

# TC.LAE.5.230 / TC.LAE.5.400

Liquid to air heat exchanger



## Features

### TC.LAE

For systems with significant cooling demands and without liquid cooling system in the lab.

With modular concept for easy installation in a switch cabinet.

In a compact design with 2 integrated liquid to air heat exchangers and temperature controlled fans for noise reduced operation.

For a closed cooling circuit with minimal maintenance work.

With optional connection variants of the cooling interfaces G 1/2" to complete the product line. E.g. Quick release non-drip coupling.

CE conformity declaration

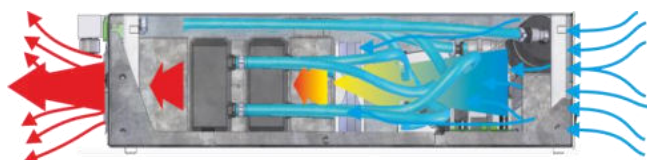
Graduated product line: 230 V<sub>AC</sub>, 400 V<sub>AC</sub>

### Function

The TC.LAE is a liquid cooling device that transfers the generated heat energy from the attached device to the surrounding air. An internal pump circulates the cooling liquid between the device to be cooled and the TC.LAE.

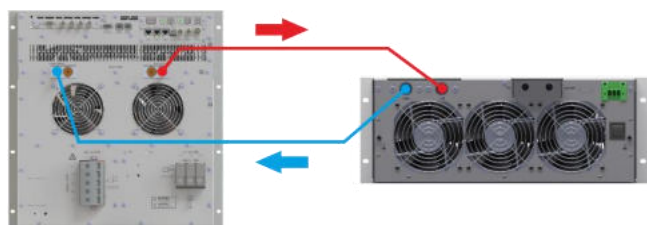
The heated liquid flows through the radiators to be cooled down by the surrounding air, which is forced through the radiators by six powerful temperature controlled fans.

The temperature reduced coolant returns via tube outlet to the attached device.



## Application Example

### Closed cooling circuit



## Technical Data

### Key Values

|                                                             |                                                        |
|-------------------------------------------------------------|--------------------------------------------------------|
| Liquide to air heat exchanger                               |                                                        |
| Line voltage                                                | 100...240 V <sub>AC</sub> or 380...480 V <sub>AC</sub> |
| Line frequency                                              | 50/60 Hz                                               |
| Max. Cooling Power @20 °C ambient temperature <sup>1)</sup> | 5 kW                                                   |
| Case                                                        | 19" / 4 U                                              |

## Technical Data

### AC Lineside Ratings

#### TC.LAE.5.400

|                                    |                                |
|------------------------------------|--------------------------------|
| Line voltage                       | 380...480 V <sub>AC</sub> ±10% |
| Line frequency                     | 48...62 Hz                     |
| Mains connection type              | 2L + PE (no neutral)           |
| Input current @400 V <sub>AC</sub> | 0.5 A                          |
| Leakage current L to PE            | <10 mA                         |
| Input power                        | 200 VA                         |
| Powerfactor                        | ≥0.98                          |

#### Isolation

|                       |                 |                        |
|-----------------------|-----------------|------------------------|
| Power to PE (L1 / L2) | working voltage | 333 V <sub>ACrms</sub> |
| Power to PE (L1 / L2) | working voltage | 500 V <sub>DC</sub>    |

#### TC.LAE.5.230

|                                    |                                |
|------------------------------------|--------------------------------|
| Line voltage                       | 100...240 V <sub>AC</sub> ±10% |
| Line frequency                     | 48...62 Hz                     |
| Mains connection type              | L + N + PE                     |
| Input current @230 V <sub>AC</sub> | 0.87 A                         |
| Leakage current L to PE            | <10 mA                         |
| Input power                        | 200 VA                         |
| Powerfactor                        | ≥0.98                          |

#### Isolation

|                      |                 |                        |
|----------------------|-----------------|------------------------|
| Power to PE (L1 / N) | working voltage | 264 V <sub>ACrms</sub> |
| Power to PE (L1 / N) | working voltage | 500 V <sub>DC</sub>    |

### Cooling

Internal liquid to air heat-exchange system using temperature-controlled fans

#### Heat Exchanger

|          |       |
|----------|-------|
| Material | Brass |
|----------|-------|

#### Cooling Power<sup>1)</sup>

|                                               |      |
|-----------------------------------------------|------|
| Max. Cooling Power @20 °C ambient temperature | 5 kW |
|-----------------------------------------------|------|

#### Recommended coolant characteristics

Coolant:

|           |                              |
|-----------|------------------------------|
| Substance | Antifrogen N Clariant® (30%) |
|-----------|------------------------------|

For further information see manufacturer's datasheet

#### Liquid temperature

|                                    |            |
|------------------------------------|------------|
| Inlet temperature (non-condensing) | 15...65 °C |
|------------------------------------|------------|

### Protection

#### Type of protection (according EN 60529)

|                    |                           |
|--------------------|---------------------------|
| Basic construction | IP 20                     |
| Mounted in cabinet | up to IP 54 <sup>1)</sup> |

1) Derating of cooling power depending on ambient temperature and maximum permissible coolant outlet temperature.

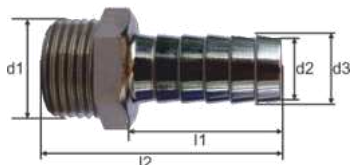
## General Data

### Weight & Dimension (see Figure 1)

|                             |                   |
|-----------------------------|-------------------|
| Weight                      | approx. 25 kg     |
| Width front panel           | 483 mm / 19"      |
| Width housing               | 444 mm / 17 1/2"  |
| Height housing              | 178 mm / 4 U / 7" |
| Depth with output terminals | 649 mm / 25 1/2"  |
| Depth housing               | 601 mm / 23 3/4"  |
| Connections: Inlet/Outlet   | G 1/2"            |

### Connection

The TC.LAE device is delivered with a hose fitting.



|                            |                 |
|----------------------------|-----------------|
| Thread diameter d1         | G 1/2"          |
| Hose connector diameter d2 | 13 mm / 1/2"    |
| Hose connector diameter d3 | 14.2 mm / 9/16" |
| Hose connector length l1   | 30 mm / 1 3/16" |
| Total length l2            | 47 mm / 1 7/8"  |

### Ambient

|                                          |                                                                |
|------------------------------------------|----------------------------------------------------------------|
| Operating temperature                    | 5...40 °C                                                      |
| Storage temperature (with orig. coolant) | -18...70 °C                                                    |
| Relative air humidity (non-condensing)   | 0...95%                                                        |
| Installation altitude                    | 0...2000 m above sea level <sup>1)</sup>                       |
| Installation                             | in 19" switch cabinet<br>IEC 60721-3-3 indoor, air-conditioned |
| Vibration                                | IEC 60068-2-6 Test Fc                                          |
| Operating orientation                    | upside                                                         |
| Storage, transport orientation           | upside                                                         |
| Acoustic noise level                     | ISO 3746:2010 ≤75 dB @2 m                                      |

### Standards

|                      |            |
|----------------------|------------|
| Protection class     | I          |
| Overvoltage category | III        |
| Degree of pollution  | 2          |
| Area of application  | industrial |

### Approval CE

|                                  |                                                    |
|----------------------------------|----------------------------------------------------|
| Low Voltage Directive 2014/35/EU | EN 62477-1:2012 + A11 :2014 + A1 :2017 + A12 :2021 |
| EMC Directive 2014/30/EU         |                                                    |
| EMC immunity (industrial)        | EN 61000-6-2:2005                                  |
| EMC emission (industrial)        | EN 61000-6-4:2007 + A1:2011                        |
| RoHS Directive 2011/65/EU        | EN IEC 63000:2018                                  |

### Approval UKCA

|                                                                                                                    |                                                       |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Electrical Equipment (Safety) Regulations 2016                                                                     |                                                       |
|                                                                                                                    | BS EN 62477-1:2012 + A11 :2014 + A1 :2017 + A12 :2021 |
| Electromagnetic Compatibility Regulations 2016                                                                     |                                                       |
| EMC immunity (industrial)                                                                                          | BS EN 61000-6-2:2005                                  |
| EMC emission (industrial)                                                                                          | BS EN 61000-6-4:2007 + A1:2011                        |
| The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 |                                                       |
|                                                                                                                    | BS EN IEC 63000:2018                                  |

### Dimensions



Figure 1: Front, right hand side and rear view. 19-inch module with 4 units in height.

This product is developed, produced and tested according to ISO9001 by REGATRON.

For detailed technical information, contact REGATRON or your local sales partner.

|                      |                                            |
|----------------------|--------------------------------------------|
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All product specifications and information contained herein are subject to change without notice.

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Class: Project-specific-use-only

<sup>1)</sup> above 1000 m, slight temperature derating possible