Equipment for High Performance Vehicles

Overview

Motorsport

BOSCH

Dear customer!

Within this catalog we would like to give you a short overview about our wide range of high performance racing components for professional motorsports. You can find more detailed information about every shown part in our internet-catalog at

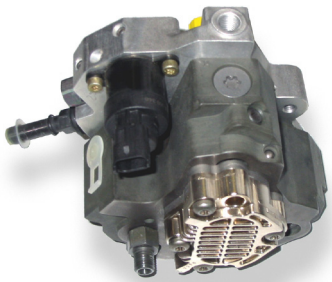
http://www.bosch-motorsport.com

If you need any further information or support, do not hesitate to ask our experts. You will find the contact information on the backside of this catalog.

Contents

Diesel System Components

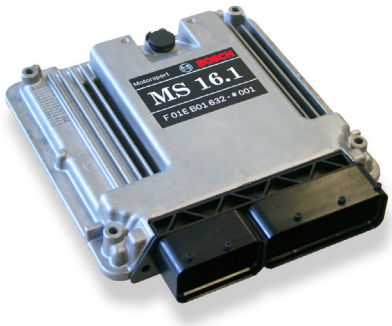
Injector CRI 2



HP fuel pump CP3

Rail

Pressure sensor RDS



ECU MS 16.1

Pressure control valve DRV

Component	Specification
MS 16.1	ECU for diesel engines with up to 6 cylinders
Injector CRI 2	6 - 8 holes, 900 … 1500 ccm/min at 100 bar
High pressure fuel pump CP3	Pump with control valve and optional gear pump, 0,677 … 1,087 ccm/rev
Pressure control valve DRV	Pressure range: 100 … 2000 bar
Pressure sensor RDS	Pressure range: 0 … 2000 bar
Rail	Common rail for up to 6 cylinders

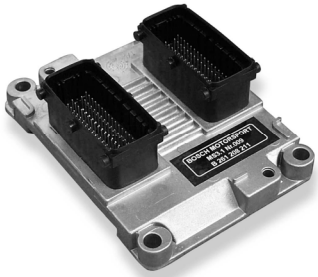
Further special versions and order numbers on request.

Engine Control Units

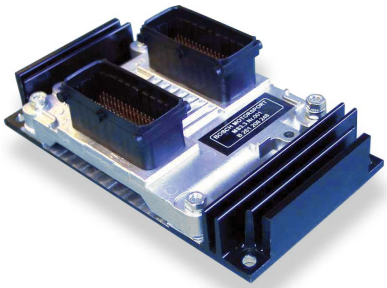
Bosch Motorsport offers an extensive range of engine control unit hardware, starting with a low cost 4 cylinder ECU (Engine Control Unit) based around a volume production unit up to specifically designed 4, 6, 8 and 12 cylinder motorsport units. In addition to this, a series of ultra high performance units specifically designed for Formula 1 and CART, 10 and 12 cylinder applications, are available by special request.

MS 1.10

MS 2. ...



MS 3.1/3.4



MS 3.3

MS 4.0

MS 4.1

MS 4.2

	MS 1.10	MS 2.9	MS 2.9.1	MS 3.1	MS 3.3	MS 3.4	MS 4.0	MS 4.1	MS 4.2
Injection output stages	24	24	12	6	8	4	8	16	16
Sequential injection	+	+	+	+	+	+	+	+	+
Ignition output stages	12	12	12	6	4	4	8	8	8
Sequential ignition	+	+	+	+	-	+	+	+	+
Data inputs	88	70	70	15	15	15	16	48	48
Internal data logger	-	+	+	-	-	-	-	+	+
Turbo functional-ity	+	+	+	-	-	-	+	+	+
Knock control	+	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.
Traction control	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.
Telemetry	1	opt.	opt.	1*	1*	1*	1*	opt.	opt.
Lambda control circuits	4 LSM or 4 LSU	4 LSM11	4 LSM11	1 LSU	2 LSU	2 LSU	2 LSU	2 LSU	2 LSU
Weight g	2200	2280	2280	250	450	250	430	1170	1240

1*- in combination with data logger CardMemory

Power Supply Units

PSU 2.12

Component	Specification	Order numbers
HP amplifier PSU 2.12	Amplifier for engines with up to 12 cylinders	**on request**
HP amplifier HPI 2.5	Amplifier for engines with up to 6 cylinders	**on request**

Sensors

Air Pressure Sensors

PS-10

PSA-B

PSA-C

PSB-2

PSB-4

PSP

PST

Range of application	Model	Range (bar)	Connector	Order numbers
Absolute Pressure Sensor	PS-10	10 x 0,1 … 2,5	AS 0-10-35PN	**B 261 206 865**
Ambient/Airbox pressure	PSA-B	0,1 … 1,15	AS 6-06-05PC-HE	**B 261 209 702**
Crank case pressure		0,2 … 2,5	AS 6-06-05PC-HE	**B 261 209 710**
Ambient/Airbox pressure	PSA-C	0,2 … 1,05	D 261 205 289	**0 261 230 037**
Crank case pressure		0,2 … 2,5	D 261 205 289	**0 281 002 389**
Boost pressure	PSB-2	0 … 2	AS 6-06-05PC-HE	**B 261 209 337**
Boost pressure	PSB-4	0 … 4	AS 6-06-05PC-HE	**B 261 209 338**
Boost pressure	PSP	0,2 … 3	AS 6-06-05PC-HE	**B 261 209 690**
Ambient air pressure **&** temperature	PST	0,1 … 1,15	D 261 205 336	**0 261 230 022**

Fluid Pressure Sensors

PSC 10 / PSC 250

PSM

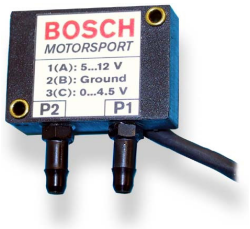
PSS

Range of application	Model	Range (bar)	Connector	Order numbers
Oil/Water/Gasoline pressure	PSC-10	0 … 10	KPTC 6E8-4P-C-DN	**B 261 209 063**
		0 … 10	AS 6-06-05PN	**B 261 209 068**
		0 … 10	KPTA 6E6-4P-C-DN	**B 261 209 069**
		0 … 10	AS 6-08-98PN	**B 261 209 077**
		0 … 10	AS 6-06-05PC-HE	**B 261 209 079**
		0 … 10	KPTA 6E6-4P-C-DN	**B 261 209 342**
Braking pressure	PSC-250	0 … 250	KPTC 6E8-4P-C-DN	**B 261 209 066**
		0 … 250	KPTA 6E6-4P-C-DN	**B 261 209 076**
		0 … 250	AS 6-08-98PN	**B 261 209 078**
Oil/Water/Gasoline pressure	PSM	0 … 2	AS 6-06-05PC-HE	**B 261 209 335**
		0 … 12	AS 6-06-05PC-HE	**B 261 209 331**
Braking pressure		0 … 250	AS 6-06-05PC-HE	**B 261 209 332**
Oil/Water/Gasoline pressure	PSS	0 … 10	1 928 403 968	**B 261 209 341**
Clutch pressure		0 … 100	1 928 403 968	**B 261 209 347**
Braking pressure		0 … 250	1 928 402 868	**B 261 209 067**

Differential Pressure Sensors

DP-A

DP-B



DP-C

DP-E

Range of application	Model	Range	Connector	Order numbers
Vehicle speed measurement /	DP-A	100 mbar differential	AS 0-06-05PC-HE	**B 261 209 696**
Pressure differences	DP-B	100 mbar differential	AS 0-06-05PC-HE	**B 261 209 697**
	DP-C	100 mbar differential	AS 0-06-05PC-HE	**B 261 209 701**
	DP-E	70 mbar differential	AS 0-06-05PN-HE	**B 261 209 698**
		100 mbar differential	AS 0-06-05PN-HE	**B 261 209 699**

Pitot Tube

Pitot tube

Range of application	Model	Order number
Vehicle speed measurement	Pitot tube	**B 261 209 700**

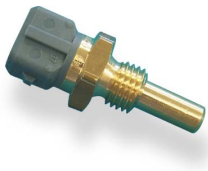
Temperature Sensors

NTC M6

NTC M6-F

NTC M8

NTC M8-F



NTC M12

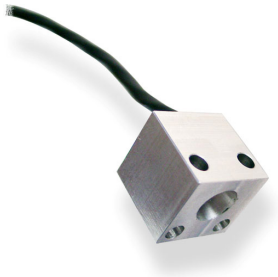
NTC M12-H

NTC M12-L

PT 100 M14

Range of application	Model	Connector	Order numbers
Fluid temperatures	NTC M6	KPTA 6E6-4P-C-DN	**B 261 209 172**
		AS 6-06-05PN-HE	**B 261 209 386**
Intake air temperatur, fast response	NTC M6-F	AS 6-06-05PN-HE	**B 261 209 398**
Fluid temperatures	NTC M8	KPSE 6E8-33P-DN	**B 261 209 167**
		KPSE 6E8-3AP-DN	**B 261 209 173**
		AS 6-06-05PN-HE	**B 261 209 384**
		without connector	**B 261 209 176**
Intake air temperatur, fast response	NTC M8-F	AS 6-06-05PN-HE	**B 261 209 818**
Fluid temperatures	NTC M12	1 284 485 198	**0 280 130 026**
		KPSE 6E8-33P-DN	**B 261 209 160**
Fluid temperatures	NTC M12-H	1 928 403 137	**0 281 002 170**
Ambient air temperature	NTC M12-L	1 284 485 143	**0 280 130 039**
Fluid temperatures	PT 100 M14	1 284 485 143	**B 261 209 174**

Temperature Sensors infrared



TI-C 150 / TI-C 900

TI-S

Range of application	Model	Range	Connector	Order numbers
Tyre temperature	TI-C 150	150°C	ASL 6-06-05PN-HE	**B 261 209 827**
Brake disc temperature	TI-C 900	900°C	ASL 6-06-05PN-HE	**on request**
Tyre temperature	TI-S	150°C	ASL 6-06-05PN-HE	**B 261 209 826**

Thermocouple Probes

TCP-K

TCP-N

Range of application	Model	Connector	Order numbers
Exhaust gas temperature	TCP-K	KPTA 6E6-4SW-C-DN	**B 261 209 169**
		AS 6-06-98PN	**B 261 209 179**
		AS 6-06-05PD-HE	**B 261 209 385**
		installation fitting	**B 261 209 159**
Exhaust gas temperature	TCP-N	1-J0973-704	**B 261 209 387**
	TCP-NF	1-J0973-704	**B 261 209 821**

Speed Sensors inductive

IA

IA-C

IS

IS-C

IS-T

Range of application	Model	Depth/Angel	Connector	Order numbers
Crankshaft/wheel speed	IA	24,1 mm	KPSE 6E8-3AS-DN	**B 261 209 023**
		24,1 mm	KPTA 6E6-4SW-C-DN	**B 261 209 500**
		32,2 mm	AS 6-06-05SN-HE	**B 261 209 519**
		32,2 mm	KPSE 6E8-3AS-DN	**B 261 209 022**
	IA-C	24,0 mm, 315°	1 928 402 868	**0 261 210 136**
Wheel speed	IS	24,1 mm	KPTA 6E6-4SW-C-DN	**B 261 209 509**
		32,2 mm	KPSE 6E8-3AS-DN	**B 261 209 021**
		32,2 mm	KPTA 6E6-4SW-C-DN	**B 261 209 501**
		32,2 mm	AS 6-06-05SN-HE	**B 261 209 517**
Wheel speed	IS-C	3/8-24 UNF-2A THD	AS 6-06-05SN-HE	**B 261 209 609**
		M10 x 1	AS 6-06-05SN-HE	**B 261 209 617**
Turbocharger speed	IS-T	max. 15 mm	AS 6-06-05SN-HE	**B 261 209 662**

Speed Sensors Hall-effect / magneto-resistive

HA-P

MA-A / MA-B / MA-C / MA-D

Range of application	Model	Depth/Angle	Connector	Order numbers
Wheel/camshaft speed	Hall-effect			
	HA-P	24,0 mm	1 928 403 110	**0 232 103 037**
	Magnetoresistive			
	MA-A	90°, high active	AS 6-06-05PC-HE	**B 261 209 556**
		90°, high active	KPTA 6E6-4P-C-DN	**B 261 209 680**
	MA-B	90°, low active	KPTA 6E6-4P-C-DN	**B 261 209 559**
	MA-C	90°, high active	AS 6-06-05PC-HE	**B 261 209 681**
	MA-D	90°, high active	AS 6-06-05PC-HE	**B 261 209 682**

Lambda Sensors

LSM 11

LSM 11-PM / LSM 11-RM

LSU 4.2

Mini-LSU 4.9

Range of application	Model	Specification	Connector	Order numbers
Lambda control	LSM 11	Production type	1 284 485 110 (signal) 1 224 485 018 (heater)	**0 258 104 002**
	LSM 11-PM	Military connector	KPTC 6E8-4P-C-DN	**B 261 209 105**
	LSM 11-PM	Improved race type	KPTC 6E8-4P-C-DN	**B 261 209 101**
	LSU 4.2	Wide-band	D 261 205 138	**0 258 006 065**
	Mini-LSU 4.9	Wide-band	1 928 404 682	**B 258 490 103**
	Mini-LSU 4.9	Wide-band	AS 007-35PN	**B 261 209 353**

Knock Sensors

KS-P

KS-R

Range of application	Model	Connector	Order numbers
Knock control	KS-P	1 928 403 137	**0 261 231 120**
	KS-R	1 284 485 112	**0 261 231 047**

Rotary Potentiometers

RP 55

RP 86

RP 130 M/350 M

RP 100/130/308

Range of application	Model	Connector	Order numbers
Pedal-travel/steering angle	RP 55	AS 6-06-05PA-HE	**B 261 209 578**
Throttle position	RP 86	1 928 402 868	**0 280 122 016**
Throttle position	RP 100	KPSE 6E8-33P-DN	**B 261 209 113**
		AS 6-06-05PN	**B 261 209 117**
		KPTA 6E6-4P-C-DN	**B 261 209 119**
		AS 6-06-05PA-HE	**B 261 209 127**
Throttle position	RP 130	KPSE 6E8-33P-DN	**B 261 209 114**
Throttle position	RP 130-M	KPTA 6E6-4P-C-DN	**B 261 209 576**
Gear indicator	RP 308	KPSE 6E8-33P-DN	**B 261 209 115**
		KPTA 6E6-4P-C-DN	**B 261 209 118**
Gear indicator	RP 350-M	KPTA 6E6-4P-C-DN	**B 261 209 573**

Linear Potentiometers

LP 10

LP 75F

LP 100F

LP 50/75

LP 100

LP 150

Range of application	Model	Range	Connector	Order numbers
Suspension travel	LP 10	10 mm	KPSE 6E8-33P-DN	**B 261 209 535**
	LP 50	50 mm	KPTA 6E6-4P-C-DN	**B 261 209 136**
	LP 75	75 mm	KPSE 6E8-33P-DN	**B 261 209 530**
	LP 75F	75 mm	KPSE 6E8-33P-DN	**B 261 209 852**
	LP 100	100 mm	KPSE 6E8-33P-DN	**B 261 209 134**
			KPTA 6E6-4P-C-DN	**B 261 209 137**
	LP 100F	100 mm	KPSE 6E8-33P-DN	**B 261 209 853**
	LP 150	150 mm	KPTA 6E6-4P-C-DN	**B 261 209 138**
			AS 6-06-05PA-HE	**B 261 209 534**

Wire Potentiometers

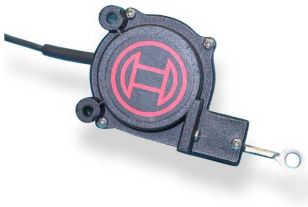
WP 35

WP 50

WP 75

WP 100

WP 125



WP 120

Range of application	Model	Range	Connector	Order numbers
Suspension/pedal travel	WP 35	35 mm	AS 6-06-05PA-HE	**B 261 209 541**
	WP 50	50 mm	AS 6-06-05PA-HE	**B 261 209 542**
	WP 75	75 mm	AS 6-06-05PA-HE	**B 261 209 543**
	WP 100	100 mm	AS 6-06-05PA-HE	**B 261 209 544**
	WP 120	120 mm	AS 6-06-05PA-HE	**B 261 209 536**
	WP 125	125 mm	KPTA 6E6-4P-C-DN	**B 261 209 545**
		96 mm	KPTA 6E6-4P-C-DN	**on request**

Acceleration Sensors

AM 5

AM 600

Range of application	Model	Weight	Range	Overload	Connector	Order numbers
Chassis data analysing	AM 5	39 g	± 5 g	± 50 g	ASL 6-06-05PA-HE	**B 261 209 308**
	AM 600, 2 axes	30 g	± 4,5 g	± 600 g	ASL 6-06-05PA-HE	**B 261 209 311**
	AM 600, 3 axes	50 g	± 4,5 g	± 600 g	ASL 6-06-05PA-HE	**B 261 209 313**

Yaw Rate Sensor

YRS 2

Range of application	Model	Connector	Order number
Yaw velocity (vehicle dynamics)	YRS 2	D 261 205 358	**0 265 005 262**

Gear Shift Sensors

GSS

GSS 2

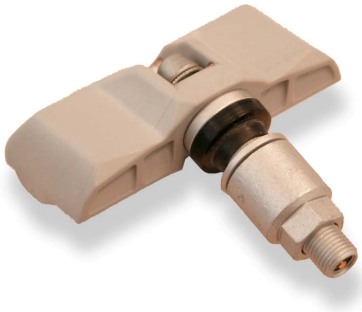
Range of application	Model	Mechanical range	Weight	Connector	Order numbers
Power shift	GSS	programmable up to 150 N	90 g	KPSE 6E8-33P-DN	**B 261 209 222**
				KPTA 6E6-4P-C-DN	**B 261 209 224**
				AS 6-06-05PC-HE	**B 261 209 225**
	GSS 2	programmable up to 450 N	90 g	AS 6-06-05PC-HE	**B 261 209 227**

Ride Height System

RHS

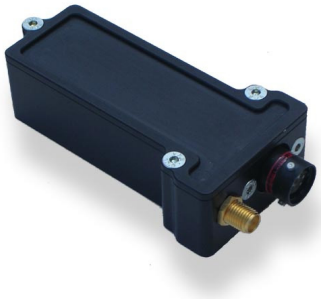
Range of application	Model	Connector	Order numbers
Ground distance	RHS	KPTA 6E6-4P-C-DN	**B 261 209 671**

Tyre Monitoring System



Type A

Type B



Receiver

Range of application	Model	Temperature measuring range	Order numbers
Tyre Motoring Transmitter	Type A	-20 … 125 °C	on request
Tyre Motoring Transmitter	Type B	10 … 145 °C	on request
Tyre Motoring Receiver		operating conditions 0 … 85 °C	on request

Displays

The Bosch Motorsport displays are combined aluminium cased dashboard and input modules, which are designed for use as stand-alone display units or as an integral part of a complete data acquisition and monitoring system for use in the demanding environment found in racing vehicles.

DDU 2

DDU 3

DDU 4

DDU 6

	DDU 2	DDU 3	DDU 4	DDU 6
Pages programmable	6	6	6	
CAN Interface	+	+	+	
RS 232 Interface	+	+	+	
A/D inputs 0…5 V	8	8	8	
Speed inputs	2	-	-	
Programmable pullup resistors	8		-	
100 mA output	7	7	7x500 mA	7x500 mA
Shift lights	internal	external	Internal	internal
External shift-up indication outputs	5	5	5	-
5 V output	1	-	-	-
Var. brightness	-	+	+	+
Dimensions mm	172x125x36	118x80x25	164x117x37	174x112x32
Weight g	495 g	312 g	753 g	343

Actuators

Injection Valves

Bosch injection valves have been available since the invention of fuel injection systems. As engine development has progressed, so has development of our fuel injection valves. Therefore new generations of injection valves offer a wide range of applications for all different demands of modern engines.

HDEV 1.2

Mini-HDEV 1.2

EV 6

EV 12

EV 14

Model	Flow Rate	Fuel type	Impedance	Weight	Spray angle	Order numbers
HDEV 1.2	e.g. 6-hole injector, 30 ccm/sec [1]	Gasoline	9 Ω	78 g	free definable	**on request**
Mini-HDEV 1.2	e.g. 30 ccm[1]	Gasoline	9 Ω	48 g	free definable	**on request**
EV 6	261,2 g/min [2]	Gasoline	12 Ω	45,8 g	25°	**B 280 431 126**
	261,2 g/min [2]	Gasoline	12 Ω	45,8 g	70°	**B 280 431 127**
	261,2 g/min [2]	Gasoline	12 Ω	90 g (long)	15°	**0 280 155 737**
	364,3 g/min [2]	Gasoline	12 Ω	45,8 g	25°	**B 280 431 128**
	364,3 g/min [2]	Gasoline	12 Ω	45,8 g	70°	**B 280 431 129**
	493,1 g/min [2]	Gasoline	1,2 Ω	45,8 g	25°	**B 280 431 130**
	493,1 g/min [2]	Gasoline	1,2 Ω	45,8 g	70°	**B 280 431 131**
	310,1 g/min [2]	Gasoline	12 Ω	45,8 g	20°	**0 280 156 012**

Model	Flow Rate	Fuel type	Impedance	Weight	Spray angle	Order numbers
	658 g/min [2]	Methanol	12 Ω	45,8 g	25°	**B 280 434 499_01**
	658 g/min [2]	Gasoline	12 Ω	45,8 g	25°	**B 280 434 499_02**
EV 12	217 g/min [2]	Gasoline	12 Ω	40 g	15°, twin spray	**B 280 432 115**
	269 g/min [2]	Gasoline	12 Ω	40 g	15°, twin spray	**0 280 155 892**
	217 g/min [2]	Gasoline	12 Ω	40 g	15°, twin spray	**0 280 155 897**
EV 14	387,3 g/min [2]	Gasoline	12 Ω	25 g	25°	**B 280 436 038_06**
	503,5 g/min [2]	Gasoline	12 Ω	25 g	25°	**B 280 436 038_02**
	387,3 g/min [2]	Gasoline	12 Ω	25 g	70°	**B 280 436 038_05**
	503,5 g/min [2]	Gasoline	12 Ω	25 g	70°	**B 280 436 038_01**

[1] at 100 bar
[2] at 3 bar

Ignition Coils

Single fire coil M

Single fire coil P

Single fire coils PS and PS-T

Single fire coil S

Double fire coil 2 x 2

Double fire coil 3 x 2

Model	Weight	High voltage	Spark energy	Voltage gradient	Order numbers
Single fire coil M	180 g	35 kV	33 mJ/10 A	3,3 kV/µS	**B 261 209 192**
Single fire coil P	260 g	35 kV	45 … 55 mJ	1,6 kV/µS	**B 261 208 315**
Single fire coil PS	190 g	>30 kV	35 mJ	1,5 kV/µS	**0 221 505 460**
Single fire coil PS-T	208 g	>30 kV	35 mJ	1,5 kV/µS	**0 221 604 103**
Single fire coil S	148 g	>30 kV	33 … 40 mJ	3,3 kV/µS	**B 221 141 821_01**
Double fire coil 2 x 2	900 g	33 kV	70 mJ	1,1 kV/µS	**0 221 503 407**
Double fire coil 3 x 2	1300 g	33 kV	70 mJ	1,1 kV/µs	**0 221 503 002**

Further special versions on request.

Spark Plugs

The engines of competition vehicles are exposed to high thermal stress because of running them at full load most of the time.

Spark plugs for this operating conditions often have precious metal center electrodes (platinum, silver) and a short insulator base. This causes a very small heat absorption and a good heat derivation through the center electrode.

Corresponding to the various field of operations we manufacture over 1400 different types of spark plugs in production. You can get these standard spark plugs from your local Bosch-service and most spare parts dealers. The range of products includes versions with various seats and threads, thread lengths and electrode positions, the design parts air-gap, surface-gap and surface-air-gap types. You can choose between versions with one to four ground electrodes, the center electrode can be made from various materials.

Moreover we offer special versions and small batches which you should not hesitate asking for.

Fuel Pumps

HDP 1

P 100

F

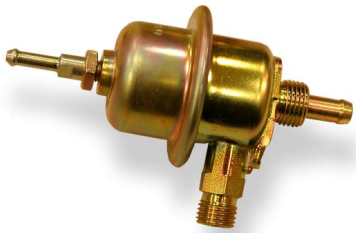
FP 165

FP 200

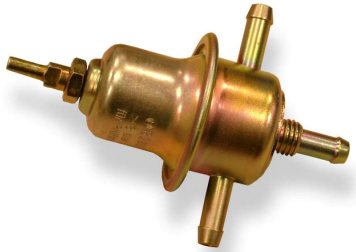
Model	Fuel Delivery	Weight	Pressure	Order numbers
HDP 1	0,66 ccm/0,80ccm per rotation	1000 g	120 bar	**B 438 172 061**
FP 100	100 l/h	725 g	5 bar	**Y 580 700 118**
FP 165	165 l/h	980 g	5 bar	**0 580 254 979**
FP 200	200 l/h	1030 g	5 bar	**0 580 254 044**
			8 bar	**B 261 205 413**

Fuel Pressure Regulators

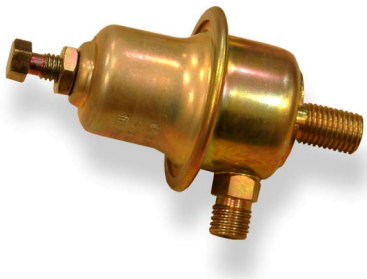
DSV



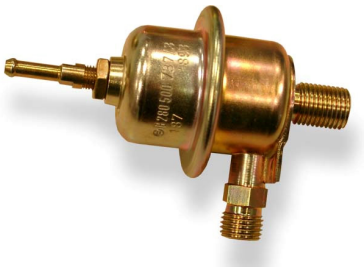
FPR 15-50



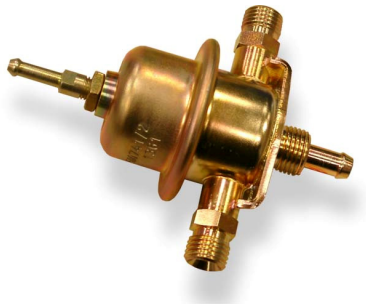
FPR 05-40 A



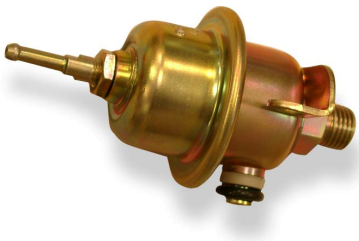
FPR 05-40 B



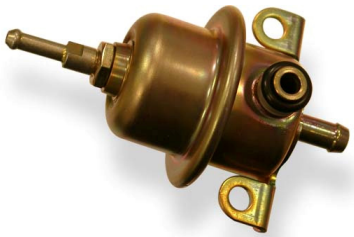
FPR 19-50



FPR 20x120



FPR 20-50



FPR 14-60

FPR Mini A

FPR Mini 38/50

FPR Mini/Mini M

Model	Pressure	Housing material	Order numbers
DSV	4 … 120 bar	Aluminium	**B 261 209 568**
FPR 20x120	4,5 ... 12,0 bar	Sheet steel	**B 280 500 566**
FPR Mini	10,0 bar	Aluminium	**B 261 208 109**
FPR Mini	8,0 bar	Aluminium	**B 261 208 108**
FPR Mini	6,0 bar	Aluminium	**B 261 208 106**
FPR 14x60	3,2 ... 6,0 bar	Sheet steel	**B 280 500 581**
FPR 20x120	3,0 ... 6,0 bar	Sheet steel	**B 280 500 714**
FPR Mini 50	5 bar	Sheet steel	**B 280 550 113**
FPR Mini A	3,5 ... 5,0 bar	Aluminium	**B 280 550 341**
FPR 20x120	2,0 ... 5,0 bar	Sheet steel	**B 280 500 741**
FPR 19-50	1,9 ... 5,0 bar	Sheet steel	**B 280 500 737**
FPR 15-50	1,5 ... 5,0 bar	Sheet steel	**B 280 500 743**
FPR 14x60	1,4 ... 5,0 bar	Sheet steel	**B 280 500 701**
FPR 20-50	2,0 ... 4,0 bar	Sheet steel	**B 280 500 799**
FPR 05-40 A	0,5 ... 4,0 bar	Sheet steel	**B 280 500 139**
FPR 05-40 B	0,5 ... 4,0 bar	Sheet steel	**B 280 500 168**
FPR Mini 38	3,8 bar	Sheet steel	**0 280 160 616**
FPR Mini A	2,2 ... 3,5 bar	Aluminium	**B 280 550 340**
FPR 34	3,4 bar	Sheet steel	**B 280 500 740**

Starters

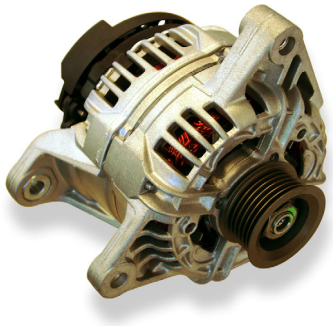
Starter 1,4 kW

Starter 1,7 kW

Model	Max. current	Weight	Max. temperature	Order numbers
Starter 1,4 kW	300 A	3200 g	150°C (290°F)	**B 261 206 115**
Starter 1,7 kW	450 A	3700 g	150°C (290°F)	**B 261 208 186**

Further special versions on request.

Alternators



90 A

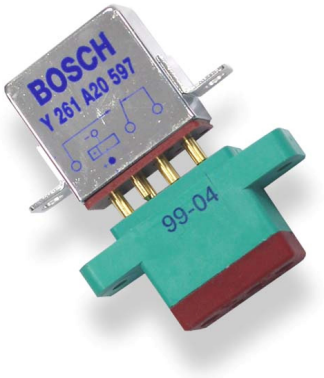
GC 100 A

GCM1 110/130/140 A

Model	Weight	Current at 90°C (194°F)	Rotation	Order numbers
90 A	5400 g	90 A	Clockwise	**B 120 416 264**
GC 100 A	4500 g	100 A	Anticlockwise	**B 120 310 176**
		100 A	Clockwise	**B 120 310 175**
GCM1 110 A	3400 g	110 A	Anticlockwise	**B 261 208 606**
		110 A	Clockwise	**B 261 208 607**
GCM1 130 A	3400 g	130 A	Anticlockwise	**B 261 208 604**
		130 A	Clockwise	**B 261 208 605**
GCM1 140 A	3400 g	140 A	Anticlockwise	**B 261 208 602**
		140 A	Clockwise	**B 120 316 603**

Further special versions on request

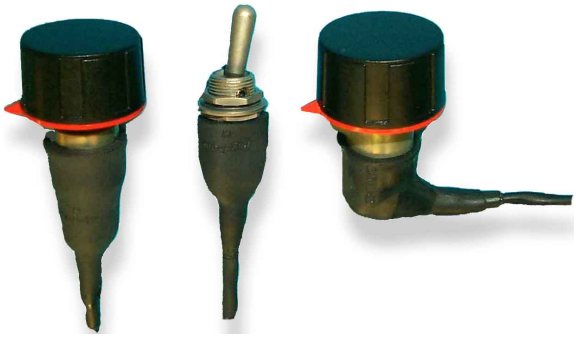
Relay



Relay 25 A

Model	Max. current		Order numbers
Relay 25 A	25 A	Relay	**Y 261 A20 597**
		Base	**Y 261 A20 598**

Switches



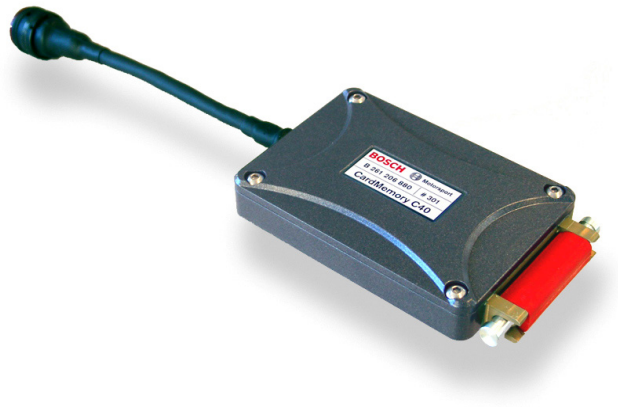
Switches

Model	Design	Connector	Order numbers
12 steps	Straight	KPTC 6E8-3P-C-DN	**B 261 209 143**
12 steps	90° angled	KPTC 6E8-3P-C-DN	**B 261 209 144**
12 steps	straight	KPTC 6E6-4P-C-DN	**B 261 209 146**
4 steps	straight	KPTC 6E6-4P-C-DN	**B 261 209 147**
12 steps without	straight	KPTC 6E6-4P-C-DN	**B 261 209 148**
4 steps LED dimmer display		KPTC 6E8-3P-C-DN	**B 261 209 527**
4 steps display dimmer DDU		KPTC 6E8-3P-C-DN	**B 261 209 528**
4 steps display dimmer DDU	90° angled	KPTC 6E8-4P-C-DN	**B 261 209 630**
12 steps	straight	ASL 6-06-05PN-HE	**B 261 209 643**
for MAP function	straight	ASL 6-06-05PN-HE	**B 261 209 644**
4 steps display dimmer DDU	straight	ASL 6-06-05PN-HE	**B 261 209 646**
4 steps LED dimmer DDU	straight	ASL 6-06-05PN-HE	**B 261 209 647**
6 steps display dimmer and switch over DDU	straight	ASL 6-06-05PN-HE	**B 261 209 659**

Communication

CardMemory

The CardMemory is a device used for data acquisition. The basic model C5 is designed with a 5 pin connector, for data transfer via CAN. The extended model C40 Plus is developed to read in additional 15 analogous signals and 1 rev signal. The measured data are stored on a compact flash card.



Card Memory

Model	Weight	Connector	Order numbers
C5	330 g	5 pins	**B 261 206 858**
C40 Plus	330 g	40 pins	**B 261 206 860**

Electronic Sensor Interface Box ESIB

ESIB is a special device for measuring the signals of multiple sensors. The flexible use of microboards allows the adaptation to a great variety of measuring tasks. For data recording the integrated CAN-bus can be linked to a Bosch Motronic or CardMemory.

ESIB

Version	Weight	Specification	Order numbers
ESIB Basic	550g	Flexible use of microboards	
ESIB-Lam8		Lambda measurement with 8 channels	**B 261 208 228**
ESIB-Lam 8S		Same as ESIB-Lam8 plus further signals	**B 261 208 229**
ESIB-Thermo 8		Exhaust-gas temperature measurement with 8 channels	**B 261 208 261**
ESIB-Thermo 8S		Same as ESIB-Thermo 8S plus further signals	**B 261 208 262**
ESIB-Ana 16S		Measuring of 16 analog signals and 6 wheelspeed signals	**B 261 208 227**
ESIB-Ana 24		Measuring of 24 analog signals	**B 261 208 226**

Laptriggers

We offer different kinds of laptriggers in infrared and high frequency technology. The systems allow an exact laptime measurement. Sectiontime measurement for comparison of different car setups is also available if several transmitters are used.

Laptrigger IR-02

Laptrigger HF

Laptrigger HF 24

Model	Operation method	Weight	Working range	Order numbers
Laptrigger IR-02	Infrared		15 m	
Receiver		39 g		**B 261 206 884**
Transmitter		124 g		**B 261 206 890**
Laptrigger HF	High frequency		Up to 150 m	
Receiver		130 g		**B 261 209 856**
Transmitter		1300 g		**B 261 209 857**
Laptrigger HF 24	High frequency		Up to 100 m	
Receiver		130 g		**B 261 206 894**
Transmitter		1880 g		**B 261 206 895**

Telemetry Unit FM4-Plus

The FM4-Plus is a real-time telemetry system used to continuously send actual data from the car out on the track. It fits most of the Bosch Motorsport management systems and is designed to transmit many various car and engine data due to its high speed data rate.

In typical applications data is sent from the car to the receiving station. With the optional software for bi-directional transmission, data can be sent in both directions.

FM4-Plus

Model	Weight	Transmission power	Max. current	Max. power consumption	Order number
FM4-Plus	720 g	1 … 10 W	< 2,5 A	25 W at 14 V	**B 261 208 885**

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