



# EHU

## ECORICH HYBRID HYDRAULIC POWER UNIT

**SERIES 40**

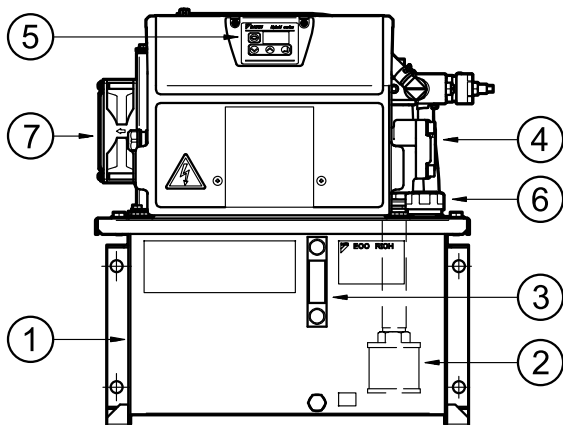
**TANK CAPACITY**

18 litres

**MOTOR PUMP FLOW RATE**

28.5 l/min

### DESCRIPTION



- 1) Oil tank
- 2) Suction filter
- 3) Oil level visual indicator
- 4) Motor pump with IPM motor
- 5) Control unit
- 6) Oil filler cap with air breather
- 7) Cooler

The ECORICH hybrid units are designed and manufactured by Daikin Industries LTD.

They merge the hydraulics technology with an interior permanent magnet synchronous motor.

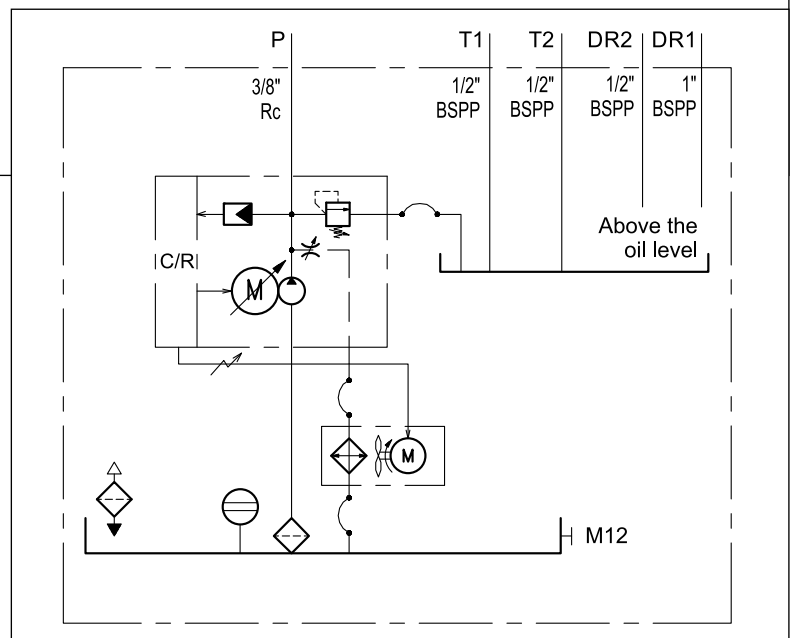
The result is a compact power unit that achieves high torque and maximum efficiency while suppressing heat and noise generation. Energy consumption is reduced significantly.

The high efficiency of the motor-pump ensures that oil heating is minimal. This advantages the machine tool on which the ECORICH is installed in terms of oil and heat-sensitive parts life, and less heat dissipation in the surrounding ambient.

The ECORICH units are equipped with IPM motor-pump, controller, pressure relief valve, oil cooler, suction filter and oil filler cap with air breather. Thermometer, temperature switch, level switch and adapter can be ordered as options.

The power unit is designed for 3-phase AC 380 to 460V 50/60 Hz.

### HYDRAULIC SYMBOL



## 1 - IDENTIFICATION CODE

<div style="display: flex; justify-content: center; gap: 5px;"> <div style="border: 1px solid black; padding: 5px 10px;">EHU</div> <div style="border: 1px solid black; padding: 5px 10px;">30</div> <div style="border: 1px solid black; padding: 5px 10px;">07</div> <div style="border: 1px solid black; padding: 5px 10px;">-</div> <div style="border: 1px solid black; padding: 5px 10px;">40</div> <div style="border: 1px solid black; padding: 5px 10px;">-</div> <div style="border: 1px solid black; padding: 5px 10px;">Y</div> <div style="border: 1px solid black; padding: 5px 10px;">C</div> </div>	
<p>ECORICH HYBRID UNIT</p> <p>Maximum flow rate 28.5 l /min</p> <p>Maximum operating pressure 70 bar</p> <p>Series No. _____ (from 40 to 49 sizes and mounting dimensions remain unchanged)</p>	<p>with RS422/485 communication port</p> <p>3-phase AC power supply 380...460 V 50/60 Hz without transformer</p>

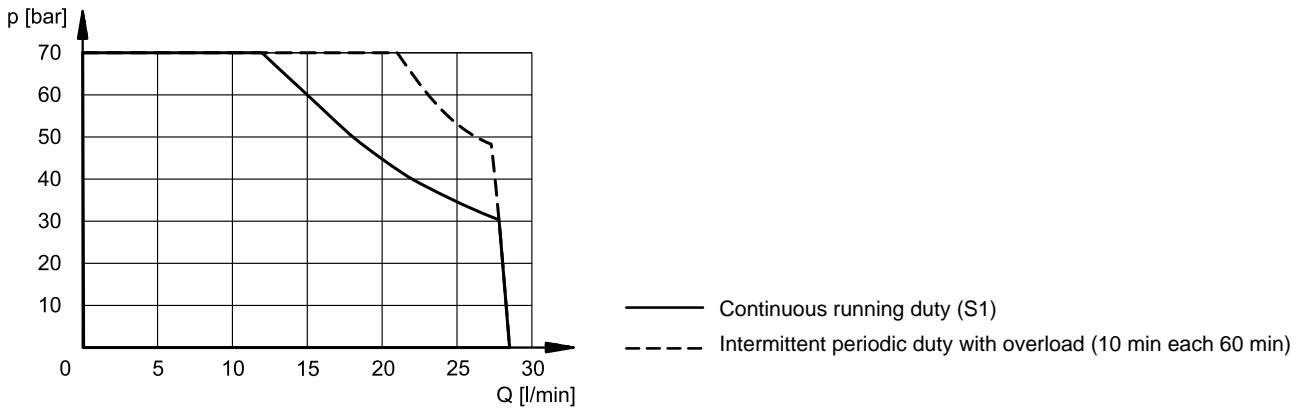
**NOTE:** Optional components such as level switch, sensors, adapter, etc. must be ordered separately. Assembly is the responsibility of the customer. See point 10.

## 2 - SPECIFICATIONS

Maximum operating pressure	bar	70
Operating pressure range	bar	15 ÷ 70
Operating flow range	l/min	3.5 ÷ 28.5
Tank capacity	l	18 (fluctuation: -5 litres)
Supply voltage permissible voltage fluctuation		3-phase AC 380...460 V 50/60 Hz ±10%
Nominal motor power	kW	1.5
Rated current	A	7
No-fuse breaker capacity	A	10
Input signal, external		3 channels, photo coupler insulation, DC 24 V (maximum of DC 27 V), 5 mA per channel
Digital output signal, external		1 channel, photo coupler insulation, open collector output, DC 24 V, 50 mA maximum per channel
Contact output signal, external		1 channel, relay output, contact capacity: DC 30 V, 1 A (resistance load), 1 common contact
Ambient temperature range	°C	0 to +40
Fluid temperature range in the tank	°C	0 to +60 (recommended +15 to +50)
Fluid contamination degree		within ISO 4406 class 21/19/16
Viscosity		Viscosity grade: ISO VG32 to 68 • Viscosity range: 15 to 400 mm <sup>2</sup> /s
Operating ambient humidity	RH	< 85%, without condensation
Protection class		IP44
Installation		altitude max 1000 mt , indoor, fixed on a flat surface without vibrations.
Noise level range (distance: 1 meter)		58 ÷ 70 dB
Mass (without oil)	kg	29

### 3 - CHARACTERISTICS

Values obtained and rated for ambient temperature  $\leq 40\text{ }^{\circ}\text{C}$  and fluid temperature  $\leq 60\text{ }^{\circ}\text{C}$ .

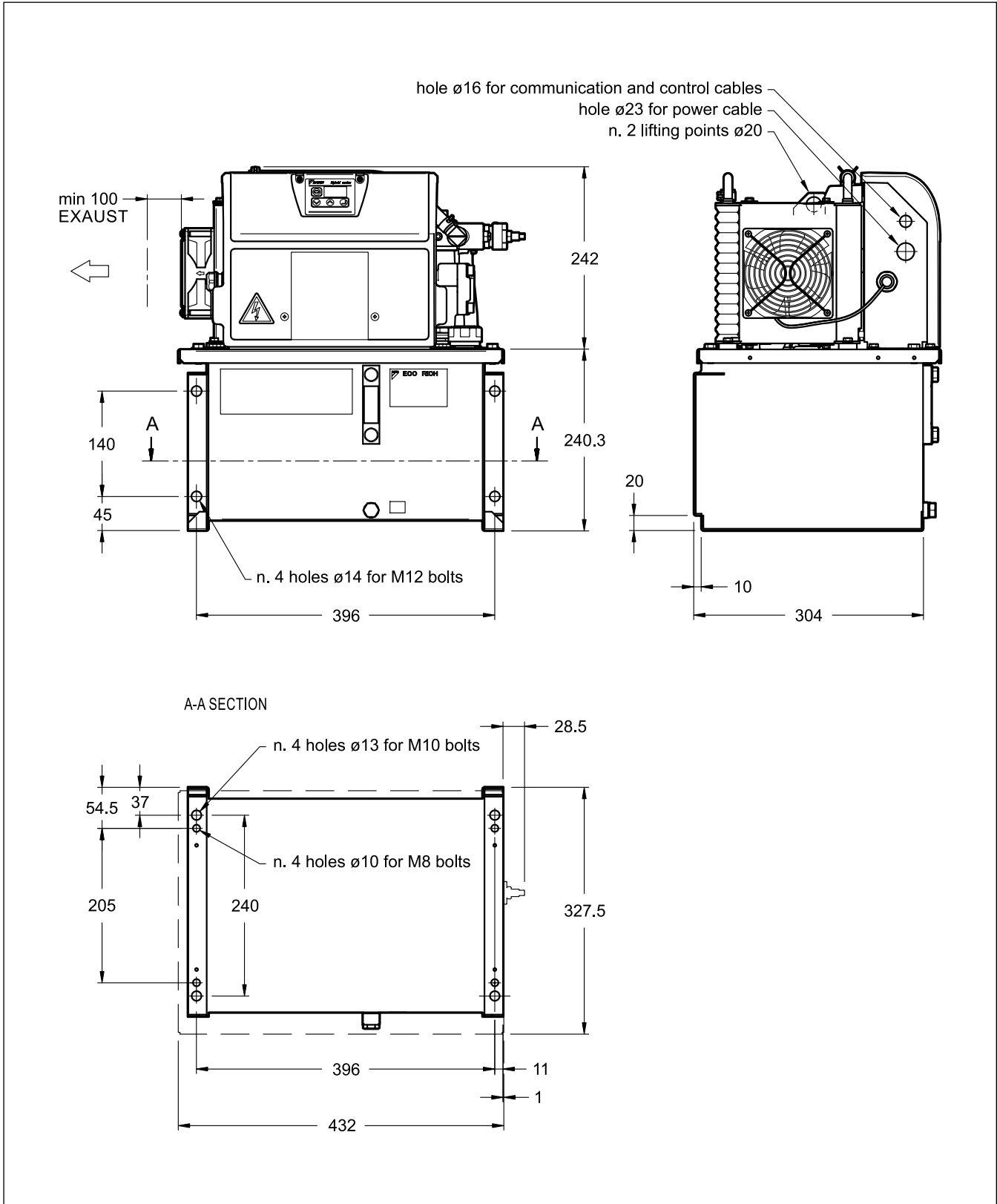


### 4 - MAIN PARTS AND OPTIONS

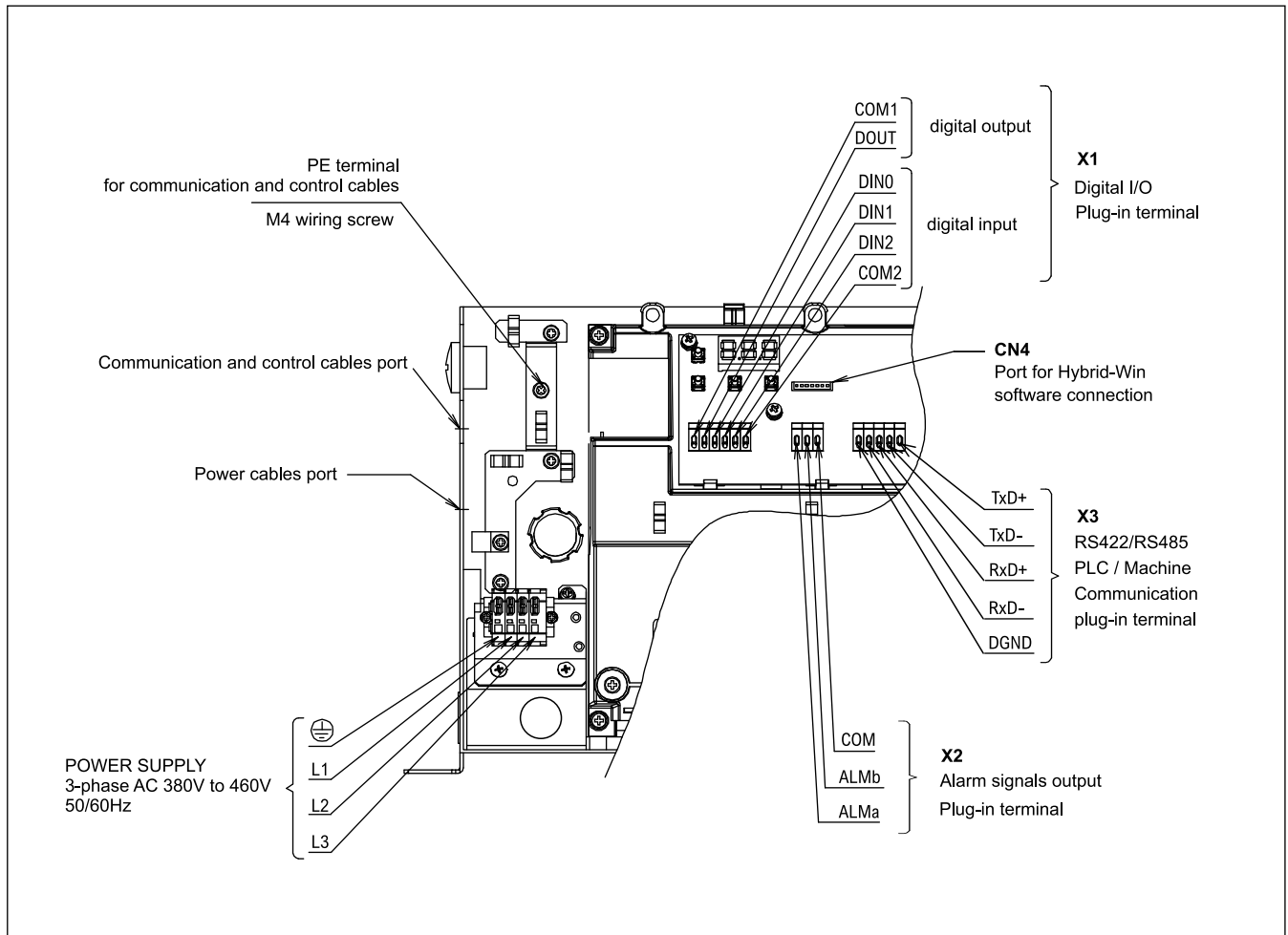
**NOTE:** Rc is a tapered female thread from the taper screw standard for pipes JIS B 0203:1999. It is compatible with the male BSPT thread.  
 BSPP adapter available. See point 10

1	P Pressure port: Rc 3/8" ( <b>NOTE</b> ) delivered with resin cap
2	T1 Port for return line T1: 1/2" BSPP delivered with resin cap
3	T2 Port for return line or temperature switch or thermometer: 1/2" BSPP delivered with resin cap
4	DR2 Drain port or level switch: 1/2" BSPP delivered with resin cap
5	DR1 Drain port: 1" BSPP delivered with resin cap
6	Oil filler port with air breather
7	Oil sampling and tank drain port
8	Oil level indicator: upper 18 L; lower 13 L
9	Cooler
10	Control panel

## 5 - OVERALL AND MOUNTING DIMENSIONS

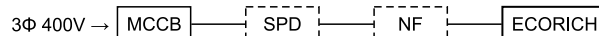


## 6 - WIRING



### 6.1 - EMC 2014/30/EU compliance

The EN 61800-3:2004 (Second environment / PDS Category "C3") requires the installation of a surge protection device and a noise filter between the breaker and the ECORICH hybrid unit on the power source line.



The assessment for the installation of these components is the responsibility of the machine manufacturer, as compliance with EMC regulations involves the entire machine on which the EHU unit will be installed. If EHU has to be compliance EMC 2014/30/EU as a standalone, noise filter and protection device are must have.

Surge protection device (SPD) and noise filters can be ordered separately. See point 10.

### 6.2 - Wiring notes

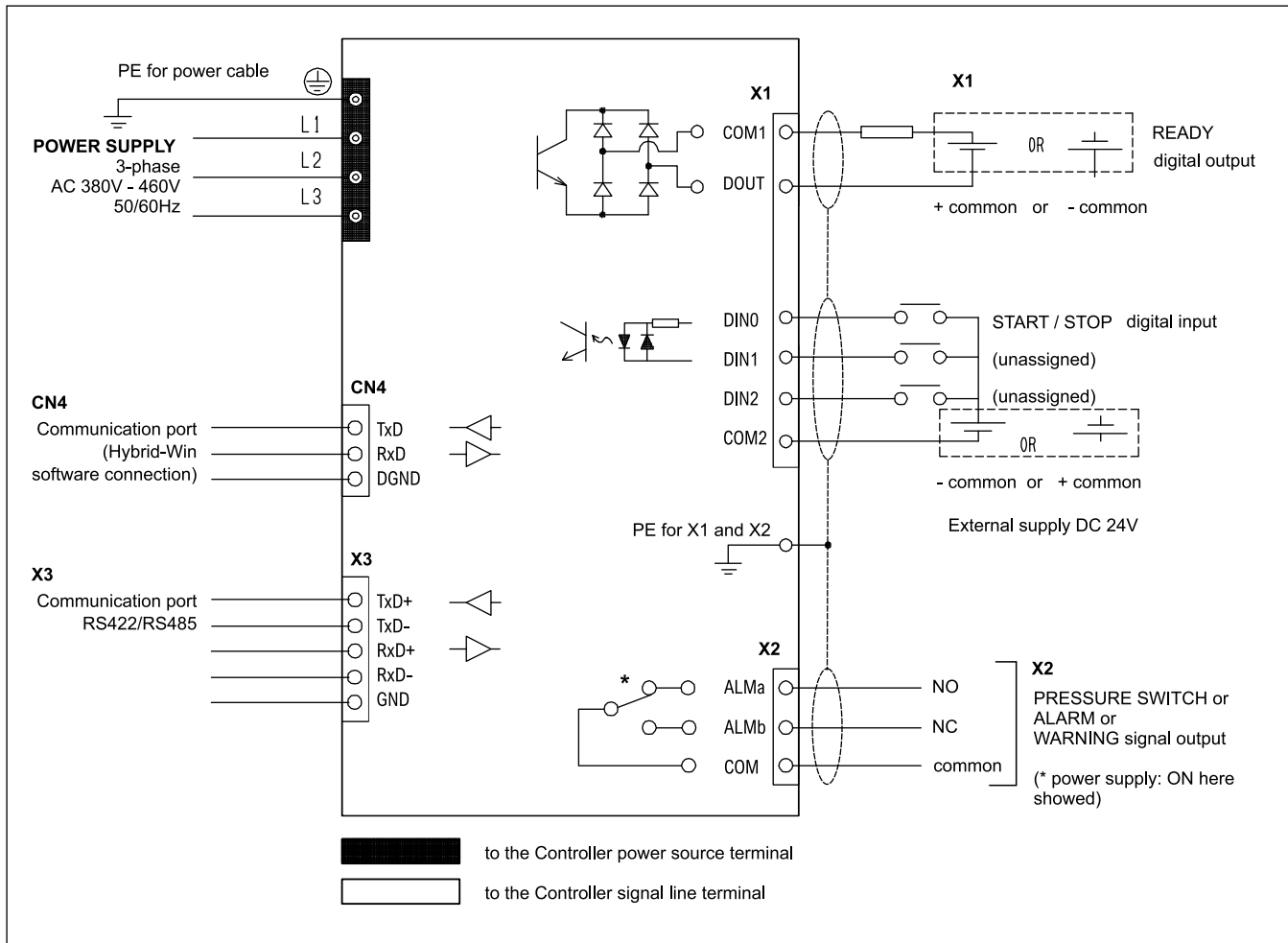
- Install a no-fuse breaker and a ground fault interrupter compliant with European Standard EN 60947-2 in the main power supply of ECORICH, to protect the electrical circuits against shorting and overcurrent, and to prevent electric shocks.
- Use straight type terminals for the power supply wiring.
- Use suitable electric cable in accordance with the power supply capacity. In addition, connect the cables correctly in accordance with the wiring guide.
- Provide a ground connection in compliance with the law in the relevant country. Connect the grounding wire directly with no breaker in the line.
- Avoid the entry of waste metal such as screws and wiring debris, or combustible matter such as wood waste or oil, inside the control unit.
- Use a commercial power supply for the power source. The use of an inverter power supply may cause burn damage to the unit.
- Before accessing the interior of the control unit, check that the unit's power supply has turned OFF **and then wait at least 5 minutes**.

### 6.3 - Cables

For the main power connection (L1, L2 and L3) use cables with 4-wires, with 1.5 mm<sup>2</sup> section.

For signals and for ModBUS communication to the PLC use shielded cables with section from 0.35 mm<sup>2</sup> to 0.5 mm<sup>2</sup>.

### 7 - BLOCK DIAGRAM



### Digital I/O & alarm signals

		description		function / notes
X1	COM1	common output	24 V DC ( $\pm 10\%$ ) I max 50 mA resistive	Can be either positive or negative
	DOUT	digital output		Ready to operate / motor operation signal. ON or OFF is selectable by parameter setting.
	COM2	common digital input	24 V DC ( $\pm 10\%$ ) I max 5 mA resistive	Can be either positive or negative
	DIN0	digital input 0		Unit start / stop signal Selectable by parameter setting.
	DIN1	digital input 1		reserved
	DIN2	digital input 2		reserved
X2	ALMa	NO alarm output	switching 30 V DC 1A resistive (min load 24 VDC 10 mA approx)	When the power supply unit is switched ON, ALMa is closed (ALMb open). If an alarm / warning has occurred and when the pressure switch is actuated the contact ALMa is open (ALMb closed).
	ALMb	NC alarm output		
	COM	common alarm output		

## 8 - INSTALLATION NOTES

### 8.1 - Installation and piping

- The unit is a stationary type. Fix it with bolts on a level location that is free of vibration.
- Keep obstacles that will obstruct air intake and emission at least 100 mm away from the end face of the unit. Install the unit at a location with good air flow so that heated air can be vented.

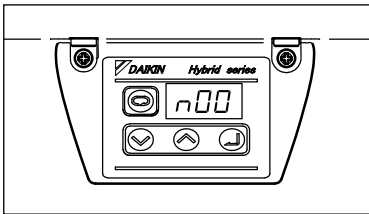
### 8.2 - Hydraulic fluid

- Use mineral-oil base hydraulic oil. Use of hydraulic oils other than mineral-oil based type (e.g., hydrous/synthetic) is prohibited.

### 8.3 - Other precautions

- If a failure occurs in the hydraulic unit, the system indicates an alarm and terminates. If a failure or malfunction of this unit is expected to cause death or pose a danger to human beings, adopt appropriate safety measures in the facilities.
- Turning the power supply ON/OFF frequently will significantly shorten the life of the controller. Use the start/stop digital inputs to start/stop this hydraulic unit. Leave an interval of at least 5 minutes between operation stops invoked by turning the power supply ON/OFF. Also, when starting and stopping the unit using the start/stop signals, leave an interval of at least 0.5 seconds between a stop command and restarting.
- It takes approximately 3 seconds for this hydraulic unit to start up after being powered ON. Depending on the piping conditions, the unit may take longer to increase the pressure to the pressure switch's preset level, resulting in pressure switch signal output. In this case, set the machine up so that it will not accept this alarm output during this period.

## 9 - DEVICE SETUP



The ECORICH control unit is configured by connecting the CN4 port located inside the unit control panel to a device with the Hybrid-win software installed. It is always possible to modify the parameters also by keys on the control panel.

The ECORICH unit communicates with the machine tool via Modbus-RTU protocol. The communication setting between them is done from the operation panel of the hydraulic unit.

### 9.1 - Hybrid-win software

The software allows to monitor the operating data in real time through a graphical interface; to read and set parameters, to monitor alarms and warnings history and to save and copy the parameter set.

The software is compliant with Microsoft Windows OS.

The connection between the ECORICH and the PC requires a cable connection kit, that can be ordered separately. See point 10.

The Hybrid-win software and the additional literature for the ECORICH unit can be easily downloaded from the Customer's page in the product section at [www.hyd.daikin.com](http://www.hyd.daikin.com) after subscribing the membership for free.

### 9.2 - Parameters table

Please refer to the *Instruction Manual* delivered with the product for a complete list of parameters and their settings.

## 10 - ACCESSORIES

These accessories are supplied separately and their assembly on the power unit is charged to the customer.

ordering code	description	
3906500010	LS-B12-114/10-D24K1-SPDT	Level switch SPDT 1/2" BSPP
3906500012	TS-B12-170-60/10-D24K1-SPDT	Temperature switch 1/2" BSPP - 24V DC - switching temperature 60 °C
0119801	Adapter Rc 3/8" to BSPP 3/8" for P pressure port	
3906500002	PM-SPD01 - Surge protection device for EHU#-40/SUT#-40	
3906500001	PM-SNF12 - Noise filter for EHU#-40	
3906500003	EHUPC/10 - Kit for Hybrid-Win software connection	



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