

TECHNION



TEC172

**When performance
matters**

*Developed and
Manufactured
in Finland*



TEC172

The strongest link in your control system

TEC172 is designed to offer you the most powerful mobile hydraulics controller on the market. Ready-made libraries and function blocks will shorten your development time and improve your time-to-market. With up to 99 interfaces and a highly configurable I/O, you can build a compact and cost-effective control system. All I/O ports are completely protected against malfunctions in the field and you can diagnose and manage problems in the machine with our state-of-the-art system diagnostic features. **TEC172** will be the strongest link in your system, offering high reliability for the most demanding conditions.

Outstanding CPU and memory capacity

TEC172 is the perfect solution for applications that require smooth machine controls, high calculation capacity and fast response times. In order to meet your most demanding requirements, we selected an extremely powerful CPU with a PowerPC core running at 264MHz and providing 600MIPS of processing power. The CODESYS V3 programming platform and built-in multitasking features will help you make the most of this CPU performance. You will definitely enjoy working with this powerful engine!

Fault Protection and Diagnostics keep your machines moving

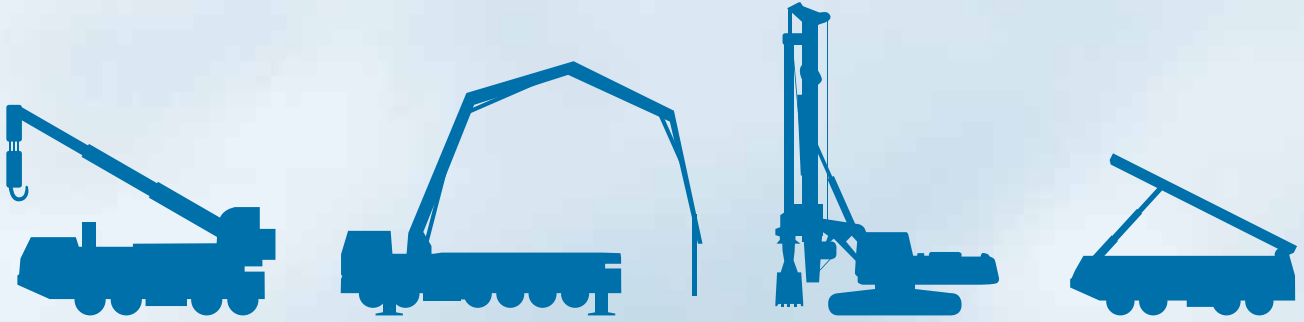
TEC172 includes advanced circuit protection to protect all the I/O pins from damage caused by short circuits. This means that incorrect connections or other defects that may occur in the field will not damage our product's I/O pins. The best part is that we have made all the sensor supplies independent and included diagnostics that can recognize a defective signal in the cabling, actuators or sensors, and precisely point it out to the commissioning or service personnel. This will minimize machine downtime and keep your machines moving throughout their lifetime.

Centralized I/O means compact systems

TEC172 delivers unique features, including a highly versatile I/O selection and software configurable interfaces. Thanks to independent and regulated sensor supply sources, you can select from a variety of sensors. **TEC172** also has built-in compatibility for Variable Reluctance (VR) sensors. With a wide variety of field bus possibilities it is easy to integrate with other systems. We have even included Ethernet in the **TEC172** module. See the I/O table for more information on our range of interfaces.

Mechanical structure without compromises

It looks big and heavy, and it is – on purpose and for your benefit! We have integrated a single circuit board (PCB) into a robust aluminum enclosure so the module can withstand heavy stress in field conditions. With this single circuit board solution we have gained maximum reliability. A distributed connector structure with multiple GND signals simplifies the cabling of the control system and thanks to its IP67 enclosure, **TEC172** will withstand the most demanding environmental conditions.



Find the best match for your application



I/O Table

					MY NEED	
OUTPUTS (46)	HIGH SIDE OUTPUTS	8	MAX 5A PWM OUTPUT			
		24	SW CONF	MAX 2.5A PWM OUTPUT ⁽¹⁾		
				4	MAX 2.5A DC MOTOR DRIVE ⁽²⁾	
				4	SAUER-DANFOSS VALVE CONTROL	
	LOW SIDE OUTPUTS	14	SW CONF	1A / 2A CURRENT FEEDBACK		
				MAX 1A LOW SIDE DIGITAL OUTPUT		
INPUTS (36)	GENERAL PURPOSE INPUTS	16	SW CONF	12	PNP DIGITAL INPUT	
				4	PNP / NPN DIGITAL INPUT	
				12-BIT ANALOG INPUT 0...10V		
	HIGH PRECISION INPUTS	10	SW CONF	12-BIT ANALOG INPUT 0...5V		
				12-BIT ANALOG INPUT 0...10V		
				12-BIT ANALOG INPUT 4...20mA		
				PNP DIGITAL INPUT		
				4	12-BIT ANALOG RESISTANCE 1.5kohm	
	PULSE INPUTS	10	HW CONF	SW CONF	25kHz PULSE COUNTER INPUT ⁽³⁾	
					PNP DIGITAL INPUT	
12-BIT ANALOG INPUT 0...10V						
4				VR SENSOR INPUT ⁽⁴⁾		
SUPPLY SOURCES (9)	REFERENCE OUTPUTS	4	SW CONF	5V @ 50mA (0.5%)		
					10V @ 50mA (0.5%)	
	SENSOR SUPPLY VOLTAGES	4	REGULATED 12V@250mA			
ADJUSTABLE ANALOG OUTPUT	1	10-BIT ANALOG OUTPUT 0...5V @ 5mA				
FIELD BUS PORTS (8)	RS-232	1				
	RS-485	1	MODBUS RTU MASTER / SLAVE SUPPORT			
	CAN	4	CAN OPEN MASTER / SLAVE SUPPORT, J1939			
	ETHERNET ORDER OPTION ⁽⁵⁾	2	NETWORK SWITCH CAPABILITY			

- 1) Optionally 10pcs of 2.5A PWM outputs can be changed to be input ports.
Contact your local Technion sales office if there is a need to increase the amount of input ports in your project.
- 2) Pulse width modulated H-Bridge control for 2 motors. Separate order code option for DC motor support.
- 3) Pulse counter reserves 1pin (with direction 2pins), quadrature encoder reserves 2pins (with index 3pins).
- 4) Separate order code option for VR Sensor support, equipped with 4pcs of VR Sensor inputs and 6pcs of Pulse Counter inputs.
- 5) Separate order code option for Ethernet support.

NOTE: Check all order options from the last page of the brochure.

Product Specification

CPU	MPC5674F
Memory	FLASH 4MB, for CODESYS application 2MB Data FLASH 16MB, for CODESYS application 9.5MB RAM 1.25MB, for CODESYS application 0.75MB Retain memory 3.5kB, for CODESYS application 3.5kB
Supply voltage range	9V - 32V (operational overvoltage 36V)
Supply current, logic	0.3A
Supply current, outputs	30A, max
Housing	Aluminium 253 x 203 x 49 (W x L x H)
Temperature range, operating	-40...+75°C
Temperature range, storage	-40...+85°C
Protection	IP67
Connectors	TYCO AMPSEAL 35 positions (4pcs) TYCO AMPSEAL 14 positions (1pcs) M12 D-coded (2pcs)
CAN x 4pcs	ISO 11898-2
Ethernet 2 ports (with integrated switch)	10BASE-T / 100BASE-TX IEEE 1588 V2 Time synchronization
Serial	RS-232, RS-485
Electrical requirements	ISO 16750-2
Mechanical requirements	ISO 16750-3
Climate requirements	ISO 16750-4
Automotive EMC directive	UNECE regulation No.10
Construction machinery - EMC	EN 13309:2010
Agricultural and forestry machinery - EMC	EN ISO 14982:2009
Earth-moving machinery - EMC	ISO 13766:2006
Application development environment	CODESYS V3



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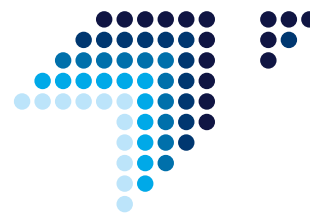
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Order Options Ethernet DC Motor Drive Pulse Input Configuration

Order Options	Ethernet	DC Motor Drive	Pulse Input Configuration
TEC172-001	NO	YES	6pcs Pulse Counter Inputs, 4pcs VR Sensor Inputs
TEC172-002	YES	YES	6pcs Pulse Counter Inputs, 4pcs VR Sensor Inputs
TEC172-003	YES	NO	10pcs Pulse Counter Inputs
TEC172-004	NO	NO	10pcs Pulse Counter Inputs

Technion Partner