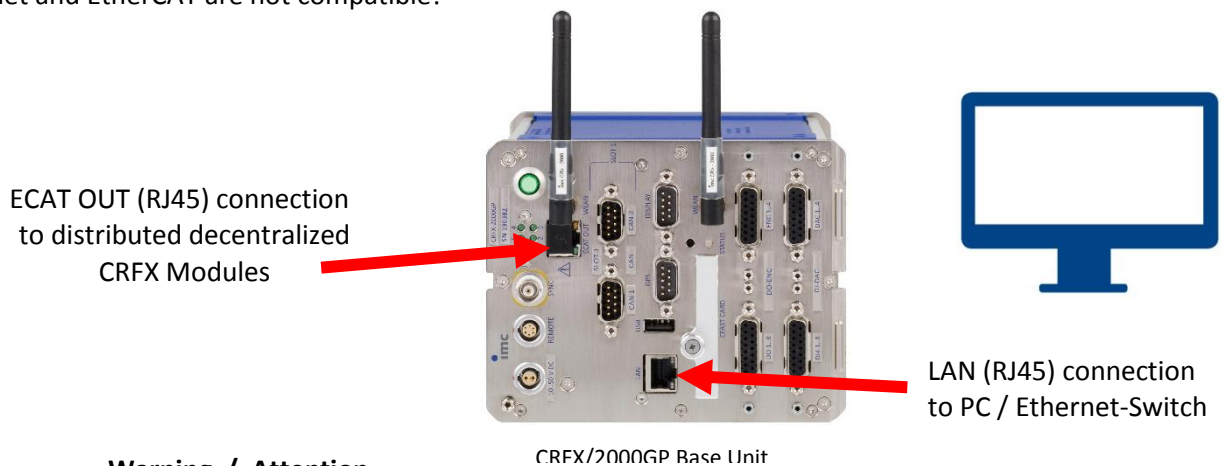


Ethernet vs. EtherCAT

Status: 26.02.2020

Each CRFX Base Unit is equipped with an Ethernet terminal (LAN) for a connection with a PC, as a direct Point-to-Point connection or within a network via an Ethernet-Switch. All CRFX devices (Base Units and Measurement Modules) are equipped with an EtherCAT terminal for connecting the CRFX devices with the EtherCAT system bus (or even with EtherCAT-based 3rd party system). Since the modules are operated in a daisy chain EtherCAT topology, they each have an IN and an OUT terminal (on the rear panel). The Base Unit however, being the “Master” or “head” of this group, only has an “OUT” terminal (on the front panel). Ethernet and EtherCAT are not compatible!



Warning / Attention

You should never connect the ECAT-OUT terminal (RJ45) to a PC or network switch (RJ45)! In order to prevent any accidental connections, please use a dummy plug to cover the ECAT OUT terminal, particularly the "ECAT OUT" terminal on the CRFX Base Unit's front panel.

The ECAT OUT terminal is normally not used, and is only necessary in the specific case, where even the very first CRFX amplifier module is already a specially distributed one, being connected via RJ45 patch cable. However, typically at least a number of amplifiers is directly coupled to the Base Unit (both mechanically and electrically) via the click mechanism. Subsequently additional modules can be installed in a distributed arrangement. These are connected by patch cable originating from the last module within that block, connecting to its ECAT OUT terminal on the module's rear panel.

Background:

Within an imc CRONOSflex system, consisting of specially distributed modules, it is possible to supply power to individual modules via the EtherCAT connection (Power over EtherCAT, PoE¹). However, this option does not comprise the comprehensive compatibility with the general PoE standards in accordance with IEEE 802.3af (Power over Ethernet, PoE) for any arbitrary Ethernet sub-subscribers. In particular controlled enabling of supply voltage onto the network by the “Master” (here: the Base Unit), being subject to a prior communication protocol with the slave (here: the next CRFX module) is not supported. In consequence, the Base Unit's supply voltage (max. 50V !) is directly and unconditionally fed through to the EtherCAT-OUT terminal. In case of inadvertent connection between this terminal and either the PC's Ethernet terminal or a network switch, the respective device may be damaged.

¹ PoE is described in the manual and in the getting started document (PDF) in the chapter power supply options.