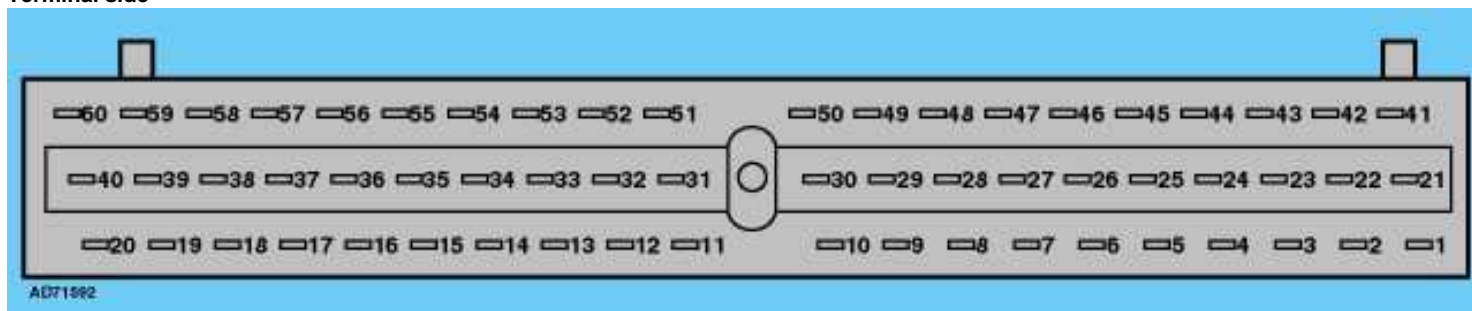
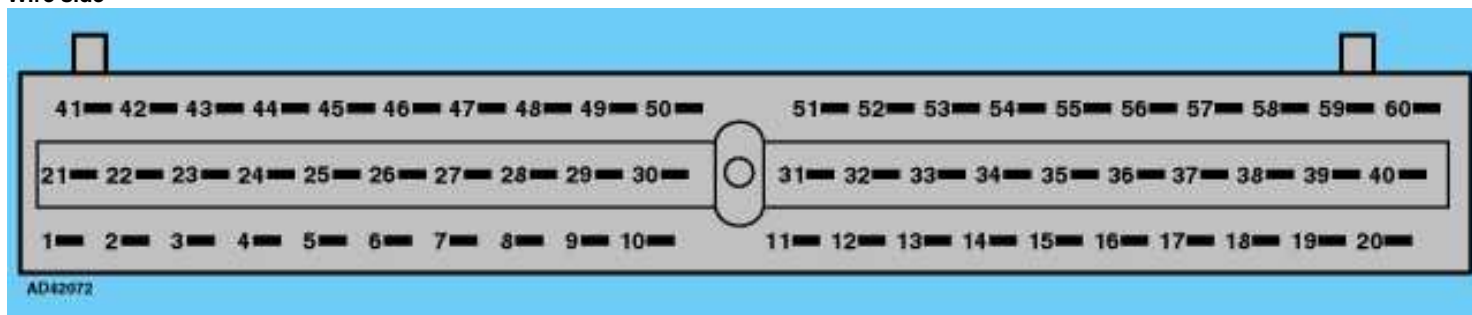


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Terminal side

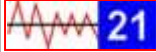
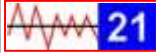
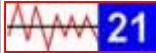







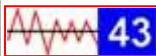
Wire side



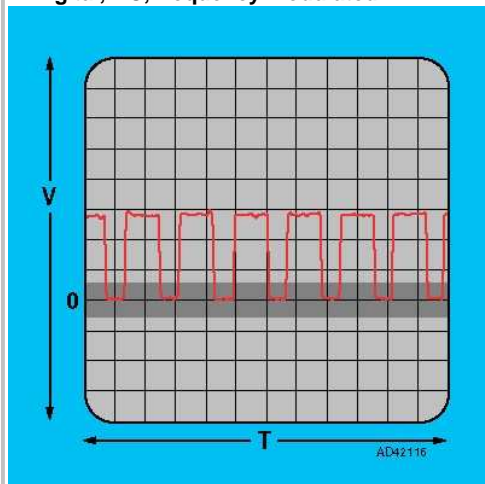
Component/circuit description	ECM pin	Signal	Condition	Typical value	Oscilloscope setting (Suggested settings - Voltage/time per division)	Wave form
AC compressor clutch relay	54		Engine idling - AC ON	11-14 V		
AC compressor clutch relay	54		Engine idling - AC ON - accelerator pedal briefly fully depressed	0-1 V briefly		
Air conditioning	10		Engine idling - AC OFF	0 V		
Air conditioning	10		Engine idling - AC ON - AC compressor ON	11-14 V		
Battery	1		Ignition OFF	11-14 V		
Brake pedal position (BPP) switch - 1990-96	18		Ignition ON - brake pedal released	0 V		
Brake pedal position (BPP) switch	18		Ignition ON - brake pedal depressed	11-14 V		
Crankshaft position (CKP) sensor - without integral amplifier/distributor	56		Engine idling	45 Hz		
Crankshaft position (CKP) sensor	56		Engine idling		5 V/20 ms	
Data link connector (DLC)	17			Connected pin - no test data available or random digital signal		
Data link connector (DLC)	48			Connected pin - no test data available or random digital signal		

Digital multifunction display - 1992-96	34	←		Connected pin - no test data available or random digital signal		
Earth	20		Ignition ON	0 V		
Earth	40		Ignition ON	0 V		
Earth	49		Ignition ON	0 V		
Earth	60		Ignition ON	0 V		
Earth - brown wire	28		Ignition ON	0 V		
Earth - some models	5		Ignition ON	0 V		
Earth - without integral amplifier/distributor	16		Ignition ON	0 V		
Engine control relay	37	←	Ignition OFF	0 V		
Engine control relay	37	←	Ignition ON	11-14 V		
Engine control relay	57	←	Ignition OFF	0 V		
Engine control relay	57	←	Ignition ON	11-14 V		
Engine control relay - 1992-96	22	↔	Ignition ON	0-1 V briefly then 11-14 V		
Engine control relay	22	↔	Engine cranking	0-1 V		
Engine coolant temperature (ECT) sensor	7	←	Ignition ON - coolant temp. 0°C	3,8-3,9 V		
Engine coolant temperature (ECT) sensor	7	←	Ignition ON - coolant temp. 20°C	3-3,2 V		
Engine coolant temperature (ECT) sensor	7	←	Ignition ON - coolant temp. 80°C	0,6-0,9 V		
Engine coolant temperature (ECT) sensor	46	↔	Ignition ON	0 V		
Engine coolant temperature (ECT) sensor - 1993-96	49	↔	Ignition ON	0 V		
Evaporative emission (EVAP) canister purge valve	31 (37)	↔	Engine idling - engine hot - valve not operating	0 V		
Evaporative emission (EVAP) canister purge valve	31 (37)	↔	Engine under load - engine hot - valve operating	3-14 V		
Evaporative emission (EVAP) canister purge valve	31	↔	Ignition ON	11-14 V		
Evaporative emission (EVAP) canister purge valve	31	↔	Engine running - valve operating		10 V/50 ms	
Exhaust gas recirculation (EGR) backpressure transducer - if fitted	26	⇒	Ignition ON	5 V		
Exhaust gas recirculation (EGR) backpressure transducer	27	←	Ignition ON	0,4-3,9 V - varies with pressure		
Exhaust gas recirculation (EGR) backpressure transducer	46	↔	Ignition ON	0 V		
Exhaust gas recirculation (EGR) solenoid - if fitted 1986-89	33 (37)	↔	Engine idling - engine hot	0 V		
Exhaust gas recirculation (EGR) solenoid	33 (37)	↔	Accelerate briefly - engine hot	9-14 V		
Exhaust gas recirculation (EGR) solenoid	33	↔	Ignition ON	11-14 V		
Exhaust gas recirculation (EGR) solenoid	33	↔	Engine running - valve operating		5 V/20 ms	
Fuel flow sensor - 1986-91	34	←		Connected pin - no test data available or random digital signal		
Fuel pump relay - 1986-91	22	↔	Ignition ON	0-1 V briefly then 11-14 V		
Fuel pump relay	22	↔	Engine cranking	0-1 V		

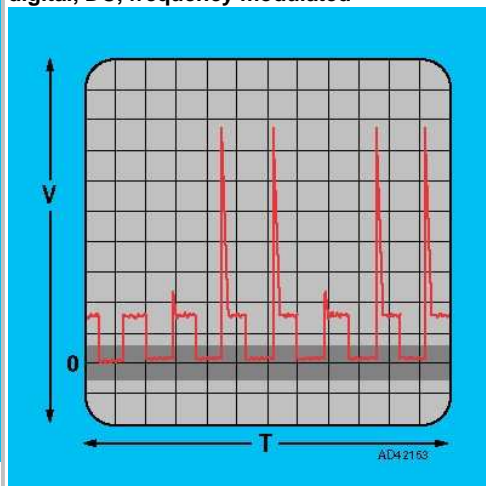
Heated oxygen sensor (HO2S) - 1986-88	29	←	Engine idling - engine hot	0,1-0,9 V fluctuating	0,2 V/1 sec.	 21
Heated oxygen sensor (HO2S) - LH 1989-96	43	←	Engine idling - engine hot	0,1-0,9 V	0,2 V/1 sec.	 21
Heated oxygen sensor (HO2S) - RH 1989-96	29	←	Engine idling - engine hot	0,1-0,9 V	0,2 V/1 sec.	 21
Heated oxygen sensors (HO2S) - 4-wire	46	⚡	Engine idling - engine hot	0 V		
Heated oxygen sensors (HO2S)	49	⚡	Engine idling - engine hot	0 V		
Idle adjustment connection - blue/yellow wire	28	←	Ignition ON	0 V or 5 V		
Idle air control (IAC) valve	21	↔	Engine idling - engine hot	9,5-11 V	2 V/5 ms	 29
Ignition amplifier	36	⇒	Engine idling	45 Hz	2 V/10 ms	 32
Ignition amplifier - with integral amplifier/distributor	16	⚡	Ignition ON	0 V		
Ignition amplifier	56	←	Engine idling	45 Hz	5 V/20 ms	 4
Injectors - group A	58	↔	Ignition ON	11-14 V		
Injectors	58	↔	Engine idling	2,3 ms	10 V/2 ms	 35
Injectors - group B	59	↔	Ignition ON	11-14 V		
Injectors	59	↔	Engine idling	2,3 ms	10 V/2 ms	 35
Intake air temperature (IAT) sensor	25	←	Ignition ON - air temp. 0°C	3,8-3,9 V		
Intake air temperature (IAT) sensor	25	←	Ignition ON - air temp. 20°C	3-3,2 V		
Intake air temperature (IAT) sensor	25	←	Ignition ON - air temp. 40°C	2-2,2 V		
Intake air temperature (IAT) sensor	46	⚡	Ignition ON	0 V		
Intake air temperature (IAT) sensor - 1993-96	49	⚡	Ignition ON	0 V		
Manifold absolute pressure (MAP) sensor	26	⇒	Ignition ON	5 V		
Manifold absolute pressure (MAP) sensor	45	←	Ignition ON	170 Hz		
Manifold absolute pressure (MAP) sensor	45	←	Engine idling - engine cold	120 Hz		
Manifold absolute pressure (MAP) sensor	45	←	Engine idling - engine hot	110 Hz		
Manifold absolute pressure (MAP) sensor	45	←	3000 rpm	105 Hz		
Manifold absolute pressure (MAP) sensor	46	⚡	Ignition ON	0 V		
Manifold absolute pressure (MAP) sensor - 1993-96	49	⚡	Ignition ON	0 V		
Octane coding plug - if fitted	23	←	Ignition ON	0 V or 5 V		
Octane coding plug	24	←	Ignition ON	0 V or 5 V		
Park/neutral position (PNP) switch - 1986-91	30	←	Ignition start position - AT not in P or N	11-14 V		
Park/neutral position (PNP) switch	30	←	Ignition start position - AT in P or N - engine cranking	0-1 V		
Park/neutral position (PNP) switch - 1992-96	30	←	Ignition ON - AT not in P or N	11-14 V		

Park/neutral position (PNP) switch	30	←	Ignition ON - AT in P or N	0-1 V		
Pulsed secondary air injection (PAIR) solenoid - some models 1986-89	51 (37)	↔	Engine idling - engine cold	9-14 V		
Pulsed secondary air injection (PAIR) solenoid	51 (37)	↔	Engine idling - engine hot	0 V		
Pulsed secondary air injection (PAIR) solenoid	51	↔	Ignition ON	11-14 V		
Throttle position (TP) sensor	26	⇒	Ignition ON	5 V		
Throttle position (TP) sensor	46	↔	Ignition ON	0 V		
Throttle position (TP) sensor	47	←	Ignition ON - throttle closed	0,5-0,9 V		
Throttle position (TP) sensor	47	←	Ignition ON - throttle fully open	4,3-5 V		
Throttle position (TP) sensor - 1993-96	49	↔	Ignition ON	0 V		
Transmission kick-down relay/switch - 1990-96	19	←	Ignition ON - accelerator pedal released	0 V		
Transmission kick-down relay/switch	19	←	Ignition ON - accelerator pedal fully depressed	11-14 V		
Transmission modulator	53	⇒	Ignition ON	9-12 V		
Transmission modulator - 1990-96	15	⇒	Ignition ON	9-12 V		
Vehicle speed sensor (VSS)	3	←	Ignition ON - vehicle pushed	0 V or 11-14 V		
Vehicle speed sensor (VSS)	3	←	Vehicle moving		5 V/50 ms	 43

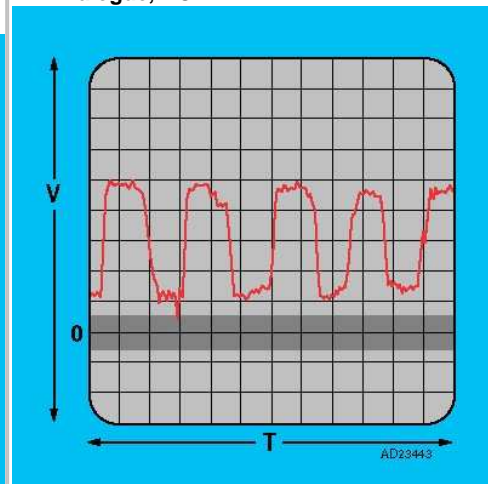
4. Digital, DC, frequency modulated



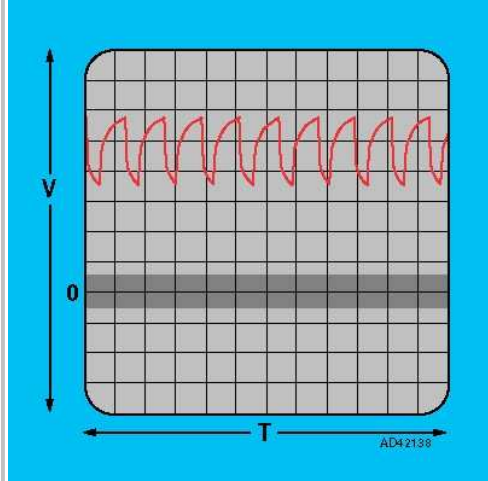
20. Digital, DC, pulse width modulated or digital, DC, frequency modulated



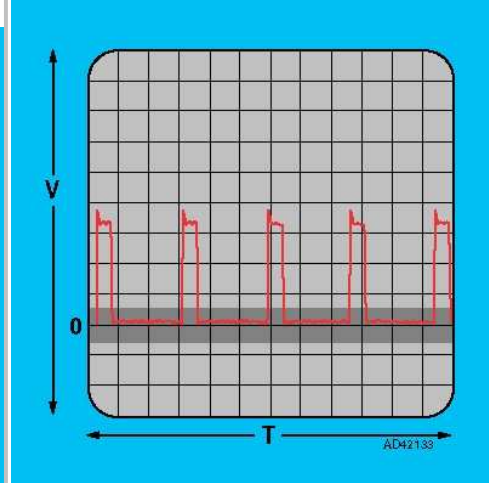
21. Analogue, DC



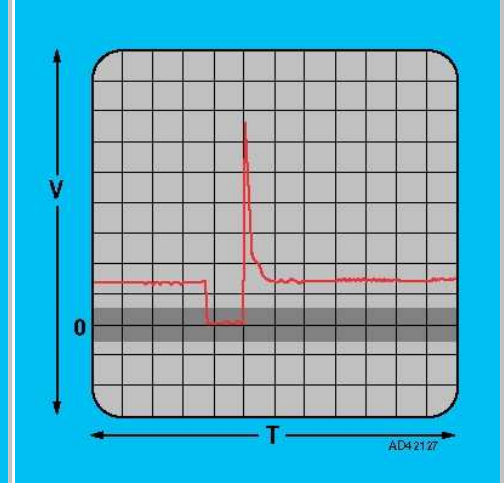
29. Digital, DC, pulse width modulated or digital, DC, frequency modulated



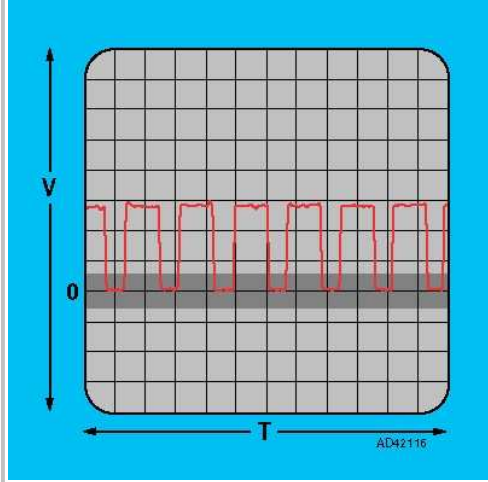
32. Digital, DC, frequency modulated








35. Digital, DC, pulse width modulated



43. Digital, DC, frequency modulated



	input/output signal
	input signal
	output signal
	ECM switched earth
	ECM earth circuit