3. Alarm list

The following table shows alarm numbers, messages, and reset methods.

Alarm No.	Alarm Message	Reset *1	Origin Position *2
02	DATA ERROR	-	-
03	DATA RANGE OVER	-	-
04	MONITOR MODE	-	-
05	RUNNING	-	-
06	MANUAL MODE	-	-
41	SERVO OFF	-	-
42	ORIGIN INCOMPLETE	-	-
43	NO POINT DATA	-	-
44	SOFTLIMIT OVER	-	-
45	INTERLOCK	-	-
46	STOP KEY	-	-
47	PUSH MISTAKE	-	-
48	ORG. MISTAKE	-	-
49	SERIAL COMM. ERR.	-	-
4B	LIMITLESS ERROR	-	-
81	AC POWER DOWN	Restart	TS-S, TS-S2, TS-P : × TS-X, TS-SH : -
82	ENCODER ERROR	Restart	×
83	ABS. ENCODER ERR. TS-X TS-SH	Reset	×
84	IPM ERROR TS-X TS-P	Reset	-
85	OVERHEAT	Reset	-
86	OVERLOAD	Reset	-
87	OVERVOLTAGE	Reset	-
88	LOW VOLTAGE	Reset	-
89	POSITION ERROR	Reset	
8A	ABS. BATTERY ERR. TS-X TS-SH	Reset	×
8B	ABS. COUNT ERROR TS-X TS-SH	Reset	×
8C	ABS. ME. ERROR TS-X TS-SH	Reset	×
8D	ABS.OVERFLOW ERR. TS-X TS-SH	Reset	×
8E	OVERCURRENT	Reset	-
8F	MOTOR CURRENT ERR.	Reset	-
90	POLE SEARCH ERROR TS-P	Reset	-
91	INT. COMM. ERROR	Reset	-
92	CPU ERROR	Reset	-
93	I/O FAULT	Reset *3	-
94	MOTOR CABLE ERROR TS-S2 TS-SH	Reset	-
97	ENC. POWER DOWN TS-SH	Restart	×
C1	EMERGENCY STOP	Eliminate cause	-
C2	MOTOR POWER DOWN	Eliminate cause	-
F1	ABS. BATTERY LOW TS-X TS-SH	-	-
F2	PUSH WARNING	-	-
F4	I/O ERROR	-	-

*1. Indicates the alarm reset method.
*2. Indicates whether or not origin position is retained when alarm occurred. (× : Not retained)
*3. Power must be turned off and then back on when using CC-Link, DeviceNet, EtherNet/IP or PROFINET.

4. Alarms: Possible causes and actions

Message alarms

No.	Message	Meaning	Possible Cause	Action
02	DATA ERROR	Data setting error	Attempt was made to enter data that exceeded the specified range.	Enter data within the specified range.
03	DATA RANGE OVER	Data setting range exceeded.	Written data exceeded the specified range.	Write data within the specified range.
04	MONITOR MODE	Operation or edit command was executed in Monitor mode.	Operation or data edit was executed while "Run" mode was in Monitor mode.	Change the "Run" mode to Normal mode or Debug mode.
05	RUNNING	Operation command was executed during operation.	Another operation was attempted during operation.	Stop the operation and then re-execute the command.
06	MANUAL MODE	Operation command was executed during Manual mode.	Positioning was attempted during Manual mode.	Exit the Manual mode and re-execute the command.

Operation alarms

No.	Message	Meaning	Possible Cause	Action
41	SERVO OFF	Servo is off.	Operation was attempted while the servo was off. Servo turned off during operation.	Turn the servo on.
42	ORIGIN INCOMPLETE	Origin search (return-to-origin) is incomplete.	Positioning operation was attempted while origin search was incomplete	Perform an origin search.
			Origin search direction (K14) or Axis polarity (K15) was changed.	
			Parameter was transferred from PC.	
43	NO POINT DATA	Point data is not registered.	Positioning operation was attempted by specifying unregistered point data.	Register the point data. Positioning operation must be performed using registered point data.
44	SOFTLIMIT OVER	Software limit was exceeded.	Positioning operation attempted to move to a point exceeding the soft limits.	Adjust the target position so that it is within the soft limits.
45	INTERLOCK	Interlock was activated.	Operation was attempted while /LOCK was off.	Release the interlock and then start operation.
			/LOCK was turned off during operation.	
46	STOP KEY	Operation stop was input.	Stop command was input during operation using PC or HT1.	Resume operation.
47	PUSH MISTAKE	Failed to push	Push operation was judged a "failed to push" error.	Correct the problem to cancel the "failed to push" error.
48	ORG. MISTAKE	Failed to detect origin at return-to-origin	5 minutes or more elapsed after return-to-origin occurred.	Correct the environment related to the return-to-origin operation.
			Origin sensor avoidance width (250mm) was exceeded with the origin sensor remaining ON (when using sensor format).	
			Z-phase detection failed at the semi-absolute origin search. TS-P	
49	SERIAL COMM. ERR.	Serial communication error occurred between controller and communication device.	Communication cable is defective.	Replace the communication cable.
			Communication device failed.	Replace the communication device.
4B	LIMITLESS ERROR	Faulty data setting during limitless setting	Positioning operation was executed with position data beyond the operation target registered to the position data during limitless setting.	Register the correct position data.
			Positioning operation was executed with "ABS Merge", "INC Merge", "ABS → Push" or "INC → Push" specified for the operation type during limitless setting.	Register the correct operation type.

Error alarms (internal causes)

No.	Message	Meaning	Possible Cause	Action
81	AC POWER DOWN	Drop in control power supply voltage.	Power supply voltage too low.	Check the power supply.
			Momentary power outage (below 50% of specified input voltage) occurred for more than 40ms. TS-X TS-P	
			Power supply does not have sufficient capacity.	
82	ENCODER ERROR	Error occurred during data exchange with position detector.	Robot I/O cable is not securely connected.	Connect the robot I/O cable correctly.
			Robot I/O cable broke or failed.	Replace the robot I/O cable.
			Wrong combination of controller and robot.	Connect the correct controller to a matching robot.
			Position detector failed.	Replace the motor.
			Position detection circuit failed.	Replace the controller.
83	ABS. ENCODER ERR. TS-X TS-SH	Robot I/O cable is disconnected or broke (when control power supply is off).	Robot I/O cable is not securely connected (when control power supply is off).	Connect the robot I/O cable correctly.
			Robot I/O cable broke or failed (when control power supply is off).	Replace the robot I/O cable.
			Absolute battery is disconnected.	Connect the absolute battery correctly.
			Absolute battery has worn out or failed.	Replace the absolute battery.
84	IPM ERROR TS-X TS-P	Excessive current flow was detected.	Phases U, V and W in the motor cable are shorted.	Replace the motor cable.
			Motor failed.	Replace the motor.
			Motor drive circuit failed.	Replace the controller.
85	OVERHEAT	Temperature protection level (90˚C) was exceeded.	Ambient temperature is above 40˚C.	Check the ambient condition.
			Thermal sensor failed.	Replace the controller.
86	OVERLOAD	Overload detection level was exceeded.	Rated current was exceeded.	Reduce the load. Set the payload correctly. Lower the duty cycle.
			Robot drive system collided with some objects.	Check the operation pattern.
			Electromagnetic brake is not working. TS-S TS-S2 TS-X TS-SH	Supply the brake power correctly. TS-X Replace the brake.
			Wrong robot setting	Make correct robot setting.
87	OVERVOLTAGE	Overload detection level (45V for TS-S TS-S2 TS-SH or 420V for TS-X TS-P) was exceeded.	Main power supply voltage exceeded the specified range.	Check the power supply.
			Regenerative unit is not securely connected. TS-X TS-P	Connect the regenerative unit correctly. TS-X TS-P
			Regenerative unit connection cable broke or failed. TS-X TS-P	Replace the connection cable. TS-X TS-P
88	LOW VOLTAGE	Power supply voltage dropped below the low voltage detection level (15V for TS-S TS-S2 TS-SH or 180V for TS-X TS-P).	Main power supply voltage does not reach the specified value.	Check the power supply.
			Controller failed.	Replace the controller.
89	POSITION ERROR	Position deviation overflow level was exceeded.	Robot drive unit collided with some objects.	Check the operation pattern.
			Motor cable is not securely connected.	Connect the motor cable correctly.
			Motor cable broke or failed.	Replace the motor cable.
			Wrong robot setting	Make correct robot setting.
			Return-to-origin speed (K13) setting is too high.	Reduce the setting.

No.	Message	Meaning	Possible Cause	Action
8A	ABS. BATTERY ERR. TS-X TS-SH	Absolute battery voltage dropped below the low error detection level (2.5V).	Absolute battery is disconnected.	Connect the absolute battery correctly.
			Absolute battery has worn out or failed.	Replace the absolute battery.
8B	ABS. COUNT ERROR TS-X TS-SH	Robot moved at acceleration higher than the specified value during absolute battery operation.	Large external force was applied to the robot drive unit while the control power supply was shut off.	Recheck the surrounding environment where the robot is used.
			Position detection circuit failed.	Replace the controller.
8C	ABS. ME. ERROR TS-X TS-SH	Mismatch of absolute multi-turn data and position data	Position detection circuit failed.	Replace the controller.
8D	ABS.OVERFLOW ERR. TS-X TS-SH	Absolute multi-turn data exceeded the specified value.	Robot moved to a position outside of specified value.	Check the operating conditions and environment.
			Position detection circuit failed.	Replace the controller.
8E	OVERCURRENT	Current higher than the allowable current flow was detected.	Robot drive unit collided with some objects.	Check the operation pattern.
			Motor cable is shorted.	Replace the motor cable.
			Motor failed.	Replace the motor.
8F	MOTOR CURRENT ERR.	Motor current does not follow up on command.	Motor cable is disconnected.	Connect the motor cable correctly.
			Motor cable broke or failed.	Replace the motor cable.
			Motor failed.	Replace the motor.
			Wrong robot setting	Make correct robot setting.
90	POLE SEARCH ERROR TS-P	Failed to estimate the magnetic pole position.	Magnetic pole position was estimated while external force was applied.	Recheck the surrounding environment where the robot is used.
91	INT. COMM. ERROR	Communication error occurred between CPU and I/O module.	CPU peripheral circuits failed.	Cancel the alarm. If the alarm occurs again, replace the controller.
92	CPU ERROR	CPU stopped due to error.	CPU failed.	Cancel the alarm. If the alarm occurs again, replace the controller.
93	I/O FAULT	I/O module stopped due to error.	I/O power supply is not input or exceeds a range of DC24V ± 10%.	Input a voltage of DC24V ± 10% to the I/O power supply.
			I/O power supply is turned off by the NPN/PNP.	Turn the I/O power supply back on.
			I/O module failed.	Cancel the alarm (For the NPN/PNP, turn off the I/O power supply, and then turn it on again before cancelling the alarm.). If the alarm occurs again, replace the controller.
94	MOTOR LINE DISCONNECTION TS-S2 TS-SH	Motor line disconnection was detected during servo ON.	Motor cable is not securely connected.	Connect the motor cable correctly.
			Motor cable broke or failed.	Replace the motor cable.
			Motor failed.	Replace the motor.
			Controller failed.	Replace the controller.
97	ENC. POWER DOWN TS-SH	Excitation power voltage (12V) for position detection dropped.	Controller failed.	Replace the controller.
			HT1 failed.	Replace the HT1.

Error alarms (external causes)

No.	Message	Meaning	Possible Cause	Action
C1	EMERGENCY STOP	Emergency stop was activated.	External safety circuit functioned and emergency stop was activated.	Ensure safety and then cancel the safety circuit.
			Emergency stop wiring is incomplete. Wiring is wrong.	Configure the safety circuit correctly.
C2	MOTOR POWER DOWN	Drop in main power supply voltage.	External safety circuit functioned and main power supply turned off.	Ensure safety and then cancel the safety circuit.
			Main power was not supplied.	Supply the main power correctly.

Warning alarms

No.	Message	Meaning	Possible Cause	Action
F1	ABS. BATTERY LOW TS-X TS-SH	Absolute battery voltage dropped below the warning level (3.1V).	Absolute battery has worn out or failed.	Replace the absolute battery.
F2	PUSH WARNING	Failed to push a workpiece.	Push operation was judged as a "failed to push" error.	Correct the problem to cancel the "failed to push" error.
F4	I/O ERROR	I/O module is not operating correctly.	24V was not correctly supplied to NPN or PNP circuits.	Supply 24 V power correctly.
			I/O module was not operating correctly.	Replace the controller.