

Pinlayout MS 6

For MS 6.1 and MS 6.3 these hardware-options are only available if MS 6 measurement package is in use.

Analogue Inputs

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
A032				analog input	pullup 3k01, 12bit		24	engine temperature	PIN_IN_UTMOT	utmot
A033				analog input	pullup 3k01, 12bit		24	oil temperature	PIN_IN_UTOIL	utoil
A034				analog input	pullup 3k01, 12bit		24	intake air temperature	PIN_IN_UTINT	utint
A035		Measure package	not available	analog input	pullup 3k01, 12bit		24	fuel temperature	PIN_IN_UTFUEL	utfuel
A079				analog input	no pullup, 12bit angle- or time related measurement		24	rail pressure	PIN_IN_UPRAIL	uprail
A080		Measure package	not available	analog input	no pullup, 12bit angle- or time related measurement		24	rail pressure, bank 2	PIN_IN_UPRAIL2	uprail2
A081				analog input	no pullup, 12bit		24	fuel pressure	PIN_IN_UPFUEL	upfuel
A082				analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A082	24	oil pressure	PIN_IN_UPOIL	upoil
A058				analog input	no pullup, 12bit angle- or time related measurement		24	pressure upstream throttle	PIN_IN_UP21	up21
A059		Measure package	not available	analog input	sw itch.-pullup 1k47 for future dvlp., 12bit angle- or time related measurement		24	pressure upstream throttle, bank 2	PIN_IN_UP21_2	up21_2
A060				analog input	no pullup, 12bit angle- or time related measurement		24	intake manifold pressure, mean value	PIN_IN_UP22M	up22m
A061		Measure package	not available	analog input	sw itch.-pullup 1k47 for future dvlp., 12bit angle- or time related measurement		24	intake manifold pressure, mean value, bank 2	PIN_IN_UP22M_2	up22m_2
A056				analog input	no pullup, 12bit		24	APS potentiometer a	fixed function to pin coordination	uaps_a
A054				analog input	no pullup, 12bit		24	APS potentiometer b	fixed function to pin coordination	uaps_b
A041				analog input	no pullup, 12bit		24	throttle potentiometer	fixed function to pin coordination	uthrottle
A053				analog input	no pullup, 12bit		24	backup throttle potentiometer	fixed function to pin coordination	uthrottle_b
A036			not available	analog input	no pullup, 12bit		24	throttle potentiometer, bank 2	fixed function to pin coordination	uthrottle2
A037			not available	analog input	no pullup, 12bit		24	backup throttle potentiometer, bank 2	fixed function to pin coordination	uthrottle2_b
	K036			analog input	pullup 3k01, 12bit		24	map sw itch	PIN_IN_UMAPSW	umapsw
	K031			analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K031	24	pitspeed sw itch	PIN_IN_UPITSPEEDSW	upitspeedsw
	K019	Measure package		analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K019	24	launch control sw itch	PIN_IN_ULAUNCHSW	ulaunchsw
	K015			analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K015	24	traction control sw itch	PIN_IN_UTCSW	utcsw
	K016	Measure package	not available	analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K016	24	reset chassis channels sw itch	PIN_IN_UCHRESSW	uchressw
	K017	Measure package	not available	analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K017	24	w et track sw itch	PIN_IN_UWETSW	uw etsw
A039				analog input	no pullup, 12bit		24	gear position	PIN_IN_UGEARP	ugearp
A055		Measure package		analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A055	24	reverse shift sw itch	PIN_IN_UREVSW	ushiftrevsw
A057		Measure package		analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A057	24	dow nshift sw itch	PIN_IN_USHIFTDNSW	ushiftdnsw
A076		Measure package		analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A076	24	upshift sw itch	PIN_IN_USHIFTUPSW	ushiftupsw
A077				analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A077	24	gearshift	PIN_IN_UGS	ugs
A078		Measure package		analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_A078	24	free measure channel A78		
A038		Measure package		analog input	no pullup, 12bit		24	gearbox pneumatic pressure	PIN_IN_UPGEARAIR	upgearair
	K033	Measure package		analog input	no pullup, 12bit		24	clutch pressure	PIN_IN_UPCLUTCH	upclutch
	K048	Measure package	not available	analog input	no pullup, 12bit		24	free measure channel K48		
	K047			digital input	fixed pullup to 5volts		24	laptrigger	fixed function to pin coordination	lapctr
A040				analog input	no pullup, 12bit		24	brake pressure rear	PIN_IN_UPBRAKE_R	upbrake_r
	K020			analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K020	24	brake pressure front	PIN_IN_UPBRAKE_F	upbrake_f
	K018	Measure package	not available	analog input	sw itch.-pullup 3k01 12bit	CWPULLUP_K018	24	damper sensor front/left	PIN_IN_UDAM_FL	udam_fl
	K032	Measure package	not available	analog input	no pullup, 12bit		24	damper sensor front right	PIN_IN_UDAM_FR	udam_fr
	K034	Measure package	not available	analog input	no pullup, 12bit		24	damper sensor rear left	PIN_IN_UDAM_RL	udam_rl
	K035	Measure package	not available	analog input	no pullup, 12bit		24	damper sensor rear right	PIN_IN_UDAM_RR	udam_rr
	K050	Measure package	not available	analog input	no pullup, 12bit		24	steering angle	PIN_IN_USTEER	usteer
	K077			Thermocouple input	k-type sensor		24shield thermo	exhaust gas temperature	fixed function to pin coordination	utexh
	K076			Thermocouple input	k-type sensor		24shield thermo	exhaust gas temperature	fixed function to pin coordination	utexh2
	K079	Measure package	not available	Thermocouple input	k-type sensor		24shield thermo	exhaust gas temperature bank 2	fixed function to pin coordination	utexh2
	K078	Measure package	not available	input						

Digital Inputs

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
A047				crankshaft+ (Hall/Inductive)	sw itchable between halleffect- and inductive sensor	CWINTF_CRANK PIN_IN_CRANK	24shield	engine speed	fixed function to pin coordination	nmot
A048				crankshaft- (inductive)		CWINTF_CRANK_K CWINTF_CRANK_TH	24shield			
A074				digital input	halleffect sensor only		24shield	camshaft inlet	PIN_IN_CAM_IN	cam_pos_edges_001
A075				digital input	halleffect sensor only		24shield	camshaft outlet	PIN_IN_CAM_OUT	cam_pos_edges_out_001

A049		digital input	sw itchable between halleffect-or DF11 sensors	CWINTF_A049	24shield	camshaft inlet bank2 or w heelspeed front right	PIN_IN_CAM_IN2 or PIN_IN_FWEEL_FR	cam_pos_edges 2_001 or fw heel_fr
A050		digital input	sw itchable between halleffect-or DF11 sensors	CWINTF_A050	24shield	camshaft outlet bank2 or w heelspeed front left	PIN_IN_CAM_OUT2 or PIN_IN_FWEEL_FL	cam_pos_edges_out2_001 or fw heel_fl
A051		digital input	sw itchable between halleffect-or DF11 sensors	CWINTF_A051	24shield	w heelspeed rear right	PIN_IN_FWHEEL_RR	fw heel_rr
A052		digital input	sw itchable between halleffect-or DF11 sensors	CWINTF_A052	24shield	w heel speed rear left	PIN_IN_FWHEEL_RL	fw heel_rl
	K045	digital input	sw itchable between halleffect-and inductive sensor	CWINTF_K045 CWINTF_K045_K CWINTF_K045_TH	24shield	turbo speed	PIN_IN_FTURBO	fturbo
	K046	digital input	sw itchable between halleffect-and inductive sensor	CWINTF_K046 CWINTF_K046_K CWINTF_K046_TH	24shield	turbo speed bank2	PIN_IN_FTURBO2	fturbo2
	K062	ground supply	if inductive sensos are connected to K045 or K046		24shield	ground for turbo speed and--2		
	K054	digital input	B_engon		20	Engine On/Off sw itch		b_engon(_in)
A013		knock input			24shield	knock sensor 1, bank1	KCSENCYL	ikcraw_n_...
A014		knock input			24shield	knock sensor 2, bank1	KCSENCYL	ikcraw_n_...
A015	not avl.	knock input			24shield	knock sensor 1, bank2	KCSENCYL	ikcraw_n_...
A016	not avl.	knock input			24shield	knock sensor 2, bank2	KCSENCYL	ikcraw_n_...
A017		knock sensor ground			24shield			
	K085	Lambda_IA	LSU4.9 probe only		24	Lambda	fixed function to pin coordination	lambda
	K086	Lambda_IP			24			
	K087	Lambda_UN			24			
	K088	Lambda_VM			24			
	K068	Lambda_IA	LSU4.9 probe only		24	Lambda bank2	fixed function to pin coordination	lambda2
	K069	Lambda_IP			24			
	K070	Lambda_UN			24			
	K071	Lambda_VM			24			

Ignition- & Injection Outputs

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
A026				ignition driver	output related to mechanical cylinder number;	CWIGNDRV_MODE	24	Ignition cyl.1	CYLNUMBER	ign_out_n_001
A027						IGNDRV_CURRENT	24	Ignition cyl.2	CYLANGLE	ign_out_n_002
A028					use of coil integrated power stages only		24	Ignition cyl.3		ign_out_n_003
A029							24	Ignition cyl.4		ign_out_n_004
A030		not avl.					24	Ignition cyl.5		ign_out_n_005
A031		not avl.					24	Ignition cyl.6		ign_out_n_006
A068		not avl.					24	Ignition cyl.7		ign_out_n_007
A069		not avl.					24	Ignition cyl.8		ign_out_n_008
A070		not avl.					24	ignition cyl.9		ign_out_n_009
A071		not avl.					24	ignition cyl.10		ign_out_n_010
A072		not avl.					24	ignition cyl.11		ign_out_n_011
A073		not avl.					24	ignition cyl.12		ign_out_n_012
A098				low pressure output for	output related to mechanical cylinder number		24tw ist	Injection cyl.1	CYLNUMBER	tinj_n_001
A100				high imp.			24tw ist	Injection cyl.2	CYLANGLE	tinj_n_002
A101				injectors			24tw ist	Injection cyl.3	or (PIN_OUT_LPINJ_A098	tinj_n_003
A096							24tw ist	Injection cyl.4		tinj_n_004
A099		not avl.					24tw ist	Injection cyl.5	...	tinj_n_005
A103		not avl.					24tw ist	Injection cyl.6	PIN_OUT_LPINJ_A084)	tinj_n_006
A042		not avl.					24tw ist	Injection cyl.7		tinj_n_007
A105		not avl.					24tw ist	Injection cyl.8		tinj_n_008
A018		not avl.					24tw ist	Injection cyl.9		tinj_n_009
A020		not avl.					24tw ist	Injection cyl.10		tinj_n_010
A063		not avl.					24tw ist	Injection cyl.11		tinj_n_011
A084		not avl.					24tw ist	Injection cyl.12		tinj_n_012
A043				high pressure outputs for	INJVH1		20tw ist	Injection cyl.A	PIN_OUT_HPINJ11A_A043_A064	tinj_n_(cyl.A)
A064				magnetic injectors	INJVL11		20tw ist			
A002		not avl.			INJVH3		20tw ist	Injection cyl.B	PIN_OUT_HPINJ12E_A002_A023	tinj_n_(cyl.B)
A023		not avl.			INJVL32		20tw ist			
A003					INJVH2		20tw ist	Injection cyl.C	PIN_OUT_HPINJ21C_A003_A024	tinj_n_(cyl.C)
A024					INJVL21		20tw ist			
A046		not avl.			INJVH4		20tw ist	Injection cyl.D	PIN_OUT_HPINJ22G_A046_A067	tinj_n_(cyl.D)
A067		not avl.			INJVL42		20tw ist			
A044		not avl.			INJVH1		20tw ist	Injection cyl.E	PIN_OUT_HPINJ31F_A044_A065	tinj_n_(cyl.E)
A065		not avl.			INJVL12		20tw ist			
A001					INJVH3		20tw ist	Injection cyl.F	PIN_OUT_HPINJ32B_A001_A022	tinj_n_(cyl.F)
A022					INJVL31		20tw ist			
A004		not avl.			INJVH2		20tw ist	Injection cyl.G	PIN_OUT_HPINJ41H_A004_A025	tinj_n_(cyl.G)
A025		not avl.			INJVL22		20tw ist			
A045					INJVH4		20tw ist	Injection cyl.H	PIN_OUT_HPINJ42D_A045_A066	tinj_n_(cyl.H)
A066					INJVL41		20tw ist			

Outputs

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
A095				low side switch	4 amps pw m		24tw ist	camshaft inlet control	fixed pin to output control coordination	cam_pw m
A021			not avl.	low side switch	4 amps pw m		24tw ist	camshaft inlet control bank2	fixed pin to output control coordination	cam_pw m2
A102				low side switch	3 amps pw m		24tw ist	camshaft outlet control	fixed pin to output control coordination	cam_pw m_out
A094			not avl.	low side switch	3 amps pw m		24tw ist	camshaft outlet control bank2	fixed pin to output control coordination	cam_pw m_out2
A019				low side switch	3 amps pw m		24tw ist			PIN_OUT_A019
A104			not avl.	low side switch	3 amps pw m		24tw ist			PIN_OUT_A104
A097				low side switch	2,2 amps pw m		24tw ist	w astegate increase		PIN_OUT_A097
A093			not avl.	low side switch	2,2 amps pw m		24tw ist	w astegate increase bank2		PIN_OUT_A093
	K039		not avl.	low side switch	2,2 amps pw m		24tw ist			PIN_OUT_K039
	K056			low side switch	2,2 amps pw m		24tw ist	air conditioning compressor		PIN_OUT_K056
	K038			low side switch	2,2 amps pw m		24tw ist	gearshift actuator upshift		PIN_OUT_K038
	K040		not avl.	low side switch	2,2 amps pw m		24tw ist			PIN_OUT_K040
	K055			low side switch	2,2 amps pw m		24tw ist	gearshift actuator downshift		PIN_OUT_K055
	K074			low side switch	2,2 amps pw m		24tw ist			PIN_OUT_K074
	K089			low side switch	1 amps pw m		24tw ist	fuel pump relay		PIN_OUT_K089
	K073		not avl.	low side switch	1 amps pw m		24tw ist			PIN_OUT_K073
	K057			low side switch	1amp pw m reset <3,5V		24tw ist	control main relay	fixed pin to output control coordination	b_mainrelay
	K072			low side switch	1amp pw m reset <3,5V		24tw ist	Kl.50 / starter control	fixed pin to output control coordination	b_starter
	K022			low side switch	4 amp pw m		24tw ist	heater lambda	fixed pin to output control coordination	lsuh_out
	K023		not avl.	low side switch	4 amp pw m		24tw ist	heater lambda2	fixed pin to output control coordination	lsuh_out2

H-Bridges & Metering Unit

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
A089				H-Bridge 1 pos.	8,5 amps	CWFBT_EN	24tw ist	electrical throttle	fixed pin to output control coordination	etc_pw m
A090				H-Bridge 1 neg.						
A091				H-Bridge 2 pos.	8,5 amps	CWFB2_EN	24tw ist	electrical throttle bank 2	fixed pin to output control coordination	etc_pw m2
A092				H-Bridge 2 neg.						
K090				H-Bridge 3 pos.	8,5 amps	CWFB3_EN	24tw ist		fixed pin to output control coordination	
K091				H-Bridge 3 neg.						
A085				MSV1 controller pos.	FCVH1		24tw ist	high press. pump MSV valve 1	fixed pin to output control coordination	msv_dlv_y_angle
A086				MSV1 controller neg.	FCVL1					
A087			not avl.	MSV2 controller pos.	FCVH2		24tw ist	high press. pump MSV valve 2	fixed pin to output control coordination	msv_dlv_y_angle 2
A088			not avl.	MSV2 controller neg.	FCVL2					

Network

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
	K029			CAN Bus1 high	uptp 1Mbit/s sw itchable 120Ohm terminator	CWCAN1_TERM	CAN	CAN1		E_can1
	K012			CAN Bus1 low						
	K028			CAN Bus2 high	uptp 1Mbit/s sw itchable 120Ohm terminator	CWCAN2_TERM	CAN	CAN2		E_can1
	K011			CAN Bus2 low						
	K027			CAN Bus3 high	uptp 1Mbit/s sw itchable 120Ohm terminator	CWCAN3_TERM	CAN	CAN3		E_can1
	K010			CAN Bus3 low						
	K052			Serial interface	RS232_RX		24tw ist	telemetry use		
	K053				RS232_TX					
	K044			Ethernet 1	ETH1RX+		CAT7	Communication PC to device		
	K043				ETH1RX-					
	K042				ETH1TX+					
	K041				ETH1TX-					
	K061			Ethernet 2	ETH2RX+		CAT7	extended communication to PBx90, DDU7, DDU8 or C60		
	K060				ETH2RX-					
	K059				ETH2TX+					
	K058				ETH2TX-					
	K025		not avl.	USB	USB_DP		USB	use for additional data stick		
	K024		not avl.		USB_DN					
	K007		not avl.		USB_GND					
	K008		not avl.		USB_VBUS					
	K014			TIMESYNC	timeline		24	data synchronising for Ethernet extension modules		
	K066			not in use						
	K067			not in use						
	K083			not in use						
	K084			not in use						
	K051			LIN-Bus		CWLINMODE	24	LIN communication		
	K030			TN digital output		TNSIG_PULSENUM	24	rpm-signal	PIN_OUT_K030	
						TNSIG_PWM				
	K013			TN digital output			24	flywheel-signal	PIN_OUT_K013	
	K037			TN digital output			24	triggerwheel-signal	PIN_OUT_K037	

Power Supplies

ECU Pin connector >A<	ECU Pin connector >K<	MS6.1 MS6.3 measure package	MS6.Cup not available	I/O Type	description	pin related functions	LEAD AWG	MS6 default functionality	function to pin coordination	Measure channel
	K003			battery plus	UDYNPOWER		14	dynamic power supply		
	K005			battery plus	UDYNPOWER		14	dynamic power supply		
	K006			battery plus	UDYNPOWER		14	dynamic power supply		
	K075			battery plus	UBAT		20	digital power supply		
	K001			battery minus			14			
	K002			battery minus			14			
	K004			battery minus			14			
A009				sensor supply 5V/50mamp	recommended supply for: aps_a, etc		24	ETC sensor supply 1		
A011				sensor supply 5V/50mamp	recommended supply for: aps_b, etc2		24	ETC sensor supply 2		
	K065			sensor supply 5V/150mamp		CW5VOUT3_EN	24	5 V sensor supply 4		
A007				sensor supply 5V/50mamp			24	5 V sensor supply 5		
A005				sensor supply 5V/150mamp		CW5VOUT1_EN	24	5 V sensor supply 1		
	K064			sensor supply 5V/150mamp		CW5VOUT2_EN	24	5 V sensor supply 2		
	K063			sensor supply 5V/50mamp			24	5 V sensor supply 3		
	K080			sensor ground 1			20	ground sensor supply		
	K081			sensor ground 2			20	ground sensor supply		
	K082			sensor ground 3			20	ground sensor supply		
A006				sensor ground 4			20	ground sensor supply		
A008				sensor ground 5			20	ground sensor supply		
A010				sensor ground 6	recommended ground for: aps_a, etc		20	ground sensor supply		
A012				sensor ground 7	recommended ground for: aps_b, etc2		20	ground sensor supply		
A062				shield ground			24	sensor shields		
	K021			shield ground			24	sensor shields		
	K026			shield ground			24	Ethernet and LIN shields		
	K049			not used						
	K009			shield ground			24	USB shield		
A083				not in use						

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