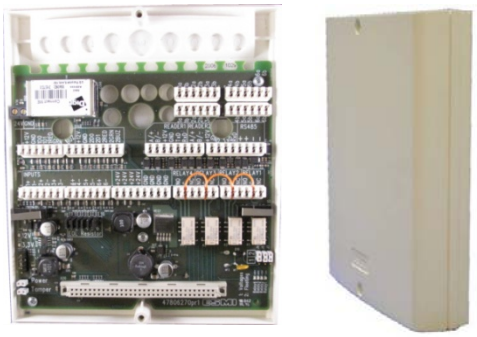
DCU605 Door Controller Unit with direct IP-connection to Esmikko Server

DCU605 is one door controller unit including IP module on board that can be connected directly to Esmikko server using company LAN.

There are two production models.
Model FFS08800605A is equipped with IP module and model FFS08800605B is not. All other features are equal.



Door controller DCU605 has:

- 6 double balanced inputs
- 4 clean relay outputs with normally open and close contacts.
- Wiegand inputs for two readers supporting same protocols as DCU601.
- Serial connection for two readers with RS232 or RS485 interfaces. Note! All serial readers have some manufacture dependent protocol and at the moment none is supported.
- Connection board CT615 uses mainly Krone type of link connector. There are screw terminals for 24V DC input (connected parallel with same link connecters).
- Door Controller Unit DCU605 consists of plastic housing, connection board CT615 (FFS47806270) and processor board CT605 (FFS47806260).

Technical characteristics

- Housing size. 155 x 195 x 40mm (W x H x D)
- Weight 500g
- Material: ABS plastics
- Color: Esmi white
- Operating temp: -10C - +40C
- Operating humidity: 93 %
- IP-class: 54
- Environmental tests: EN 50130-5
- EMC Immunity: EN 50130-4
- EMC Emission: EN 50022 class B
- Supply voltage: 20-30V DC
- Nominal current: 24V DC / 100mA (without external devices)
- Max current consumption: 24 VDC/500mA

Note! Materials are RoHS compliant.

Electrical interfaces

Serial ports, readers, inputs and outputs

- Changed markings on CT615 board revision 1
- Com2 device bus line, RS485 communication line to server or bus controller unit. (IP module is parallel with 485 and cannot be used at the same time with RS485 communication).
  IP -module works as terminal server.
  Markings: 485 +, 485 –
- Com0 serial port for reader 1. RS485 or RS232 (parallel with 485) can be used.
  Markings: READER1, B/+, A/- (for RS485) TxD, RxD, GND (for RS232) and +12 V.
- COM1 serial port for reader 2. RS485 or RS232 (parallel with 485) can be used. RS232 is also used for programming the CPU. 6 Krone terminals. Markings: READER2, B/+, A/- (for RS485) TxD, RxD, GND and +12 V.
- Power supply input: 24 V input from external power source with battery back up or in some cases from bus controller unit.
  Markings: +24V, GND
- Power supply output 12 V DC. Regulated from 24 V. Markings: +12V, GND.
- Wiegand reader 1: CR1_Data0 and CR1_Data1 input signals. OC outputs (short circuit protected); red led, green led, buzzer.
  Markings: 1D0, 1D1, 1RED, 1GRN, 1Buz, +12V, GND
- Wiegand reader 2: CR2_Data0 and CR2_Data1 input signals. OC output as in reader 1. Markings: 2D0, 2D1, 2RED, 2GRN, 2Buz, +12V, GND

Inputs 1 to 6

Analog inputs are double balanced (as in DCU603)

- Markings: Inputs, 1+, 1-.
- Markings: Inputs, 2+, 2-.
- Markings: Inputs, 3+, 3-.
- Markings: Inputs, 4+, 4-.
- Markings: Inputs, 5+, 5-.
- Markings: Inputs, 6+, 6-.

Schneider Electric

Clean contact outputs 1 to 4

- Markings RELAY1, C, NO, NC (Krone)
- Note! Contacts only in relay 1 can be set with jumpers J7-9 to direct supply/ ground/control terminal connections to motor lock (as in DCU601).
- Markings RELAY2, C, NO, NC (Krone)
- Markings RELAY3, C, NO, NC (Krone)
- Markings RELAY4, C, NO, NC (Krone)

Cross connection terminal block

Connection board has additional terminal block for free connections 12 pairs (Krone).
Markings: 1a (1st pair), 1b (2nd pair), 2a (3rd pair), 2b (4th pair)… 6b (12th pair)

Signal LEDs

Controller has LED indicators for all serial lines, supply lines (12V and 3.3V) and active relays. The led indicators are visible when controller is installed on the wall and the cover is open.

Installation

Controller can be installed

- On straight wall or into ceiling above corridors into safe, sheltered space
- Onto wall near doors
- Over a sunk installation box.

For cable inlets there are special plastic gaskets on bottom and upper part of housing with 18 inlets. Cables are easy to take through the inlet via plastic breaking. It forms a tight protection around the cable. Controller is always installed to safe side of a door.

Technical data

Power supply and voltages

DCU605 uses nominal 24 V DC power. Variation can be in between 20...30 V. Supply connection is protected against over voltages. A serial diode prevents damages if supply voltage is connected wrongly.

12 VDC output for readers can provide 1A current. Nominal output voltage is 13V.

Programming

Com1 is used also programming the controller board with FDT flash tool and standard configuration cable. J1 is a 5 pin connector marked for programming with TxD, RxD and GND signals.

Card reader 2 uses the same RS232 serial port as programming. Therefore card reader2 signal CR2_RxD has been routed via programming pins.

When programming is not needed J1 pins 3 and 4 (RxD and CR2) must be closed with a jumper. Note! Serial reader 2 needs the jumper in order to work.

TCP/IP- connection

Door controller DCU605 has a IP- module with RJ45 connector for Ethernet cable. It must be type STP in order to fulfill EMC requirements. IP- module replaces the COM2 RS485 communication.

The IP Serial Device Server must be configured using module manufacturer software tools for IP Address and operation modes.

Protection against disturbances

Serial circuits are protected with transient shields. Card reader data lines have 5 k pull up resistors. Wiegand interfaces have varistor protection against slow over voltages and RC filtering. Open collector outputs have LC filtering for radio disturbances.

Inputs

Digital inputs have two states: Normally closed or open. Inputs are protected against over voltages.
If inputs are used in double balanced mode detector cover tamper switch and detector alarm switch must be connected in series and parallel to alarm switch the 5,6 kOhm alarm resistor.

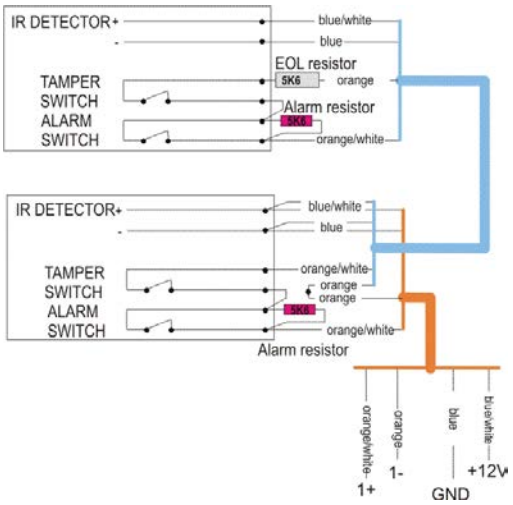
DCU605 has 6 double balanced inputs using an external End Of Line Resistor (5,6k) out in the detector and alarm resistor (5,6k) parallel to alarm switch contact in detector. When 5,6 kΩ resistors are used voltage measured from input (+) are:

- OK 2,57 V
- ALARM 3,50 V
- TAMPER (short circuit) 1,65 V
- TAMPER (break) Max.

Loop resistance	State	Alarm state
< 3 kohm	short circuit	Tamper alarm
4-7 kohm	closed	OK
8-13 kohm	open	Alarm
>15 kohm	Cut/broken	Tamper alarm

On CT615 connection board each input has a default EOL resistor connected via jumpers J1-6.
They can be used, if external EOL resistor is not used.
Note! If external EOL resistors are not used, jumpers J1-6 must be open.

Example connection



Inputs may have default use and some functionality configured by device type. If default functions are not used, inputs are free for any configurable use specified by Esmikko.

Input	Default use	Note
1	Door leaf switch	default to all door types
2	Lock switch	must be configured
3	Request to exit	must be configured
4	Direction	May be used in device type 7
Note! Following input cannot be used externally		
7	Cover tamper	default (not configurable)
D	Reader 1 alarm	configure to tamper
E	Reader 2 alarm	configure to tamper

Relay outputs

DCU605 has four (4) relay outputs with contact points for NC, C and NO. Contacts of Relay 1 can be used to provide power to motor locks as in DCU601. Using jumpers J7-9 in position 1: +24V is connected to contact NC, GND is connected to NO and lock control to C. A diode in not conducting direction is connected between contacts C and NC.
If you want to use clean contacts also for relay 1 you must set jumpers into position 2. Other relay contacts are clean.

Relay contacts will endure 2A or 60Ws non-circulating current or power. Each relay control has a LED in series. It is lit, if relay is active.

Relay	Default use	Note
1	Door relay	default to all door types
2	Local control	depending on door type
3	Local control	can be configured
4	free	all relay types possible

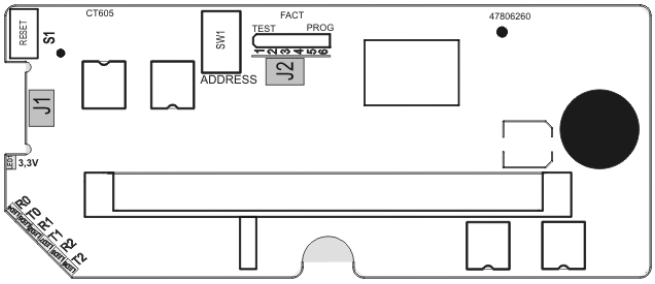
Configurable types for relays RE2-RE4
1 – 10, 31 Esmikko relay output types

Jumpers

Note! Normally no jumpers are active or connected. Check that J2:5-6 is not connected because it keeps processor in programming mode.

Boards have following jumpers:

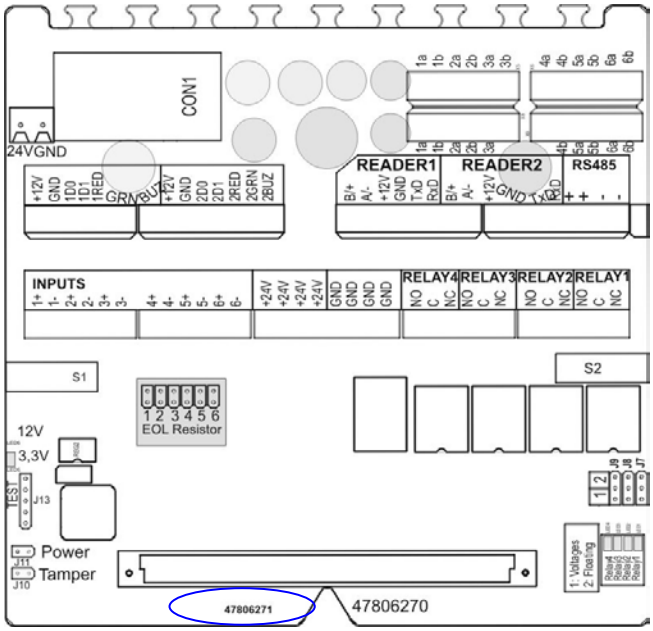
CT605 controller board:
Note! Board will be inverted when it is installed on connection board CT615.



J1	5 pin programming connector. If serial reader 2 is used with RS232 pins CR2 and RxD must be connected together.
J2:1-2	Marked TEST. When pins 1 and 2 are closed together door test starts.
J2:3-4	FACT. When pins 3 and 4 are closed together factory test starts.
J2:5-6	PROG. When pins 5 and 6 are closed together programming mode starts.

CT615 connection board:

Note! Print revision 47806271 at the bottom on the left.



J1	Input 1 EOL resistor: If jumper J1 is closed resistor is in the field. If open, internal.
J2	Input 2 EOL resistor: If jumper J2 is closed resistor is in the field. If open, internal.
J3	Input 3 EOL resistor: If jumper J3 is closed resistor is in the field. If open, internal.
J4	Input 4 EOL resistor: If jumper J4 is closed resistor is in the field. If open, internal.
J5	Input 5 EOL resistor: If jumper J5 is closed resistor is in the field. If open, internal.
J6	Input 6 EOL resistor: If jumper J6 is closed resistor is in the field. If open, internal.
J7-9	Relay 1 contacts • Floating (clean): all jumpers in position 2 • Voltages on: all jumpers in position 1
J10	Tamper: J10 closed= cover tamper disabled
J11	Power: J11 closed, power goes also to ct605 J11 open = power only to connectors
J13	Test connectors for production.

Production test

Controller has automated production test mode. When FACT jumper pins are closed controller starts to communicate with factory test software.
Note! Do not use in the field.

Door test mode

Door environment connections can be tested without connection to server, if there is power and one card reader is connected to the controller. When TEST jumper is connected statuses are displayed with reader LED.
If inputs 1 and 2 are closed and lock control is off also LED is off= not lit. Lock can be controlled open by reading the card or closing input3 = exit button then led goes green. Opening input 1 lights red led and opening input 2 lights yellow led. X = is not care

Inputs

1 Door	x	open	closed	closed
2 Lock	x	x	open	closed
3 Exit	open			
Lock control	ON	Off	Off	Off
LED	green	red	yellow	None

Supported device types

DCU605 can use all same device types as DCU601: 1, 4, 7, 11, 12, 17, 18, 19, 23, 24, 25, 26 and 27.
DCU605 supports also device type 8 using HID RWKL550 reader with display.
Normally lifts should be installed with standard DCU601s and IOU603s. Lift device types 6 and 20 support only floors 1 and 2.

Function and features in DCU605

General

DCU605 stores configuration data into non volatile memory. Controller operates independently if communication to server is off-line. Saved events are sent to server when communication is restored.

Supported Wiegand protocols:

Manufacturer	used number of bits
• HID standard	26
• Esmi/Indala	27
• Esmi/Indala	29
• HID	32 Mifare CSN
• Idesco Mifare	66 parity bits with CSN

Supported Serial RS485 Protocols:

HID manufactured RWKL550 reader with LCD display can be used in device type 8 as user panel.

DCU605 memory limitations:

• Number of card users:	256
• Monitored group:	1
• Number of access areas	8
• Lift rights	8 (1-8)
• Channel based time codes	4 (1-4)
• Timed controls:	40 by device + 40 day type based, 30 group controls
• Size of event buffer	1024

Note! Event buffer is in RAM and it is cleared during initialization, if battery back-up ends. All inputs of DCU601 belong to one and only one monitored group number 1 regardless of configuration.

Clock

Server sends time and date once in every hour and during initialization. Controller clock runs in RAM.

Functionality after power failure and reset

- Date and time is cleared and clock starts from default value.
- Access rights are not checked nor timed controls executed before new correct date and time has been received from server.

Related documents and tools

- S1474GB-DCU605-configuration manual for Lantronix Xport.
- XPort-device-installer-Di32DL_4.2.0.4_Web.exe