ELM Network units
C2C00 – ECU
C2C01 – SSU
C2C03 – kWh meter
C2C04-26 – Ethernet switch

Excellum
EXCELLENT LIGHTING, SAVING ENERGY

GENERAL SYSTEM LAYOUT

Please refer to the attached drawing “C2-ELM-NETWORK-LAYOUT” for the general system layout.

PREPARATION

1. Determine the location of the components in the building, taking into account the following rules:
   - All components are designed for mounting in an enclosure (19” rack or electrical box). If a different mounting method is applied, the necessary protective measures must be taken.
   - Installation of the ECUs is best centralised per storey or building area to minimise cable lengths to sensors and luminaires.
   - The SSU is preferably mounted together with the Ethernet switch centrally in the building to minimise cable lengths. The maximum length of the Ethernet connections between Switch, SSU and ECUs is 90m (standard Ethernet specifications). For greater lengths, an additional repeater, switch or router has to be used. The SSU is preferably powered by a UPS.
   - All components connected to the ELM network must be installed so that they are safely electrically isolated from the mains voltage (or high voltage). This should be checked for the kWh meter in particular.
2. First read the equipment manufacturer’s installation manuals and operating instructions for the following components: C2C01 (SSU), C2C03 (E-meter), C2C04-26 (Ethernet Switch), and follow these instructions.
3. Do not work on live components. Prior to installing components or making connections, switch off all mains supplies. Check that also UPS or emergency power is disconnected!
4. Prior to any work, make sure you fully understand and are able to follow the instructions.

CAUTION – WARNING – IMPORTANT

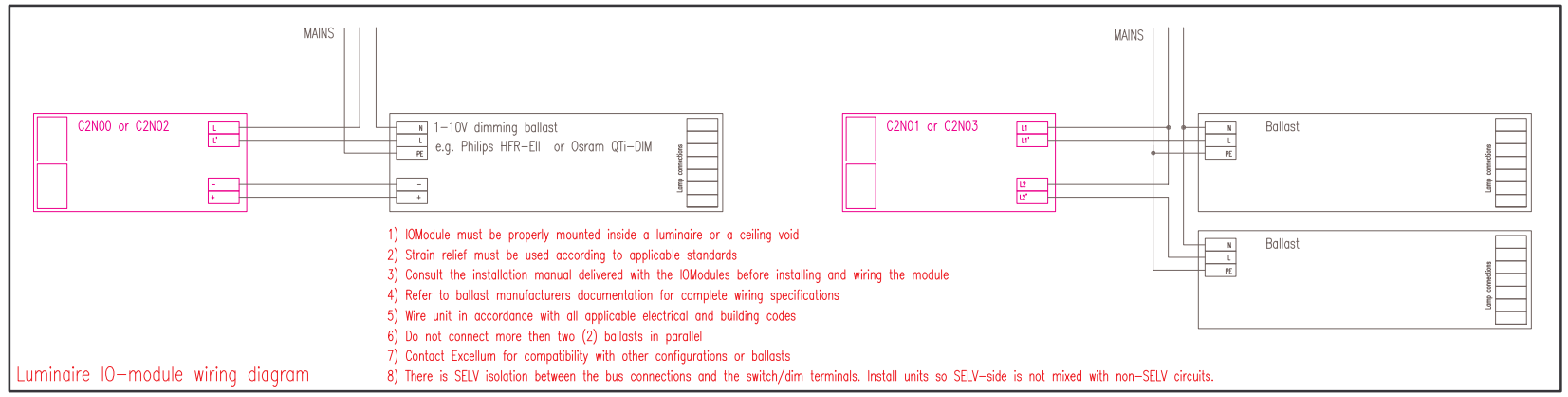
ALL DATA CABLING MUST BE COMPLETELY INSTALLED AND TREATED AS A SELV CIRCUIT (SELV=SAFETY EXTRA LOW VOLTAGE).

DATA CABLING MUST THEREFORE ALWAYS BE ADEQUATELY ISOLATED FROM THE MAINS VOLTAGE OR OTHER HIGH VOLTAGES.

THE RULES FOR THIS DIFFER FROM COUNTRY TO COUNTRY,
REFER TO LOCAL REGULATIONS, AND CONTACT A RECOGNISED INSPECTION BODY IN CASE OF DOUBT

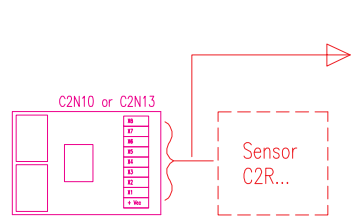
INSTALLATION & COMMISSIONING

1. Mount the SSU, ECU and Ethernet Switch in a 19” rack or bracket. These components have IP20 protection; where a higher protection is required in compliance with local standards and laws, it must be provided by the installer himself. CAUTION: follow the instructions of the SSU and Ethernet Switch manufacturer with regard to number of fixing points and weight for which the supporting structure is designed. The ECU can be mounted with 4 bolts on the front side. A device to prevent the bolts from vibrating loose must be present.
2. If a kWh meter is used, ensure that the safety measures given in the installation manual of the equipment are implemented. Before you connect the Ethernet interface to other equipment, you must check that it is properly isolated from the mains voltage.
3. First test each component separately by applying mains voltage in the absence of any Ethernet connections. **First carry out the initial test as described in GBDT manual C2E3 before starting up a ECU with connected GreenBus™!**
4. Remove supply voltage from all components.
5. Connect the ELM Ethernet connections using minimum CAT5e rated cables as follows:
   CAUTION: DO NOT yet connect the LAN ports on the ECU with label “Tenant LAN”
   - SSU LAN Connection 2 to Ethernet switch 10/100 port
   - ECU ELM network LAN connection to Ethernet switch 10/100 port
     Note: if you have only 1 ECU and no kWh meter, you can directly connect SSU Connection 2 to the ECU ELM network LAN connection via a cross-over cable; this is, however, not recommended for ease of commissioning and diagnostic purposes.
   - kWh meter LAN port to Ethernet switch 10/100 port
   - Remove any GreenBus connections already made from the ECU
     CAUTION: First mark the cables with the channel number of the GreenBus as indicated on the ECU, so they can later be re-inserted into the correct position!
   - Switch on the mains voltage of all components and after all components have started up (this may take a few minutes, especially for the SSU) check that the Link activity LEDs on the Ethernet ports used start flashing.
     Notes: When you switch the mains voltage of the ECU on or off, or when you insert or remove GreenBus cables, previously connected luminaires may briefly flash orlight up at full intensity; inserting or removing a GreenBus cable may cause the ECU to restart, and the luminaires will flash and light up at full intensity for a few minutes. When power up has been applied to a GreenBus channel and is subsequently removed, the relay of the connected ELM luminaire IO modules will switch to the “ON” position and unload the dimming circuit (luminaires will light up at full intensity).
6. For the installation instructions and checking DALI adapters and DALI lines, please refer to manual C2E2 “Installation Manual EDA”, which is supplied with the C2C02 – EDA (Excellum Dali Adapter).
7. For the installation instructions and checking the GreenBus channels, please refer to manual C2E3 “The GreenBus™ network and use of the GBDT”, which is supplied with the C2C05 - GBDT (GreenBus Diagnostic Tool).



Luminaire IO–module wiring diagram

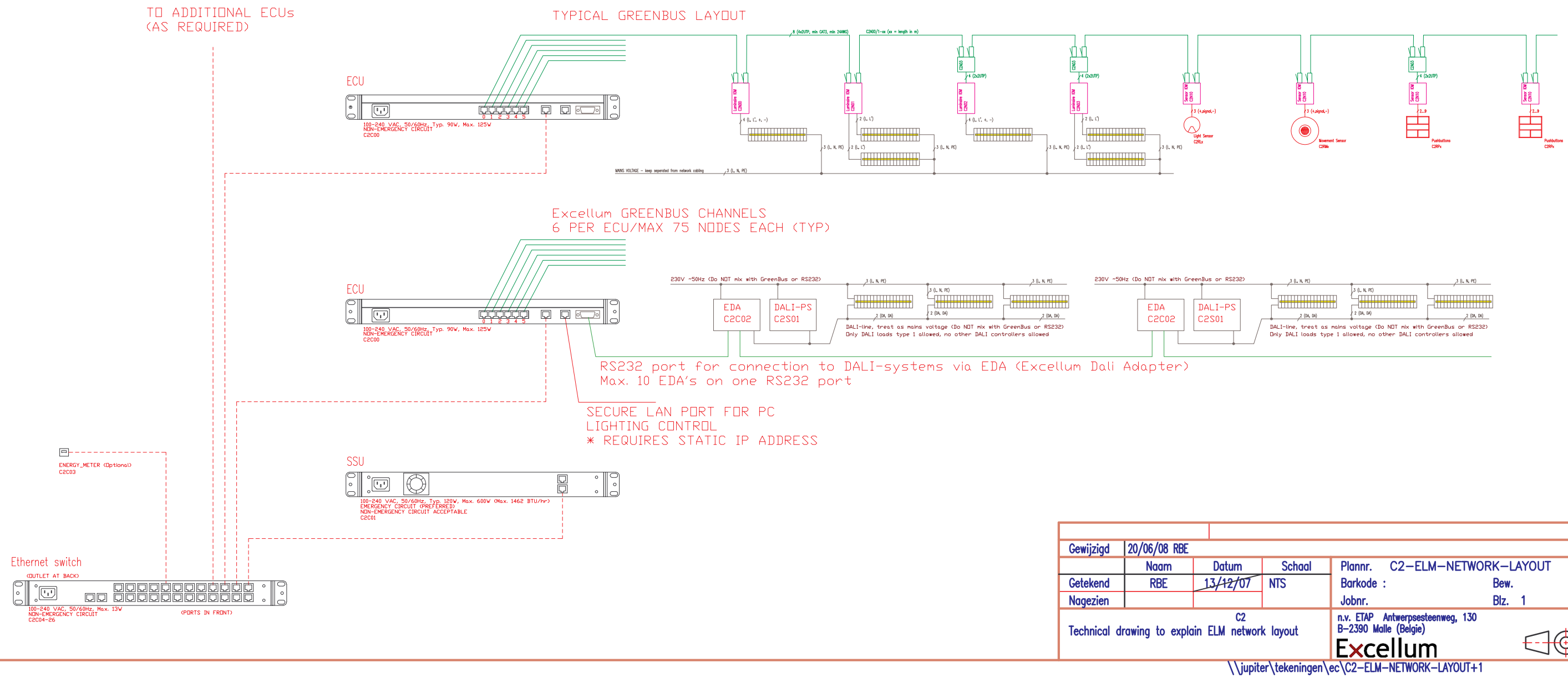
1) IOModule must be properly mounted inside a luminaire or a ceiling void
2) Strain relief must be used according to applicable standards
3) Consult the installation manual delivered with the IOModules before installing and wiring the module
4) Refer to ballast manufacturers documentation for complete wiring specifications
5) Wire unit in accordance with all applicable electrical and building codes
6) Do not connect more then two (2) ballasts in parallel
7) Contact Excellum for compatibility with other configurations or ballasts
8) There is SELV isolation between the bus connections and the switch/dim terminals. Install units so SELV–side is not mixed with non–SELV circuits.



C2N10 C2N13 Sensor IOM	C2RL2 Light Sensor	C2RM0 PIR Sensor Recessed	C2RM1 PIR Sensor Surf. mnt	C2RM2 PIR+US Sensor Surf. mnt	C2RM3 PIR Sensor Wall mnt	C2RP2 Push Button Panel	C2RP4 Push Button Panel	C2RP6 Push Button Panel
X8								
X7								
X6								F
X5								E
X4							D	D
X3							C	C
X2	– (2)	Black (2)	Black (4)	Black (4)	– (2)	B	B	B
X1	–> (3)	Blue (6)	Blue (3)	Blue (3)	–> (4)	A	A	A
+Vcc	+ (1)	White (1)	Red (1)	Red (1)	+ (1)	C1	C1	C1

Sensor IOmodule wiring diagram

1) IOModule must be properly mounted inside a luminaire, ceiling void or distribution box according to your local electrical and building codes.
2) Strain relief must be used according to applicable standards
3) Consult the installation manual delivered with the IOModules before installing and wiring the module
4) Refer to sensor wiring instructions for complete wiring specifications
5) Wire unit in accordance with all applicable electrical and building codes
6) Do not connect sensors in parallel
7) Contact Excellum for compatibility with other configurations or sensors
8) Sensor IOModules en sensors are to be used in SELV circuits only, do not mix with mains circuits.



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	Naam	Datum	Schaal
Getekend	RBE	~~13/12/07~~	NTS
Nagezien			

Plannr. C2–ELM–NETWORK–LAYOUT
Barkode :
Bew.
Jobnr.
Blz. 1

C2
Technical drawing to explain ELM network layout

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