

**BMW Series 5, E34 (EURO) Low Cluster
(MY. '88-'90) Pinout**

X16 (Yellow) 26-pin X16 Connector - Rear of A2w instrument cluster 20-1 01 -1						
Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case
Pin 1	A	TxD Diagnostic Line	Diagnostic Connector, Diagnostic Module	Square-Wave Analog	X17/14	TXD
Pin 2	E	ABS Indicator Lamp	ABS Control Unit	B-	X16/20	ABS Indicator control
Pin 3	A	Brake Fluid Level	Brake Fluid Level Switch	B-	X16/15	Brake fluid warning
Pin 4	E	Coolant Temperature Sensor	Remote Thermometer Sensor	B-	X16/26	Temperature Gauge signal
Pin 5	A	OII Pressure Signal	Oil Pressure Switch	B-	X16/6	Oil Pressure Indicator control
Pin 6		NOT_USED	NOT_USED			
Pin 7	E	Preheating, Diesel	DDE Control Unit		X16/8	
Pin 8		SIA (Service Light) Reset	Diagnostic Connector, Diag Socket Pin 7	B-	X16/16	SIA Reset
Pin 9		Charge Indicator Lamp, Terminal 61	Unloader Relay		X16/5	Charge Indicator control
Pin 10	E	Start Clear Diesel	DDE Control Unit			
Pin 11		NOT_USED	NOT_USED			
Pin 12	E	RxD Diagnosis Line	Diagnostic Connector, Diag Socket Pin 15	Square-Wave Analog	X17/2	RXD
Pin 13	E	NOT_USED	NOT_USED			
Pin 14	A	Airbag Lamp Indicator	Airbag Diagnostic Module	B-	X16/1	Airbag
Pin 15	A	Ignition Lock	Ignition Switch		N/A	
Pin 16	A	Fuse, Terminal 15, Ignition	Fuse	B+	X16/7	Terminal 15 // Power Fuse // Battery+ from Ignition
Pin 17	A	Terminal R for Airbag Indicator Lamp	Ignition Switch	B+	X16/21	Airbag Indicator power // Term.R is indicator
Pin 18	M	Ground Connection	Ground Connection	B-	X17/1 X17/13	
Pin 19		NOT_USED	NOT_USED			
Pin 20	A	TI (DME Control Unit) Signal	DME/DDE Control Unit	Square-Wave Analog	X16/17	TI signal for fuel economy
Pin 21	E	Fuse, Terminal 30	Fuse	B+	X16/12 X16/13	Terminal 30 // Power // Battery+ Direct
Pin 22	E	Fuse, Terminal R, Accessories Wire (ACC)	Fuse	B+	X17/3 X17/15	Terminal R // Power // Term.R is indicator
Pin 23	A	Main Beam Indicator Lamp	Direction Switch	B+	X16/22	High beam indicator power
Pin 24	A	Turn Signal Indicator Lamp	Hazard Warning Relay	B+	X16/11	Trailer turn signal indicator
Pin 25	A	Fuse, Terminal 15, Ignition	Fuse	B+		Terminal 15 // Battery+ from Ignition
Pin 26	E	TD Signal	DME/DDE Control Unit	Square-Wave Analog	X16/18	TD signal for tachometer

Pin Types	
Type	Description
E	Input
A	Output
M	Ground

Symbol	Description
ABS	Assisted Breaking System
SIA	Service Lights Indicator
TI	Injection Signal
TD	Engine Speed Signal
CC	Check-Control
CCM	Check-Control Module
LKM	Lamp Control Module
AHM	Trailer Module
ASC	Automatic Stability Control
ECS	Electronic Transmission Control
K	Instrument Cluster
KVA	Fuel Consumption Indicator
TQ	Injection Quantity Diesel

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X13060 (Blue) 26-pin X13060 Connector - Rear of A2w instrument cluster 20-1 10-4							
Pin	Type	Description	Connection	Signal Type	Color	Pin (High)	
Pin 1	E	Instrument Cluster Lights	Light Switch, Dimmer	Pulses		X502/14	Instrument Illumination Power
Pin 2	E	Engie/Vehicle Speed Input (-), Position Pulse	Rear Axle reed contact, Speed Sensor	B-	Brown	X271/10	Vehicle Speed km/h
Pin 3	E	Fuel Level Warning Light	Fuel Level Sending Unit, Fuel Sensor	B-		X271/2	Fuel Level warning signal
Pin 4		NOT_USED	NOT_USED		NOT_USED		
Pin 5	A	Position Pulse DWA	DWA Module				N/A
Pin 6		NOT_USED	NOT_USED		NOT_USED		
Pin 7	E	Indicator Lamp, Rear Fog Lights	Fog Light Switch	B+		X502/15	Fog Light indicator control LCM
Pin 8	E	Indicator Lamp, Front Fog Lights	Fog Light Switch	B+		X502/1	Fog Light indicator control LCM
Pin 9	E	Brake Pad Sensor Input	Front Break-pad Sensor	Approx. 12V		X16/25	Front and Rear sensors are interconnected
Pin 10	A	Ground Break Pad Sensor	Rear Break-pad Sensor	Ground		X16/10	Front and Rear sensors are interconnected
Pin 11	M	Ground	Ground Connection	B-		X16/24	
Pin 12	A	Speedometer (Speed Signal), Tacho A Signal, Output	Control Units, Control Module	Square-Wave Analog	Black/White	X502/18	Attach Device here to get Speed Value
Pin 13	A	Engine/Vehicle Speed Input (+), Position Pulse	Read Axle reed contact, Speed Sensor	Square-Wave 0-12V	Brown/Red	X271/8	Vehicle Speed
Pin 14	E	Fuel Level Signal	Fuel level Sending Unit, Fuel Sensor	B-		X271/4	Lamp Light is controlled via electronics - Pir
Pin 15	E	Connecting Line	Instrument Cluster				
Pin 16		NOT_USED	NOT_USED		NOT_USED		
Pin 17		NOT_USED	NOT_USED		NOT_USED		
Pin 18		NOT_USED	NOT_USED		NOT_USED		
Pin 19	E	Right Turn Signal Indicator	Hazard Warning Relay	B+		X502/26	Right turn indicator control
Pin 20	E	Left Turn Signal Indicator	Hazard Warning Relay	B+		X502/25	Left turn indicator control
Pin 21		NOT_USED	NOT_USED		NOT_USED		
Pin 22		NOT_USED	NOT_USED		NOT_USED		
Pin 23		NOT_USED	NOT_USED		NOT_USED		
Pin 24	E	Handbrake Indicator Lamp	Handbrake Switch, Parking Brake Sensor	B-		X271/7	Park brake indicator control
Pin 25		NOT_USED	NOT_USED		NOT_USED		
Pin 26	A	Gong Signal, Sound Tone Signal, Output	Gong, Acoustic Generator	B-		X502/2	Sound tone signal

BMW Series 5, E34 (EURO) High Cluster Redesign "1/240"
(MY. '89-'90) Pinout

X17 (Brown) 6-pin (24-pin Connector Slot) X17 Connector - Rear of A2w instrument cluster, Next to X16							
Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	Wire Color
Pin 1	M	Ground	Ground Connection	GND			Orange-Gray
Pin 2	E	Diagnosis RxD	Diagnostic socket - Pin 15	Square-wave			White-Yellow
Pin 3	E	Fuse, Terminal R, Accessories Wire (ACC), +12V	+12V via Power Supply	+12V (B+)		Positive Terminal	Orange-Purple
Pin 4	M	Terminal 31, Ground	Ground Connection	GND			Orange
Pin 5	A	Diagnosis TxD	Diagnostic socket - Pin 20	Square-wave			White
Pin 6	E	Terminal R, Accessories Wire (ACC), +12V	+12V via Power Supply	+12V (B+)		Positive Terminal	Orange-Purple

Pin Types	
Type	Description
E	Input
A	Output
M	Ground

Abbreviation

Symbol	Description
ABS	Assisted Breaking System
SIA	Service Lights Indicator
TI	Injection Signal
TD	Engine Speed Signal
CC	Check-Control
CCM	Check-Control Module
LKM	Lamp Control Module
AHM	Trailer Module
ASC	Automatic Stability Control
EGS	Electronic Transmission Control
K	Instrument Cluster
KVA	Fuel Consumption Indicator
TQ	Injection Quantity Diesel

X16 (Biege)
26-pin
X16 Connector - Rear of A2w instrument cluster

Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	
Pin 1	E	Control Light Airbag	Airbag diagnostic module	B-		Airbag indicator lamp	
Pin 2	E/A	Data link to CCM, CLK CCM (Data)	CCM X18, Pin 13	Square-wave 0-5V		Serial Clock Output	
Pin 3	E/A	Data link to CCM, BC and LKM/LAC	CCM X18, Pin 25 and BC, LKM	Square-wave 0-5V		Load data to parallel register	
Pin 4	E/A	Data link to CCM	CCM X18, Pin 9	Square-wave 0-5V		Enable voltage reference	
Pin 5	E	Warning Light - Battery Charge Indicator, Terminal 61	Alternator	B+			
Pin 6	E	Warning Light - Oil Pressure Switch	Pressure Switch	B-			
Pin 7	E	Fuse, Terminal 15, Accessories Wire (ACC), +12V	+12V via Power Supply	+12V		Positive Terminal, Run-Start Mode, Control Terminal 15	
Pin 8	E	ASC Indicator Light	ASC Control Unit	B-			
Pin 9	E	Oil Temperature (M5)	Temperature Sensor	0-12V		Temperature Ranges (Only E34/M5)	
Pin 10	A	Warning Light - Foot Brake, Rear	Connection 1, Rear Brake Sensor	Ground		Break Pad warning, Front and rear sensors are interconnected	
Pin 11	E	Trailer Turn Signal Indicator Light	Relay	B+			
Pin 12	E	Fuse, Terminal 30, Accessories Wire (ACC), +12V	+12V via Power Supply	+12V		Positive Terminal, Terminal 30	
Pin 13	E	Fuse, Terminal 30, Accessories Wire (ACC), +12V	+12V via Power Supply	+12V		Positive Terminal, Terminal 30	
Pin 14	E	Brake Pressure	Pressure Switch	B-		(Only E34 w/ H31 Brake System)	
Pin 15	E	Warning Light - Brake Fluid Level	Level Switch	B-			
Pin 16	E	SIA Reset	Diagnostic socket - Pin 7	B-		at B-SIA Reset	
Pin 17	E	TI Injection Signal from DME	DME Control Unit	Square-wave			
Pin 18	E	TD Signal from DME, Speed Signal	DME Control Unit	Square-wave		Engine speed value	
Pin 19	E	TI Signal 2 from DME II	DME II Control Unit	Square-wave		Line connected as of model year 1990	
Pin 20	E	Warning Light - ABS Indicator	ABS Control Unit	B-			
Pin 21	E	Terminal R for Airbag Indicator Lamp	Ignition Switch, +12V via Power Supply	+12V		Positive Terminal, Accessory Mode, Airbag, Terminal R	
Pin 22	E	Main Headlights/Beam Indicator	Light Switch	+12V (B+)			
Pin 23	E/A	Data link DAC to CCM and BC, DAC CCM DATA / BC	CCM X18, Pin 7	Square-wave 0-5V		Send UART data here to display it in LCD	
Pin 24	A	Coolant Temperature Sensor Ground	Temperature Sensor	B-		Temperature Range	
Pin 25	E	Warning Light - Foot Brake, Front	Connection 2, Front Brake Sensor	appx. 12V		Break Pad warning, Front and rear sensors are interconnected	
Pin 26	E	Coolant Temperature Input	Temperature Sensor	0-12V		Temperature Range	

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Thanks to:

<http://www.bimmerboard.com/forums/posts/822204>

X271 (Gray)
12-pin
X271 Connector - Rear of A2w instrument cluster, next to X502

Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	
Pin 1	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 2	E	Fuel Tank Indicator (Reserve/Running Low)	Tank Sensor	B-		Fuel Level Warning Signal	
Pin 3	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 4	E	Fuel Tank Contents	Tank Sensor	0-12V		Fuel Level	
Pin 5	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 6	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 7	E	Warning Light - Handbrake	Handbrake Switch	B-		Park Brake Indicator Control	
Pin 8	E	Vehicle Speed Input (+), Tachometer, Terminal 31	Tachogenerator	Square-wave 0-12V		Tachogenerator Input, Vehicle Speed, To Signal Generator PWM Pin	
Pin 9	A	Position Pulse DWA		Square-wave 0-12V			
Pin 10	A	Vehicle Speed Input (-), Tachometer, Terminal 31	Tachogenerator	B-		Tachogenerator Ground, Vehicle Speed, To Signal Generator GND Pin	
Pin 11	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 12	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	

X502 (White)
26-pin
X502 Connector - Rear of A2w instrument cluster, next to X271

Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	
Pin 1	E	Fog Lights Indicator Lamp	Fog Light Switch	B+		Front Fog Lights	
Pin 2	A	Output for gong signal, Sound Tone Signal (Gong)	Acoustic Generator	B-		Gong	
Pin 3	E	Check Engine Lamp	DME Control Unit	B-		DME	
Pin 4	E	Gear Display (Automatic Only)	Selector Lever	B+			
Pin 5	E	Gear Display (Automatic Only)	Selector Lever	B+			
Pin 6	E	Gear Display (Automatic Only)	Selector Lever	B+			
Pin 7	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 8	E	EGS Program Indicator	EGS Control Unit	B-			
Pin 9	E	EGS Program Indicator	EGS Control Unit	B-			
Pin 10	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 11	E	Gear Display (Automatic Only)	Selector Lever	B+			
Pin 12	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 13	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 14	E	Instrument Light, Terminal 58G	+12V Positive Terminal, or Dimmer	Pulses		Instrument Illumination Power	
Pin 15	E	Rear Fog Lights Indicator Lamp	Fog Light Switch	B+		Rear Fog Lights	
Pin 16	E	EML Indicator Lamp	EML Control Unit	B-			
Pin 17	E	EML Indicator Lamp	EML Control Unit	B-			
Pin 18	A	Output Speed, Vehicle Speed Signal Output, Tacho A Signal	Various Control Units	Square-wave			
Pin 19	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 20		Terminal 61, Auxiliary Alternator	Auxiliary Alternator	B+		Software v0.90 only	
Pin 21	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 22	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 23	A	CC Button for BC Displays	BC, Pin 14	B-		B- clears BC display in instrument cluster display	
Pin 24	N/A	NOT_USED	NOT_USED	NOT_USED	NOT_USED	NOT_USED	
Pin 25	E	Indicator Light - Left Turn Indicator	Relay	B+			
Pin 26	E	Indicator Light - Right Turn Indicator	Relay	B+			

BMW Series 5, E34 (EURO) High Cluster

11 Pin LCD Display Pinout

Part ID: 1 388 799

Blue Connector for VDO Display w/ 11 Pins
1 388 788

Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	Wire Color
Pin 1	M	Ground	Ground Connection	GND		Ground Connection	N/A
Pin 2	E	VCC +5V	Cluster - PCB Connector	4.98V		Likely a 5V PSU for power supply, providing VCC to power the HD44780 controller	N/A
Pin 3	E	Contrast Voltage (VO)	Cluster - PCB Connector	0.03V - 0.07V		Voltage adjustment for contrast control	N/A
Pin 4	E	Register Select (RS)	Cluster - PCB Connector	4.86V - 5.02V		Controls command/data selection for the display	N/A
Pin 5	E	Read/Write (RW)	Cluster - PCB Connector	4.86V - 5.02V		Specifies read (1) or write (0) operation	N/A
Pin 6	E	DB4	Cluster - PCB Connector	0.01V - 0.02V	HD44780A84 DB4		N/A
Pin 7	E	DB5	Cluster - PCB Connector	0.01V - 0.08V	HD44780A84 DB5		N/A
Pin 8	E	DB6	Cluster - PCB Connector	0.03V	HD44780A84 DB6		N/A
Pin 9	E	DB7	Cluster - PCB Connector	0.03V	HD44780A84 DB7		N/A
Pin 10	E	Power Supply +5V	Cluster - PCB Connector	4.98V		5V Power supply for driving the LCD display	N/A
Pin 11	E	Enable Signal (E)	Cluster - PCB Connector	1.03V		Enable Signal for latching data into the HD44780 Controller	N/A

Abbreviation

Pin Types	
Type	Description
E	Input
A	Output
M	Ground

Symbol	Description
ABS	Assisted Breaking System
SIA	Service Lights Indicator
TI	Injection Signal
TD	Engine Speed Signal
CC	Check-Control
CCM	Check-Control Module
LKM	Lamp Control Module
AHM	Trailer Module
ASC	Automatic Stability Control
EGS	Electronic Transmission Control
K	Instrument Cluster
KVA	Fuel Consumption Indicator
TQ	Injection Quantity Diesel



Part ID: 1 388 788

Possible Uses for the Pins

- Pin 1 (GND): A ground/earth connection based on the pinout PCB line tracing
- Pin 2 (VCC): A consistent 5V power supply suggests it's providing VCC to power the HD44780 controller
- Pin 3 (VO): A fluctuating low voltage (0.03-0.07V) matches VO, which is used to control the contrast of the display
- Pin 4 (RS): The pin shows 4.86-5.02V, indicating a digital input likely used for "Register Select" (RS)
- Pin 5 (RW): A mirrored or redundant 5V pin, likely controlling "Read/Write" functionality
- Pin 6 (DB4): A HD44780 controller DB4 traceout line
- Pin 7 (DB5): A HD44780 controller DB5 traceout line
- Pin 8 (DB6): A HD44780 controller DB6 traceout line
- Pin 9 (DB7): A HD44780 controller DB7 traceout line
- Pin 10 (PSU): 5V power supply for driving the LCD display
- Pin 11 (E): The voltage (1.03V) resembles the Enable pin logic, which latches data into the HD44780, might also be a reference voltage for an ADC or other analog circuit

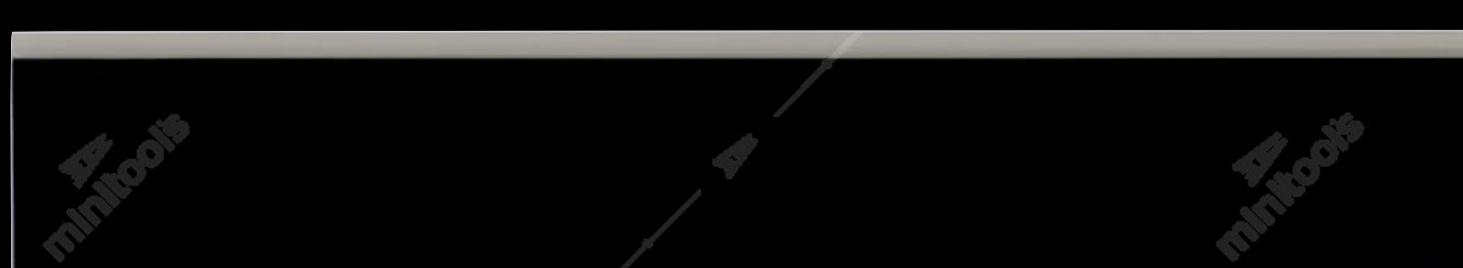
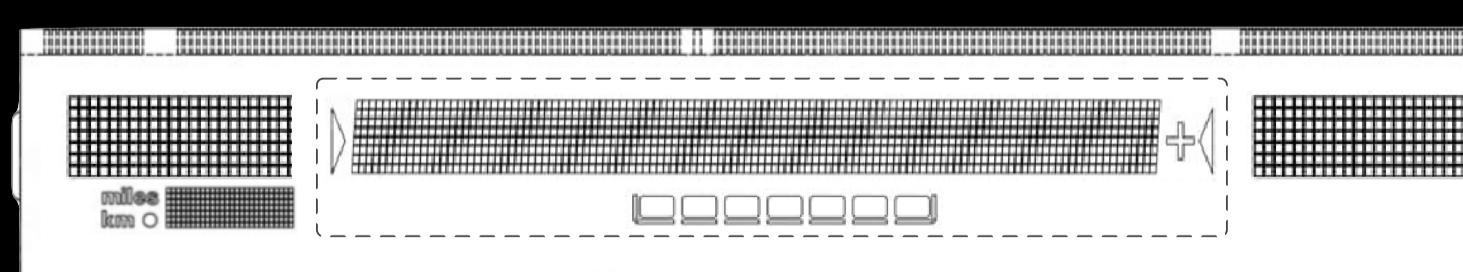
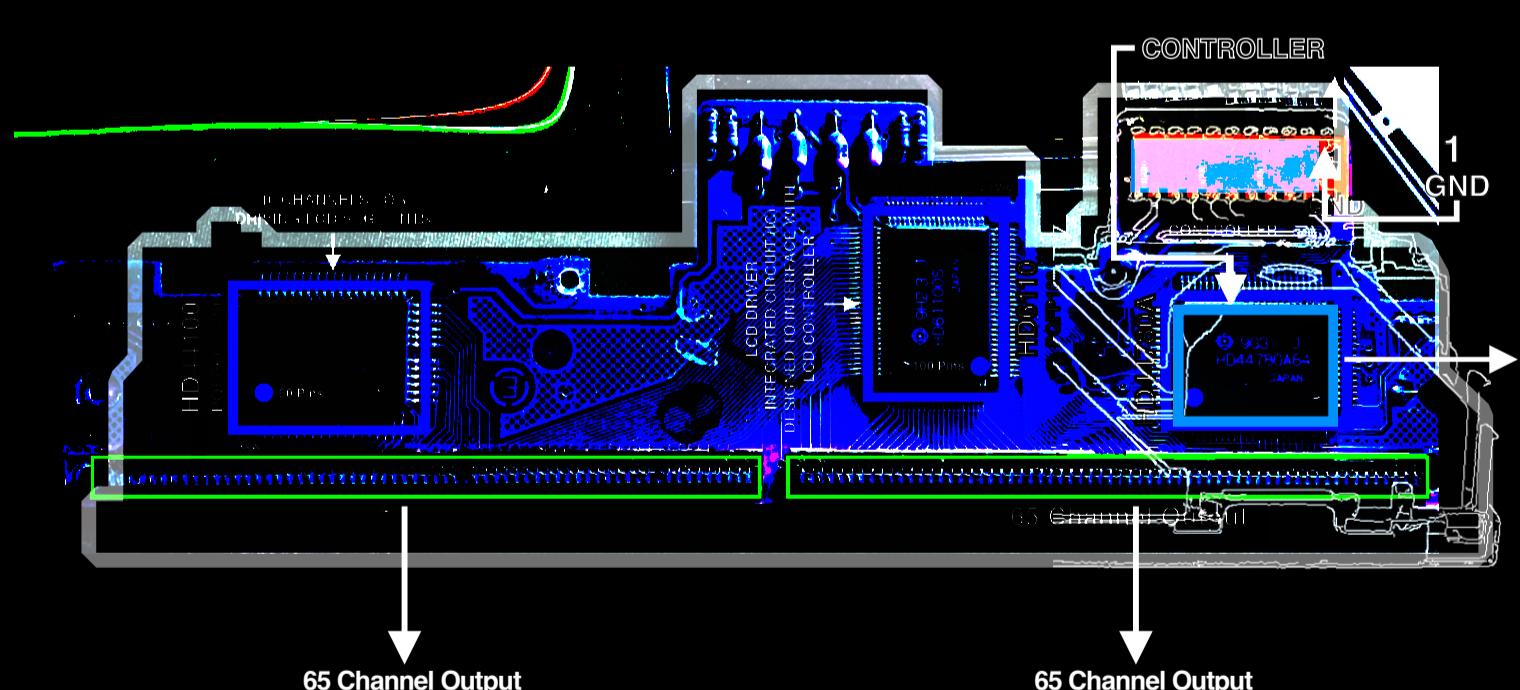
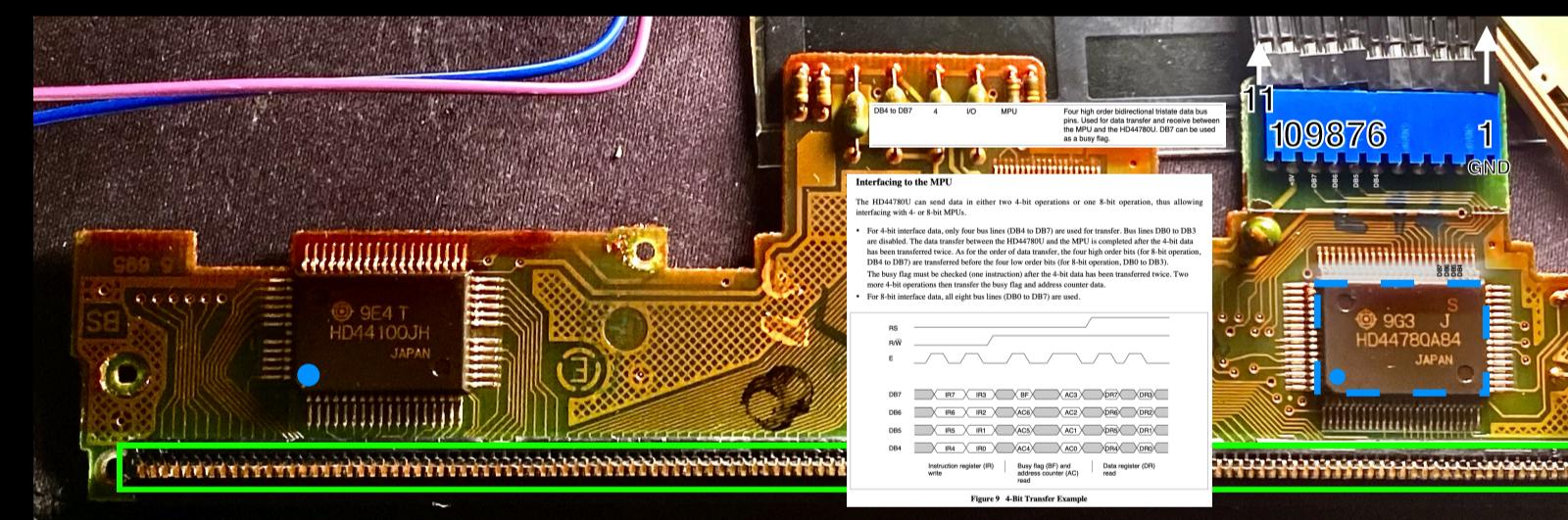
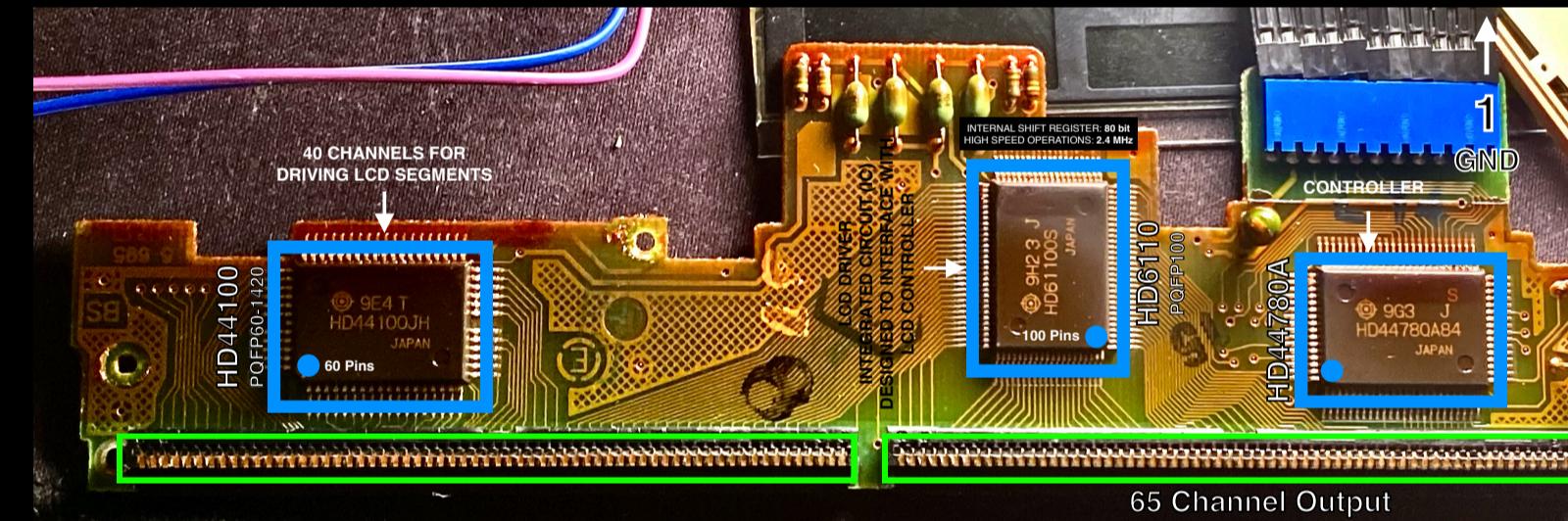
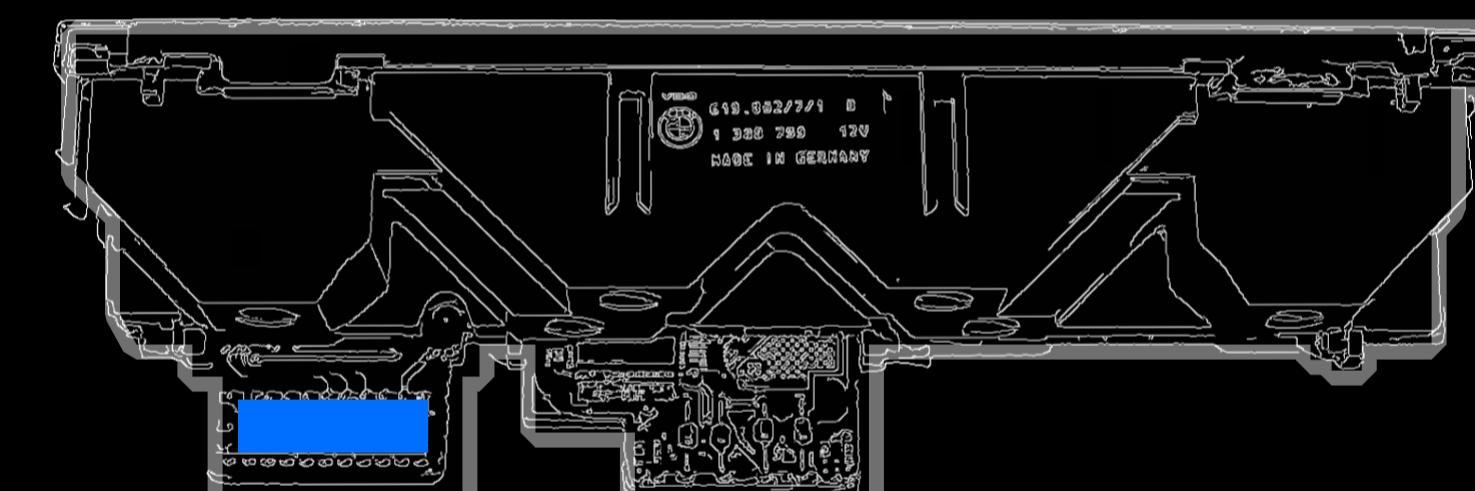
References Used

- http://bitsavers.informatik.uni-stuttgart.de/components/hitachi/_dataBooks/1987_Hitachi_Liquid_Crystal_Display_Modules.pdf
- <https://www.crystalfontz.com/blog/the-legendary-hd44780-controller/>
- <https://www.datasheetarchive.com/pdf/download/distributors/Datasheets-17/DSA-336564.pdf>

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These pins align well with a standard HD44780 controller interface.



**BMW Series 5, E34 (EURO) High Cluster
18 Pin LCD Display Pinout
Part ID: 1 382 977 1**

Green Connector for VDO Display w/ 18 Pins
1 382 977 1

Pin	Type	Description	Connection	Signal Type	Pin (High)	Use-case	Wire Color
Pin 1							
Pin 2							
Pin 3							
Pin 4							
Pin 5							
Pin 6							
Pin 7							
Pin 8							
Pin 9							
Pin 10							
Pin 11							
Pin 12							
Pin 13							
Pin 14							
Pin 15							
Pin 16							
Pin 17							
Pin 18							

Pin Types	
TYPE	DESCRIPTION
E	Input
A	Output
M	Ground

Abbreviation	
Symbol	Description
ABS	Assisted Breaking System
SIA	Service Lights Indicator
TI	Injection Signal
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CCM	Check-Control Module
LKM	Lamp Control Module
AHM	Trailer Module
ASC	Automatic Stability Control
EGS	Electronic Transmission Control
K	Instrument Cluster
KVA	Fuel Consumption Indicator
TQ	Injection Quantity Diesel



Part ID:
1 382 977 1

Possible Uses for the Pins

Pin 1 (XXX): TBA
 Pin 2 (XXX): TBA
 Pin 3 (XXX): TBA
 Pin 4 (XXX): TBA
 Pin 5 (...): ...
 Pin X (...): ...

These pins align well with a standard HD44780 controller interface.

References Used

- http://bitsavers.informatik.uni-stuttgart.de/components/hitachi/_dataBooks/1987_Hitachi_Liquid_Crystal_Display_Modules.pdf
- <https://www.crystalfontz.com/blog/the-legendary-hd44780-controller/>
- <https://www.datasheetarchive.com/pdf/download/distributors/Datasheets-17/DSA-336564.pdf>

