

**VOLVO****Bosch LH 2.2 Jetronic**

Model:	Engine code:	Year:
240 2,3i	B230F	1984-90
440/460/480 1,7i Turbo	B18FT(M)	1988-96
740/760 2,3i Turbo	B230FT	1990-91
760 2,8i	B280E/F	1986-91

**ECM harness multi-plug**

⇐ 1 ⇐ 2 ⇐ 3 ⇐ 4 ⇐ 5 ⇐ 6 ⇐ 7 ⇐ 8 ⇐ 9 ⇐ 10 ⇐ 11 ⇐ 12 ⇐ 13  
⇐ 14 ⇐ 15 ⇐ 16 ⇐ 17 ⇐ 18 ⇐ 19 ⇐ 20 ⇐ 21 ⇐ 22 ⇐ 23 ⇐ 24 ⇐ 25

AD44325

**Terminal side**

13 12 11 10 9 8 7 6 5 4 3 2 1  
25 24 23 22 21 20 19 18 17 16 15 14

AD42084

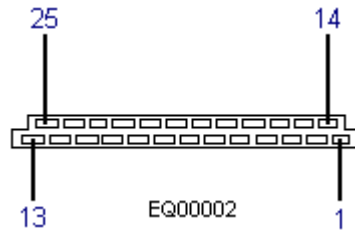
**Wire side**

Component/circuit description	ECM pin	Signal	Condition	Typical value
Air conditioning	16	←		1
Earth	5		Ignition ON	0 V
	11		Ignition ON	0 V
	25		Ignition ON	0 V
Earth – 240/740/760	19		Ignition ON	0 V
Engine control relay – 440/460/480	9	←	Ignition OFF	0 V
	9	←	Engine cranking	11-14 V
	21	↔	Ignition OFF	11-14 V
	21	↔	Ignition ON	11-14 V
	21	↔	Engine cranking	0-1 V
Engine coolant pump relay – 440/460/480	19	↔	Ignition OFF – coolant temp. 84°C max.	11-14 V
	19	↔	Ignition OFF – coolant temp. 84°C min.	0-1 V
Engine coolant temperature (ECT) sensor	2	←	Coolant temp. 20°C	2,1 V
	2	←	Coolant temp. 80°C	0,5 V
Engine diagnostic link	22			1
Fuel pump relay – 440/460/480	17	↔	Ignition ON	11-14 V
	17	↔	Engine cranking	0-1 V
Heated oxygen sensor (HO2S)	20	←	Engine idling – accelerate briefly	0-1 V fluctuating
	20	←	Engine idling – accelerate briefly	21
Idle air control (IAC) valve	10	⇒	Engine idling	25
	23	⇒	Engine idling	25
Ignition amplifier	1	⇒	Engine idling	32
Ignition control module (ICM)	12	⇒	Ignition ON – throttle fully open	0 V
	12	⇒	Ignition ON – throttle closed	5 V
Ignition control module (ICM) – 440/460/480/740/760	24	⇒		1
Ignition switch	18	←	Ignition ON	11-14 V
Ignition switch – B18FT 1991-96	4	←	Engine cranking	11-14 V

Table continued on next page →

Component/circuit description	ECM pin	Signal	Condition	Typical value
Injectors	13	↔	Engine idling	2,1 ms
	13	↔	Engine idling	1.35
Mass air flow (MAF) sensor	6	↔	Ignition ON	0 V
	7	←	Engine running	2-5 V – varies with engine load
	14	→	Engine idling	2,1 V
Mass air flow (MAF) sensor – filament burn-off	8	→	Engine idling – engine hot	0 V
	8	→	2000 rpm min. – coolant temp. 65°C min. – switch ignition OFF	2-5 V briefly – after 4 seconds
Relay module – 240/740/760	9	←	Ignition OFF	0 V
	9	←	Engine cranking	11-14 V
	17	↔	Ignition ON	11-14 V
	17	↔	Engine cranking	0-1 V
	21	↔	Ignition OFF	11-14 V
	21	↔	Ignition ON	11-14 V
	21	↔	Engine cranking	0-1 V
Reversing lamp/s switch – some models	15	←	Ignition ON – gear lever not in reverse	11-14 V
	15	←	Ignition ON – gear lever in reverse	0 V
Throttle position (TP) switch	3	←	Ignition ON – throttle closed	0 V
	3	←	Ignition ON – throttle slightly open	5 V
Turbocharger wastegate regulating valve – 760	17	↔	Engine cranking	0-1 V

1 Connected pin - no test data available



Pin	Connection	Test condition	Volts/Duty Cycle etc.
1	ignition system control unit	cranking/running	switching 0 to nbv
2	CTS signal	ignition on/running	20°C 2.70 80°C 0.75
3	TPS idle contact : t1	Ignition on throttle closed throttle part/fully open	zero 5.0 ± 0.1
4	unused		
5	earth	ignition on/running	0.25 max
6	AFS return: t2	ignition on/running	0.25 max
7	AFS signal: t3	ignition on idle 3000 rpm snap open throttle	0.20 to 0.70 1.5 2.4 4.0+
8	AFS hot wire burn-off: t4	coolant above 65° C, rpm above 2500, switch off engine	hot wire glows for 1.0 second
9	supply from main relay : t87	ignition on/running	nbv
10	ISCV signal: t3	ignition on idle speed	nbv duty cycle 30 to 40%
11	earth	ignition on/running	
12	TPS full-load contact: t3	Ignition on throttle closed/part open throttle fully open	5.0 ± 0.1 zero
13	injectors	ignition on/running cranking cold running cold cranking warm running warm 2000 rpm 3000 rpm snap acceleration deceleration	nbv 3.8 ms 3.8 ms 2.4 ms 2.4 ms 2.2 ms 2.1 ms 6.0+ ms zero
14	CO pot (AFS: t6)	ignition on/running	0 to 4.0v
15	unused		
16	A/C		
17	pump relay driver: t85	ignition on cranking/running	nbv 1.25 max
18	ignition switch: t15	ignition on/running	nbv
19	earth	ignition on/running	0.25 max
20	OS signal (some models)	engine running throttle fully open fuel cut off switching frequency	200 to 1000 mv 1.0v constant 0 volts constant 1 sec intervals (approx)
21	main relay driver: t85	ignition off ignition on/running	nbv 1.25 max
22	SD connector (some models)		
23	ISCV signal: t6	ignition on idle speed	nbv duty cycle 30 to 40%
24	unused		
25	earth	ignition on/running	0.25 max