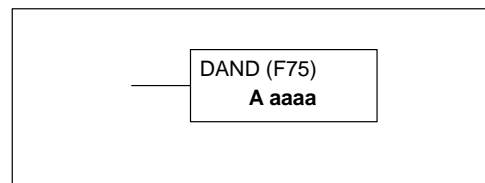


Accumulator Logic Instructions

Data And DAND (F75)

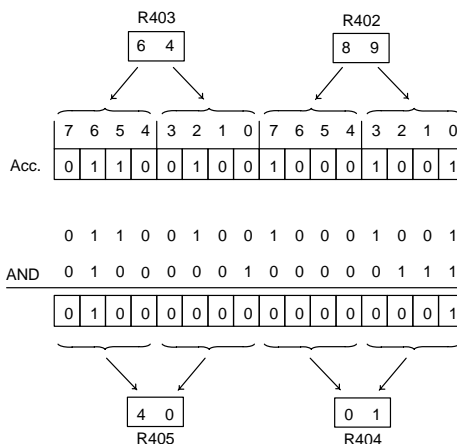
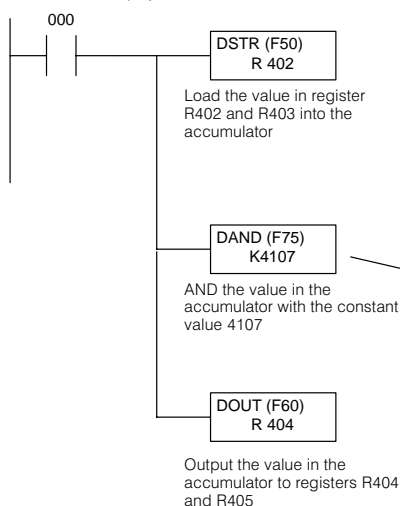
The Data And (F75) is a 16-bit instruction that logical ands the value in a 16-bit reference, two consecutive 8-bit registers (specify starting location), or a 4-digit BCD constant with the value in the accumulator. The result resides in the accumulator.



Data Type		D3–330 Range	D3–340 Range	D3–330P Range
A		aaaa	aaaa	aaaa
Inputs / Outputs	R	000–014 070–075	000–014 070–075	000–014 070–075
Control Relays	R	016–036	016–036 100–105	016, 020–027
Shift Registers	R	040–056	040–056	—
Stages	R	—	—	100–116
Timer /Counters (16 bit)	R	600–677	600–677	600–677
Data Registers	R	400–577	400–577 700–777	400–577
Constant (4–digit BCD)	K	0000–9999	0000–9999	0000–9999

In the following example, when input 000 is on the value(6489) in R402 and R403 is loaded into the accumulator using the Data Store (F50) instruction. The data in the accumulator is logically anded with the constant K4107 with the result residing in the accumulator. The value in the accumulator is output to data register R404 and R405 using the Data Out (F60) instruction.

DirectSOFT Display

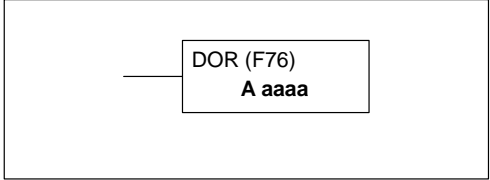


Handheld Programmer Keystrokes

STR	SHF	0	ENT
F	5	0	ENT
R	4	0	2 ENT
F	7	5	ENT
SHF	4	1	0 7 ENT
F	6	0	ENT
R	4	0	4 ENT

Data Or
DOR (F76)

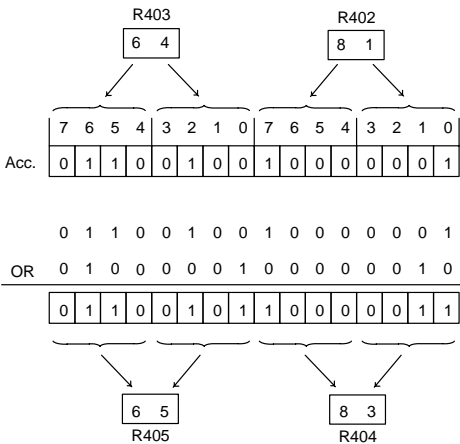
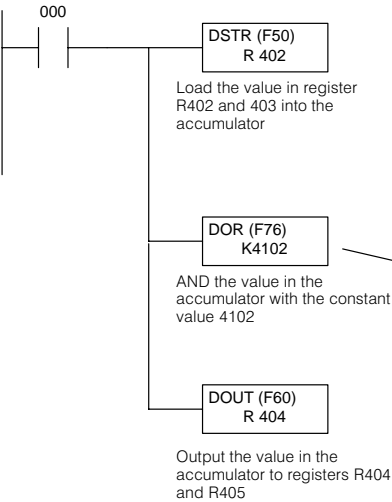
The Data Or (F76) is a 16-bit instruction that logically ors the value in a 16-bit reference, two consecutive 8-bit registers, (specify starting location) or a 4-digit BCD constant with the value in the accumulator. The result resides in the accumulator.



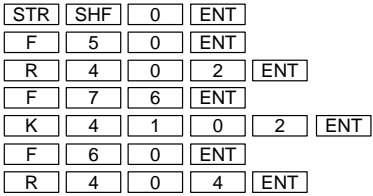
Data Type		D3-330 Range	D3-340 Range	D3-330P Range
A		aaaa	aaaa	aaaa
Inputs / Outputs	R	000-014 070-075	000-014 070-075	000-014 070-075
Control Relays	R	016-036	016-036 100-105	016, 020-027
Shift Registers	R	040-056	040-056	—
Stages	R	—	—	100-116
Timer /Counters (16 bit)	R	600-677	600-677	600-677
Data Registers	R	400-577	400-577 700-777	400-577
Constant (4-digit BCD)	K	0000-9999	0000-9999	0000-9999

In the following example, when input 000 is on the value (6481) in R402 and R403 is loaded into the accumulator using the Data Store (F50) instruction. The data in the accumulator is logically ored with the constant K4102 with the result residing in the accumulator. The value in the accumulator is output to data registers R404 and R405 using the Data Out (F60) instruction.

DirectSOFT Display



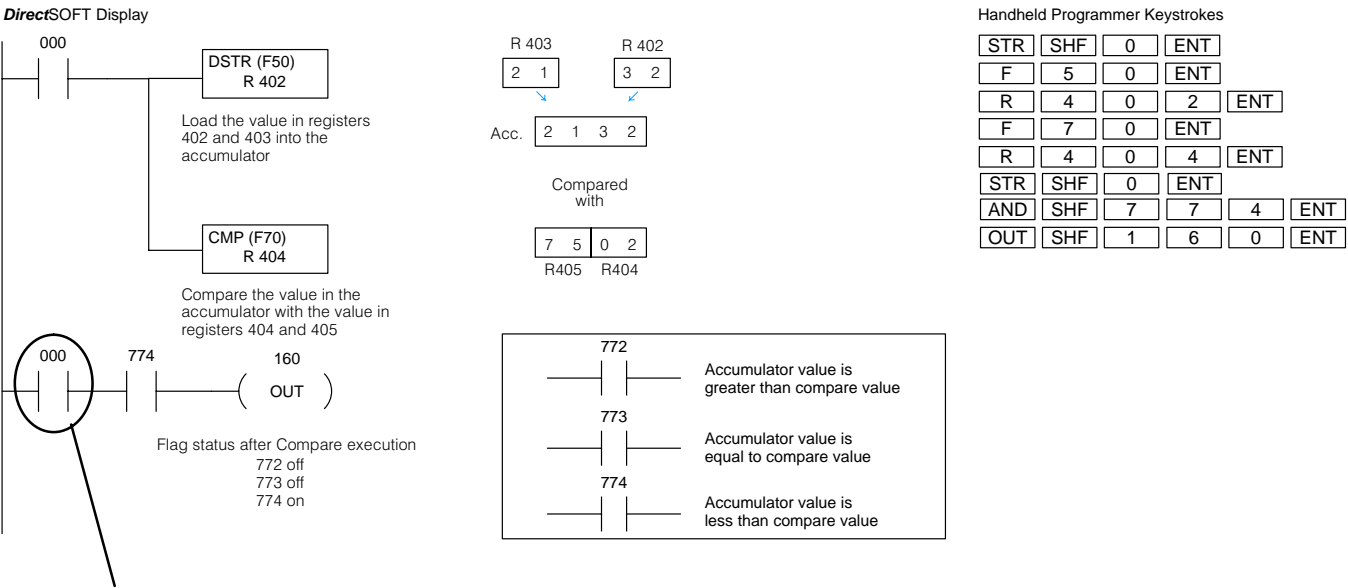
Handheld Programmer Keystrokes



CMP (F70)
A aaaa

Discrete Bit Flags	Description
772	Will be on if the accumulator value is greater than the compare value
773	Will be on if the accumulator value is equal to the compare value
774	Will be on if the accumulator value is less than the compare value

In the following example, when input 000 is on the value (2132) in R402 and R403 is loaded into the accumulator using the Data Store (F50) instruction. The data in the accumulator is compared to value in data registers R404 and R405 using the Compare (F70) instruction. Discrete status flag 774 is used to indicate if the accumulator is less than the compare value in this example.



NOTE: Input 000 has been used to interlock output 160. This is done since an earlier comparison could result in status flag 774 coming on when this particular comparison is not being executed thereby providing the opportunity for an unexpected output signal on output 160.

It is a common mistake to just use the status flags without interlocking to control outputs in a program but, status flags 772 – 774 can change several times during the same scan. Just as you should not use the status flags by themselves to control outputs, you also should not monitor status flags within the program. Instead you should monitor the interlocked outputs controlled by the status flags.