BKT ACS – Access Control Systems for ICT cabinets

System description

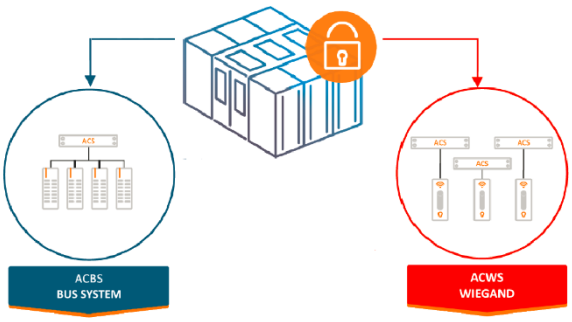
The access control system is designed to limit the access of unauthorized persons to sensitive parts of data centers, smaller server rooms, as well as to individual cabinets. BKT ACS (Access Control System) is a scalable access control system dedicated to 19'' frames. BKT Elektronik offers cabinets that are factory-adapted to the installation of an access control system. These cabinets have doors equipped with appropriate openings for mounting card readers and cable paths for arranging wires. The BKT ACS system can also be applied to any ICT (*Information and Communication Technology*) cabinets with a 19" frame.

System variants

The BKT ACS access control system is available in two variants:

- BKT ACBS (Access Control Bus System) - system based on the RS485 bus, which is used by controller to communicate with card readers.
- BKT ACWS (Access Control Wiegand System) - system that uses the Wiegand interface for communication between the controller and card readers.

Both system variants can work together and can be managed from the same application. The table below lists the main differences between the system variants.



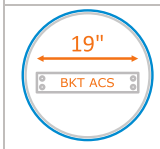
	System structure	Interface between the controller and the reader	Supported standard of proximity cards	Possibility of connecting a handle with an integrated reader - AL301	Possibility of connecting any third party reader with Wiegand interface	1 controller (1 IP address) for many cabinet doors
BKT ACBS Bus system		RS485 bus	UNIQUE 125kHz or Mifare 13,56MHz	✗	✗	Max 16 cabinet doors 
BKT ACWS System with Wiegand interface		Wiegand	Any standard dependent on the reader			Max 2 cabinet doors 

BKT ACS – Access Control Systems for ICT cabinets

ACBS BUS SYSTEM | ACWS WIEGAND

BKT ACBS and BKT ACWS functionality

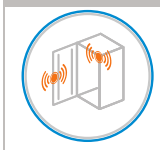
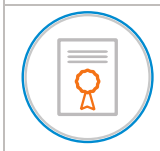
EASY INSTALLATION

	Thanks to the use of RJ45 connectors, connections to the controller are made easily and quickly.
	The devices are adapted to be mounted in a 19" frame. They have a height of 1U.
	BKT 4DC cabinets are available in a version adapted for the assembly of access control devices. They have appropriate cut-outs for the reader and dedicated cableways on the door.

SCALABILITY

	Support for an unlimited number of users.
	Support for an unlimited number of cabinets.
	For use in single cabinet and cold/hot aisle containment.

SECURITY

	Independent monitoring of the door status and the status of the handle and the lock insert.
	Encrypted communication on the Ethernet network and on the RS485 bus.
	Two-track power supply.
	Email notifications about any selected event.
	Monitoring, management and configuration of the system through the free VISO ST application.
	The system devices meet the requirements of security Grade 2 according to the EN 60839-11-1: 2013 standard.

VERSATILITY

	Support for various card standards, depending on the reader used.
	The system can grant access to the door after presenting a card or entering a PIN code (or it may require these two actions). It is also possible to configure the so-called committee entry when two users have to present cards to open the door.
	Depending on the system, the readers may have an integrated keypad or may be integrated in the cabinet handle. It is also possible to use any reader with a Wiegand interface.
	Archiving of events in the MS SQL Server/Express.
	Possibility of stand-alone operation of the system - without being connected to a computer. In such a situation, all events are saved to the controller's internal memory.

BKT ACS – Access Control Systems for ICT cabinets

ACBS
BUS SYSTEM

BKT ACBS bus system devices

Door controller	Description	Part number
	**AC100** – Access controller in 1U 19'' enclosure, no power supply unit, no controller pcb. Designed to support readers with RS485 interface. • Requires the Roger MC16-PAC-ST-x controller pcb. Depending on the used PCB of the controller, it can support from 1 door (MC16 PAC-ST-1) to 16 doors (MC16-PAC-ST-16) • The controller has a 1U casing, adapted to be mounted in a 19'' cabinet. • The number of controllers in the system is unlimited. • The controller enables connection of two door sensors, two door readers, an additional reader for cold/hot aisle containment sliding door, LAN network and RS485 bus connecting slave sets. All connections to the controller are made with cables with RJ45 connectors. • The controller has two configurable LEDs, which for example, can indicate the status of the front and rear doors of the cabinet. • Two-way power supply possible. Requires one or two 12VDC 1.5A power supplies. • Dimensions: 482 x 132 x 44mm (W x D x H)	122AC001000
	**MC16-PAC-ST-xx** – controller pcb for xx (01 -16) door for systems up to 128 doors. • Depending on the pcb version, it can support from 1 door (MC16 PAC-ST-1) to 16 doors (MC16-PAC-ST-16) • Dimensions: 175 x 72 x 30 (W x D x H)	122AC1021xx
	**MC16-PAC-EX-xx** – controller pcb for xx (01 -16) door for systems above 128 doors. • Depending on the pcb version, it can support from 1 door (MC16 PAC-EX-1) to 16 doors (MC16-PAC-EX-16) • Dimensions: 175 x 72 x 30 (W x D x H)	122AC1022xx

Secondary set	Description	Part number
	**AB101** – Access control secondary set for 2 doors in 1U 19'' enclosure, no power supply unit. Works with the AC100 controller. • The kit includes a connection system for devices for handling 2 doors. • It has a 1U housing, suitable for mounting in a 19 "rack. • The set works only with controller AC100. • Designed for installation in subsequent cabinets. • It enables connection of two door sensors, two door readers and an additional reader for cold/hot aisle containment sliding door, LAN network and RS485 bus connecting slave sets. All connections to the controller are made with cables with RJ45 connectors • The controller has two configurable LEDs, which for example, can indicate the status of the front and rear doors of the cabinet. • Two-way power supply possible. Requires one or two 12VDC 1.5A power supplies. • Dimensions: 482 x 44 x 44mm (W x D x H)	122AB001011

BKT ACS – Access Control Systems for ICT cabinets

ACBS
BUS SYSTEM

BKT ACBS bus system devices continued

Unique readers	Description	Part number
 FOR CABINET	**AR121** (MCT12E-IO) – Unique 125kHz card reader with keypad for cabinet door • Roger MCT12E-IO reader was used • Reader adapted to control the cabinet door. It has a 15cm long cable terminated with multi-pin connectors to connect to the lock and cabinet controller. • It reads EM Unique 125kHz proximity cards, reading range up to 7 cm. • Three LED indicators, buzzer with adjustable sound level, keyboard with backlight, two function buttons, detection of housing opening and detachment from the surface. • 12V, 50mA power supply from AC100 controller or AB101 secondary set. • Dimensions: 153 x 46 x 23 (H x W x D)	244AR001210
FOR AISLE	**AR122** (MCT12E-IO) - Unique 125kHz card reader with keypad for housing door • Reader adapted to control cold/hot aisle containment sliding door. It has a 40cm long cable terminated with multi-pin connectors for connecting to the sliding door controller and the cabinet controller. The wiring arrangement is different than in the AR121 reader. • The parameters of the AR122 reader are identical to the AR121	244AR001220

Mifare readers	Description	Part number
 FOR CABINET	**AR131** (MCT12M-IO) - Mifare 13,56 MHz card reader with keypad for cabinet door • Roger MCT12M-IO reader was used • Reader adapted to control the cabinet door. It has a 15cm long cable terminated with multi-pin connectors to connect to the lock and cabinet controller. • It reads Mifare 13.56MHz proximity cards, reading range up to 7 cm. • Three LED indicators, buzzer with adjustable sound level, keyboard with backlight, two function buttons, detection of housing opening and detachment from the surface. • 12V, 85mA power supply from AC100 controller or AB101 secondary set. • Dimensions: 153 x 46 x 23 (H x W x D)	244AR001310
FOR AISLE	**AR132** (MCT12M-IO) - Mifare 13,56 MHz card reader with keypad for housing door • Reader adapted to control cold/hot aisle containment sliding door. It has a 40cm long cable terminated with multi-pin connectors for connecting to the sliding door controller and the cabinet controller. The wiring arrangement is different than in the AR131 reader. • The parameters of the AR132 reader are identical to the AR131	244AR001320

BKT ACS – Access Control Systems for ICT cabinets

ACBS
BUS SYSTEM

BKT ACBS bus system devices continued

Swing handles	Description	Part number
	**AL200** - Electronic locking & monitoring swinghandle with mechanical override • Installation in a standard 150x25mm cut out. • Can be installed in a single and multi-point locking system. • Three-color LED signalling the operation status of the swinghandle. • Monitoring the status of the handle and the ability to transfer information to the access control system. • Emergency key override. • Nominal current consumption during lock operation: 180mA • Quiescent current consumption: 30mA • Dimensions: 177 x 37 x 51 (H x W x D)	122AL002000
	**AL300** (H3-EM-60-100) - Electronic locking & monitoring swinghandle with mechanical override • Standard 150x25mm mounting cut out. • Supports single and multi-point locking. • Opening signalled by a built-in LED. • Monitored status of the handle and the ability to pass information to the access control system. • The lock can be opened with a key in the event of a power failure. • Nominal current consumption during lock operation: 200mA • Quiescent current of the handle: 50mA • Dimensions: 168 x 37 x 50 (H x W x D)	122AL103001

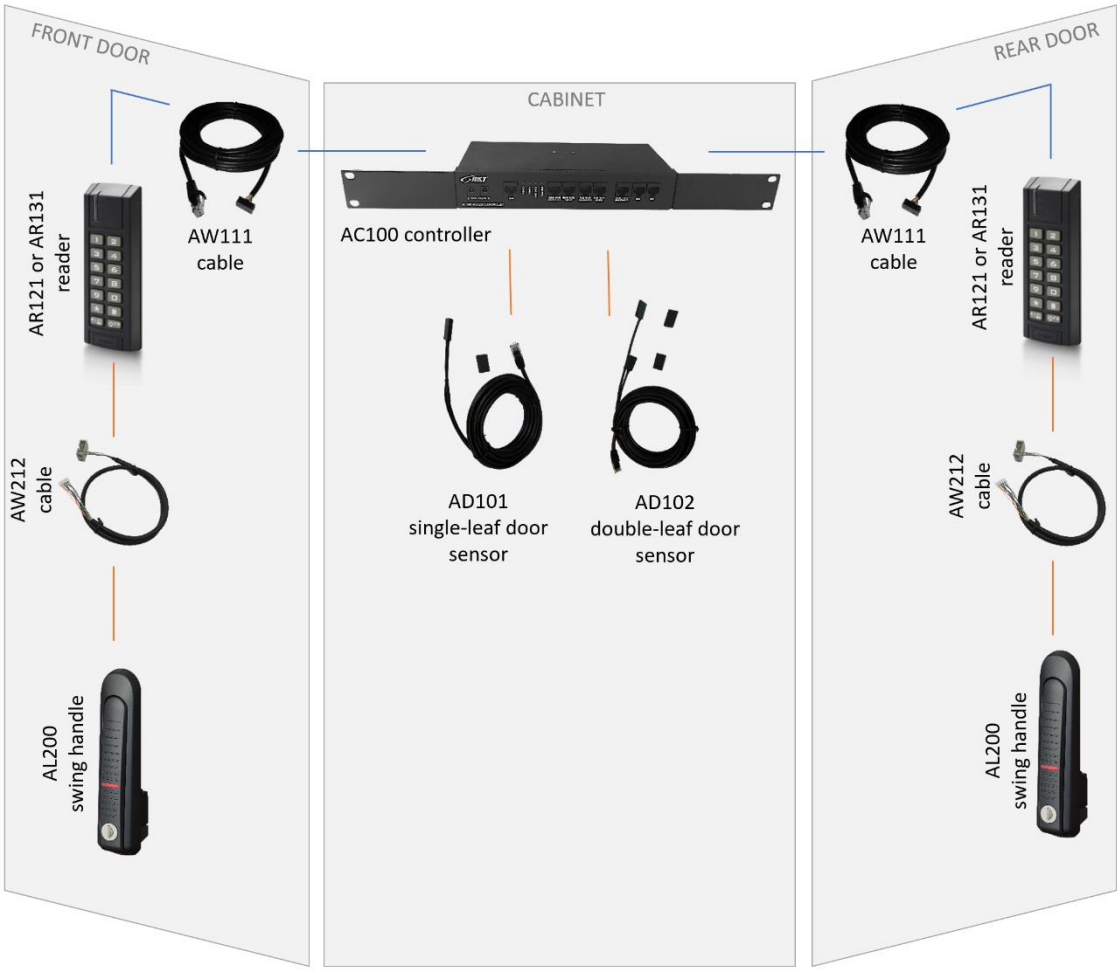
Door sensors	Description	Part number
	**AD101** – Single leaf door reed sensor with 5m cable • Single reed switch sensor NO (normally open). • Cable terminated with RJ45 for connecting to the controller. • The set includes a magnet with self-adhesive double-sided tape. • The set has a metal bracket that fixes the reed switch to the cabinet frame. • Operating range of the sensor: 10mm • Length: 5m • Magnet and reed dimensions without a bracket: 23 x 14 x 6 (L x W x H)	244AD001010
	**AD102** – Double leaf door reed sensor with 5m cable • Double reed switch sensor NO (normally open) • Cable terminated with RJ45 for connecting to the controller • The set includes 2 magnets with self-adhesive double-sided tape • The set has 2 metal brackets that fixes reed switches to the cabinet frame • Operating range of the sensor: 10mm • Length: 5m • Magnet and reed dimensions without a bracket: 23 x 14 x 6 (L x W x H)	244AD001020

BKT ACS – Access Control Systems for ICT cabinets

ACBS
BUS SYSTEM

BKT ACBS bus system structure in a single cabinet

The drawing below shows the connections of the access control system devices for one cabinet. Each cabinet in the system has an AC100 controller or AB101 secondary set in a 1U 19'' housing to which other access control devices of a given cabinet are connected. The controller and the secondary set have RJ45 sockets for connecting two door sensors, two door readers and optional cold/hot aisle containment sliding door reader. Connections are made with dedicated cables with RJ45 plugs on the controller side.

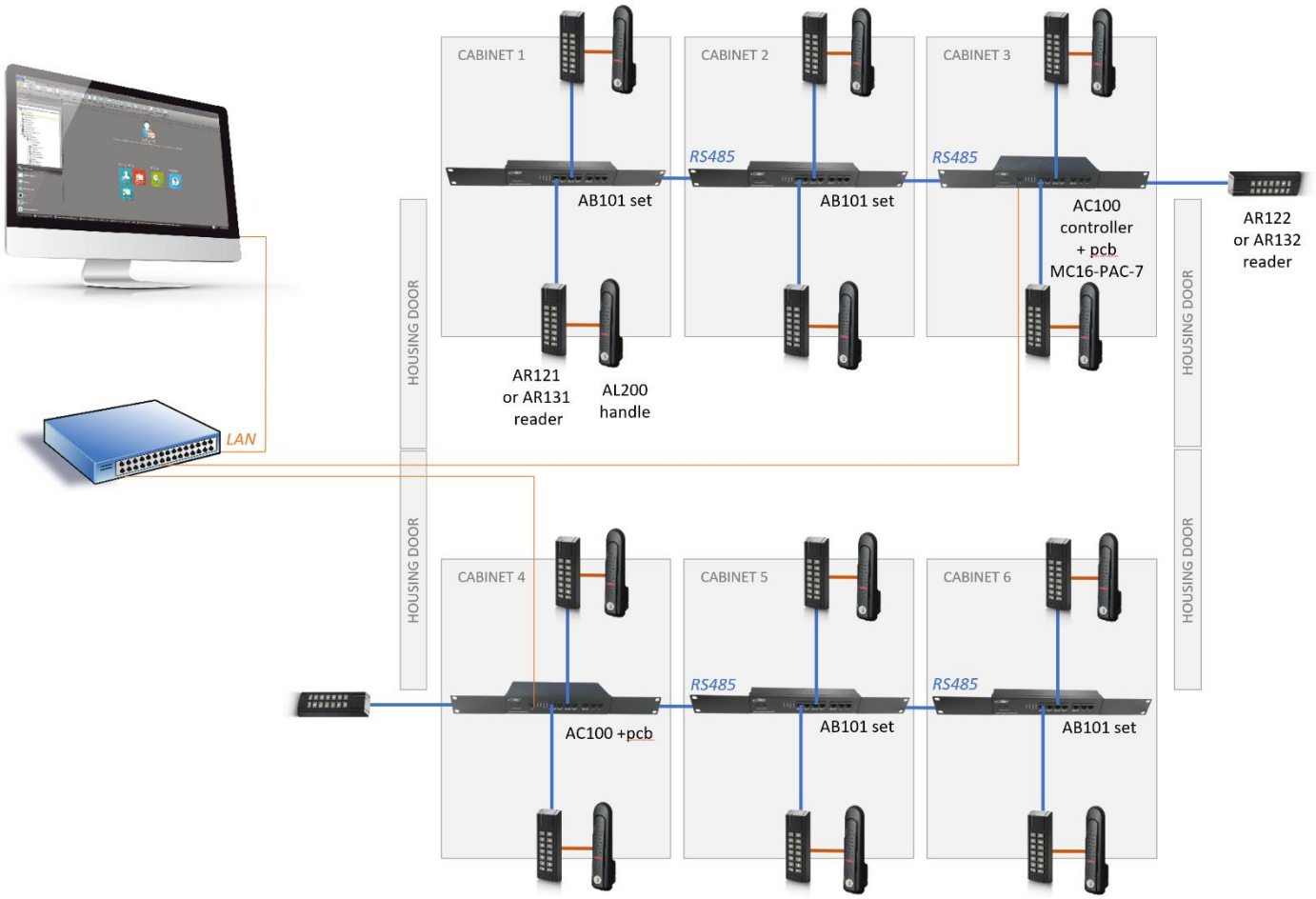


BKT ACS – Access Control Systems for ICT cabinets

ACBS
BUS SYSTEM

BKT ACBS bus system structure in a cold/hot aisle containment

The drawing below shows an example of the connection layout for a kiosk with six cabinets. The system has been divided into two identical subsystems, one for each row of cabinets, i.e. a subsystem for cabinets 1 - 3 and a subsystem for cabinets 4 - 6. One of the cabinets has an AC100 controller installed with the MC16-PAC-ST-7 controller board that supports up to 7 doors . The remaining cabinets are equipped with AB101 slave sets. The slave sets are connected to the controller with UTP kat5e patchcords, which form the RS485 bus for the 7-door subsystem. Two card readers and handles are connected to the AC100 controller or the AB101 set in each cabinet. Additionally, a third reader for the kiosk's sliding door is connected directly to the controller. The controller is connected to the local LAN network, which is accessed by a computer with system configuration and management software



BKT ACS – Access Control Systems for ICT cabinets

ACWS
WIEGAND

BKT ACWS Wiegand system devices

Door controller	Description	Part number
	**AC120** – Access controller in 1U 19'' enclosure, no power supply unit, no controller pcb. Designed to support readers with Wiegand interface • Requires the Roger MC16-PAC-x controller pcb. Depending on the used PCB of the controller, it can support from 1 door (MC16 PAC-ST-1) or 2 doors (MC16-PAC-ST-2) • The controller has a 1U casing, adapted to be mounted in a 19'' cabinet. • The number of controllers in the system is unlimited. • The controller enables connection of two door sensors, two door handle/readers and LAN network. All connections to the controller are made with cables with RJ45 connectors. • The controller has two configurable LEDs, which for example, can indicate the status of the front and rear doors of the cabinet. • Two-way power supply possible. Requires one or two 12VDC 1.5A power supplies. Dimensions: 482 x 132 x 44mm (W x D x H)	122AC001200
	**MC16-PAC-ST-1** – controller pcb for 1 door for systems up to 128 doors **MC16-PAC-ST-2** – controller pcb for 2 doors for systems up to 128 doors • Depending on the pcb version, it can support 1 door (MC16 PAC-1) or 2 doors (MC16-PAC-2) • Dimensions: 175 x 72 x 30 (W x D x H)	122AC102101 122AC102102
	**MC16-PAC-EX-1** – controller pcb for 1 door for system above 128 doors **MC16-PAC-EX-2** – controller pcb for 2 doors for system above 128 doors • Depending on the pcb version, it can support 1 door (MC16 PAC-EX-1) or 2 doors (MC16-PAC-EX-2) • Dimensions: 175 x 72 x 30 (W x D x H)	122AC102201 122AC102202

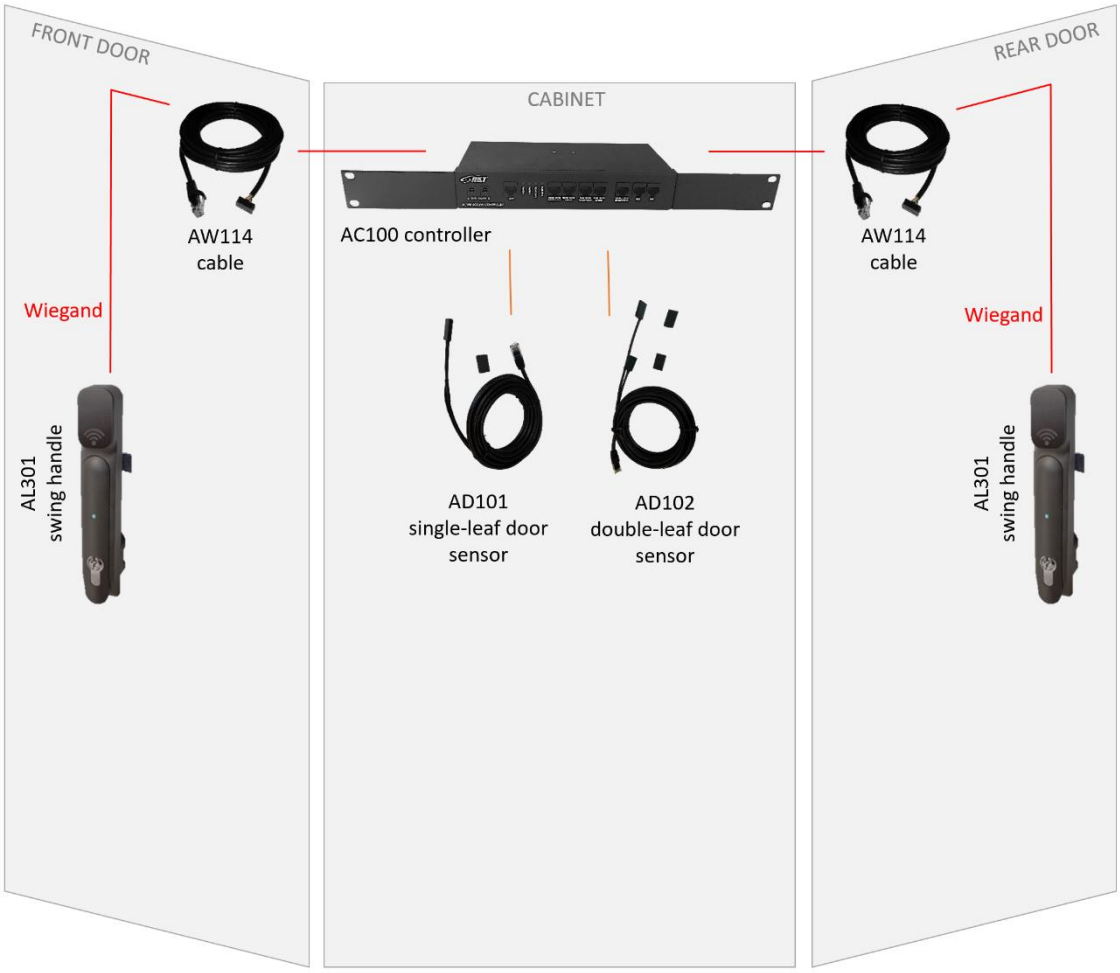
Door swing handle	Description	Part number
	**AL301** (H3-EM-66) - Electronic locking & monitoring swinghandle with mechanical override and HID iClass, MIFARE Classic card reader with Wiegand interface • Industry standard 150x25mm cut-out. • Supports single and multi-point locking. • Opening signalled by a built-in LED. • Lock status outputs for remote monitoring. • The lock can be opened with a key in the event of a power failure.• Powered with 12V from controller. • Nominal current consumption when opening/closing: 200mA • Quiescent current: 50mA • Reader nominal current: 200mA • Dimensions: 213 x 37 x 50 (H x W x D)	122AL103011

BKT ACS – Access Control Systems for ICT cabinets

ACWS
WIEGAND

BKT ACWS Wiegand system structure in a single cabinet

The drawing below shows the connections of BKT ACWS access control system devices in one cabinet. Each cabinet in the system must have an AC120 controller. The controller has a set of RJ45 sockets for connecting two door sensors, two readers/cabinet door handles. Connections are made with dedicated cables with RJ45 plugs on the controller side.



BKT ACS – Access Control Systems for ICT cabinets

ACBS BUS SYSTEM | ACWS WIEGAND

BKT ACBS and BKT ACWS accessories

Accessories	Description	Part number
	**AW111** – Reader to controller connection cable, 5m • The cable is used to connect the reader AR121, AR122, AR131, AR132 with the AC1xx controller. • 5m long, terminated with RJ45 plug and a 10-pin female connector.	244AW001110
	**AW112** - AL300 swinghandle to AR121 or AR131 reader connection cable, 0.55m • The cable is used to connect the reader AR121, AR131 to AL300 swinghandle. • Length: 0.55m, terminated with 10-pin male and 6-pin female connectors.	244AW001120
	**AW113 -** Reader to housing sliding door controller connection cable, 5m • The cable is used to connect the AR122, AR132 readers with the sliding door controller. • 5m long, terminated with RJ45 plug and male 10-pin connector.	244AW001130
	**AW114 -** Cabinet lock with reader AL301 to controller connection cable, 5m • For connecting the handle with the reader (AL301) and the AC120 controller. • 5m long, terminated with RJ45 plug and female 6-pin (handle) and 4-pin (reader) connectors	244AW001140
	**AW212** - AL200 swinghandle to AR121 or AR131 reader connection cable, 0.55m • The cable is used to connect the reader AR121, AR131 to AL200 swinghandle. • Length: 0.55m, terminated with 10-pin male and 8-pin female connectors.	122AW002120
	**GST18A12-P1J** - Power supply 18W 12VDC 1.5A; AC socket C14; DC plug 5.5/2.1; no AC cord	122AA100015
	BKT power cable - plug IEC 320 C13, plug DIN49441 (universal), 3 x 1mm2, black, 2m	11480784.2
	BKT power cable - plug IEC 320 C13 10A, plug IEC 320 C14 10A, 3 x 1mm2, black, 2m	11480785.2
	**RUD-1** - USB-RS485 interface/programmer • Low level programming interface for readers.	122AA101000
	**EMC-1** - UNIQUE EM 125 kHz thin proximity card	122AA101004
	**MFC-2** - MIFARE Classic 1k 13.56 MHz thin proximity card	122AA101011
	Electrical junction box 86mm x 86mm x 39mm, black	122AA100006
	Inline coupler; Cat 6; Keystone, unshielded; 8p8c	122AA100021

BKT ACS – Access Control Systems for ICT cabinets

ACBS BUS SYSTEM | ACWS WIEGAND

BKT ACBS and BKT ACWS software

Software	Description
 	VISO is a Windows application for configuration and management of the access control system. It is available in two versions VISO ST (Standard, also as a free version up to 16 doors) and VISO EX (Enterprise for installations over 128 doors). Main program features: • MS SQL Express / Compact / Server database • multi-station work • encrypted communication with system devices and system servers • defining authorizations for program operators • registration of program operators' activities • unlimited number of system users • monitoring of the current operation of the system in text (table) and graphic (map) view; monitoring of selected doors with video preview • controlling the system by means of remote commands • defining alerts for selected events • signalling of alerts on the operator's console • signalling of alerts by e-mail • support for the system administrator reader • wizards for quick system configuration • does not require continuous operation • software is available at www.roger.pl Hardware requirements for VISO (recommended): • RAM: 4 GB (8 GB for systems above 50 controllers) • CPU: Intel Core i5 or equivalent (Core i7 for systems above 50 controllers) • HDD: 500 MB for VISO and up to 4GB for MS SQL Compact database (if used), • SSD is recommended for MS SQL Compact database • Minimum screen resolution 1280x1024

Version comparison

Parameter	VISO ST		VISO EX
	Free version	Maximum version	Maximum version
Controller supported	MC16-PAC-ST	MC16-PAC-ST	MC16-PAC-EX
Number of doors	16	128	Unlimited
Number of users	500	Unlimited	Unlimited
Operator stations	1	3	Unlimited
USB dongle for license	Not required	RUD-6-LKY	RUD-6-LKY

BKT ACS – Access Control Systems for ICT cabinets

VISO ST licenses

VISO ST licenses	Part number
LIC-VISO-START-ST - License for the management program for the RACS 5 system; starter version; no license or dongle required; free version limitations: - up to 16 doors - up to 500 users - 1 operator station	122AS102100
RUD-6-LKY - USB dongle for license	122AS102099
LIC-VISO-BASE-ST - License for the management program for the RACS 5 system; basic version; requires a license and dongle; basic version limitations: - up to 32 doors (max 128) - up to 1000 users (max unlimited) - 1 operator station (max 3)	122AS102101
LIC-VISO-ST-16AD -License for additional 16 doors (VISO-ST Standard system)	122AS102102
LIC-VISO-ST-32AD -License for additional 32 doors (VISO-ST Standard system)	122AS102103
LIC-VISO-ST-64AD -License for additional 64 doors (VISO-ST Standard system)	122AS102104
LIC-VISO-ST-100U - License for additional 100 users (VISO-ST Standard system)	122AS102111
LIC-VISO-ST-500U - License for additional 500 users (VISO-ST Standard system)	122AS102112
LIC-VISO-ST-1000U - License for additional 1000 users (VISO-ST Standard system)	122AS102113
LIC-VISO-ST-1WS- License for 1 additional operator station of VISO program (VISO-ST Standard system)	122AS102121
LIC-VISO-ST-WEB- License for VISO Web application (VISO-ST Standard system)	122AS102122
LIC-VISO-ST-MOB- License for the VISO Mobile application (VISO-ST Standard system)	122AS102123

VISO EX licenses

VISO EX licenses	Part number
RUD-6-LKY - USB dongle for license	122AS102099
LIC-VISO-BASE-EX - License for the management program (VISO-EX Enterprise) for the RACS 5 system; basic version, includes a license to use VISO Web and VISO Mobile; requires a license and dongle; Basic version limitations: - up to 32 doors (max unlimited) - up to 1000 users (max unlimited) - 2 operator stations (max unlimited)	122AS102201
LIC-VISO-EX-16AD -License for additional 16 doors (VISO-EX Enterprise system)	122AS102202
LIC-VISO-EX-64AD -License for additional 64 doors (VISO-EX Enterprise system)	122AS102204
LIC-VISO-EX-128AD -License for additional 128 doors (VISO-EX Enterprise system)	122AS102205
LIC-VISO-EX-100U - License for additional 100 users (VISO-EX Enterprise system)	122AS102211
LIC-VISO-EX-500U - License for additional 500 users (VISO-EX Enterprise system)	122AS102212
LIC-VISO-EX-1000U - License for additional 1000 users (VISO-EX Enterprise system)	122AS102213
LIC-VISO-EX-1WS- License for 1 additional operator station of VISO program (VISO-EX Enterprise system)	122AS102221