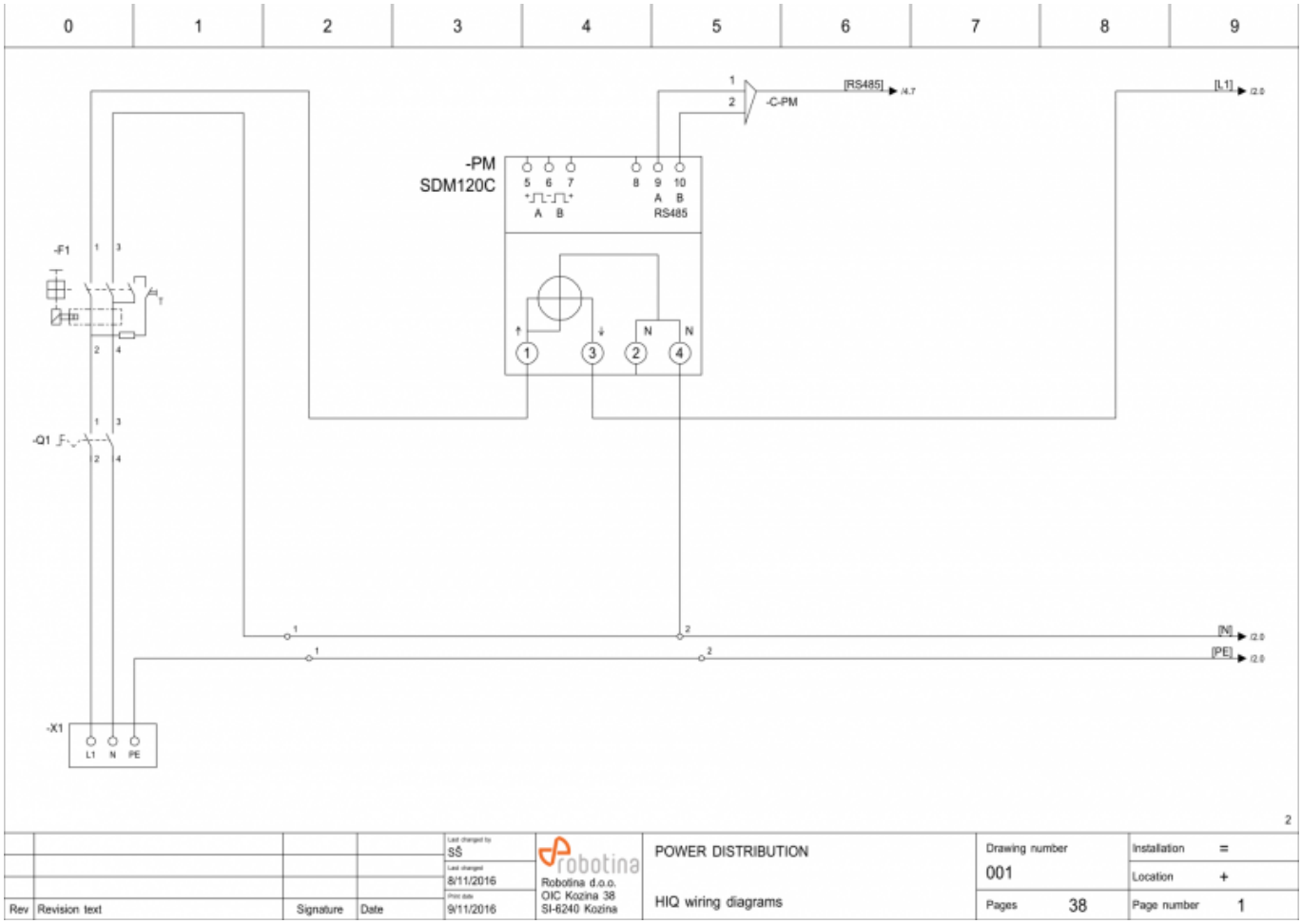
HIQ designing

Presented electric wiring plans were made with the help of Elwin software which is made by 3xM Automation company. New plans can be made with modification of included Elwin project or with modification of DXF plans with any DXF capable program. With the Elwin project, all HIQ symbols are included. The whole design plan can be also downloaded as a PDF file.

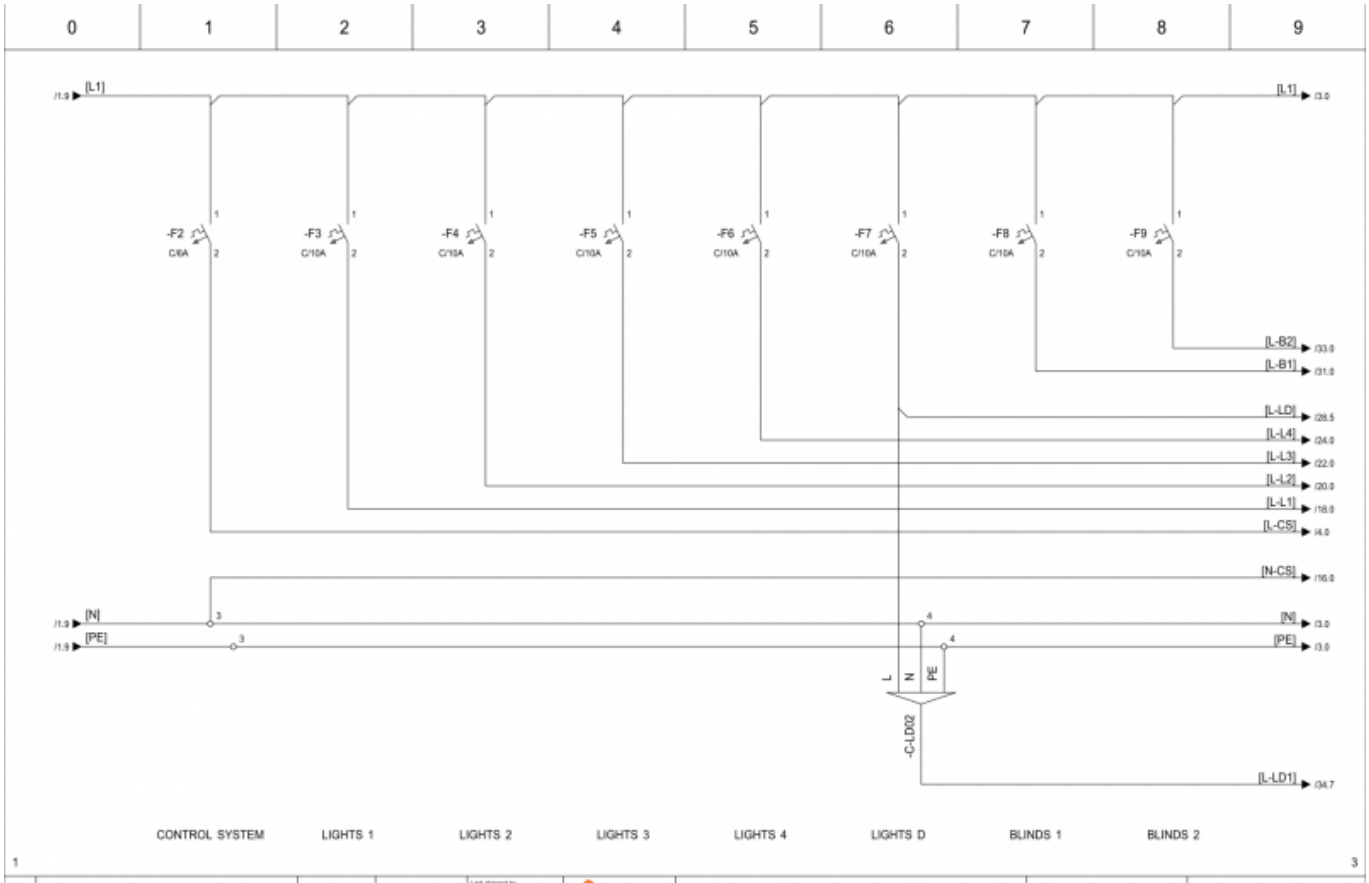
Page 1- Power distribution-RCD switch and power meter

Single phase power input, connection of RCD switch (Residual Current Device) and power meter. Input can be single or three phase.
The power meter on the wiring plan is connected to measure the whole electricity consumption, but can be connected to any device (or group of devices). Only single phase electricity measurement is available.



Page 2-3 - Power distribution - Fuses

Suggested fuse plan.



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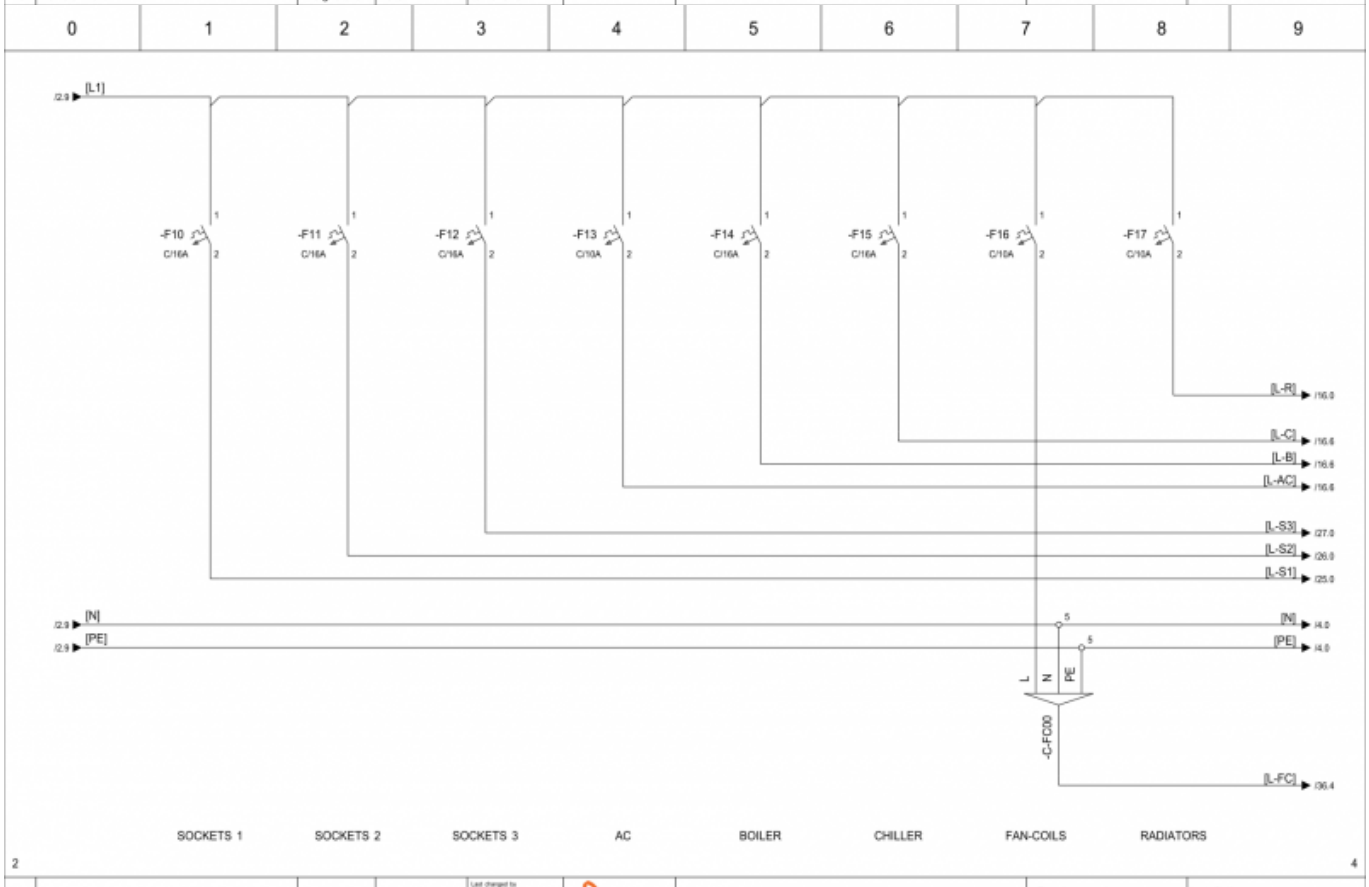
				Last changed: 7/11/2016			Pages 38	Location +
				Print date: 9/11/2016				Page number 2



Rev	Revision text	Signature	Date					
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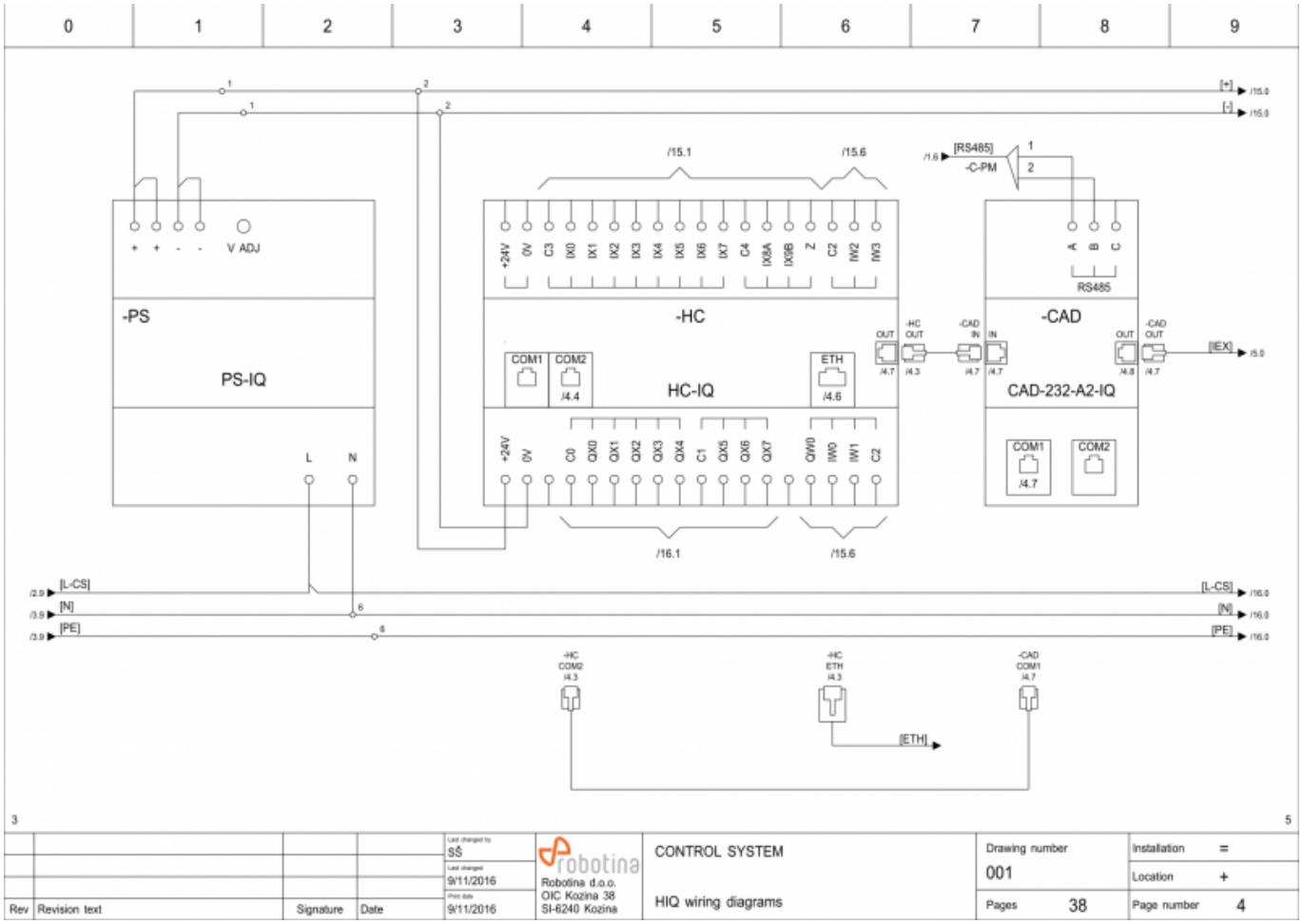
				Last changed: 2/11/2016			Pages 38	Location +
				Print date: 9/11/2016				Page number 3

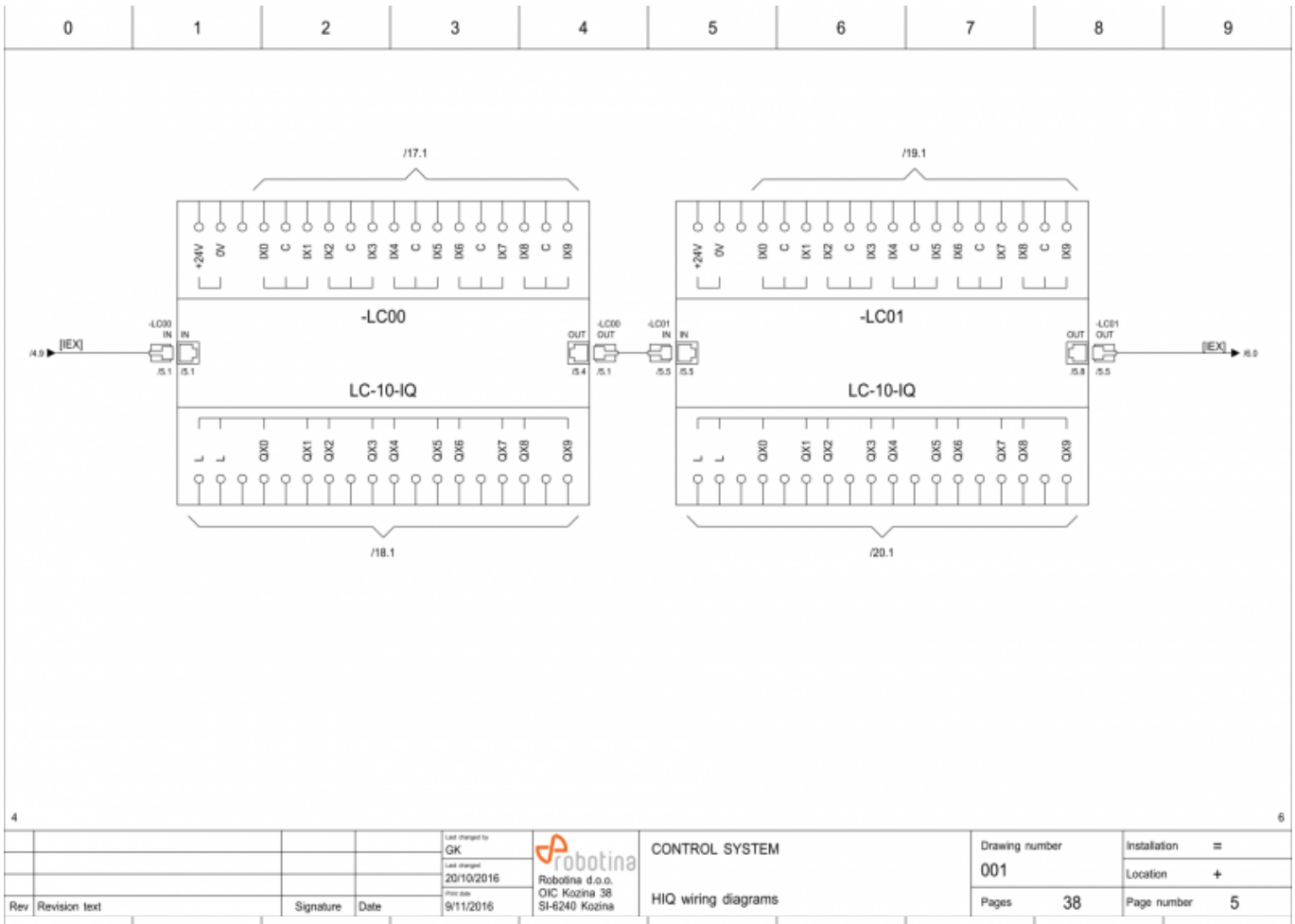
Page 4 - Control System-Power supply, HC, CAD-232

24V power supply (PS) for control system, Home controller and CAD-232-A2-IQ.
24V power supply can be optionally used for LED lighting (up to 2.5A with serial power supply, larger power supply can be used).
Home controller (HC) is the heart of the system. It is connected to the network (ETH) and has optional inputs (connections are on page 15) and outputs (connections are on page 16).
CAD-232-A2-IQ expander is used as communication interface between home controller and power meter (If power meter is not used then the expander is not necessary). It is connected to a home controller through IEX bus, to COM2 on home controller input and to power meter (RS485 communication).



Page 5-6 - CS-Light controller 00 and 01

Light controllers (LC) are connected to IEX bus, we can connect up to up 4 LC to 1 home controller. On the top side are inputs and on the bottom side are outputs (connections are on page 17-24).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/19.1
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-LC00
-LC01
LC-10-IQ
L L QX0 QX1 QX2 QX3 QX4 QX5 QX6 QX7 QX8 QX9
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/20.1
[IEX]
4
6
Rev Revision text Signature Date
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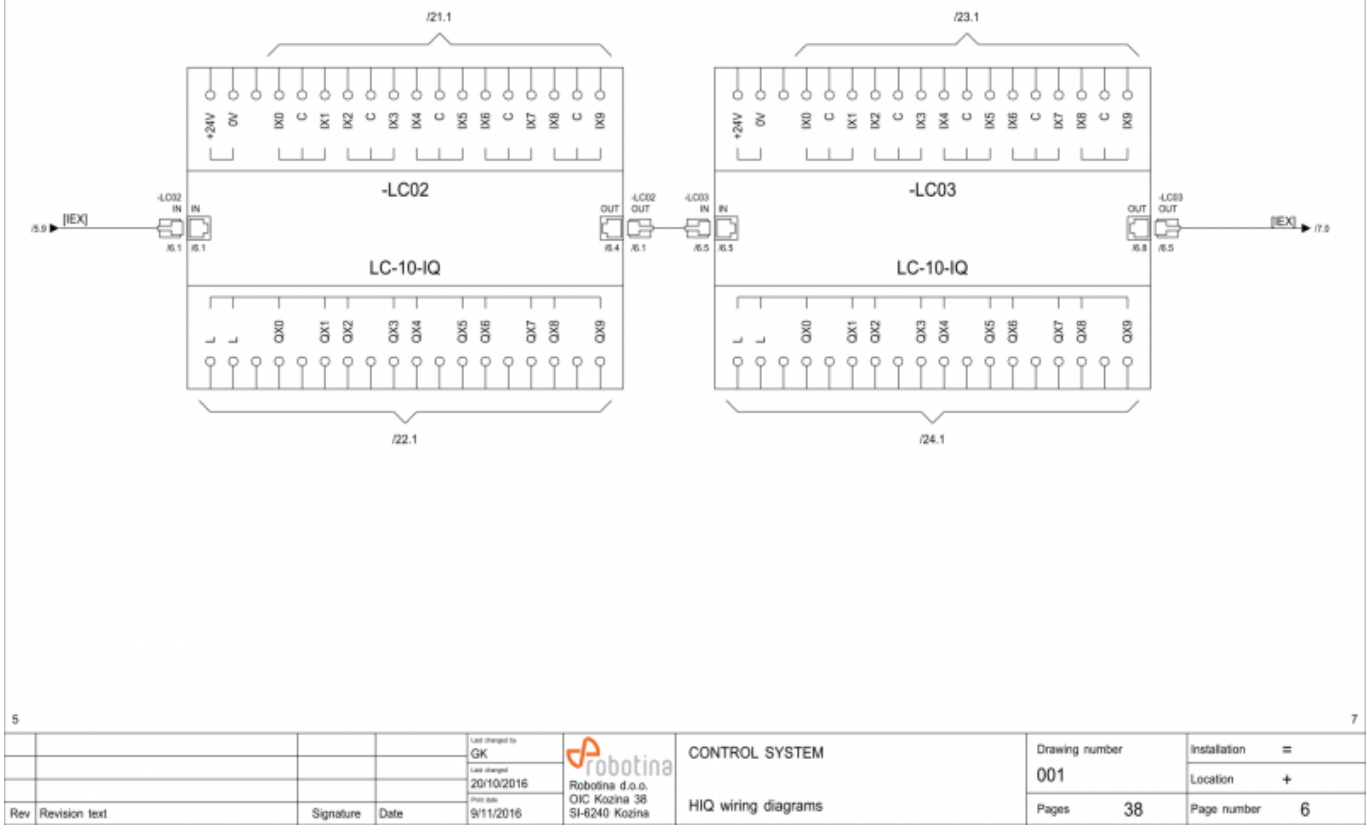
Robotina d.o.o. OIC Kozina 38 SI-6240 Kozina
CONTROL SYSTEM
HIQ wiring diagrams
Drawing number 001
Pages 38
Installation =
Location +
Page number 5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/23.1
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-LC02
-LC03
LC-10-IQ
L L QX0 QX1 QX2 QX3 QX4 QX5 QX6 QX7 QX8 QX9
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/24.1
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5
7
Rev Revision text Signature Date
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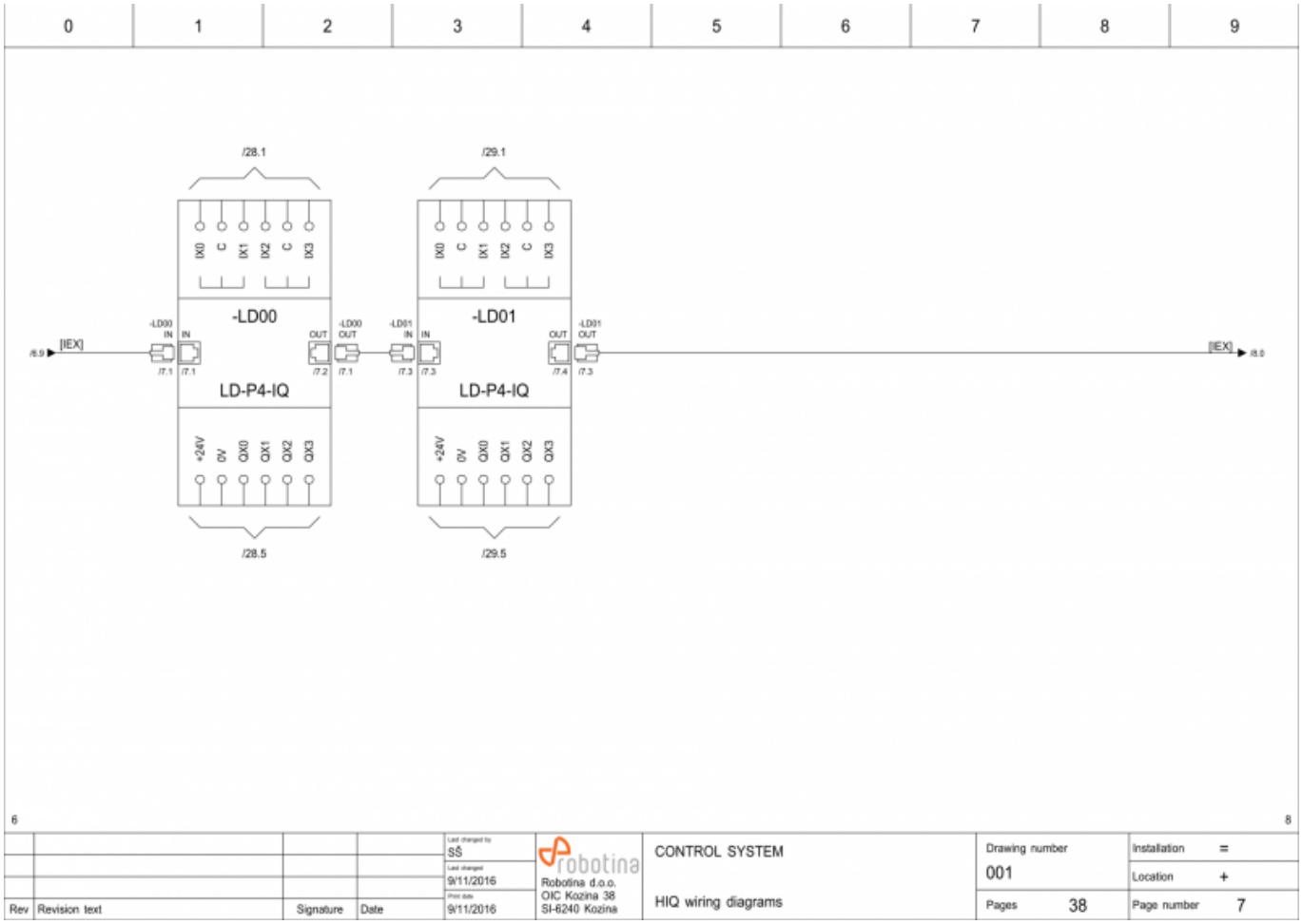
Robotina d.o.o. OIC Kozina 38 SI-6240 Kozina
CONTROL SYSTEM
HIQ wiring diagrams
Drawing number 001
Pages 38
Installation =
Location +
Page number 6

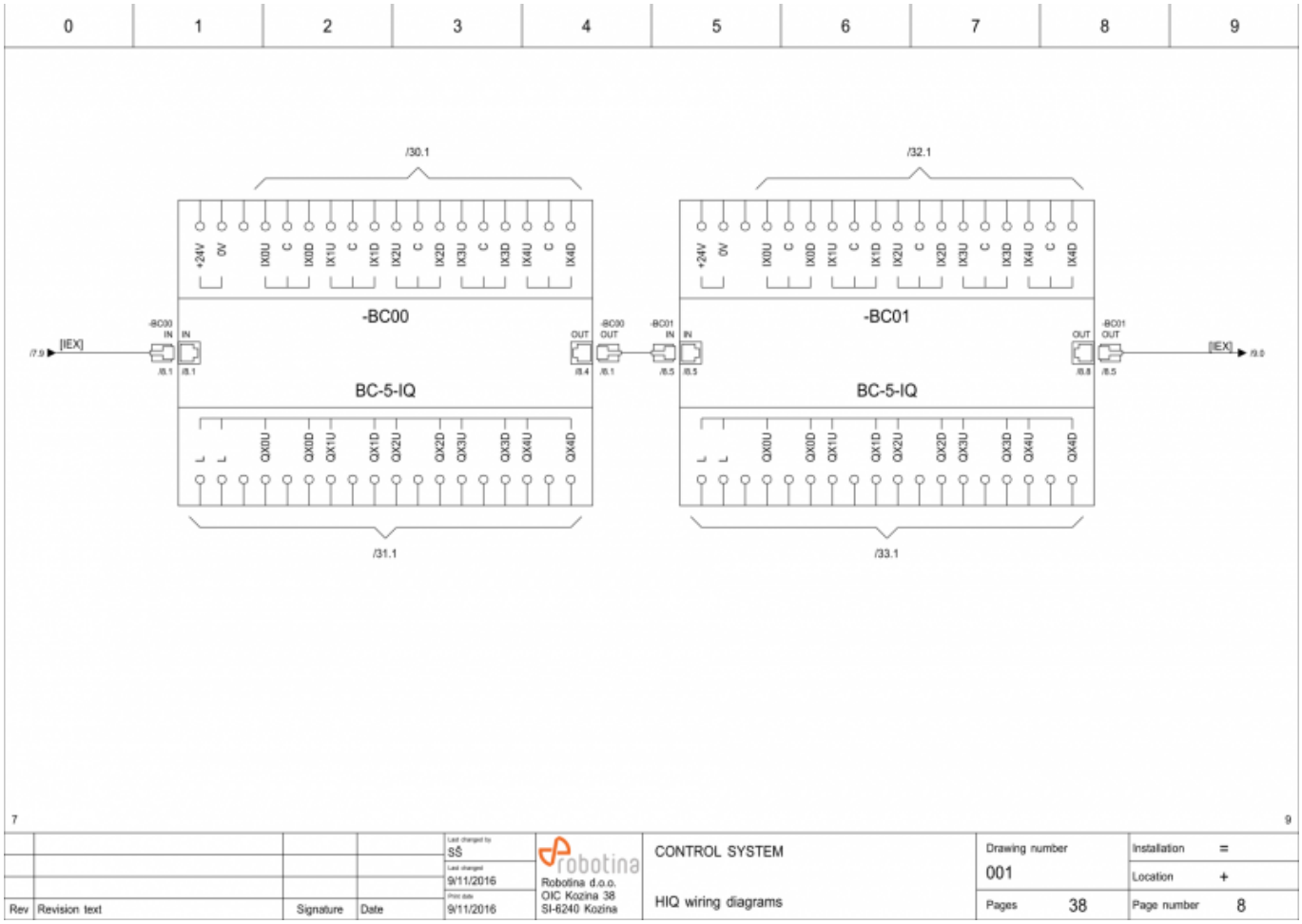
Page 7 – CS - Light dimmer

Up to 4 light dimmers can be connected to 1 HC. On sample plan we use 2 Light dimmers drivers for LUD-12 universal light dimmers.



Page 8 – CS - Blinds controllers

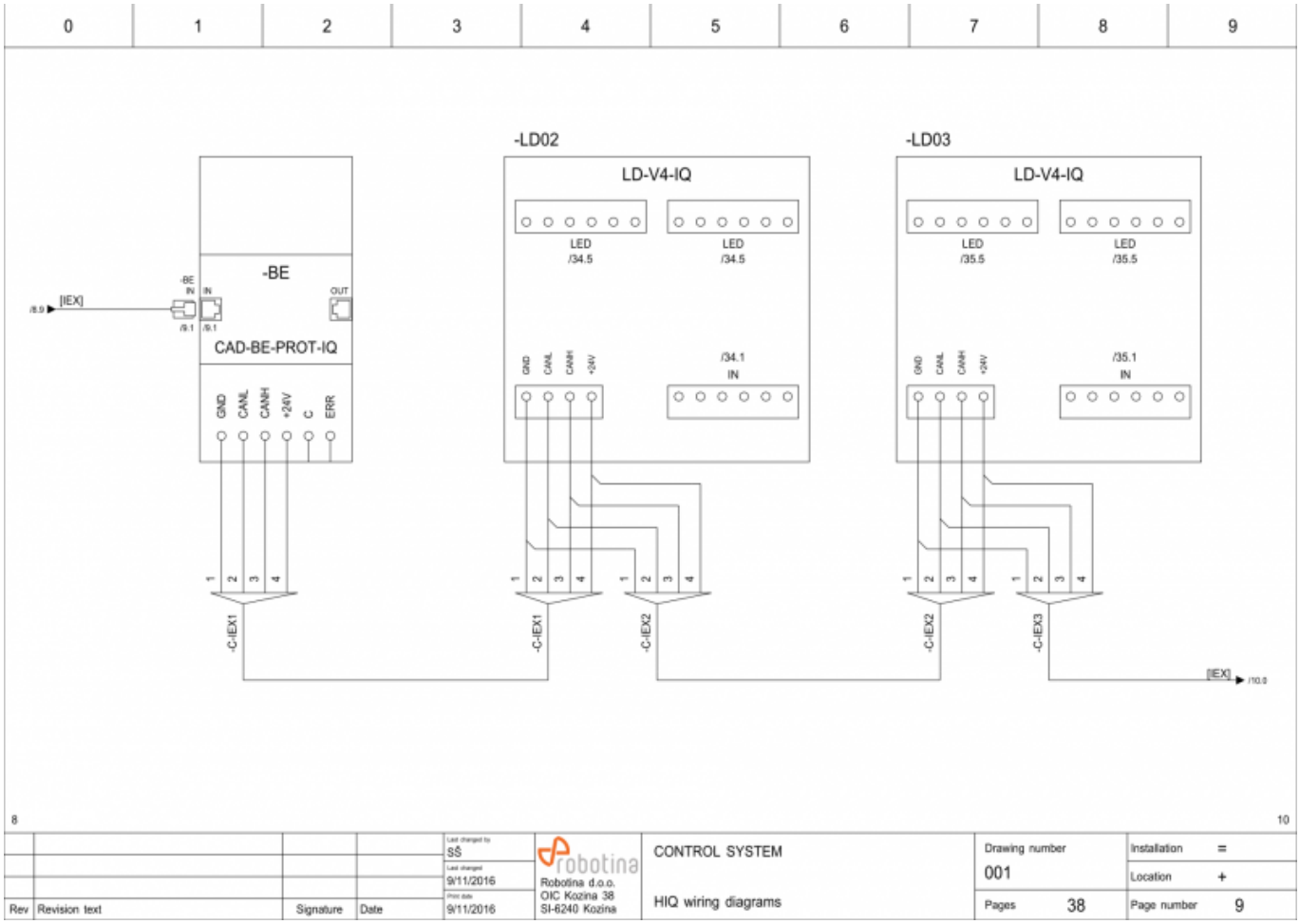
Up to 2 Blinds controllers (BC) can be connected to 1 HC.



Page 9 – CS - bus extender, LED light dimmer

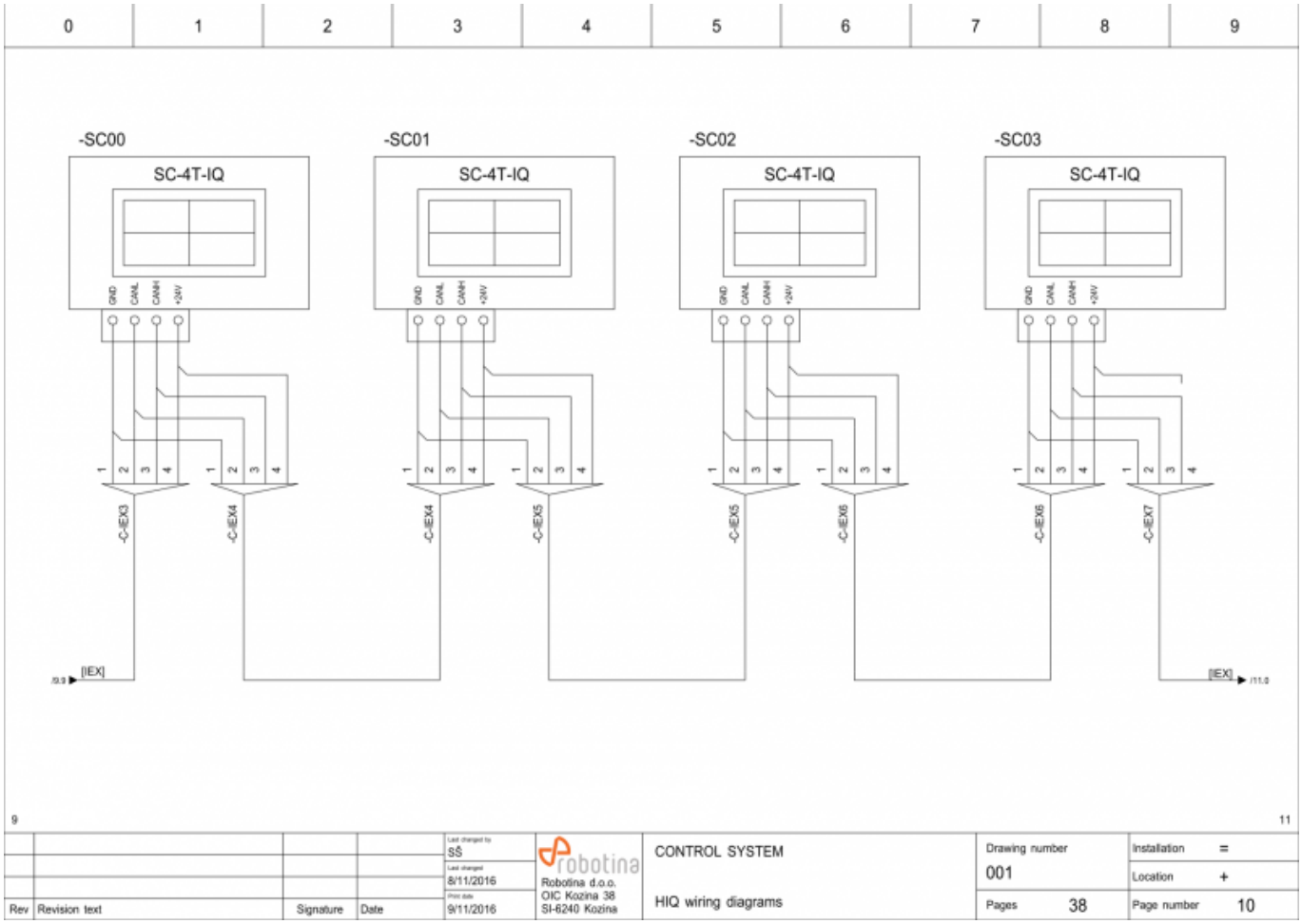
Bus extender (BE) is a passive switch for easy IEX bus interconnection between cabinet and field modules.

Up to 4 light dimmers can be connected to 1 HC. On sample plan we use 2 LED stripe dimmers.



Page 10 – CS - Scene controllers

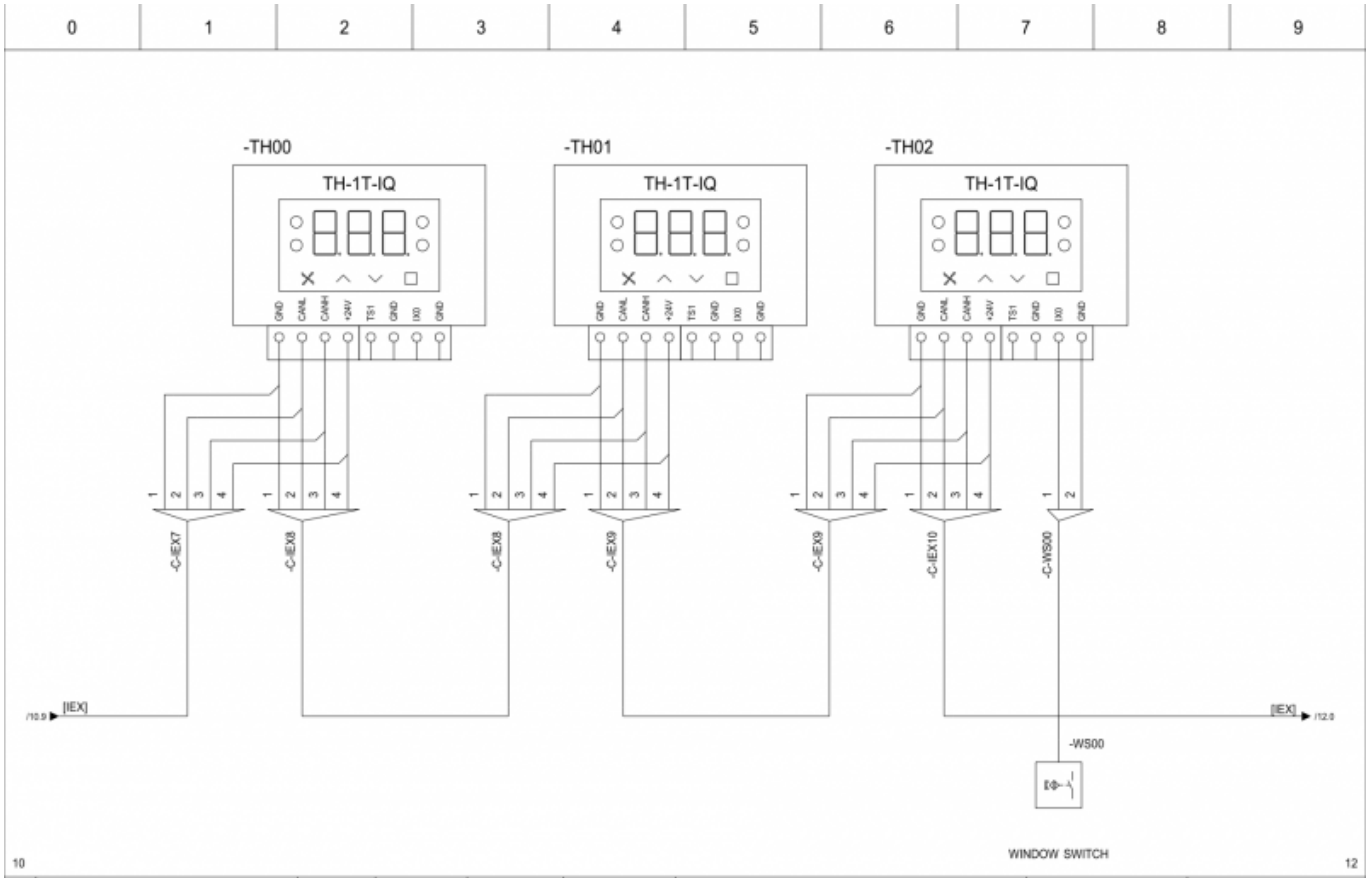
Up to 4 Scene Controllers can be connected to 1 HC. On sample plan are 4 Scene Touch Panels, but also Scene Panels and Scene controllers can be connected in the same way.



Page 11-12 - CS - Thermostats

Up to 5 Thermostats can be connected to 1 HC. On sample plan we use 5 Touch buttons electronic thermostats, but also ordinary Electronic thermostats and Blind electronic thermostats can be connected in a similar way.

Optionally we can connect window switch on each thermostat (sample on –TH02 and -TH03) (not possible with Blind electronic thermostat).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2
3
4
5
6
7
8
9
-TH00
TH-1T-IQ
-TH01
TH-1T-IQ
-TH02
TH-1T-IQ
GND
CANL
CANH
+24V
TS1
GND
I/O
GND
-C-IEX7
-C-IEX8
-C-IEX8
-C-IEX9
-C-IEX9
-C-IEX10
-C-WS00
/10.9
[IEX]
[IEX]
/12.0
-WS00
WINDOW SWITCH
10
12
Rev
Revision text
Signature
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9/11/2016
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
CONTROL SYSTEM
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Drawing number
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Pages
38
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Location
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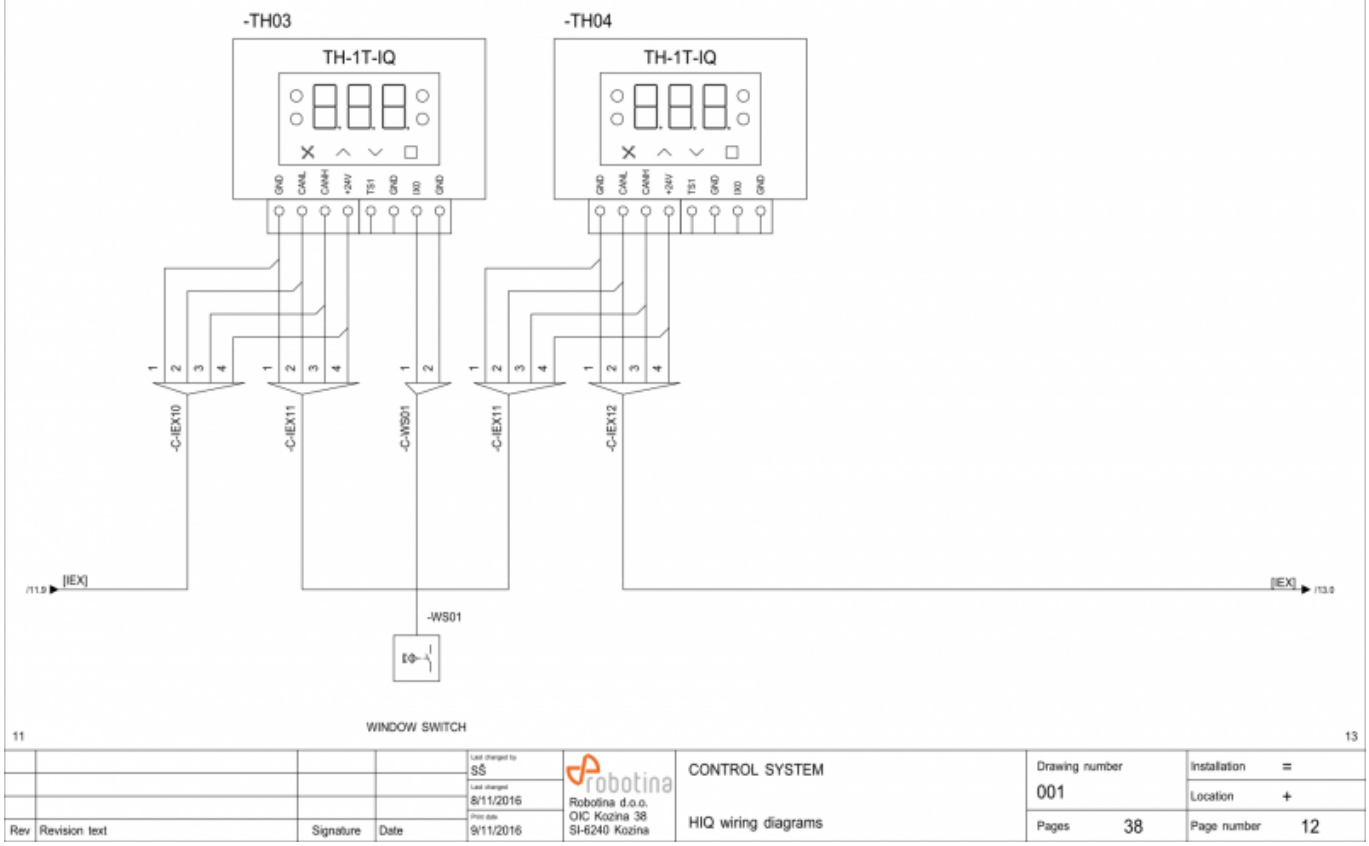
Page number
11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2
3
4
5
6
7
8
9
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TH-1T-IQ
-TH04
TH-1T-IQ
GND
CANL
CANH
+24V
TS1
GND
I/O
GND
-C-IEX10
-C-IEX11
-C-WS01
-C-IEX11
-C-IEX12
/11.9
[IEX]
[IEX]
/13.0
-WS01
WINDOW SWITCH
11
13
Rev
Revision text
Signature
Date
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Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
CONTROL SYSTEM
HIQ wiring diagrams
Drawing number
001
Pages
38
Installation
=
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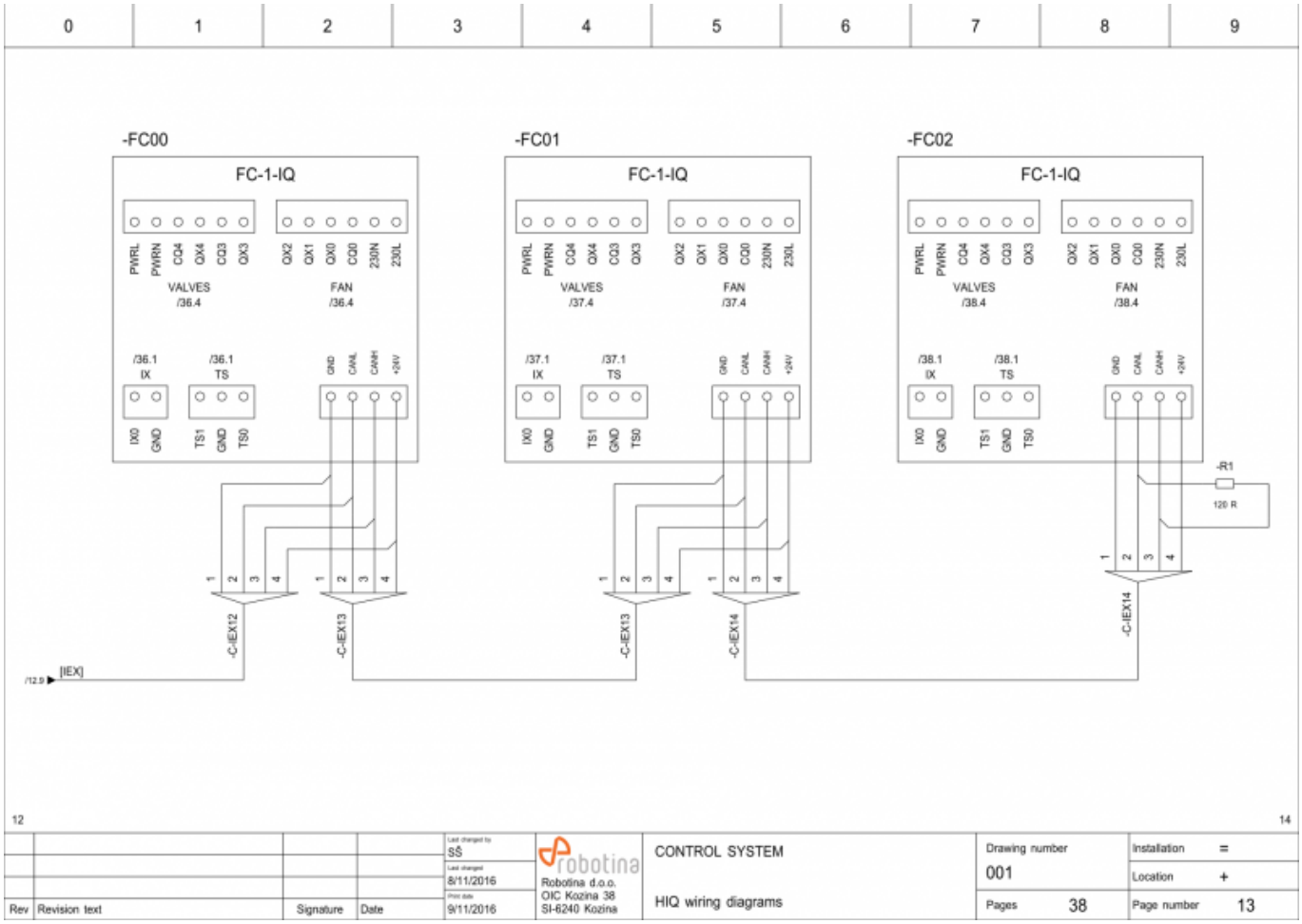
+
Page number
12

Page 13 - CS-Fan-coil

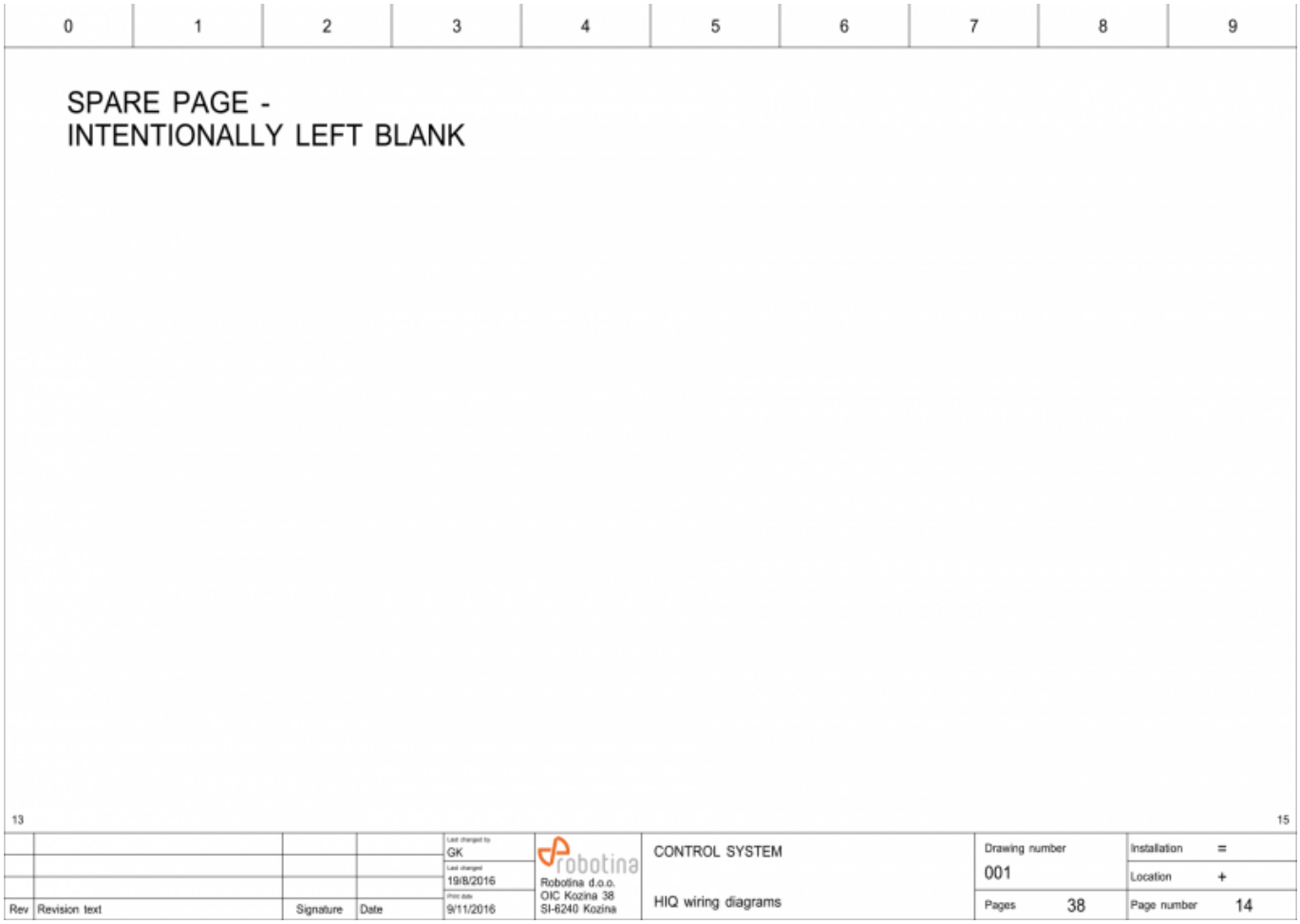
Up to 5 Fan-coil controllers (FC) can be connected to 1 HC. On our sample plan we have 3 FC, 2 thermostats are controlling radiator valves (page 36-38).

FC controllers are the last items on IEX bus. Longer IEX bus lines (over 100m) must be terminated with a 120ohm resistor between CANL and CANH (-R1).



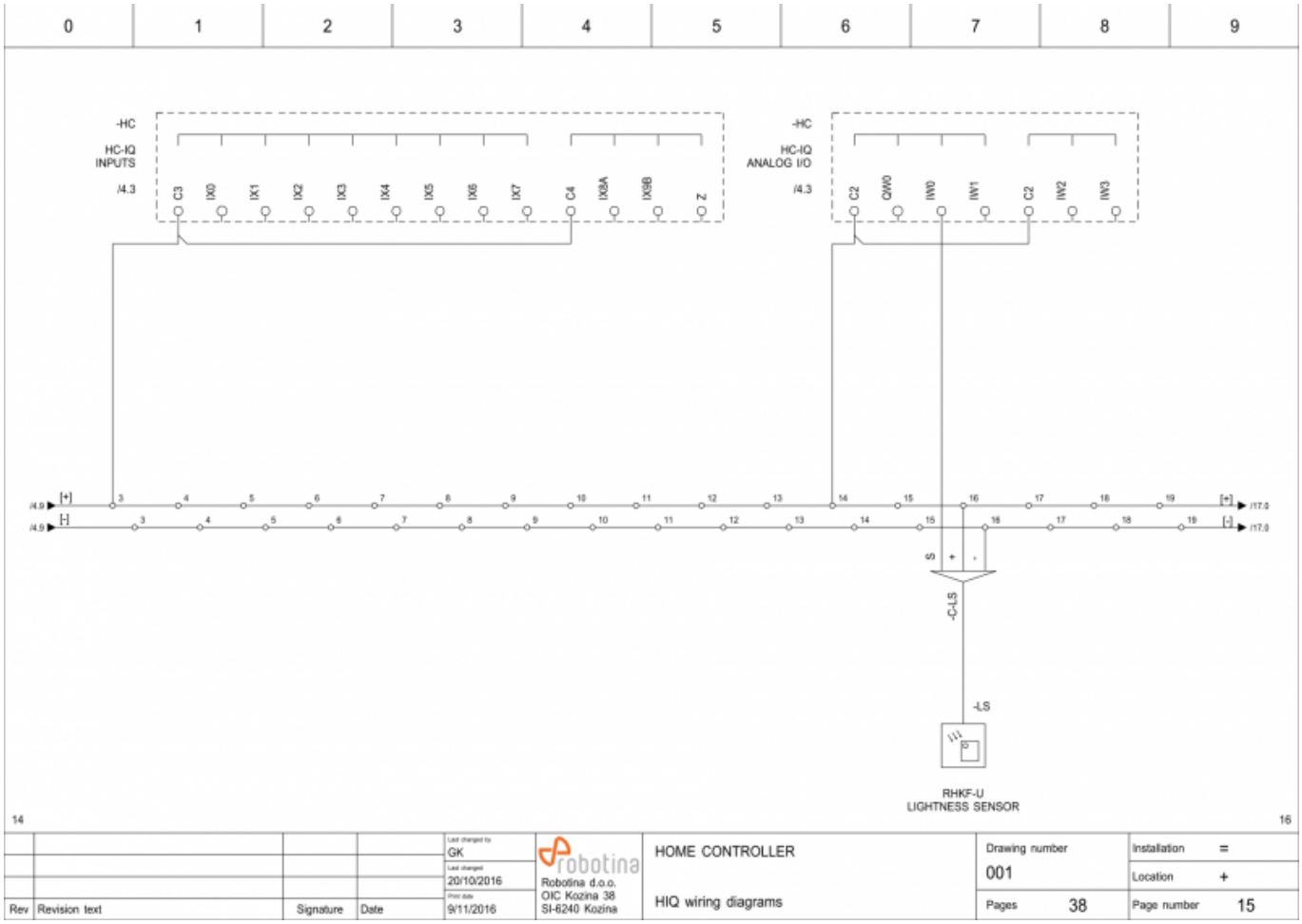
Page 14 - CS-Blank page

Blank page for future extensions.



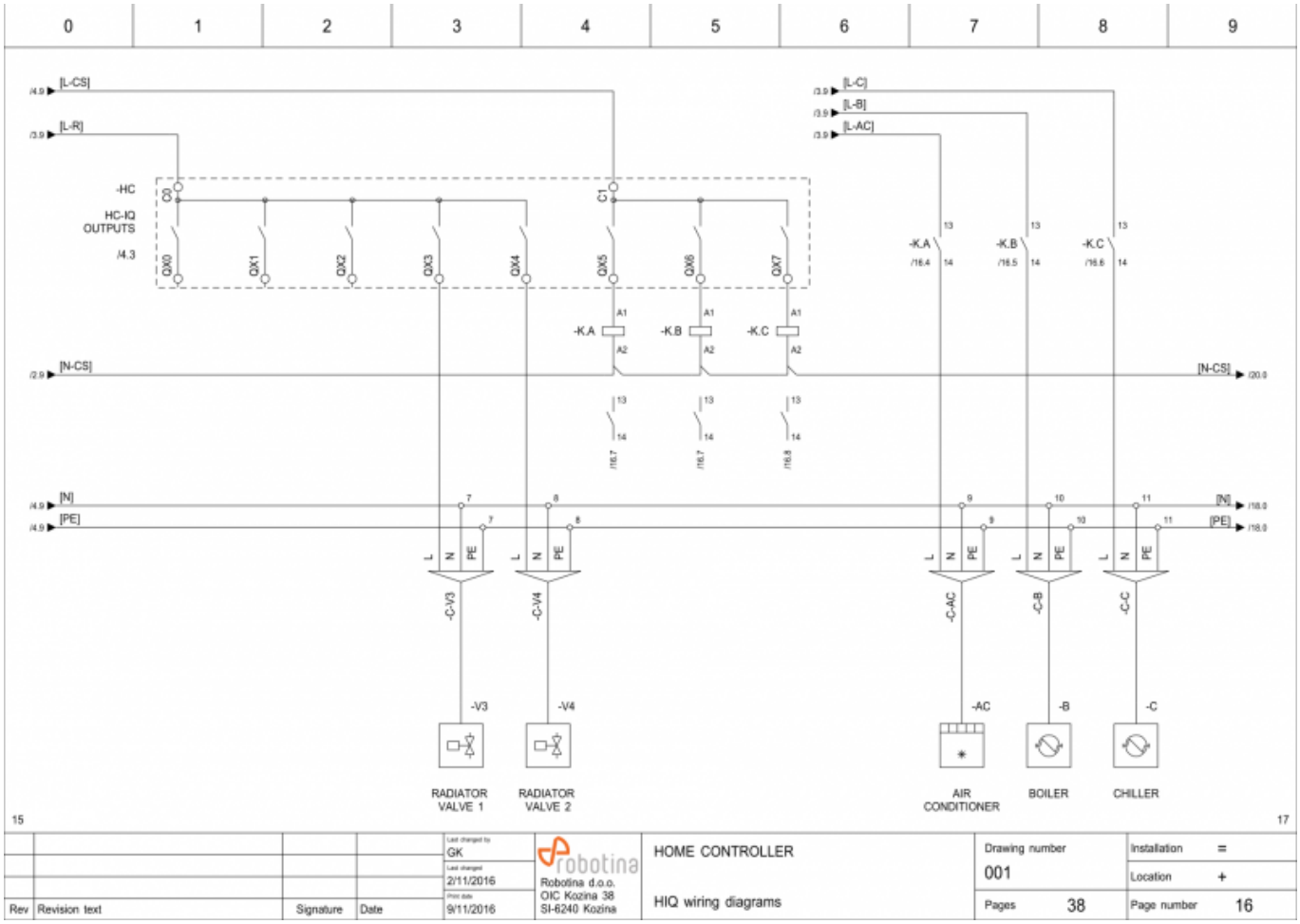
Page 15 – Home controller inputs

If used, optional lightness sensor must be connected to IW0 analog input on home controller.
All other inputs are left for custom programming solutions (10 digital inputs IX0-IX7, IX8A, IX9B and 3 8-bit analog inputs IW1-IW3).



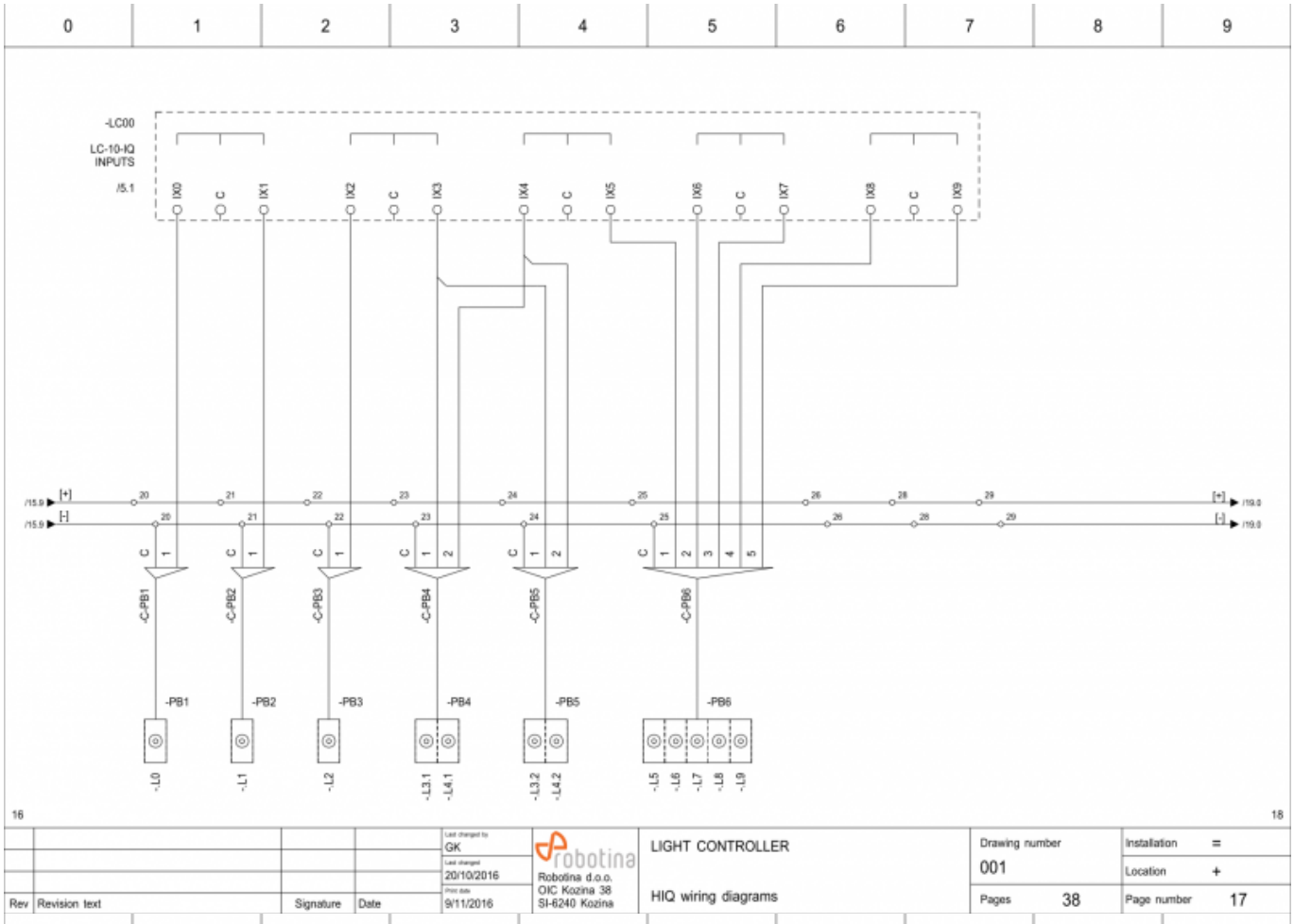
Page 16 – Home controller outputs

QX0-QX4 outputs – can be used for radiator valves or to control other heating/cooling devices.
Internal relay is used for valves, other loads are recommended to use an additional 16A installation relay.
In our plan we use 2 radiator valves (and 3 Fan-coil controllers).
QX5 output – is used for Air Conditioner.
QX6 output – is used for Boiler.
QX7 output – is used for Chiller.
All three outputs are connected to external installation relays (-K.A, -K.B and -K.C) .

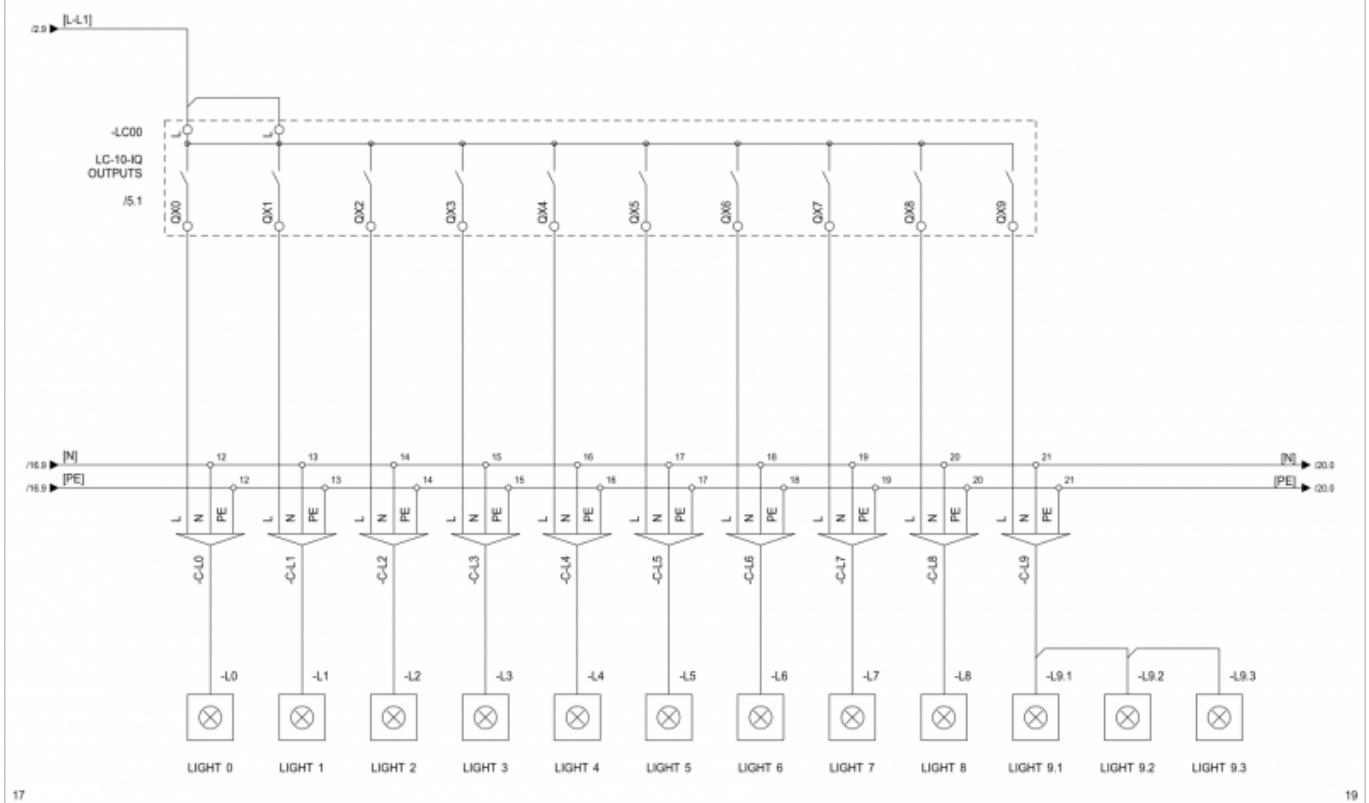


Page 17-24 – Light controller

Lights and managed power sockets are connected to Light controllers .
Several button combinations are possible.
Managed power sockets should be connected through installation relays (-K12-K14, -K22-K23 and -K30-K33).



Rev	Revision text		Signature	Date	Last changed by GK; Last changed 20/10/2016; Print date 9/11/2016	Robotina d.o.o. OIC Kozina 38 SI-6240 Kozina	LIGHT CONTROLLER HIQ wiring diagrams	Drawing number 001 Pages 38	Installation = Location + Page number 17



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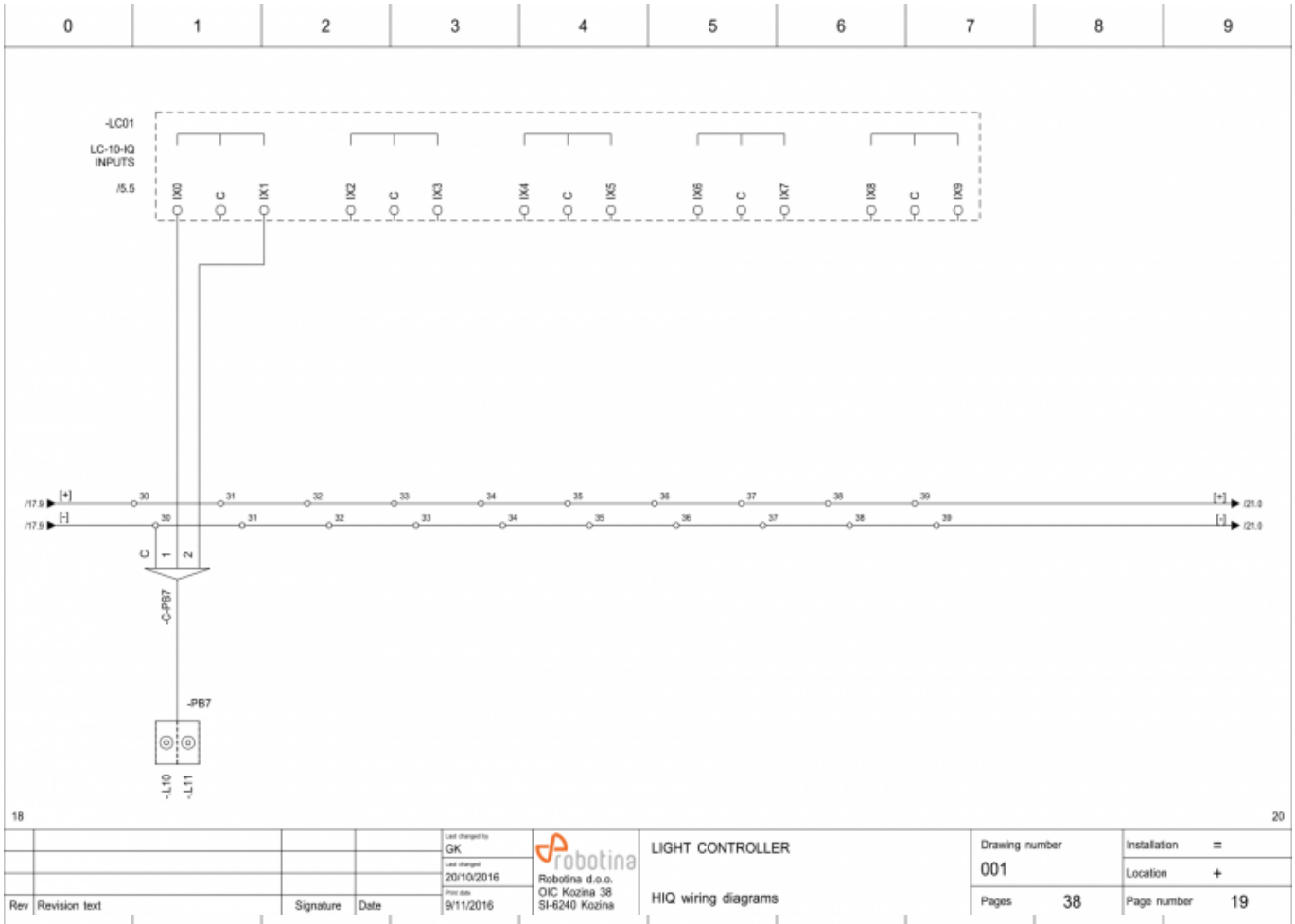

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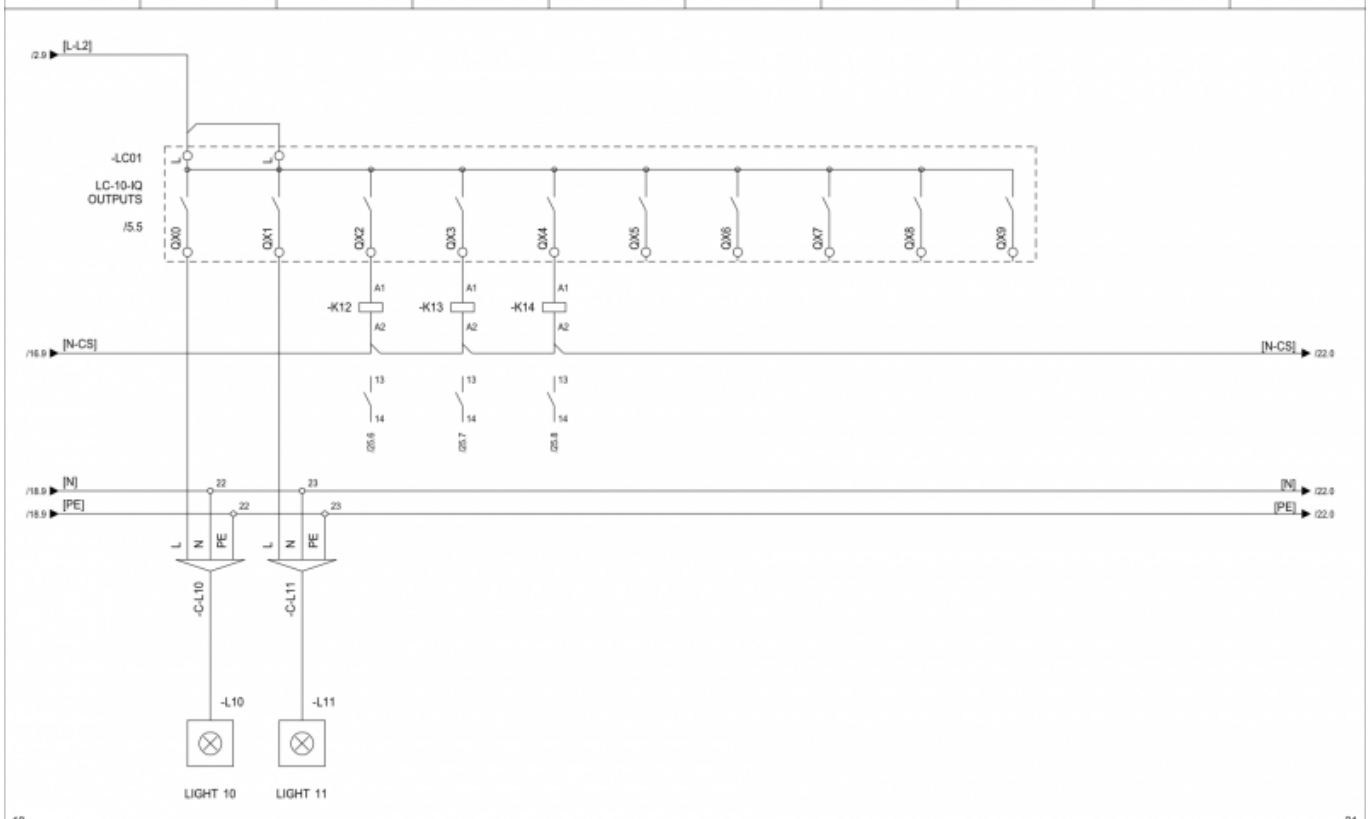

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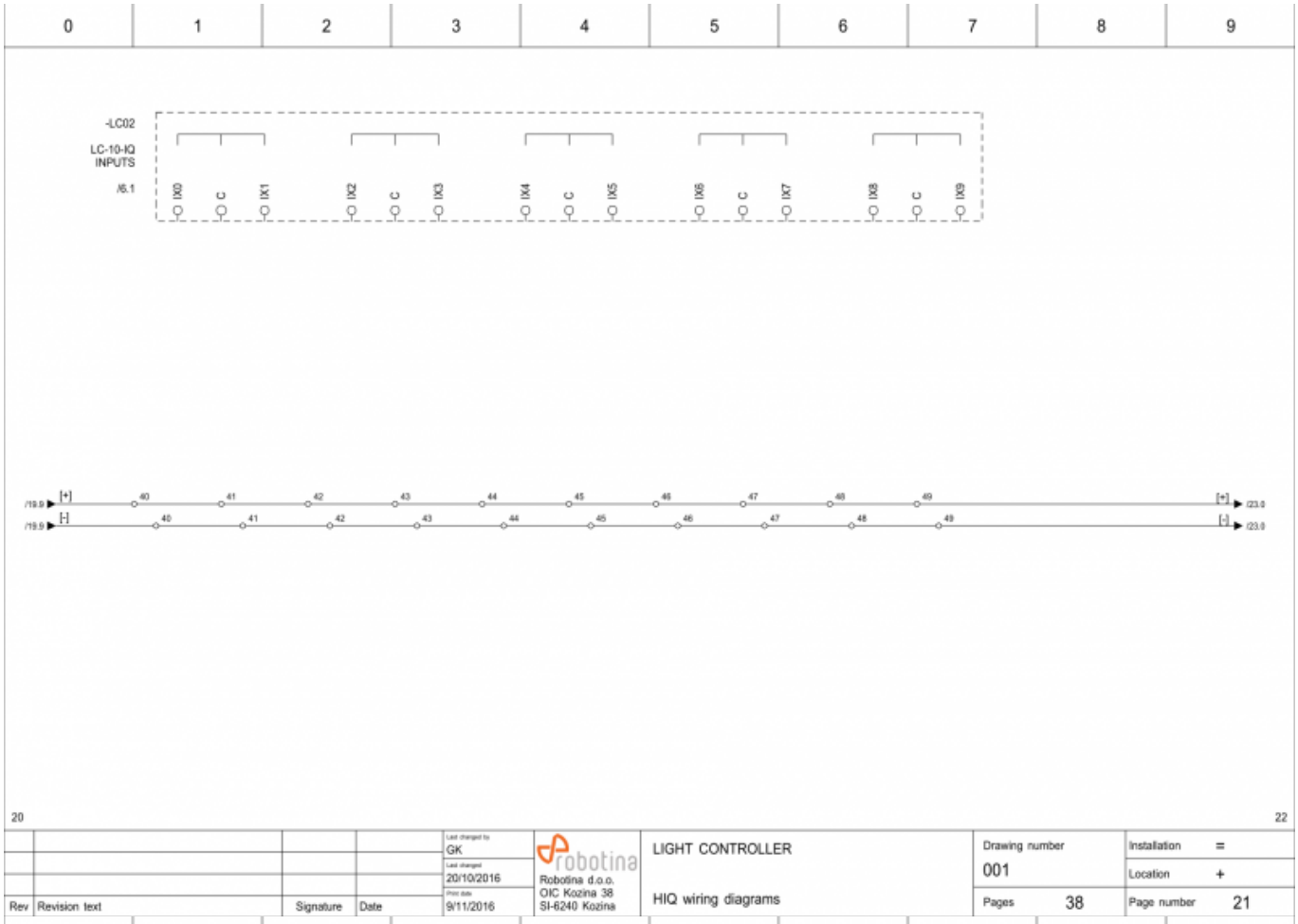
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8
9
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LC-10-IQ
INPUTS
/6.1
IX0
C
IX1
IX2
C
IX3
IX4
C
IX5
IX6
C
IX7
IX8
C
IX9
/19.9
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Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
LIGHT CONTROLLER
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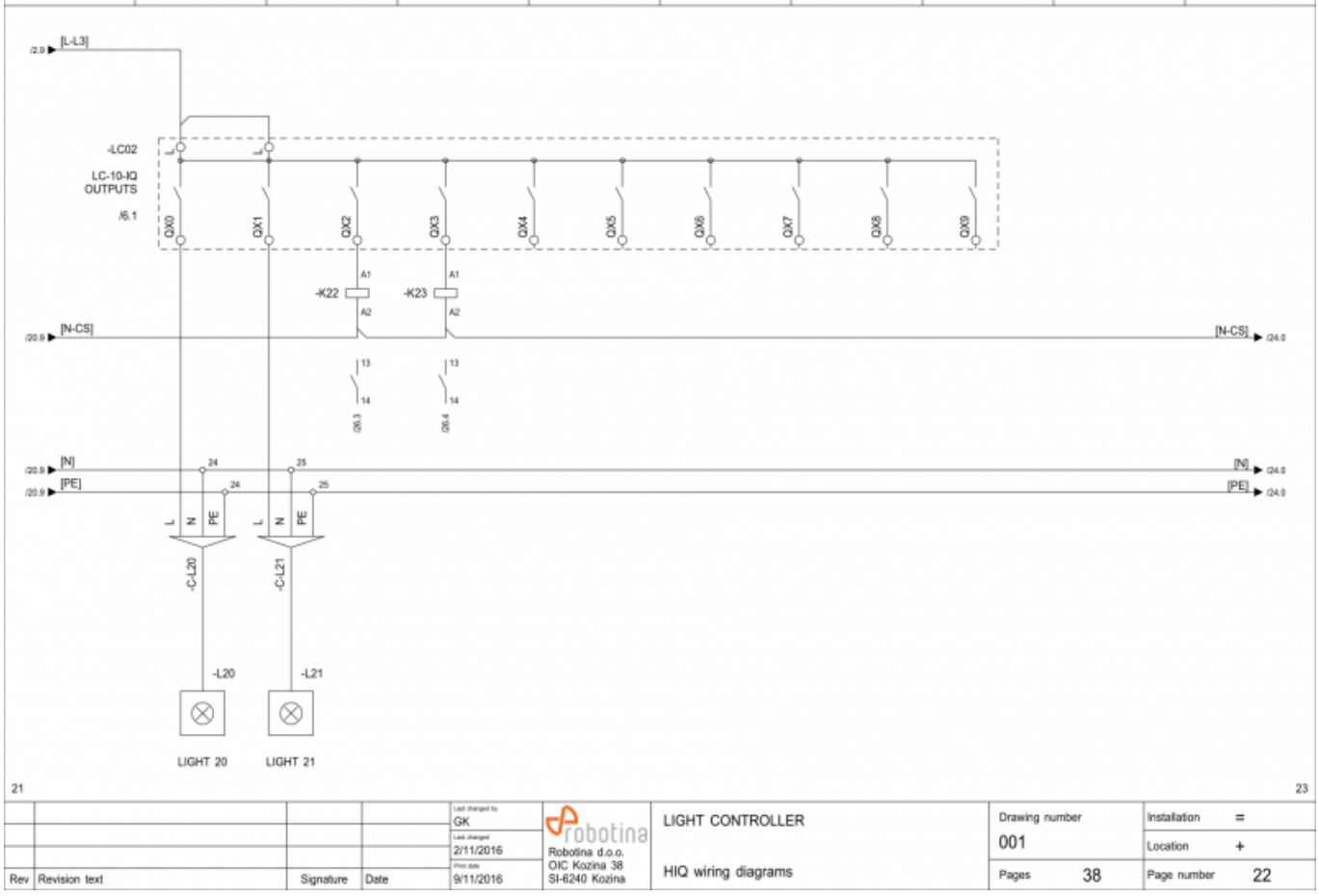
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LC-10-IQ
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QX1
QX2
QX3
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QX6
QX7
QX8
QX9
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-K23
A1
A2
13
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Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
LIGHT CONTROLLER
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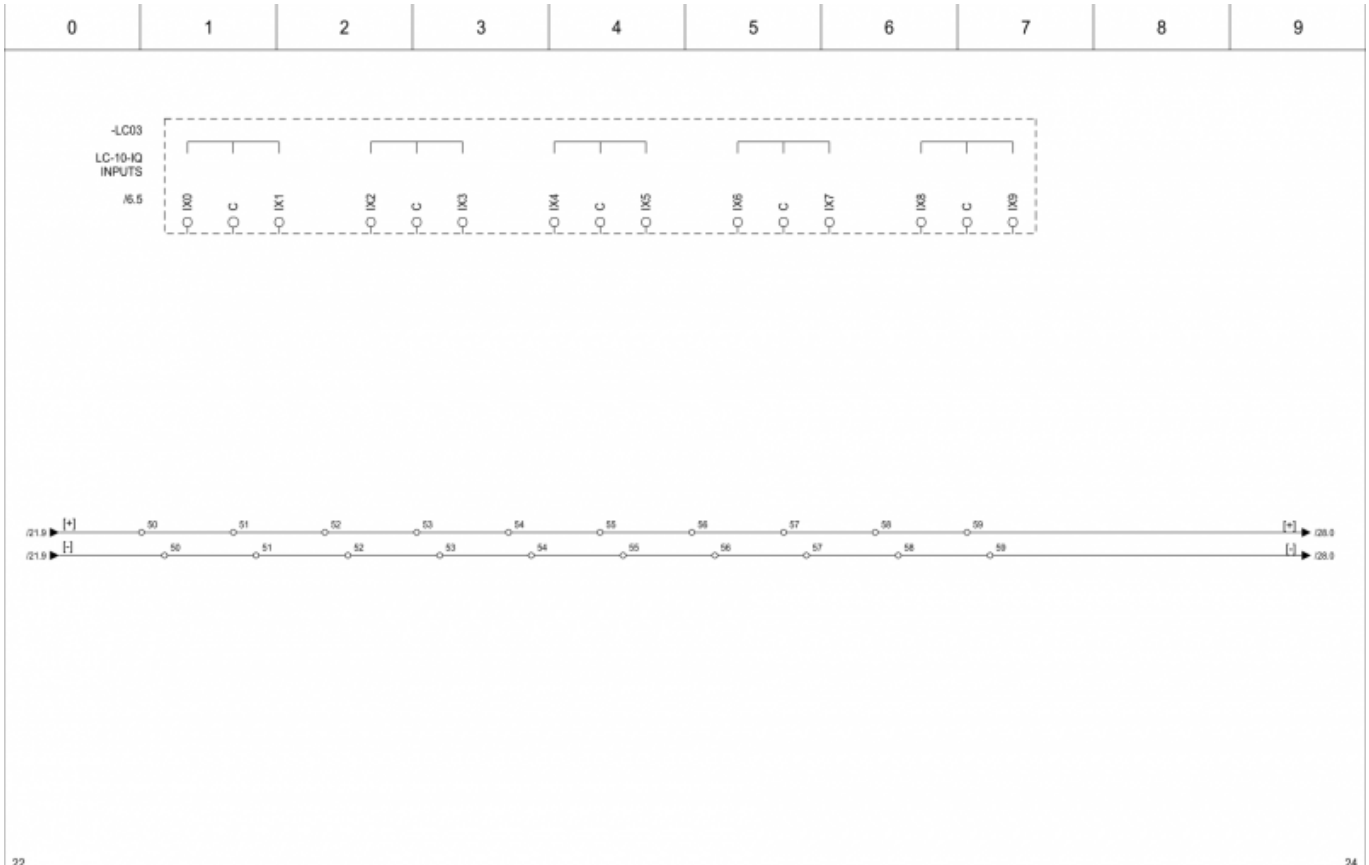
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IX3
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IX5
IX6
C
IX7
IX8
C
IX9
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20/10/2016
9/11/2016
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
LIGHT CONTROLLER
HIQ wiring diagrams
Drawing number
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Pages
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Installation
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Page number
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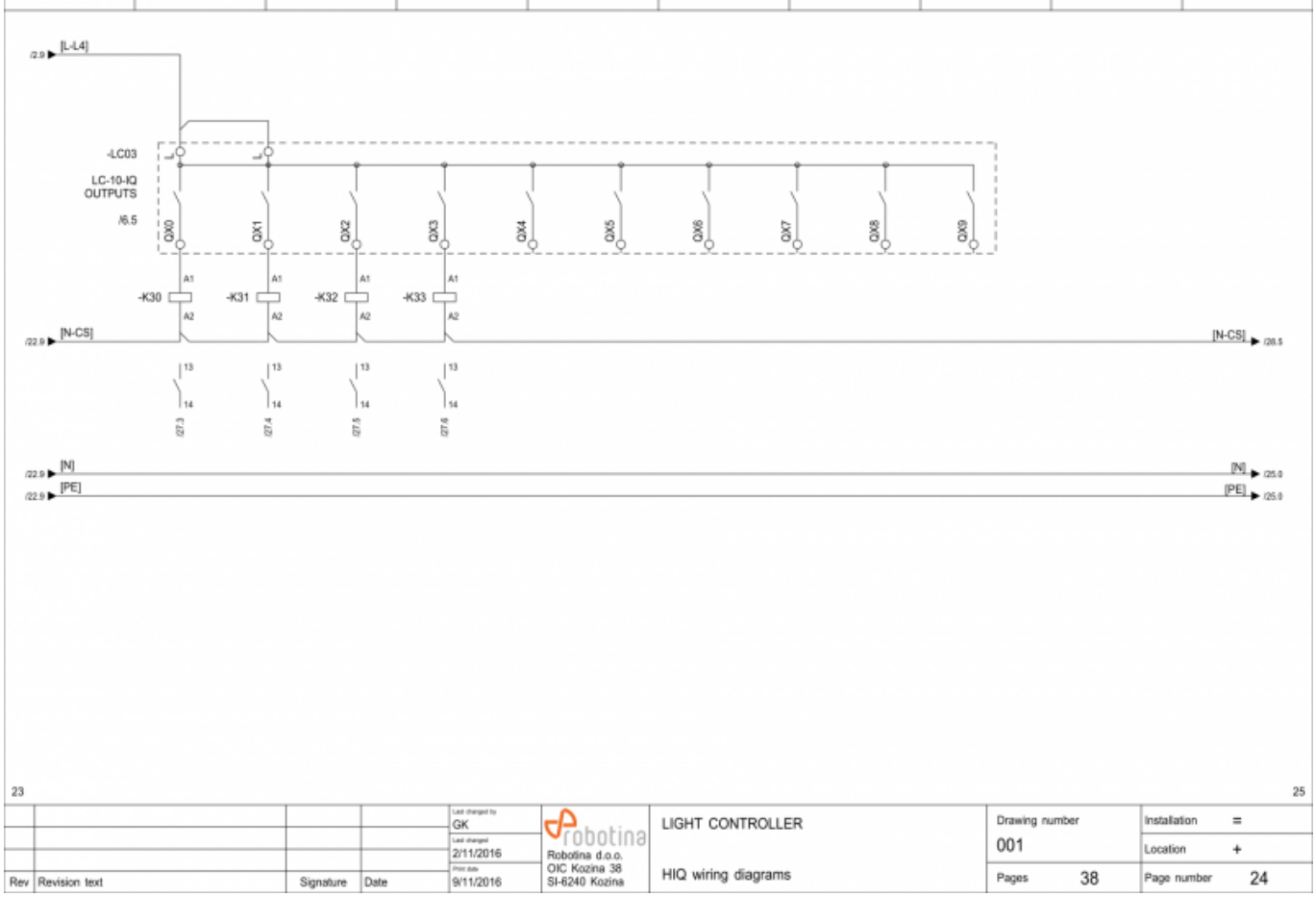
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QX2
QX3
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QX7
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QX9
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-K31
-K32
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Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
LIGHT CONTROLLER
HIQ wiring diagrams
Drawing number
001
Pages
38
Installation
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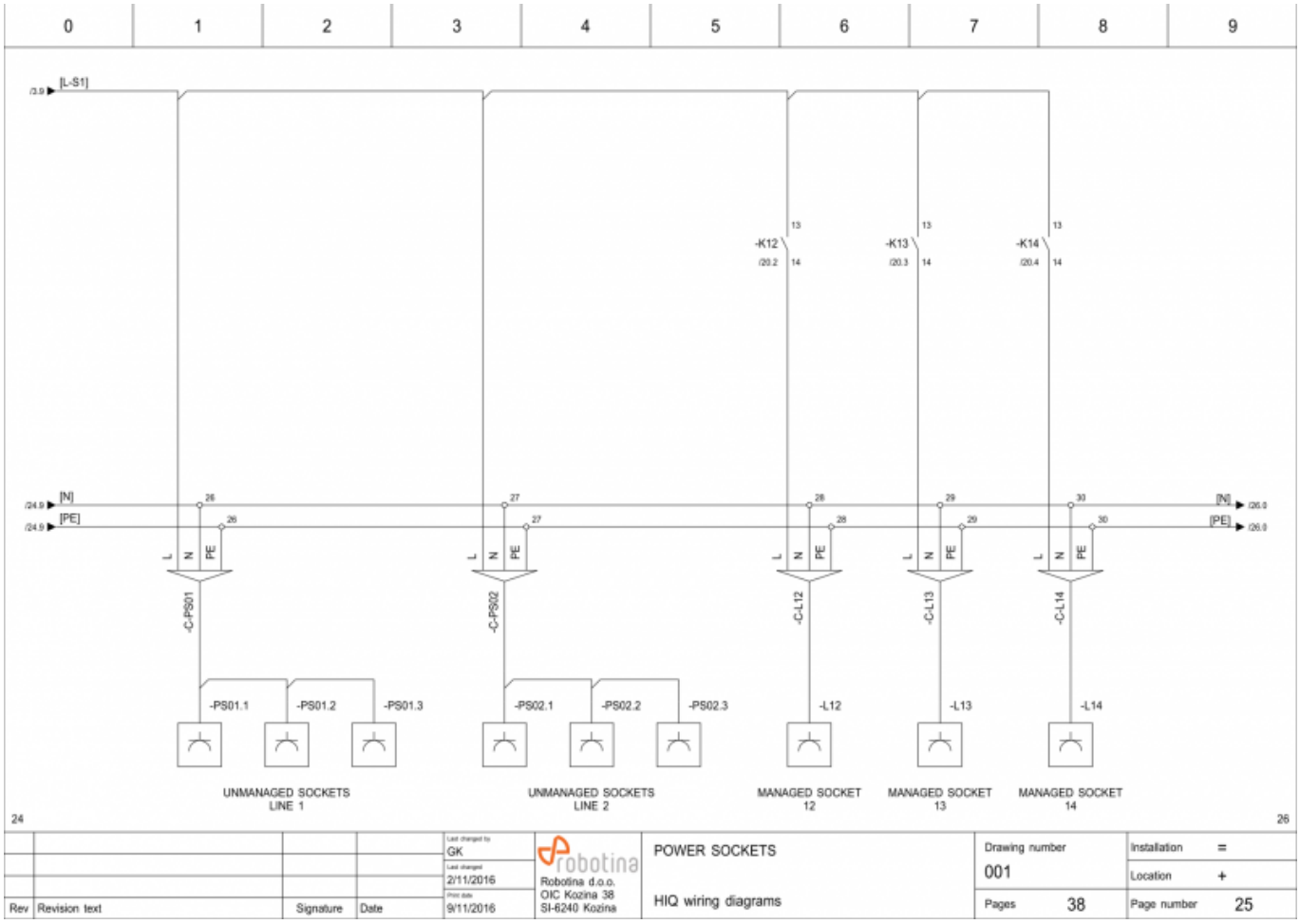
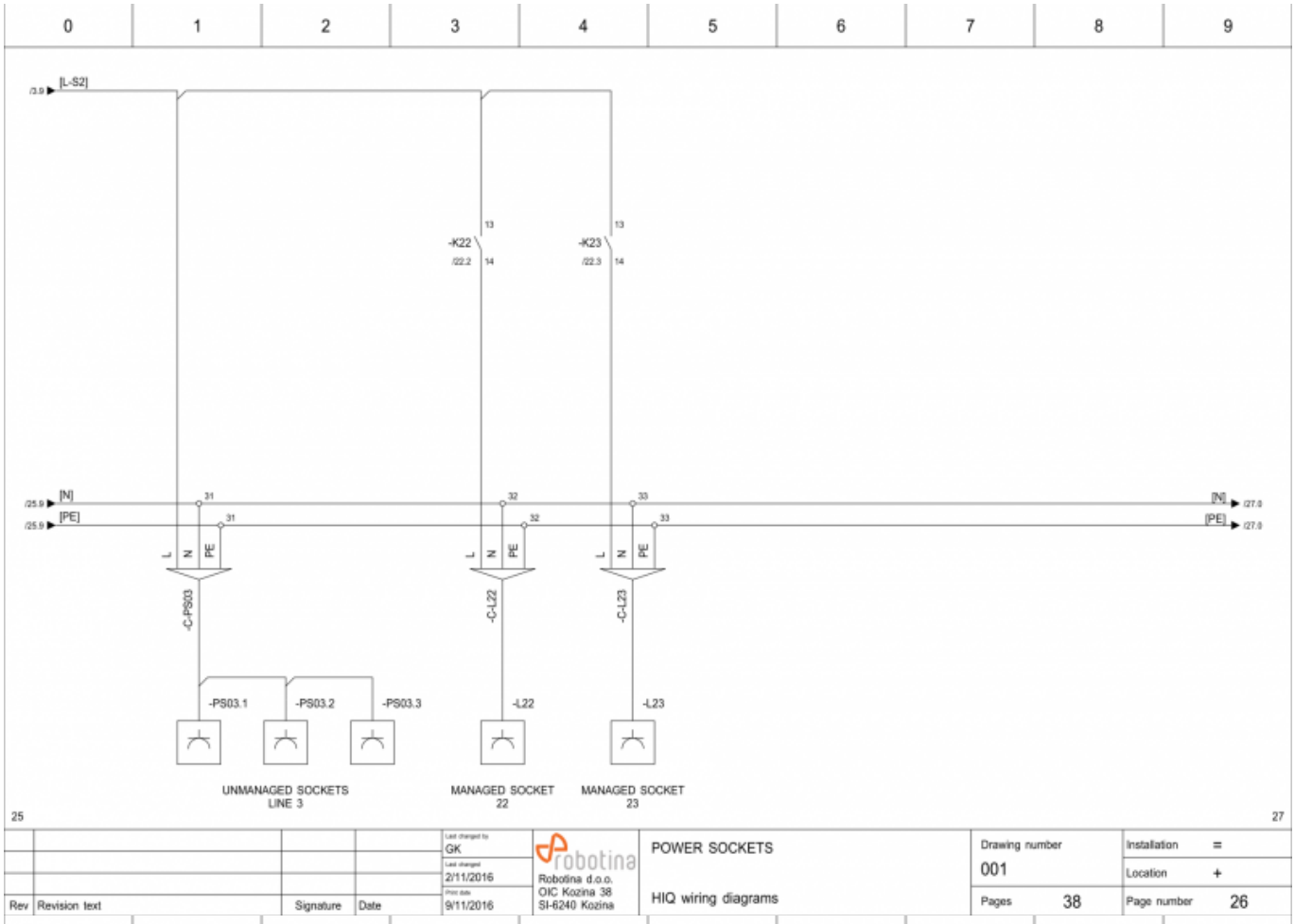
Page number
24

Page 25-27 – Power sockets

A sample plan assumes use of managed and unmanaged sockets. Managed sockets are connected to Light controllers. External installation relays should be used on Light controller outputs.

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-K23
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-C-L22
-C-L23
-PS03.1
-PS03.2
-PS03.3
-L22
-L23
UNMANAGED SOCKETS
LINE 3
MANAGED SOCKET
22
MANAGED SOCKET
23
25
27
Rev
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SI-6240 Kozina
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Pages 38
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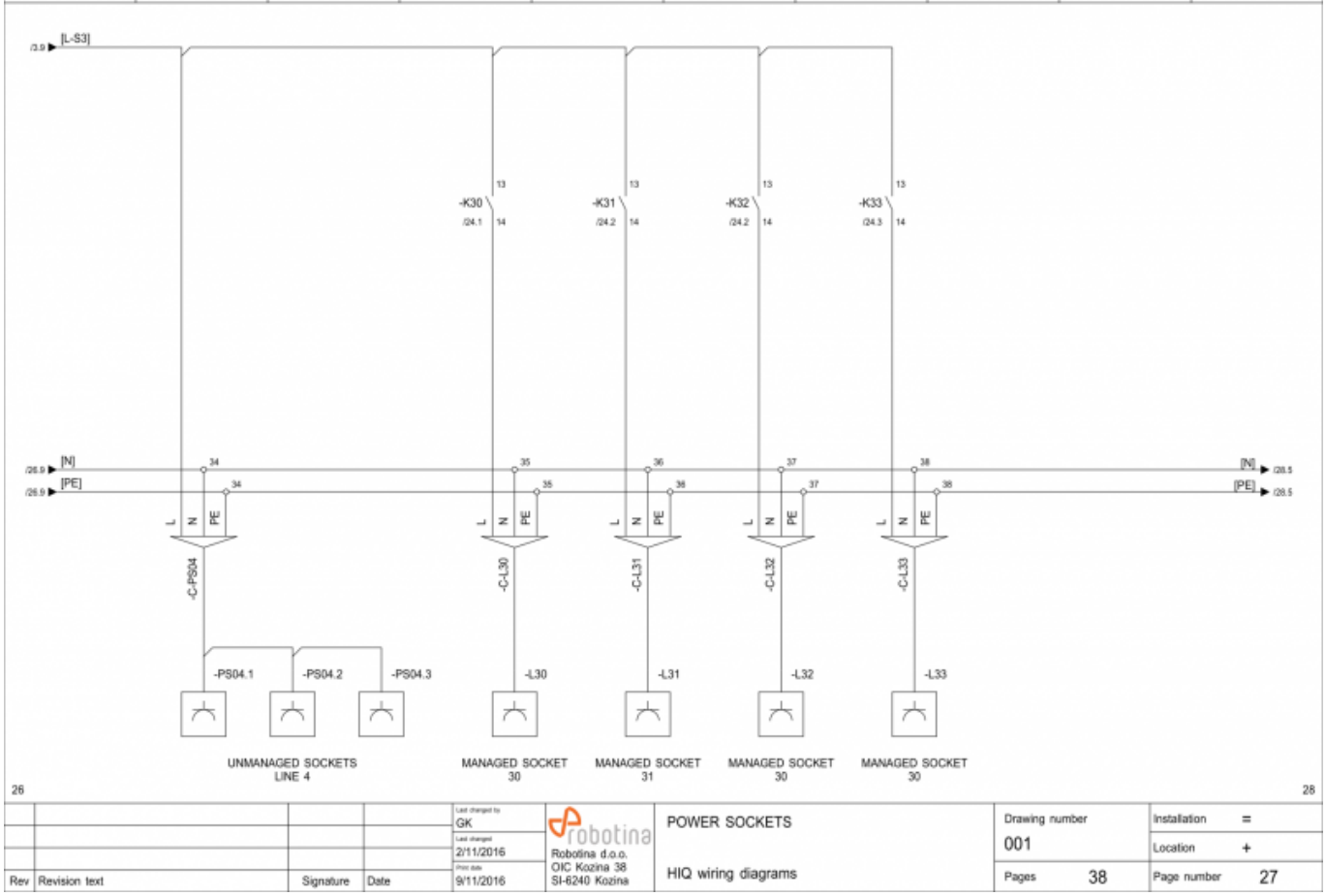
Location +
Page number 26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-K33
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-PS04.2
-PS04.3
-L30
-L31
-L32
-L33
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OIC Kozina 38
SI-6240 Kozina
POWER SOCKETS
HIQ wiring diagrams
Drawing number
001
Pages 38
Installation =
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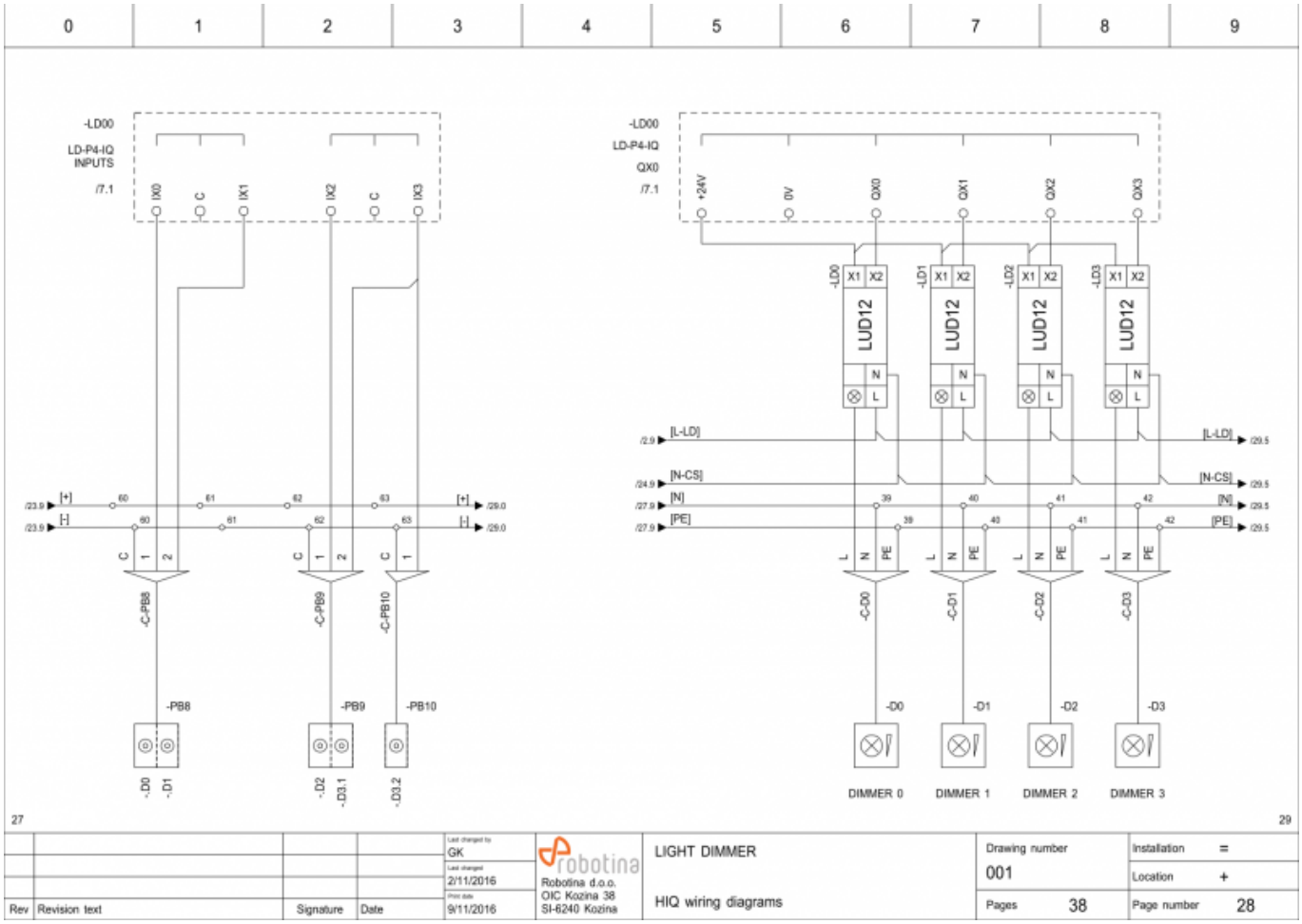
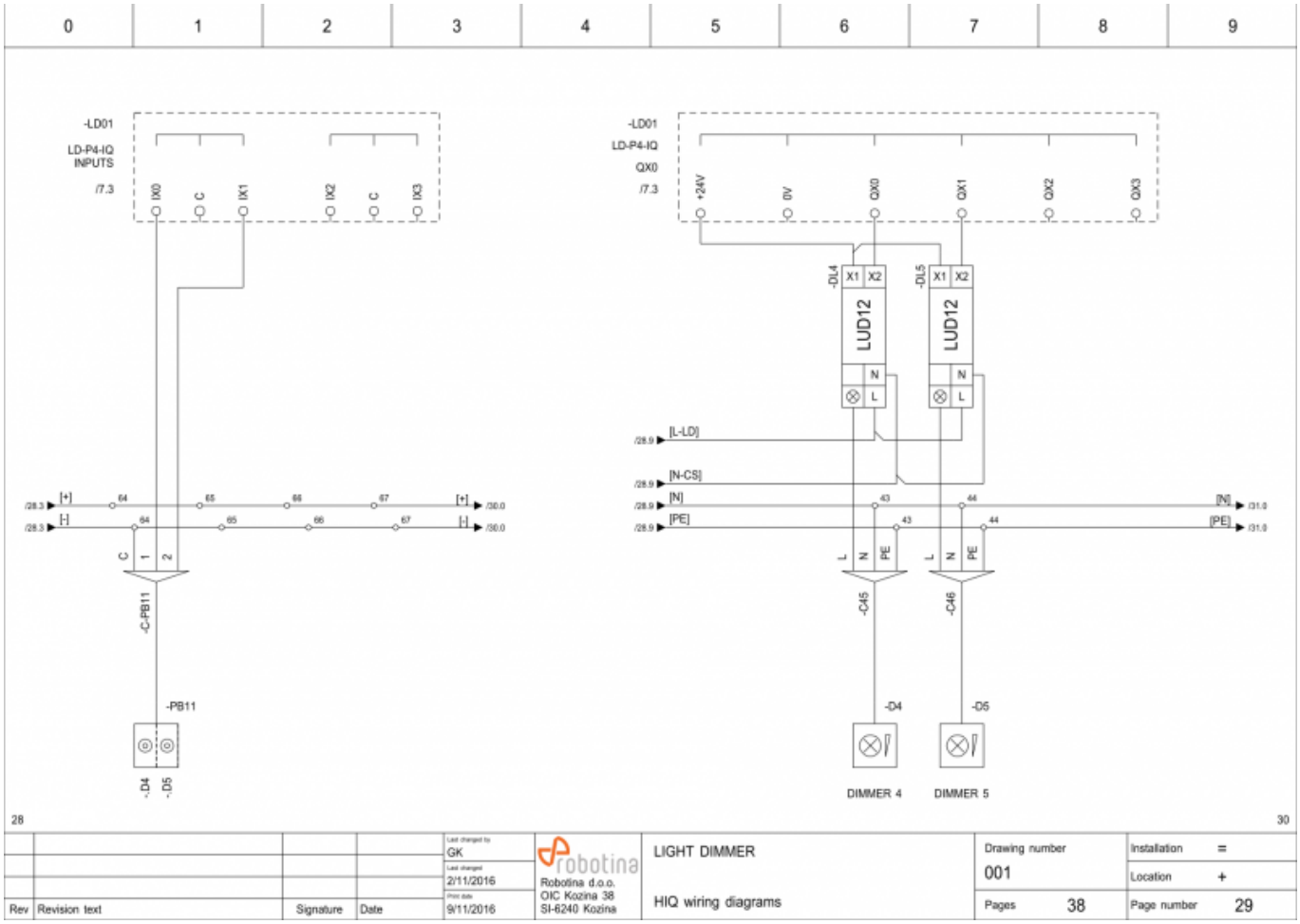
Page number 27

Page 28-29 – Light dimmers

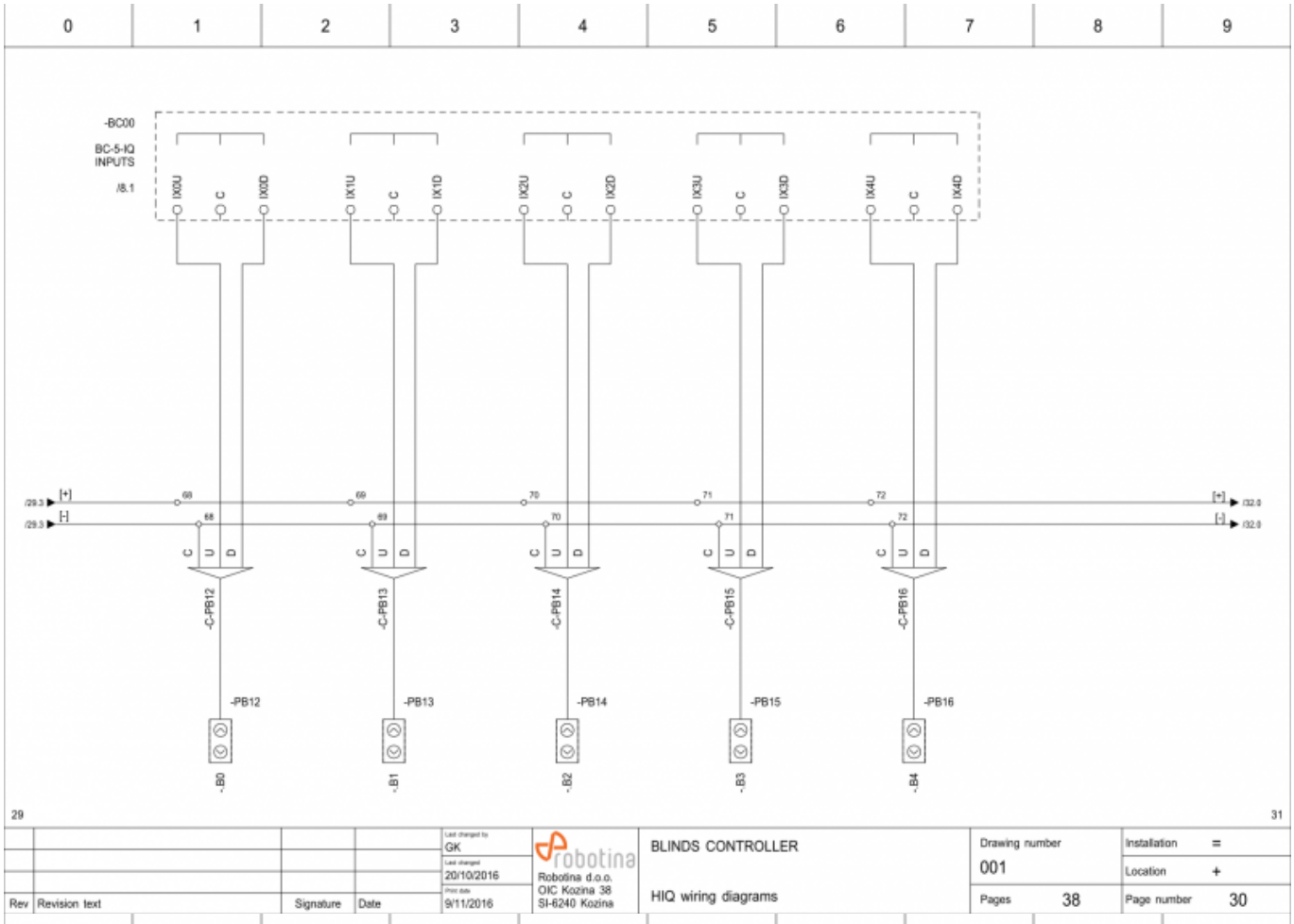
On sample plan we use 2 Light dimmers drivers. On each driver we can connect up to 4 LUD-12 universal light dimmers.

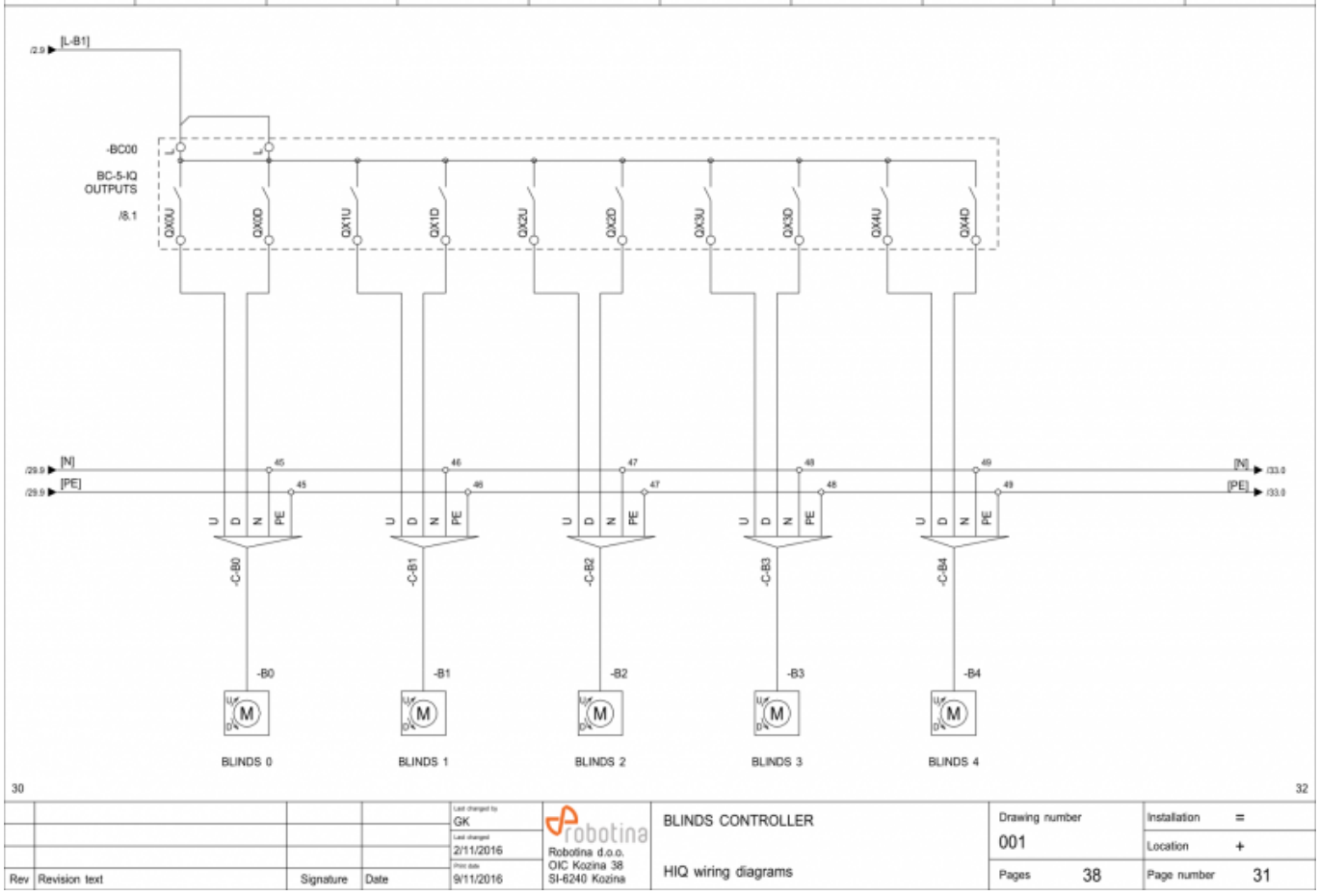


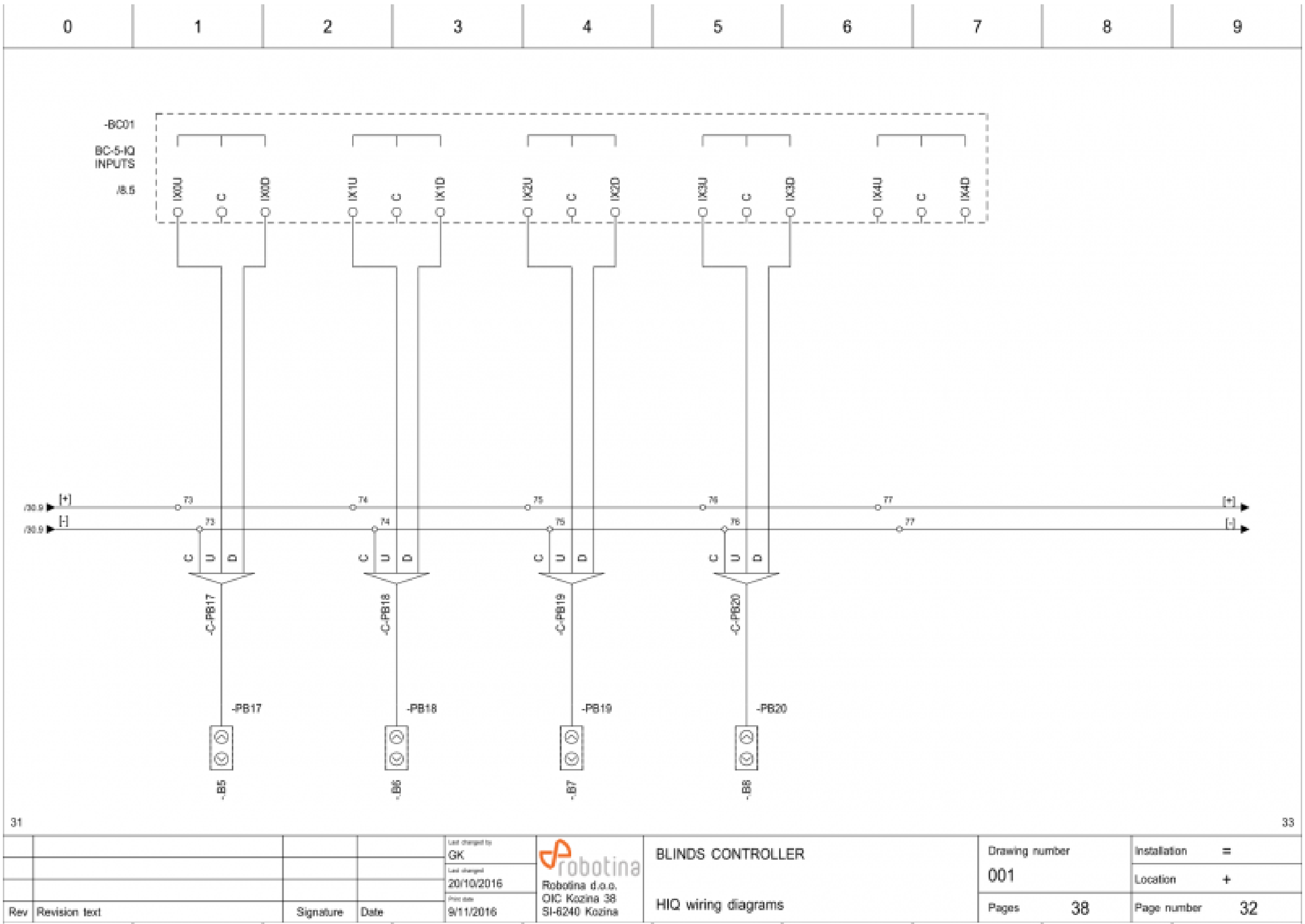


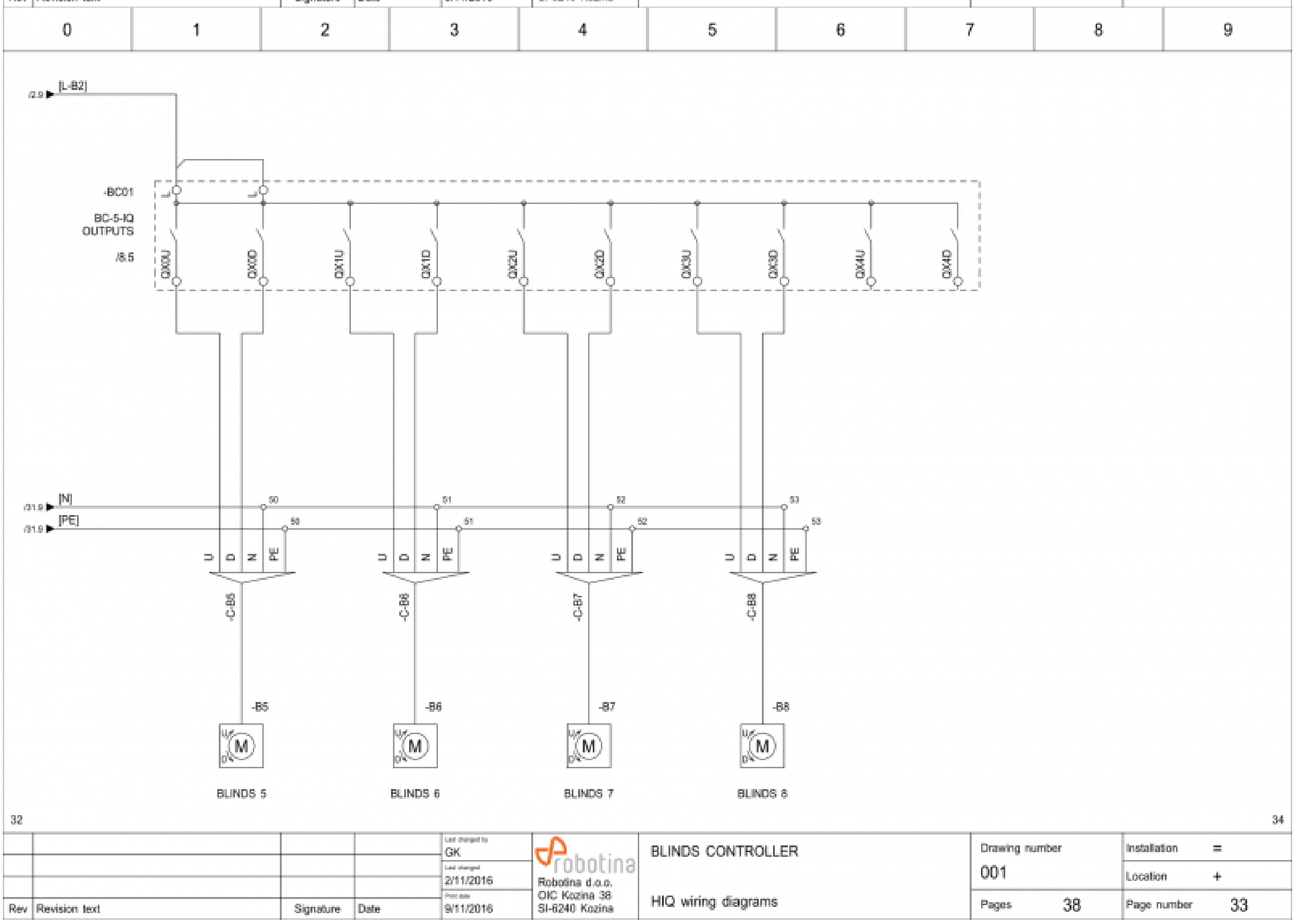
Page 30-33 – Blinds controllers

On our sample plan we have 2 Blinds controllers (BC) with 9 blinds and 9 double-push buttons.


0 1 2 3 4 5 6 7 8 9
-BC00
BC-5-IQ INPUTS
/8.1
IX0U IX0D IX1U IX1D IX2U IX2D IX3U IX3D IX4U IX4D
C
/29.3 [+]
/29.3 [-]
-C-PB12
-C-PB13
-C-PB14
-C-PB15
-C-PB16
-PB12
-PB13
-PB14
-PB15
-PB16
-B0
-B1
-B2
-B3
-B4
29
31
BLINDS CONTROLLER
HIQ wiring diagrams
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
GK
20/10/2016
9/11/2016
Drawing number 001
Pages 38
Installation =
Location +
Page number 30
Rev Revision text Signature Date


0 1 2 3 4 5 6 7 8 9
/2.9 [L-B1]
-BC00
BC-5-IQ OUTPUTS
/8.1
QX0U QX0D QX1U QX1D QX2U QX2D QX3U QX3D QX4U QX4D
/29.9 [N]
/29.9 [PE]
U D N PE
-C-B0
-C-B1
-C-B2
-C-B3
-C-B4
-B0
-B1
-B2
-B3
-B4
BLINDS 0
BLINDS 1
BLINDS 2
BLINDS 3
BLINDS 4
30
32
BLINDS CONTROLLER
HIQ wiring diagrams
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
GK
2/11/2016
9/11/2016
Drawing number 001
Pages 38
Installation =
Location +
Page number 31
Rev Revision text Signature Date


-BC01
BC-5-IQ INPUTS
/8.5
IX0U C IX0D IX1U C IX1D IX2U C IX2D IX3U C IX3D IX4U C IX4D
[+]
[-]
-C-PB17 -C-PB18 -C-PB19 -C-PB20
-PB17 -PB18 -PB19 -PB20
-B5 -B6 -B7 -B8
Rev Revision text Signature Date
GK
20/10/2016
9/11/2016
robotina
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
BLINDS CONTROLLER
HIQ wiring diagrams
Drawing number 001
Pages 38
Installation =
Location +
Page number 32


[L-B2]
-BC01
BC-5-IQ OUTPUTS
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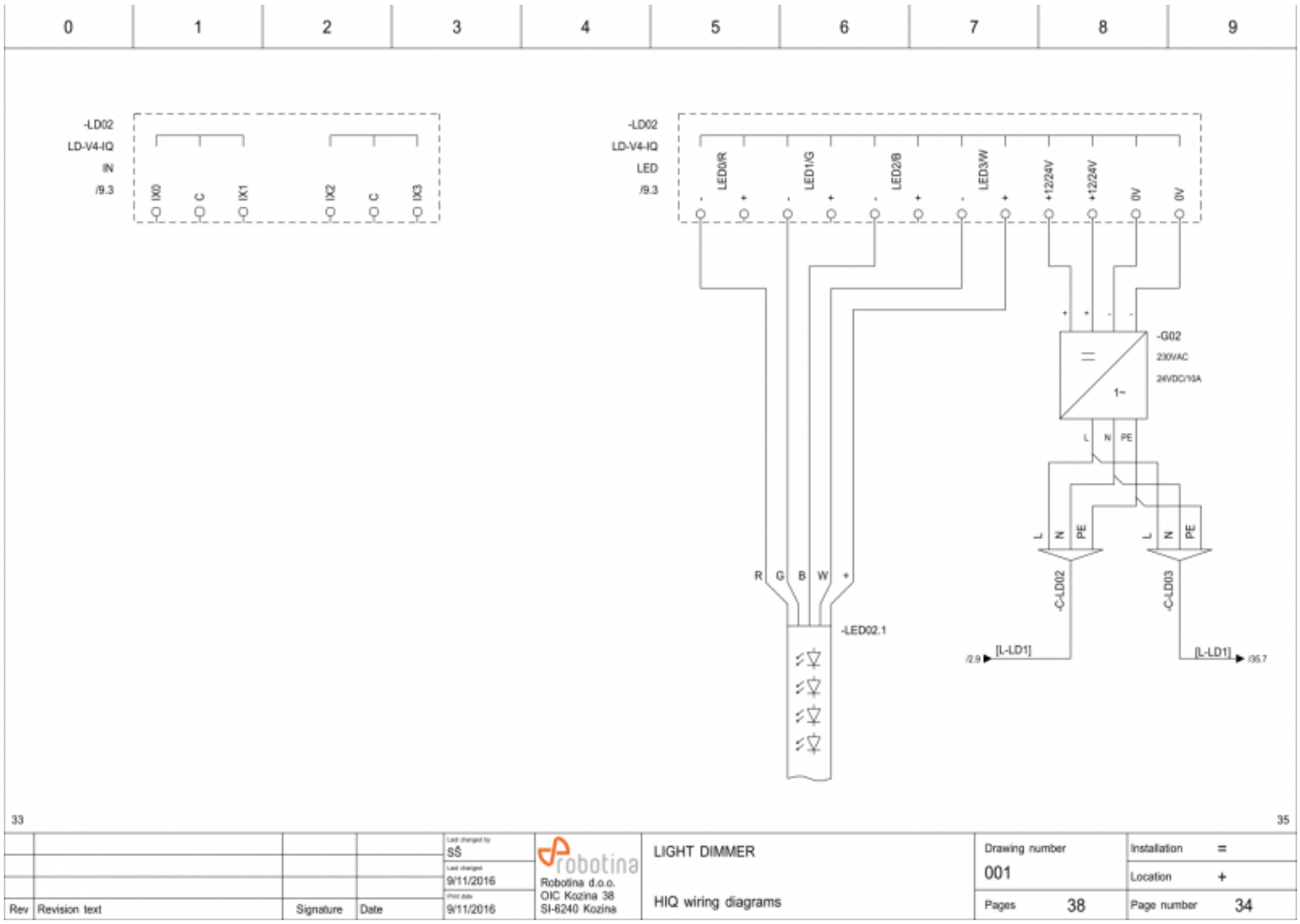
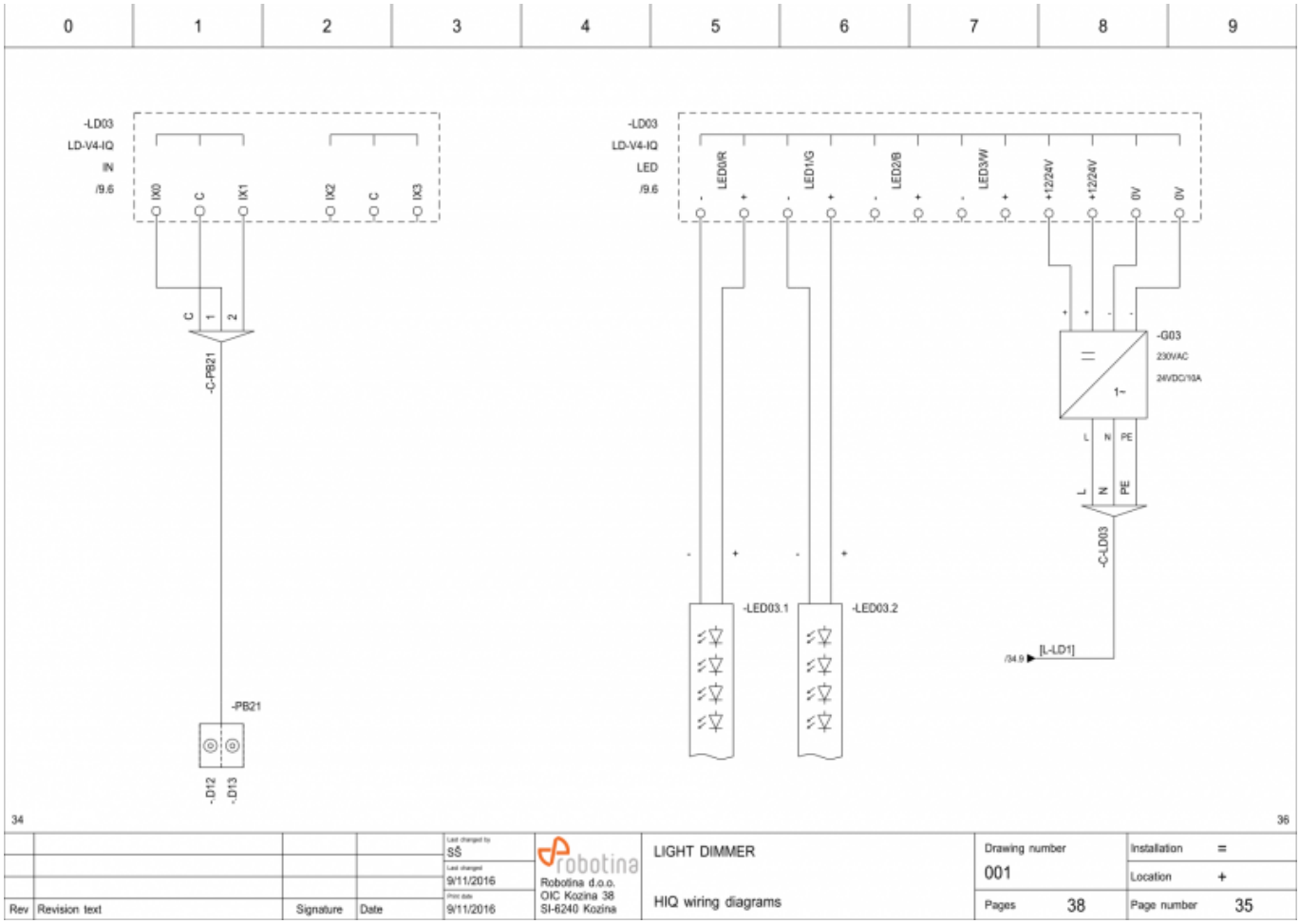
[N]
[PE]
-C-B5 -C-B6 -C-B7 -C-B8
-B5 -B6 -B7 -B8
BLINDS 5 BLINDS 6 BLINDS 7 BLINDS 8
Rev Revision text Signature Date
GK
2/11/2016
9/11/2016
robotina
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
BLINDS CONTROLLER
HIQ wiring diagrams
Drawing number 001
Pages 38
Installation =
Location +
Page number 33

Page 34-35 – LED stripe dimmer

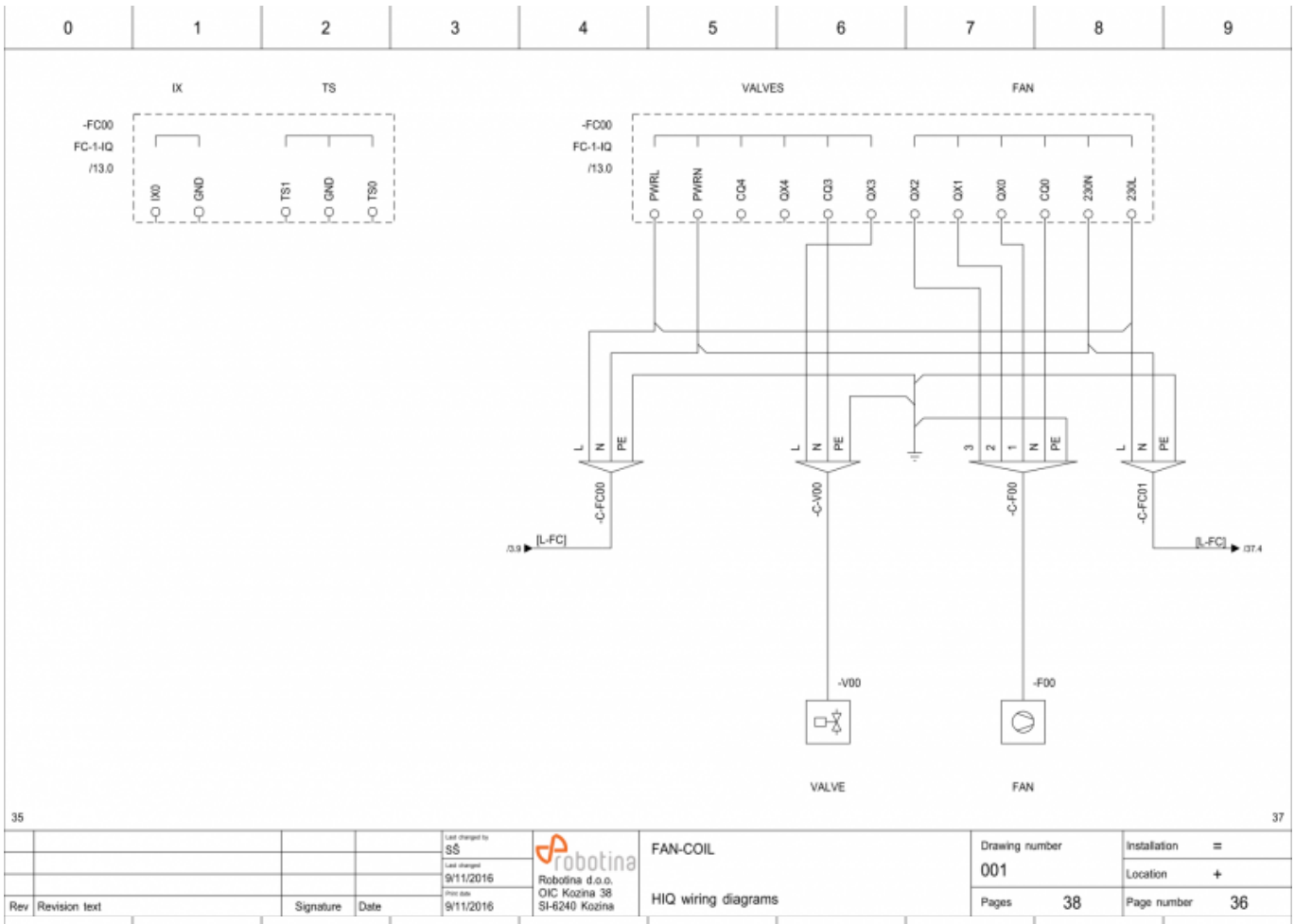
On sample plan we use 2 LED stripe dimmers. RGBW (red-green-blue-white) LED stripe is connected on the first dimmer and the second dimmer controls 2 white LED stripes (2 outputs are empty). 2 push buttons are connected on the second dimmer.

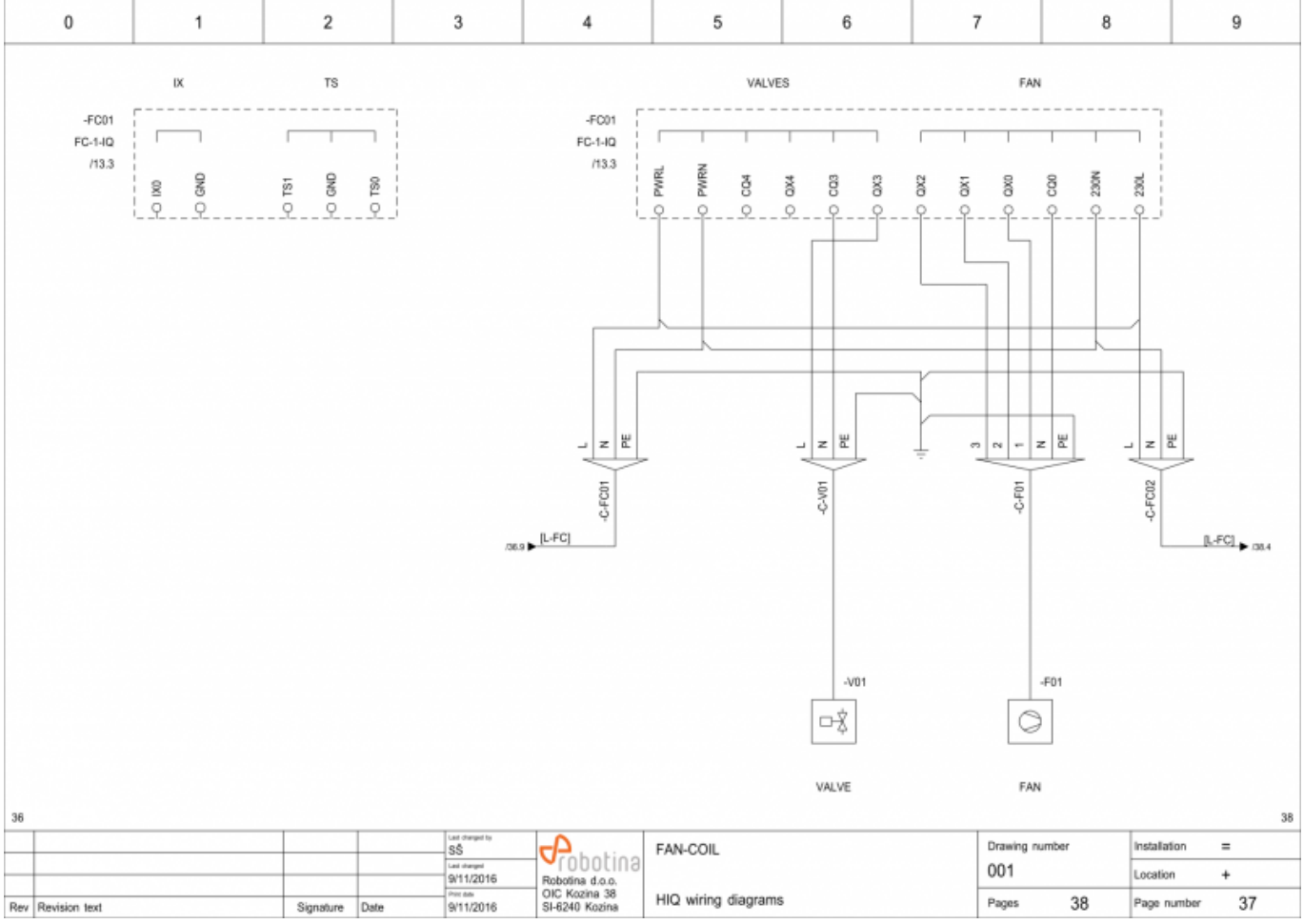




Page 36-38 – Fan-coil

Fan-coil connection.


0
1
2
3
4
5
6
7
8
9
IX
TS
VALVES
FAN
-FC00
FC-1-IQ
/13.0
IX0
GND
TS1
GND
TS0
PWRL
PWRN
CO4
QX4
CO3
QX3
QX2
QX1
QX0
CO0
230N
230L
L
N
PE
-C-FC00
-C-V00
-C-F00
-C-FC01
[L-FC]
/3.9
[L-FC]
/37.4
-V00
-F00
VALVE
FAN
35
37
Rev
Revision text
Signature
Date
SŠ
9/11/2016
9/11/2016
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
FAN-COIL
HIQ wiring diagrams
Drawing number
001
Pages
38
Installation
=
Location
+
Page number
36


0
1
2
3
4
5
6
7
8
9
IX
TS
VALVES
FAN
-FC01
FC-1-IQ
/13.3
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GND
TS1
GND
TS0
PWRL
PWRN
CO4
QX4
CO3
QX3
QX2
QX1
QX0
CO0
230N
230L
L
N
PE
-C-FC01
-C-V01
-C-F01
-C-FC02
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[L-FC]
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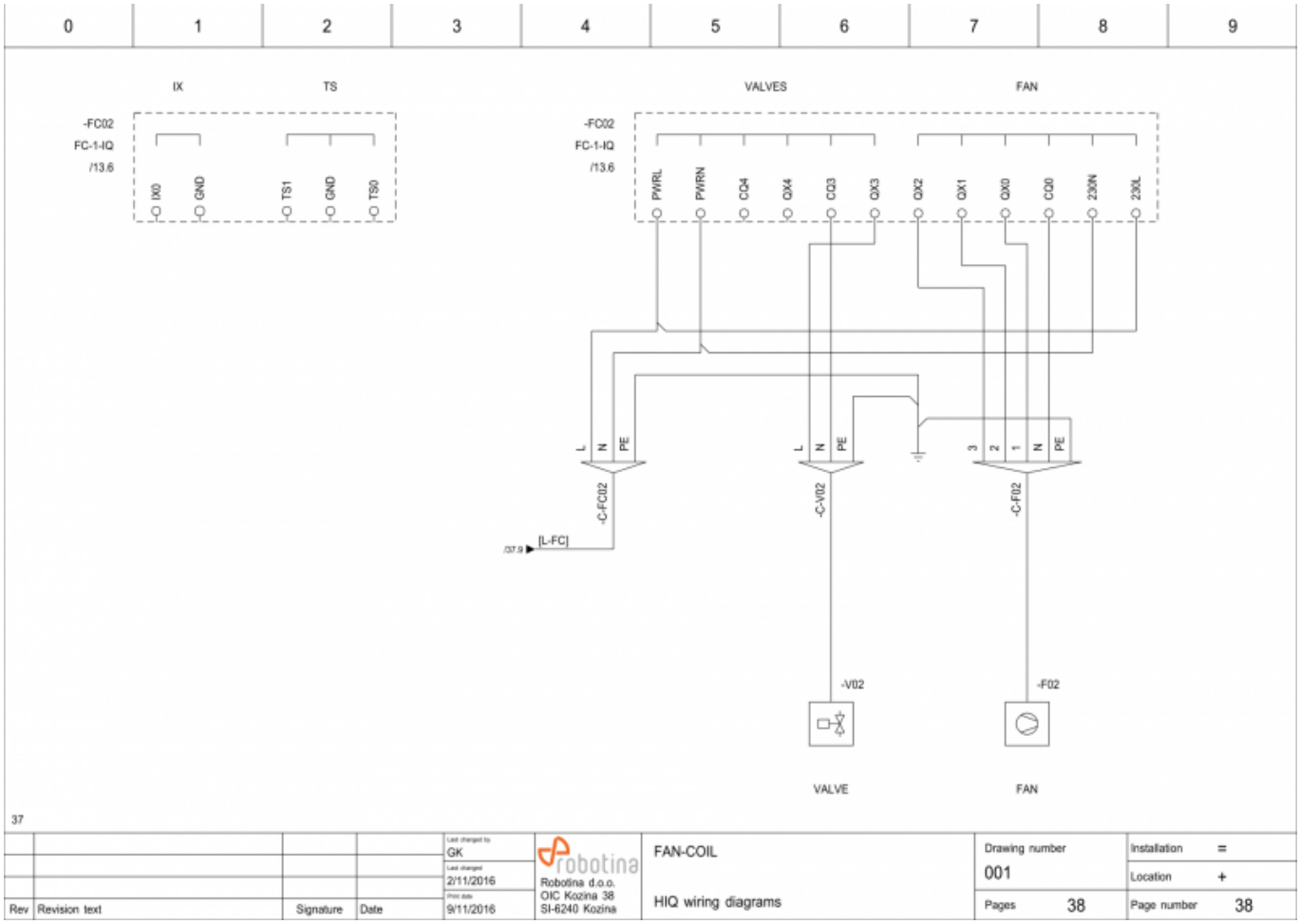
-F01
VALVE
FAN
36
38
Rev
Revision text
Signature
Date
SŠ
9/11/2016
9/11/2016
Robotina d.o.o.
OIC Kozina 38
SI-6240 Kozina
FAN-COIL
HIQ wiring diagrams
Drawing number
001
Pages
38
Installation
=
Location
+
Page number
37



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