the Alarm History Buffer Clear Status Flag (See 2-2-1) to handshake the clearing of this flag in your program. Your PLC can reset bit 0 of CFR the moment bit 0 of GSR goes from 0 to 1.

1-2-2. Alarm Frequency Buffer Clear Flag

To clear the Alarm Frequency Buffer, set bit 1 of the Command Flag Register (CFR) to 1. The Workstation clears the buffer and sets bit 1 of the General Status Register (GSR) to 1 when it sees bit 1 of the CFR change to 1. After clearing the buffer, the Workstation resets bit 1 of GSR.

The Workstation doesn't reset the flag, so the PLC has to reset the flag before requesting the Workstation to clear the buffer again. Be sure to set the flag long enough for the Workstation to see it.

You can use the Alarm Frequency Buffer Clear Status (See 2-2-2) to handshake the clearing of this flag in your program. Your PLC can reset bit 1 of the CFR the moment bit 1 of GSR goes from 0 to 1.

1-2-3. Form Feed Flag *PWS1720* *PWS3120* *PWS3720*

Setting this flag to on causes the Workstation to send a form feed character to the connected printer. This makes the printer perform a form feed.

The Workstation doesn't reset the flag, so the PLC has to reset the flag before requesting another form feed again. Be sure to set the flag long enough so that the Workstation can see it.

You can rely on the Form Feed Status to reset the flag (See 2-2-3). The Workstation turns on the Form Feed Status when it sees the Form Feed Flag turn on. Please note that this is relevant to Workstations with LPT printer ports only.

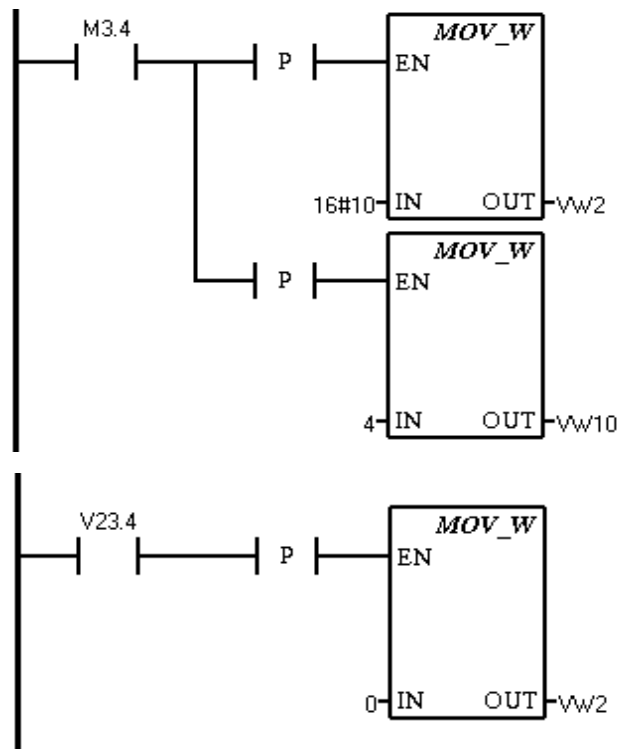
1-2-4. Hard Copy Flag *PWS1720* *PWS3120* *PWS3720*

Setting this flag to on causes the Workstation to print the specified range from the current screen. The Workstation doesn't reset the flag, so the PLC has to reset the flag before requesting the Workstation to print another screen. Be sure to set the flag long enough so that the Workstation can see it. You can rely on the Hard Copy Status to reset the flag (See 2-2-4). The Workstation turns on Hard Copy Status when it sees the Hard Copy Flag turn on.

1-2-5. Recipe Write Flag *Not PWS700*

To get a recipe, your PLC first sets the RNR (Recipe Number Register) to the number of the desired recipe and then turns on the Recipe Write Flag. The Workstation sends the specified recipe data to the Recipe Block in PLC if the specified recipe number in the RNR is between one and the maximum recipe number. If the RNR is zero, the Workstation ignores the request. If the RNR is greater than the maximum recipe number, the Workstation sends the current recipe to the PLC. See the section "Configuring Recipe Function" to know how to ascertain the current recipe, and the maximum recipe number.

The Workstation doesn't reset the flag, so the PLC has to reset the flag before requesting the Workstation to send another recipe. Be sure to set the flag long enough so that the Workstation can see it. It is safe to reset Recipe Write Flag after the Recipe Write Status turns on (See 2-2-6).



The No. 4 saved recipe data of the PWS can be written into PLC by controlling the M3.4 relay. The V23.4 is Recipe Write status bit.

**1-2-6.
RCPNO
Change Flag
Not PWS700**

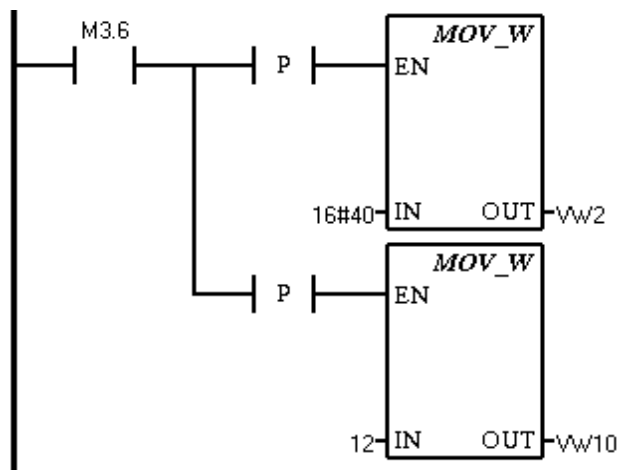
RCPNO is an internal register of the Workstation that specifies the current recipe number. The PLC can change RCPNO by first setting the RNR to the number of the desired recipe and then turning on the RCPNO Change Flag. If the RNR is zero or greater than the maximum recipe number, the Workstation ignores the request. See the section “Configuring Recipe Function” to know how to ascertain the current recipe, and the maximum recipe number.

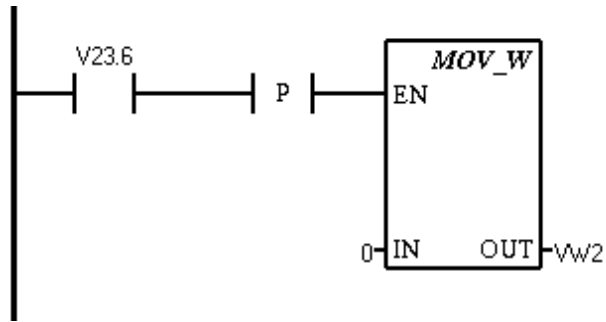
The Workstation doesn’t reset the flag, so the PLC has to reset the flag before requesting the Workstation to change RCPNO again. Be sure to set the flag long enough so that the Workstation can see it. You can rely on the RCPNO Change Status (See 2-2-7) to reset the flag. The Workstation turns on the RCPNO Change Status when it sees the RCPNO Change Flag turn on.

**1-2-7.
Recipe
Read Flag
Not PWS700**

To update a recipe in the Workstation, your PLC first sets the RNR to the number of the recipe that your PLC wants to update and then turns on the Recipe Read Flag. The Workstation reads data in Recipe Block to update the specified recipe if the specified recipe number in the RNR is between one and the maximum recipe number. If the RNR is zero, the Workstation ignores the request. If the RNR is greater than the maximum recipe number, the Workstation updates the current recipe. See chapter1 section 6-8-1-4, the section “Configuring Recipe Function” to know how to ascertain the current recipe, and the maximum recipe number.

The Workstation doesn’t reset the flag, so the PLC has to reset the flag before requesting the Workstation to update another recipe. Be sure to set the flag long enough so that the Workstation can see it. It is safe to reset the Recipe Read Flag after the Recipe Read Status turns on (See 2-2-8).





The data of PLC can be saved back to No. 12 recipe of memory by controlling PLC M3.6 relay. The V23.6 is Recipe Read status bit.

1-2-8. Buzzer Action Control

To sound buzzer, set this bit. To turn off buzzer, clear this bit.

1-2-9. Trigger Flags

There are 2 types of trending in the Workstation. The first type is the trend graph, which effectively works by snap shooting a series of registers in the PLC under program control. The PLC program would initiate the snap shot and the clearing of the data using designated Trigger and Clear Flags.

There are four Trigger Flags numbered 1 through 4 in the CFR. You can request a Trend Graph to get data from the PLC and display it by setting its corresponding Trigger Flag. The Workstation does not reset the flag, so the PLC has to reset the flag before requesting again. Be sure to set the flag long enough so that the Workstation can see it. It is safe to reset a Trigger Flag after its corresponding Trigger Status Bit turns on (See 2-2-9).

1-2-10. Clear Flags

There are four Clear Flags numbered 1 through 4 in the CFR. You can clear a Trend Graph by setting its corresponding Clear Flag. The Workstation doesn't reset the flag, so the PLC has to reset the flag before requesting again. Be sure to set the flag long enough so that the Workstation can see it. It is safe to reset a Clear Flag after its corresponding Clear Status Bit turns on (See 2-2-10).

1-3. Logging Buffer Control Registers (LBCRs)

The second type of trend graph is the Historical Trend Graph, which works by logging data to logging buffers in the Workstation on a continuous timed basis or upon initiation by program control. See Chapter1, section 6-8-1-1. Program control of this functionality is facilitated using the Logging Buffer Control Registers (LBCRs).

You can use LBCRs to request Logging Buffers to get data from the PLC. You can also use LBCRs to clear Logging Buffers. Trigger Bits in the LBCRs are used to request Logging Buffers to get data from the PLC. Clear Bits in the LBCRs are used to clear Logging Buffers. Size Bits in the LBCRs are used to determine the size of data to be read.

Logging Buffers

#	Source Address	Record Size	Total	Stamp Time	Date	Auto Stop	Triggered By	Time Interval	Non-volatile
1	QW120	3	1000	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timer	3	<input type="checkbox"/>
2	QW220	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
3		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
4		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
5		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
6		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
7		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
8		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
9		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
10		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
11		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>
12		0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PLC	0	<input type="checkbox"/>

OK Cancel

LBCR1 controls Logging Buffer No. 1 through No. 4. LBCR2 controls Logging Buffer No. 5 through No. 8. LBCR3 controls Logging Buffer No. 9 through No. 12. The positions of the Trigger Bit, Clear Bit, and Size Bit for each Logging Buffer are illustrated in the following:

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW4 LBCR1	0	S B 4	C B 4	T B 4	0	S B 3	C B 3	T B 3	0	S B 2	C B 2	T B 2	0	S B 1	C B 1	T B 1
Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW6 LBCR2	0	S B 8	C B 8	T B 8	0	S B 7	C B 7	T B 7	0	S B 6	C B 6	T B 6	0	S B 5	C B 5	T B 5
Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW8 LBCR3	0	S B 12	C B 12	T B 12	0	S B 11	C B 11	T B 11	0	S B 10	C B 10	T B 10	0	S B 9	C B 9	T B 9

SB: Size Bit; CB: Clear Bit; TB: Trigger Bit

LBCR1	Buffer # 4	Buffer # 3	Buffer # 2	Buffer #1
LBCR2	Buffer # 8	Buffer # 7	Buffer # 6	Buffer #5
LBCR3	Buffer #12	Buffer #11	Buffer #10	Buffer #9

You have to specify the Source Address when creating a Logging Buffer. The Logging Buffer's Source Address indicates the location in the PLC from which to retrieve the data. To request a Logging Buffer to read one record of data from the PLC, put data in the location(s) specified by its Source Address, set its Size Bit to off, and change its Trigger Bit from 0 to 1. To request a Logging

Buffer to read multiple records of data from the PLC, specify the number of words to be read starting from the location of the Source Address. Put the data to be read in the locations following the Source Address, set its Size Bit to on, and change its Trigger Bit from 0 to 1. Note that the size of data to be read cannot exceed 1022 words.

To clear a Logging Buffer, change its Clear Bit from 0 to 1.

The Workstation does not reset any bit in the LBCRs, so the PLC has to reset the Trigger Bits and Clear Bits before requesting again. Be sure to set those bits for long enough so that the Workstation can see them. It is safe to reset those bits after their corresponding status bit in LBSRs turns on (See 2-3).

[Example] FX2 PLC

Assumes the following:

- a) Control Block starts from D0 with a size of 6,
- b) Source Address of Logging Buffer #11 is D200,
- c) The record size of Logging Buffer #11 is 3 words.

To request Logging Buffer #11 to read one record of data from the PLC, put data to be read in D200-D202, set Size Bit 10 of D4 to off, change Trigger Bit 8 of D4 from 0 to 1. The Workstation reads D200-D202 for Logging Buffer #11 after it detects bit 8 of LBCR3 changes from 0 to 1.

To request Logging Buffer #11 to read fifty records of data, set D200 to 150(=50x3), put data to be read in D201-D350, set Size Bit 10 of D4 to on, change Trigger Bit 8 of D4 from 0 to 1. The Workstation reads D200-D202 first to get the real size of the data to be read after it detects Trigger Bit 8 of LBCR3 changes from 0 to 1, then reads D200-D350 for Logging Buffer #11.

To clear Logging Buffer #11, change Clear Bit 9 of D4 from 0 to 1.

1-4. Recipe Number Register

RCPNO is an internal register of the Workstation that specifies the current recipe number. With the past versions of ADP3, the only way you can change RCPNO is through a Numeric Entry configured to display RCPNO. Now your PLC can change RCPNO too.

To get a recipe from the Workstation or update a recipe in the Workstation, firstly set the RNR of your PLC to the number of the desired recipe and then turn on the Recipe Write Flag or Recipe Read Flag.

To change the value of RCPNO by the PLC, your PLC first sets Recipe Number Register (RNR) to the desired recipe number and then turns on the RCPNO Change Flag, which is the bit #5 of the Command Flag Register (CFR). If the RNR is zero or greater than the maximal recipe number, the Workstation ignores the request. The Workstation doesn't reset the flag, so your PLC has to reset the flag before requesting the Workstation to change RCPNO again. Be sure to set the flag long enough so that the Workstation can see it. You can rely on the RCPNO Change Status to reset the flag. RCPNO Change Status is bit #5 of the General Status Register (GSR). Please see Chapter 1, section 6-8-1-4 for details.

1-5. General User Area Register

The user area allows the Workstation to read some user data along with the six control registers in one read command. The data read by Control Block is saved in an internal buffer and you are allowed to configure screen objects and Logging Buffers to get data from that internal buffer instead of reading the data from the PLC. This feature can reduce communications with the PLC and hence increase the system performance. The user determines the size of the General User Area. The address format of data in the internal buffer is shown in the following table:

Format	Description
CBn	Word n of Control Block; n is a decimal number; $n \geq 0$
CBn.b	Bit b of word n of Control Block; n is a decimal number; $n \geq 0$, b is a hex number; b=0-F

For example, if the address of the Control Block is D0, you can create a Numeric Display to display the Recipe Number Register by configuring it to display CB5 instead of displaying D5.

The internal buffer for the Control Block is read only. This means, for example, you can configure a Numeric Display to show the value of CB2, but you can't configure a Numeric Entry to allow the operator to change the CB2.

1-6. Determining the Size of Control Block

As every application needs a Screen Number Register (SNR) and a Control Flag Register (CFR), the size of Control Block cannot be less than two. The maximum size of Control Block is 32. However, for communication efficiency, it is better that the size doesn't exceed the maximum number of words that the Workstation can read from your PLC by a single command. The following rules help you determine the size of Control Block:

1. If the Workstation reads/writes recipe from/to PLC, then the minimum size is six.
2. If item (1) is not true and if your Workstation uses LBCR3 to control Logging Buffer #9--#12, then the minimum size is five.
3. If item (1) and (2) are not true and if your Workstation uses LBCR2 to control Logging Buffer #5--#8, then the minimum size is four.
4. If item (1) through (3) are not true and if your Workstation uses LBCR1 to control Logging Buffer #1--#4, then the minimum size is three.
5. If item (1) through (4) are not true, then the minimum size is two.
6. The size of Control Block is the minimum size plus the size of the user area.

2. Status Block

The Status Block is a block of contiguous registers in your PLC that display status information from the Workstation. For example, you can get the current screen number from the first word of the Status Block. The constituents of Status Block are shown in the following table:

Word#	Member	Ex.S7-200	Ex.FX2
Dm	Screen Status Register (SSR)	VW20	D10
Dm+1	General Status Register (GSR)	VW22	D11
Dm+2	Logging Buffer Status Register #1(LBSR1)	VW24	D12
Dm+3	Logging Buffer Status Register #2(LBSSR2)	VW26	D13
Dm+4	Logging Buffer Status Register #3(LBSSR3)	VW28	D14
Dm+5	RCPNo Image Register (RIR)	VW30	D15
Dm+6	700X Switch Image Register	VW32	D16

The size of Status Block is six words (seven words for 700X) even if some words are not needed for the application.

2-1. Screen Status Register

Whenever the Workstation displays another screen, it sets the Screen Status Register (SSR) to the number of the new screen. The PLC can identify the current screen by reading the SSR.

The value of SSR can be in BCD or binary format. See Chapter 1, section 6-8-1 to specify Default Data Format for the format.

2-2. General Status Register

The components of the General Status Register (GSR) are shown in the following:

VW22 16-Bit#(00-15)	Member
Bit 0=V23.0 1=V23.1	User Level Bits (not available for applications configured to monitor alarms)
Bit 0=V23.0	Alarm History Buffer Clear Status
1=V23.1	Alarm Frequency Buffer Clear Status
2=V23.2	Form Feed Status
3=V23.3	Hardcopy Status
4=V23.4	Recipe Write Status
5=V23.5	RCPNO Change Status
6=V23.6	Recipe Read Status
7=V23.7	Battery Status
8=V22.0	Clear Status Flag #1
9=V22.1	Clear Status Flag #2
10=V22.2	Clear Status Flag #3
11=V22.3	Clear Status Flag #4
12=V22.4	Trigger Status Flag #1
13=V22.5	Trigger Status Flag #2
14=V22.6	Trigger Status Flag #3
15=V22.7	Trigger Status Flag #4

**2-2-0.
User Level
Bits**

These two bits indicate the current user level: 00-level 1, 01-level 2, 10-level 3. These two bits are not available for applications configured to monitor alarms.

Level 1 Status==>bit 0=off, bit 1=off

Level 2 Status==>bit 0=off, bit 1=ON

Level 3 Status==>bit 0=ON, bit 1=off

**2-2-1.
Alarm History
Buffer Clear**

The Workstation turns on this status bit when it sees the Alarm History Buffer Clear Flag turn on, and turns off this status bit when it completes clearing the Alarm History Buffer.

**Status
2-2-2.
Alarm
Frequency
Buffer
Clear Status
2-2-3.**

The Workstation turns on this status bit when it sees the Alarm Frequency Buffer Clear Flag turns on and turns off this status bit when it completes clearing the Alarm Frequency Buffer.

Form Feed

The Workstation turns on this status bit when it sees the Form Feed Flag turn on and turns off this status bit when it completes sending the form feed character to the printer.

**Status
2-2-4.
Hard Copy
Status**

The Workstation turns on this status bit when it sees the Hard Copy Flag turn on and turns off this status bit when it completes printing the current screen.

**2-2-5.
Recipe Write
Status**

The Workstation turns on the Recipe Write Status when it completes the sending of a recipe and turns off Recipe Write Status when the Recipe Write Flag turns off. You can use this bit as a handshake signal to switch the Recipe Write Flag.

**2-2-6.
RCPNO
Change
Status**

The Workstation turns on this status bit when it sees the RCPNO Change Flag turn on, and turns off this status bit when it completes changing the RCPNO.

**2-2-7.
Recipe Read
Status**

The Workstation turns on the Recipe Read Status when it completes the reading of a recipe and turns off Recipe Read Status when the Recipe Read Flag turns off. You can use this bit as a handshake signal to switch the Recipe Read Flag.

**2-2-8.
Battery Status
Not PWS700
Not PWS1700
Not PWS2100
*Not PWS3100***

The Workstation turns on the Battery Status if it detects battery low before running the application regardless of the setting of “Battery check” in its configuration. This only applies to units with battery-backed memory such as the PWS1720 and PWS3120.

**2-2-9.
Trigger Status
Bits**

There are four Trigger Status Bits numbered 1 through 4 in the CFR. The Workstation sets a Trigger Status Bit to on when it completes the operation triggered by the corresponding Trigger Flag and sets that bit to off when the corresponding Trigger Flag turns off. You can use Trigger Status Bits as handshake signals to switch the Trigger Flags.

**2-2-10.
Clear Status
Bits**

There are four Clear Status Bits numbered 1 through 4 in the CFR. The Workstation sets a Clear Status Bit to on when it completes the clear operation requested by the corresponding Clear Flag and sets that bit to off when the corresponding Clear Flag turns off. You can use Clear Status Bits as handshake signals to switch the Clear Flags.

2-3.
Logging
Buffer Status
Registers
(LBSRs)

LBSR1 saves the status of Logging Buffer No. 1 through No. 4. LBSR2 saves the status of Logging Buffer No. 5 through No. 8. LBSR3 saves the status of Logging Buffer No. 9 through No. 12. The positions of the status bits for each Logging Buffers are illustrated in the following:

Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW24 LBSR1	A B 4	F B 4	C B 4	T B 4	A B 3	F B 3	C B 3	T B 3	A B 2	F B 2	C B 2	T B 2	A B 1	F B 1	C B 1	T B 1
Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW26 LBSR2	A B 8	F B 8	C B 8	T B 8	A B 7	F B 7	C B 7	T B 7	A B 6	F B 6	C B 6	T B 6	A B 5	F B 5	C B 5	T B 5
Bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VW28 LBSR3	A B 12	F B 12	C B 12	T B 12	A B 11	F B 11	C B 11	T B 11	A B 10	F B 10	C B 10	T B 10	A B 9	F B 9	C B 9	T B 9

AB: Almost Full

Bit indicates the buffer is equal to or over 90% full.

FB: Full Bit indicates the buffer is full.

CB: Clear Status Bit indicates the clear command was received.

TB: Trigger Status Bit indicates the trigger command was received.

LBSR1	Buffer # 4	Buffer # 3	Buffer # 2	Buffer #1
LBSR2	Buffer # 8	Buffer # 7	Buffer # 6	Buffer #5
LBSR3	Buffer #12	Buffer #11	Buffer #10	Buffer #9

The Workstation sets a Trigger Status Bit to on when it completes collecting one record of data for its Logging Buffer and sets that bit to off when its corresponding Trigger Bit turns off. You can use Trigger Status Bits as handshake signals to switch the Trigger Bits.

The Workstation sets a Clear Status Bit to on when it completes clearing its Logging Buffer and sets that bit to off when its corresponding Clear Bit turns off. You can use Clear Status Bits as handshake signals to switch the Clear Bits.

2-4. RCPNO Image Register

The Workstation sets the RCPNO Image Register to the new value of the RCPNO when this internal register is changed by the operator or by the PLC. Your PLC can know the current value of RCPNO now. The Workstation reports the value of RCPNO to the PLC by writing the value to RCPNO Image Register when RCPNO is changed by the operator or by the PLC.

RCPNO Image Register is the word #5 of the Status Block and you can use RCPNO Image Register to keep track of what the current recipe is.

2-5. 700X Switch Image Register PWS700X

The 700X can be configured to report the state of keys K87-KF7 by writing the state information to the 7th word in the Status Block. Your PLC can determine what to do with this information. The state information is encoded as the following:

Bit	15	14	13	12	11	10	9	8	7-0
State of	KF7	KE7	KD7	KC7	KB7	KA7	K97	K87	Reserved

Bit value = 1: pressed

Bit value = 0: not pressed

For example, if the Status Block locates at register D10, your PLC should read 9000H from register D16 when the KF7 and KC7 are both pressed.

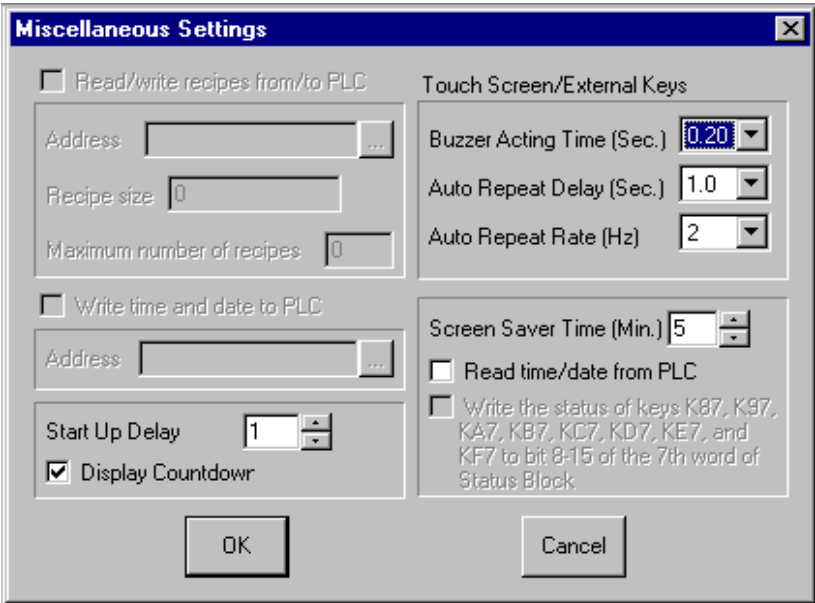
3.
Recipe Block

If you want the Workstation to write recipe data to your PLC or read recipe data from your PLC, you need to define a Recipe Block for your application. The Recipe Block is a block of registers in your PLC. Please see Chapter 1, section 6-8-1-4 for details.

The address format of recipe data in the internal register of the Workstation is shown in the following table:

Format	Description
RCPNo	RCPNO is an internal register of the Workstation that specifies the current recipe number. No≥1
RCPWnnnnn	The address format RCPWnnnnn refers to a 16-bit word at word #nnnnn of the current recipe. nnnnn is a decimal number; n≥0.
RCPWnnnnn.b	Bit b of recipe word nnnnn; nnnnn is a decimal number; n≥0, b is a hex number; b=0-F Now, you can address any bit of any recipe word with this new version 2.42.00 of ADP3.

For example, if the address of the recipe block is D200, you can create a Numeric Display to display the recipe data register by configuring it to display RCPW5 instead of displaying D205.



4.
Time Block
Not PWS700

If you want the Workstation to write the current time and date to your PLC, you need to define a Time Block for your application. A Time Block is a block of three words in your PLC. The Workstation updates the Time Block every minute with the data shown in the following table. The data is in BCD format.

Low byte of word 0	Minute BCD 00-59
High byte of word 0	Hour BCD 00-23
Low byte of word 1	Day BCD 00-31
High byte of word 1	Month BCD 01-12
Low byte of word 2	Last two digits of year 00-99
High byte of word 2	Day-of-week 1= Sunday 2= Monday 3= Tuesday 4= Wednesday 5= Thursday 6= Friday 7= Saturday

4-1.
Time Block
Only S7-PLC
With PWS700

The Workstation can read the cross-reference data of Time/Date/Week from the Real Time Clock that resides inside the PLC. The Workstation can display the contents to the screen directly. (**This function works only in S7-200/S7-300 PLC for PWS700)



Figure 3-2 Time/Date/Week setting screen from PWS to R.T.C. of PLC

5.
Read Cycle

The Workstation does the following to accomplish one read cycle and repeats the read cycle continuously. You need to know the read cycle in order to configure your Workstation in a more efficient way for communication with your PLC.

- 1. Reads Control Block.
- 2. Reads specified Register Blocks for the current screen.
- 3. Reads specified On/off Blocks for the current screen.
- 4. Reads specified Alarm Register regularly (3-10sec) not continually.
- 5. Reads a number of PLC locations that: (1) are shown on the current screen, (2) don't appear in the current screen's Register Blocks and On/off Blocks, and have not been read recently. The number of PLC locations read in this step is specified by "Number of individual reads per read cycle" of the current screen. The read cycle is 1.➔2.➔3.➔4.➔5.➔1.➔2,..... ,

See chapter1, Figure 1-9c to set the number.

6.
General
Functionality
Table

Functionality	PWS700T	PWS1200/1700	PWS1220/1720
\Model	PWS700X	PWS2100	PWS2120
		PWS3100	PWS3120/3720
Battery Backup RAM	No	No	Yes
Recipes	No	No	Yes
Printer Support	No	No	Yes
Real Time Clock	No	Yes	Yes