











































# Troubleshooting FESTO WinSPZ with B8-Protocol

	Signal Description	Description	Signal Ready	Gun is referenced	Pre warning gun	Short circuit	Force not reached	Parameter error	Target Position invalid	Barrier between electrodes	Gun moving tightly	Miling n. OK	Failure caps limit reached	Error caps / geometry	Positioning deviation	Error equalizer	Error control / regulator	Error temperature transformer	Error main cylinder	common error
			0.00	0.09	4.00	4.01	4.02	4.03	4.04	4.05	4.06	4.07	4.08	4.09	4.10	4.11	4.12	4.13	4.14	4.15
1	Gun is ready to positioning	Signal US2=1 (24V DC) (Protection guard closed), gun is referenced, Release regulator on, no system Errors, e.g. no error equalizer, Hint: Signal ready could be off by some Errors	1																	
2	Gun is referenced	Indicates that the axis calibration is carried out complete. the gun works under 7. axis mode only when "gun referenced" = 1 this signal will be set to zero if the parameter 'maximum electrode distance' is changed.		1																
3	System notifies, a lubrication for the gun is recommended	Friction increased over the value of "friction force warning" check force calibration, parameter "friction force warning". If the gun could move freely.			1															
4	short-circuit by outputs	clear short circuit				1														
5	Timeout during force-buildup	The setting force could not be reached with in 2 seconds. Checking air-supply, if the pressure is high enough.					1													
6	Wrong Parameters	Force setting value from Robot out of min. and max. electrode force. Wrong software / Parameter values.						1												
7	The position value from Robot is out of maximum electrode distance	check the software limits in Robot for 7. Axis. Check the axis calibration and "maximum electrode distance"							1											
8	Target-Positioning was not executed successfully	the maximum electrode force is exceeded during Positioning (not force-buildup), actual electrode force > maximum electrode force. Target position could not be reached within 10 s. there could be a barrier between electrodes.								1										
9	Gun moves tightly, it is very hard to compensate the friction force.	check if the gun could move freely. force calibration was not executed in neutral position. Check the parameter "friction force failure".									1									
10	milling was not successful (the change of caps is out of range)	after "Measure after milling", the measurement of caps is out of "max. increase" and "max. decrease" per milling cycle. measure value is showed WinSPZ "actual values" -> "thickness component"										1								
11	the abrasion has reached it's limitation.(life cycle)	Cap life quality reached and should be replaced with new caps. Relevant parameter is "cap life quality".											1							
12	After changing the caps, there was a Failure with Geometry checking. Cap lost during close gun.	Wrong caps were used after changing caps, or caps were lost during positioning, "tolerance geometry check" too small, "tolerance set caps" too small.												1						
13	Following error by 7. axis mode	this is only a warning signal if the following error reaches 10 mm. Gun keeps moving. Robot should not accelerate any more with this signal.													1					
14	Error at Equalizer system	Equalizer pressure could not be reached (timeout equalizer), the pressure in equalizer could not be reached within 2s. check the cable to MPYD.														1				
15	Error in Controller or Regulator.	Wrong parameters in WinSPZ, invalid Regulator parameters, internal error of servobox.															1			
16	The Temperature of Transformer was too high	Temperature sensor for welding transformer should be connected to digital input 0 (Temperature OK = 1). this signal will be checked during closing gun.																1		
17	No Pressure in main cylinder	The Pressure in main cylinder was for 4s < 1 bar (attention: no monitoring on air supply), the error would be automatically eliminated if the pressure in both chambers > 3 bar																	1	
18	There is an error in the system	this bit will be set if any other error in the system occurs.																		1

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Error	Error Text	System components				Error Description	Cause	Signal Ready	Gun is referenced	Pre warning gun	Short circuit	Force not reached	Parameter error	Target Position invalid	Barrier between electrodes	Gun moving tightly	Miling n. OK	Failure caps limit reached	Error caps / geometry	Positioning deviation	Error equalizer	Error control / regulator	Error temperature transformer	Error main cylinder	common error	
		Servobox Controller	Servobox Valve-Block	Cylinder	Cables																					
						Part may be OK																				
						Part may be NOT OK																				
						Part possibly NOT OK																				
Nr.								0.00	0.09	4.00	4.01	4.02	4.03	4.04	4.05	4.06	4.07	4.08	4.09	4.10	4.11	4.12	4.13	4.14	4.15	
E1	measuring unit failure					Position signal is invalid, sensor voltage out of tolerance range.	check the cable of main cylinder, Position measure unit in maincylinder is defect.	0														1			1	E1
E2	Reserve							1																	1	E2
E3	No supply pressure					The Pressure in main cylinder was for 4s <1 bar (attention: no Mornitoring on air supply), the error would be automatically eliminated if the pressure in both chambers > 3bar	check air supply. Check the tube connecting. Check additional block (blocking valve) in main cylinder.	0														1		1	1	E3
E4	Maximum electrode force exceed					Max. electrode force exceeded by Positioning (not force buildup), actuall force > max. electrode force.	check parameter "maximum electrode force", check if there is barrier between electrodes.	0							1										1	E4
E5	Internal memory error					Checksum EEPROM failed	Servicecall	0														1			1	E5
E6	Set position not approachable					Setting position from Robot is out of maximum electrode distance.	check the position value from Robot, check axis calibration and "max. electrode distance", the software limit in Robot	1						1											1	E6
E7	pressure sensor main cylinder defect					Pressure value is out of possible range	check cable of main cylider exchange main cylinder	0														1			1	E7
E8	Wrong force preset					setting force from Robot out of min. and max. electrode force.	check the setting force from Robot. Check parameter minimum / maximum electrode force.	1					1												1	E8
E9	Positioning timeout					Set Position could not be reached within 10 s	check if there is barrier between electrodes, check the cable of blocking valve (Output for MOEH =0?)	0							1										1	E9
E10	Force timeout					after command close gun, the force could not be reached within 2 s.	the pressure of air supply is high enough? Check Parameter Max. electrode, MPYE and force calibration.	0				1													1	E10
E11	Reserve							0																	1	E11
E12	Timeout equalizer					equalizerpressure could not be reached within 2 s.	the pressure of air supply is high enough? Check the cable of MPYD	0														1	1		1	E12
E13	Invalid parameter					wrong parameter for Positionregulator	check WinSPZ Regulator parameters, load the default parameter again.	0					1												1	E13
E14	Friction to high					Friction too high, limitation of "friction force failure" exceeded.	find the cause of increased friction. Check force calibration, lubricate the gun, check parameter "friction force failure".	1								1									1	E14
E15	Reserve							1																	1	E15
E16	Reserve							1																	1	E16
E17	over temperature transformer					Overttemperature of transformer will only be checked by "close gun".	check the temperature signal at Input 0 for welding transformer (Temperature OK => input 0 = 1)	1															1		1	E17
E18	Reserve							1																	1	E18
E19	Reserve							1																	1	E19

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E20	Short cut output 0					Output overload	short circuit eliminate	0			1											1			1	E20
E21	Short cut output 1					Output overload	short circuit eliminate	0			1											1			1	E21
E22	Short cut output 2					Output overload	short circuit eliminate	0			1											1			1	E22
E23	Short cut output 3					Output overload	short circuit eliminate	0			1											1			1	E23
E24	Reserve							1																1	E24	
E25	Reserve							1																1	E25	
E26	Wrong parameters regulator					Regulator parameter K0 = 0 or Kp = 0	check regulator parameters	0					1									1			1	E26
E27	Reserve							1																1	E27	
E28	Cap change geometry					tolerance of geometry check is out of range after excuted "measure before milling"	Wrong caps used. Check the parameter "tolerance geometry check"	1											1						1	E28
E29	Electrode cap abrasion					life quality of the caps reached	Life quality of caps reached. Change caps. Check parameter "Cap life quality"	1									1								1	E29
E30	Milling not OK					After "measure after milling", the abrasion of caps will be checked.	check the milling force, miling turns from Robot. check the parameters max. increase / decrease per milling cycle.	1									1								1	E30
E31	cap lost					cap lost by close gun	check if cap lost. Check parameter "tolerance set caps"	1											1						1	E31
E32	Reserve							1																	1	E32
	Warning friction limit exceed					Friction too high, limitation of "friction force failure" exceeded.	find the cause of increased friction. Check force calibration, lubricate the gun, check parameter "friction force warning".	1	1	1																
	Tipps & Tricks																									
	Drift																									
	leak																									
	cylinder moves out of control																									
	no connection to PLC						check life bit in Fieldbus check Profinet configuration																			