

Function test

Description

The function test must be carried-out separately for each individual drive (assuming that the machine permits this to be done).

Executing the test

First commissioning	Please mark	
Series commissioning		

"Safe standstill" function (SH)

This test comprises the following steps:

Table 1-4 "Safe standstill" function (SH)

No.	Description	Status
1.	Initial state <ul style="list-style-type: none"> • Drive in the "ready" state (p0010 = 0) • Enable safety functions (p9601 / p9801 = 1 or 3) • No safety faults and alarms • r9772.0 = r9772.1 = 0 (SH de-selected and inactive) • p9659 = time intervals for the forced checking procedure correctly set 	
2.	Operate the drive	
3.	Check that the expected drive operates	
4.	Select SH while issuing the command to operate	
5.	Check the following: <ul style="list-style-type: none"> • The drive coasts-down or is braked by the mechanical brake and held if a brake is being used and has also been parameterized • No safety faults • r9772.0 = r9772.1 = 1 (SH selected and active) 	
6.	De-select SH	
7.	Check the following: <ul style="list-style-type: none"> • No safety faults • r9772.0 = r9772.1 = 0 (SH de-selected and inactive) 	
8.	Check that the expected drive is operated In so doing, the following is tested: <ul style="list-style-type: none"> • That the wiring between the control unit and IPM25 converter power module is correct • Correct assignment, drive No. – IPM25 power module – motor • That the hardware is correctly functioning • That the shutdown paths have been correctly wired • Correct assignment of the SH terminals on the control unit • Correct parameterization of the SH function • Routine for the forced checking procedure of the shutdown paths 	

"Safe braking ramp" function (SBR)

This test comprises the following steps:

Table 1-5 "Safe braking ramp" function (SBR)

No.	Description	State
1.	Initial state <ul style="list-style-type: none"> • Drive in the "ready" state (p0010 = 0) • Enable safety functions (p9601 / p9801 = 1 or 3) • No safety faults and alarms • r9772.0 = r9772.1 = 0 (SH de-selected and inactive) • r9772.4 = r9772.5 = 0 (SG de-selected and inactive) 	
2.	Operate the drive	
3.	Check that the expected drive operates	
4.	Select SBR while issuing the traversing command	
5.	Check the following: <ul style="list-style-type: none"> • Drive speed decreases corresponding to the selected ramp time (if required, use a stop watch) • After the parameterized minimum speed has been fallen below, the drive coasts-down or is braked and held by the mechanical brake if a brake is being used and has also been parameterized • No safety faults • r9772.0 = r9772.1 = 1 (SH selected and active) • r9772.4 = 1 (SG selected) • r9772.5 = 0 (SG not active) 	
6.	De-select SBR	
7.	Check the following: <ul style="list-style-type: none"> • No safety faults • r9772.0 = r9772.1 = 0 (SH de-selected and inactive) • r9772.4 = r9772.5 = 0 (SG de-selected and inactive) 	
8.	Check that the expected drive operates In so doing the following is tested: <ul style="list-style-type: none"> • The wiring between the control unit and IPM25 power module is correct • Correct assignment, drive No. – IPM25 converter power module – motor • Correct functioning of the hardware • Correct wiring of the shutdown paths • Correct assignment, SH terminals on the control unit • Correct parameterization of the SBR function 	

"Safely-reduced speed" function (SG)

This test comprises the following steps:

Table 1-6 "Safely-reduced speed" function (SG)

No.	Description	State
1.	Initial state <ul style="list-style-type: none"> • Drive in the "ready" state (p0010 = 0) • Enable safety functions (p9601 / p9801 = 1 or 3) • No safety faults and alarms • r9772.4 = r9772.5 = 0 (SG de-selected and inactive) 	
2.	Operate the drive (if the machine permits it, at a higher speed than the parameterized safely-reduced speed)	
3.	Check that the expected drive operates	
4.	Select SG while issuing the traversing command	
5.	Check the following: <ul style="list-style-type: none"> • Drive speed decreases corresponding to the selected ramp time (if required, use a stop watch) • After the parameterized safely-reduced speed has been fallen below, the speed remains below this limit • No safety faults • r9772.4 = r9772.5 = 1 (SG selected and active) 	
6.	De-select SG	
7.	Check the following: <ul style="list-style-type: none"> ○ No safety faults ○ r9772.4 = r9772.5 = 0 (SG de-selected and inactive) 	
8.	Check that the expected drive operates In so doing the following is tested: <ul style="list-style-type: none"> • The wiring between the control unit and IPM25 power module is correct • Correct assignment, drive No. – IPM25 converter power module – motor • Correct functioning of the hardware • Correct wiring of the shutdown paths • Correct parameterization of the SG function 	

Data back-up/archiving

	Memory medium			Saved where
	Type	Designation	Date	
Parameters				
PLC program				
Circuit diagrams				

Signatures**Commissioning engineer**

Confirms that the above listed tests and checks have been correctly carried-out.

Date	Name	Company / department	Signature

Machinery construction OEM

Confirms the correctness of the parameterization documented above.

Date	Name	Company / department	Signature