

Logic Inputs Functions

See table on page [101](#) for a complete list of F, R and RES logic inputs assignments

Code	Name / Description	Adjustment range	Factory setting
F 1 1 1	[LI F selection] F Logic Input Function The setting of parameter F 1 1 1 determines the control function of logic input terminal F.	0 to 73	2
F 1 1 2	[LI R selection] R Logic Input Function The setting of parameter F 1 1 2 determines the control function of logic input terminal R.	0 to 73	6
F 1 1 3	[LI RES selection] RES Logic Input Function If [Driving Scroll] (F324) page 160 is set to [yes] (1) the setting is replaced by [Inverse Run permis.] (54) . The setting of parameter F 1 1 3 determines the control function of logic input terminal RES.	0 to 73	10
F 1 0 9	[VIA selection] VIA Input Function (Analog or Logic Selection) ⚠ DANGER UNINTENDED EQUIPMENT OPERATION Prevent accidental grounding of logic inputs configured for sink logic. Accidental grounding can result in unintended activation of drive functions. Protect the signal conductors against damage that could result in unintentional conductor grounding. Failure to follow these instructions will result in death or serious injury. 0 [AI] : Analog input 1 [LI sink] : Logic input - sink (negative logic) 2 [LI source] : Logic input - source (positive logic) The setting of parameter F 1 0 9 determines whether control input terminal VIA will serve as an analog input (0-10 Vdc or 0-20 mA) or as a logic input (either sink or source). When configuring VIA as a logic input, be certain to slide switch SW100 on the main control board to the V (voltage) position. When configuring VIA as a logic input using sink (negative) logic, be certain to connect a 4.7 kΩ (1/2 W) resistor between control terminals P24 and VIA. For more information on the use of control input terminal VIA, see ATV212 Installation manual.	-	0
F 1 1 8	[VIA LI selection] VIA Logic Input Function Set first parameter [VIA selection] (F 1 0 9) before setting parameter F 1 1 8 . The setting of parameter F 1 1 8 determines the control function of logic input terminal VIA. See page 101 for a complete list of VIA logic input assignments.	0 to 73	7

Logic inputs F, R, RES, and VIA (if parameter [VIA selection] (*F I D 9*) is set to 1 or 2) can be set to the functions described in the table below. See table on page 107 for logic input function compatibility.

Function		Action				
No.	Description					
0	[No assigned] No function assigned	Logic input disabled				
1	[Run permissive] (see also input function 54, page 105)	OFF: drive motor output disabled, motor coasts to stop ON: drive ready for operation If [Logic Funct 2 active] (F I D) is not set to I [Run permissive], a logic input should be assigned to the [Run permissive] logic function to enable the motor to start.				
2	[Forward] (2-wire control: input function 49 NOT used) or (3-wire control: input function 49 USED)	Mode		Logic Input Action		
		2-wire control		OFF: Motor ramps down to a stop ON: Motor runs forward		
		Mode	Stop Input State	Logic Input Action		
		3-wire control		OFF	OFF: no function ON: no function	
		3-wire control		ON	OFF to ON transition starts the drive, motor runs forward	
3	[Reverse] (2-wire control: input function 49 NOT used) or (3-wire control: input function 49 USED)	Mode		Logic Input Action		
		2-wire control		OFF: Motor ramps down to a stop ON: Motor runs reverse		
		Mode	Stop Input State	Logic Input Action		
		3-wire control		OFF	OFF: no function ON: no function	
		3-wire control		ON	OFF to ON transition starts the drive, motor runs in reverse	
5	[Acc / Dec]	OFF: Acceleration/deceleration pattern 1 ON: Acceleration/deceleration pattern 2				
6	[PS1] Preset speed command input 1	Input 3	Input 2	Input 1	Motor Speed	
		0	0	0	minimum speed or speed reference per [Frequency mode sel] (F P D d)	
		0	0	1	S r 1: preset speed 1	
7	[PS2] Preset speed command input 2	0	1	0	S r 2: preset speed 2	
		0	1	1	S r 3: preset speed 3	
		1	0	0	S r 4: preset speed 4	
8	[PS3] Preset speed command input 3	1	0	1	S r 5: preset speed 5	
		1	1	0	S r 6: preset speed 6	
		1	1	1	S r 7: preset speed 7	
10	[Fault reset] (see also input function 55, page 105)					

Function		Action
No.	Description	
13	[DC braking]	⚠ WARNING NO HOLDING TORQUE • DC injection braking does not provide any holding torque at zero speed. • DC injection braking does not work when there is a loss of power or when the drive detects a fault. • Where necessary, use a separate brake to maintain torque levels. Failure to follow these instructions can result in death, serious injury, or equipment damage. OFF: No DC braking command ON: DC braking applied to motor, Level and time set by parameters [DC braking current] ($F 251$) and [DC braking time] ($F 252$)
14	[PID disable]	OFF: PID control permitted ON: PID control prohibited PID control prohibited input terminal function is available to switch PID control and open-loop control. Also Clear PID integral value input terminal function (function 65) is available. Note: For software version lower than V1.7IE04, when Clear PID integral value (function 65) and PID Control Prohibited (function 14) are used, it is necessary to set [Command mode sel] ($C 10d$) to [Logic inputs] (d) Control terminal logic inputs.
15	[Param Edit] Functional only when parameter [Parameter lock] ($F 700$) = 1	OFF: Parameters locked (if parameter $F 700 = 1$) ON: Programming changes permitted
16	[Run reset]	OFF: drive motor output disabled, motor coasts to stop ON: drive ready for operation ON to OFF transition clears a detected fault (if cause of detected fault has cleared)
20	[FW-RMP2] Combination of forward run command and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs forward, ramping up per ACC/dEC pattern 2
21	[Rev- RMP2] Combination of reverse run command and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs in reverse, ramping up per ACC/dEC pattern 2
22	[FW, PS1] Combination of forward run command and preset speed 1 command	OFF: Motor ramps down to a stop ON: Motor runs forward, at speed set by $S r 1$, preset speed 1
23	[RV, PS1] Combination of reverse run command and preset speed 1 command	OFF: Motor ramps down to a stop ON: Motor runs in reverse, at speed set by $S r 1$, preset speed 1
24	[FW, PS2] Combination of forward run command and preset speed 2 command	OFF: Motor ramps down to a stop ON: Motor runs forward, at speed set by $S r 2$, preset speed 2
25	[RV, PS2] Combination of reverse run command and preset speed 2 command	OFF: Motor ramps down to a stop ON: Motor runs in reverse, at speed set by $S r 2$, preset speed 2
26	[FW, PS3] Combination of forward run command and preset speed 3 command	OFF: Motor ramps down to a stop ON: Motor runs forward, at speed set by $S r 3$, preset speed 3

Function		Action
No.	Description	
27	[RV, PS3] Combination of reverse run command and preset speed 3 command	OFF: Motor ramps down to a stop ON: Motor runs in reverse, at speed set by S r 3 , preset speed 3
30	[FW-RMP2-SP1] Combination of forward run command, preset speed 1 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs forward, at speed set by S r 1 , preset speed 1, ramping up per ACC/dEC pattern 2
31	[Rev-RMP2-SP1] Combination of reverse run command, preset speed 1 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs in reverse, at speed set by S r 1 , preset speed 1, ramping up per ACC/dEC pattern 2
32	[FW-RMP2-SP2] Combination of forward run command, preset speed 2 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs forward, at speed set by S r 2 , preset speed 2, ramping up per ACC/dEC pattern 2
33	[Rev-RMP2-SP2] Combination of reverse run command, preset speed 2 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs in reverse, at speed set by S r 2 , preset speed 2, ramping up per ACC/dEC pattern 2
34	[FW-RMP2-SP3] Combination of forward run command, preset speed 3 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs forward, at speed set by S r 3 , preset speed 3, ramping up per ACC/dEC pattern 2
35	[Rev-RMP2-SP3] Combination of reverse run command, preset speed 3 command, and acceleration/deceleration pattern 2 selection	OFF: Motor stops, ramping down per ACC/dEC pattern 2 ON: Motor runs in reverse, at speed set by S r 3 , preset speed 3, ramping up per ACC/dEC pattern 2
38	[Frequency source] Frequency reference source switching	OFF: drive follows speed reference set by parameter [Frequency mode sel] (F 0 0 d) ON: drive follows speed reference set by parameter [Remote spd ref 2] (F 2 0 1) > (if [Auto/man speed ref] (F 2 0 0) = 1)
39	[Motor switch]	NOTICE RISK OF DAMAGE TO THE MOTOR - The motor switching function disables motor thermal protection. - The use of external overload protection is required when using motor switching. Failure to follow these instructions can result in death, serious injury, or equipment damage. OFF: 1st motor V/Hz parameter set active: ([Mot cont. mode sel.] (P 1), [Motor rated freq.] (u L), [Motor rated voltage] (u L u), [Mot Voltage Boost] (u b), [Motor thermal prot.] (t H r)) ON: 2nd motor V/Hz parameter set active: (P 1 = 0, F 1 7 0, F 1 7 1, F 1 7 2, F 1 7 3)

Function		Action
No.	Description	
40	[Mot param. switch] Motor control parameter switching V/Hz, current limit, acceleration/deceleration pattern	NOTICE RISK OF DAMAGE TO THE MOTOR - The parameter switching function disables motor thermal protection. - The use of external overload protection is required when using motor switching. Failure to follow these instructions can result in death, serious injury, or equipment damage. OFF: 1st motor control parameter set active: ([Mot cont. mode sel.] (P L), [Motor rated freq.] (u L), [Motor rated voltage] (u L u), [Mot Voltage Boost] (u b), [Motor thermal prot.] (L H r), [Acceleration time 1] (A L L), [Deceleration time 1] (d E L), [Acc/dec 1 pattern] (F S D 2), [Motor Current Limit] (F 5 D 1)) ON: 2nd motor control parameter set active: (P L = 0, F 1 7 0, F 1 7 1, F 1 7 2, F 1 7 3, F 1 8 5, F 5 0 0, F 5 0 1, F 5 0 3)
41	[(+/-) speed]	OFF: No motor speed increase ON: Motor accelerates
42	[(-) speed]	OFF: No motor speed reduction ON: Motor decelerates
43	[+/- clear]	OFF to ON transition clears frequency level set by +/- speed inputs
44	[+/- SPD, FLT CLR]	OFF to ON transition clears frequency level set by +/- speed inputs ON to OFF transition clears a detected fault (if cause of detected fault has been cleared)
45	[Inv Ext. fault] Inversion of external detected fault signal (see also input function 11, page 101)	OFF: Motor stops according to method set by parameter [Ext. fault stop Mode] (F 6 D 3) Embedded display terminal displays E detected fault ON: No external detected fault
46	[Ext. Th fault] External overheating input (see also input function 47)	OFF: No external overheating ON: Motor stops, embedded display terminal displays O H 2
47	[Inv Ext. Th fault] Inversion of external overheating input (see also input function 46)	OFF: Motor stops, embedded display terminal displays O H 2 ON: No external overheating
48	[Forced local]	OFF: No forced local function ON: Control of the drive is forced to mode set by [Frequency mode sel] (F D D d), [Command mode sel] (C D D d), and [Remote spd ref 2] (F 2 D 7).
49	[3-wire]	OFF: Motor ramps down to a stop ON: drive ready for operation
51	[Reset kWh] Clear accumulated power consumption kWh display	OFF: No function ON: Clears kWh memory
52	[Forced mode]	⚠ DANGER LOSS OF PERSONNEL AND EQUIPMENT PROTECTION When F 6 5 0 is set to 1 or 2 and a logic input set to function "52" is activated, all the drive controller protection will be disable. - Logic input should not be enable on function 52 for typical applications... - Logic input should be enable on function 52 only in extraordinary situations where a thorough risk analysis demonstrates that the presence of adjustable speed drive protection poses a greater risk than personnel injury or equipment damage. Failure to follow these instructions will result in death or serious injury. This function enables the "Forced fire" mode. In this mode, all the detected fault will be ignored or if it is a hardware trip, the drive will be reset to try to restart. OFF: No function ON: Motor runs at speed set by F 2 9 4 Note: F 6 5 0, F 6 5 9 and F 2 9 4 must be configured to activate this function.

Function		Action
No.	Description	
53	[Fire mode]	This function enables the "Fire" mode OFF: No function ON: Motor runs at speed set by F 2 9 4 Note: F 6 5 0 , F 6 5 9 and F 2 9 4 must be configured to activate this function.
54	[Inverse Run permis.] Inversion of run permissive (see also input function 1 page 101)	OFF: drive ready for operation ON: drive motor output disabled, motor coasts to stop This mode allows to have a freewheel stop using a terminal command.
55	[Inv fault reset] Inversion of clear detected fault (see also input function 10 page 101)	⚠ DANGER UNINTENDED EQUIPMENT OPERATION This configuration enables to reset the drive. Check this action will not endanger personnel or equipment in any way Failure to follow these instructions will result in death or serious injury. OFF to ON transition clears a detected fault (if cause of detected fault has been cleared)
56	[Run, FW] Combination of run permissive and run forward command (2-wire control only)	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs forward
57	[Run, RV] Combination of run permissive and run reverse command (2-wire control only)	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs reverse
61	[I limit 1/2] Current limit level selection	OFF: Current limit level 1 [Motor Current Limit] (F 6 0 1) selected ON: Current limit level 2 [Mot. 2 current limit] (F 1 8 5) selected
62	[RY on] Holding of RYA-RYC relay output	OFF: Normal real-time relay operation ON: RYA-RYC is held on once activated
64	[Cancel HMI cmd] Cancellation of last graphic display option command	OFF: Last graphic display option command cancelled ON: Last graphic display option command retained
65	[PID integral] Clear PID integral value	OFF: No action ON: PID integral value held at zero
66	[Run-fw-sp1] Combination of run permissive, run forward command, and preset speed 1 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs forward at speed set by 5 r 1 , preset speed 1
67	[Run-rev-sp1] Combination of run permissive, run reverse command, and preset speed 1 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs reverse at speed set by 5 r 1 , preset speed 1
68	[Run-fw-sp2] Combination of run permissive, run forward command, and preset speed 2 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs forward at speed set by 5 r 2 , preset speed 2
69	[Run-rev-sp2] Combination of run permissive, run reverse command, and preset speed 2 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs reverse at speed set by 5 r 2 , preset speed 2

Function		Action
No.	Description	
70	[Run-fw-sp4] Combination of run permissive, run forward command, and preset speed 4 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs forward at speed set by S r 4 , preset speed 4
71	[Run-rev-sp4] Combination of run permissive, run reverse command, and preset speed 4 command	OFF: drive motor output disabled, motor coasts to stop ON: Motor runs reverse at speed set by S r 4 , preset speed 4
72	[PID rev] PID error signal reversed	OFF: if F 1 1 1 = 72 and F terminal is OFF, PI error input = reference - feedback ON: if F 1 1 1 = 72 and F terminal is ON, PI error input = feedback - reference
73	[Damper feedBack]	OFF: if F 1 1 1 or F 1 1 2 or F 1 1 3 is not set to 73 the damper has no effect. ON: if F 1 1 1 or F 1 1 2 or F 1 1 3 = 73 the damper is ON. The damper feedback has not effect if not configured to an output.