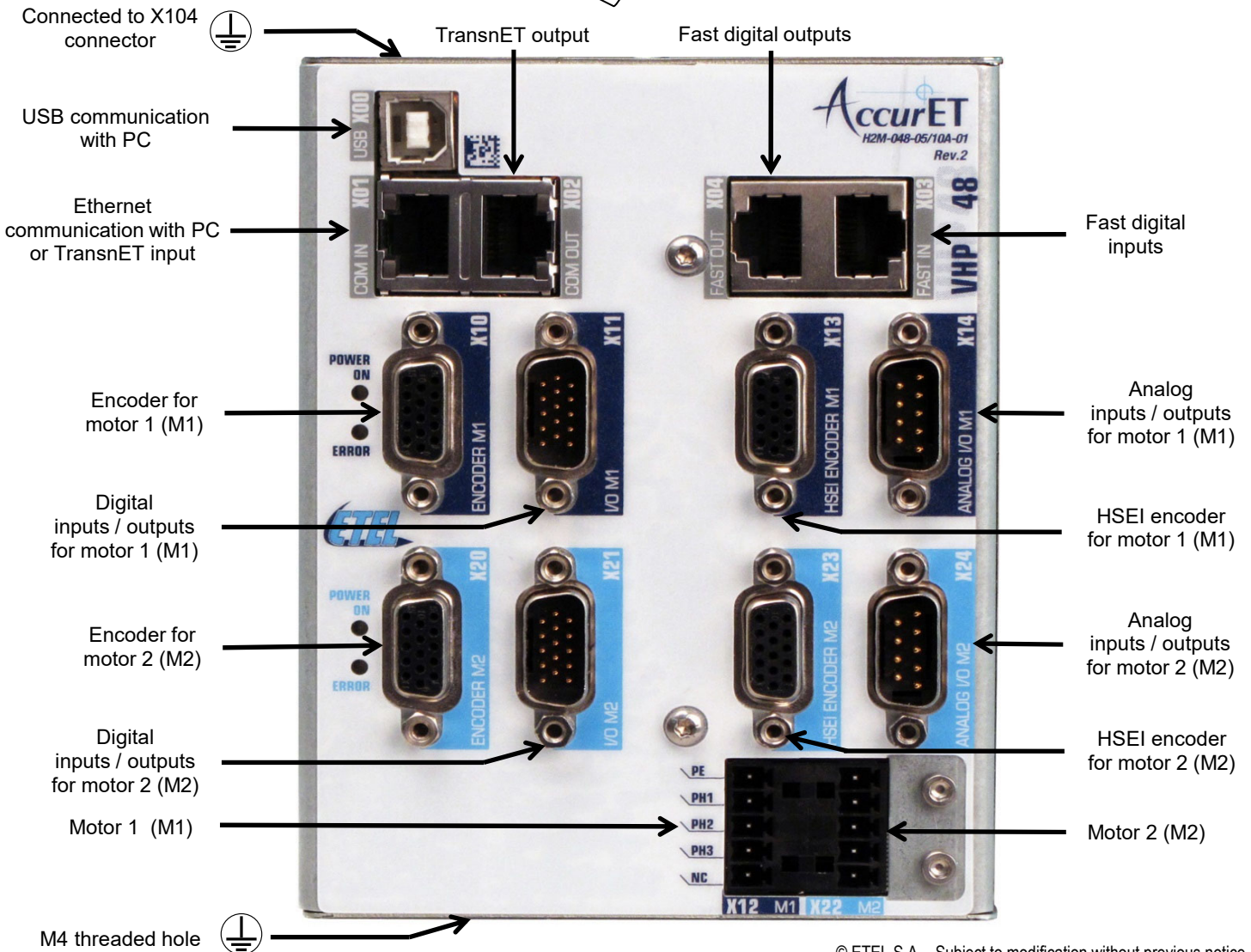
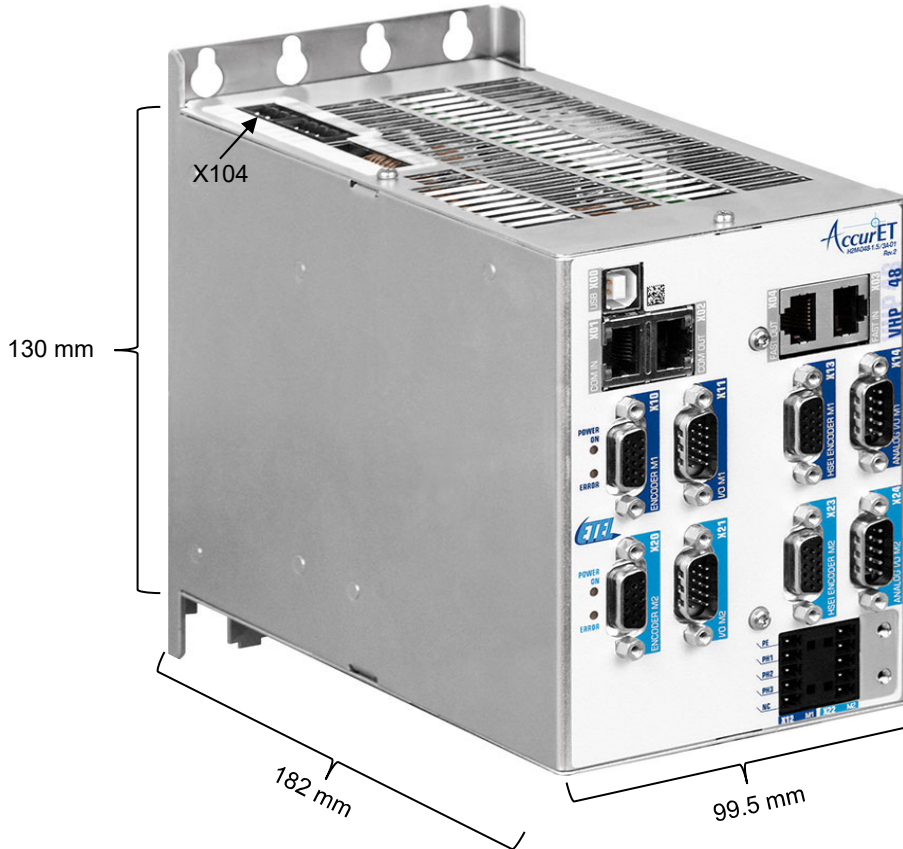


| CONTROLLERS                              |                                  | UNIT | EA-H2M-048-1.5/3A | EA-H2M-048-05/10A |
|--|----------------------------------|------|-------------------|-------------------|
| Number of axes                           |                                  | -    | 2                 | 2                 |
| Current range                            | Continuous current (per axis)    | Arms | 1.5               | 5                 |
|  | Max. overload current (per axis) | Arms | 3                 | 10                |
| Current loop SNR (Signal to Noise Ratio) |                                  | dB   | 100               | 100               |
| Power input                              | DC voltage                       | VDC  | 15 - 48           | 15 - 48           |
|  | Max. current                     | Arms | 10                | 10                |
| Weight                                   |                                  | kg   | 2.6               | 2.6               |
| PWM frequency                            |                                  | Hz   | N/A               | N/A               |

| CONTROL FEATURES           |   | UNIT |  |
|----------------------------|---|------|--|
| General                    | Motion profile and command management sampling time | µs   | 400 (down to 200)  |
|                            | Current loop sampling time                          | µs   | 12.5   |
|                            | Position loop sampling time                         | µs   | 50   |
|                            | Basic motion profiles                               | -    | Trapezoidal, S-curve, Sine, Look-up table, ..., Interpolated (refer to UltimET)    |
|                            | Advanced motion profiles                            | -    | Refer to UltimET motion controller   |
| Communication interface    | USB 2.0 (for setting only)                          | -    | Full speed (12 Mbps)   |
|                            | ETEL real-time bus / cycle time                     | -    | TransnET at 1 Gbps / 100 µs (down to 50 µs)  |
|                            | Ethernet (TCP/IP)                                   | -    | 10 / 100 MHz   |
| Position encoder interface | Analog 1 Vpp  | -    | Max. 500 kHz input frequency   |
|                            | Digital (TTL)                                       | -    | Max. 6 MHz input frequency (on HSEI encoders)                                      |
|                            | EnDat 2.1 and 2.2                                   | -    | Max. 10 MHz input frequency  |
|                            |   | -    | RS485  |
| User's inputs / outputs    | Digital inputs                                      | -    | 4 DINs (per axis)  |
|                            | Fast digital inputs                                 | -    | 6 FDINs (common to both axes)  |
|                            | Digital outputs                                     | -    | 4 DOUTs (per axis)   |
|                            | Fast digital outputs                                | -    | 4 FDOUTs (common to both axes)   |
|                            | Analog inputs                                       | -    | 4 AINs (common to both axes), ±10V, 16 bits  |
| Software / programmability | ComET commissioning software                        | -    | For setting / monitoring (for software compatibility, refer to the ComET manual)   |
|                            | ETEL Device Interface (EDI)                         | -    | DLL files for C / C++ / .NET (for software compatibility, refer to the EDI manual) |
|                            | Firmware update                                     | -    | USB, Ethernet TCP/IP and TransnET  |

| ADVANCED FEATURES                   |  |
|-------------------------------------|--|
| Fast triggers (1D and 2D)           | Fast trigger based on theoretical or real position with less than 20ns reaction time.    |
| Force control                       | Precise force control with or without sensor. Zero stop time for outstanding throughput. |
| Identification tools                | Powerfull identification tool for fine tuning and machine performance evaluation.        |
| Gantry control                      | Advanced control algorithm to drastically reduce settling times on gantry type machines. |
| Stage protection                    | Safety algorithm to handle very fast and controlled axis stop.                           |
| Cogging and friction compensation   | Learning algorithm to compensate disturbances like friction and cogging.                 |
| Dual encoder feedback               | Optimized management of dual encoder feedback on a single axis.                          |
| RTV (Real Time Values)              | 8 channels of real time data per axis for upper level motion management.                 |
| Trajectory filters                  | Advanced trajectory shapes to avoid axis vibrations and reduce settling times.           |
| High Speed Encoder Interface (HSEI) | 6MHz encoder input for high resolution and high speed axes                               |
| Built-in analog Input/Output        | Four built-in 16 bits analog inputs/outputs to read/control external devices             |



© ETEL S.A. - Subject to modification without previous notice