

L&T SWITCHGEAR

SAFE & SURE

# ATMOS

## Building Management System



## About us

Larsen and Toubro is a technology-driven company that infuses engineering with imagination. L&T is a leading manufacturer of low voltage switchgear, with the scale, sophistication and range to meet global benchmarks.

In addition to Switchgear, L&T offers comprehensive solutions for electrical and automation for both commercial and residential applications.

Buildings touch our lives all the time – be it our homes where we live, or our offices where we work, or the malls where we shop, or the hotels we dine, or the hospitals we recuperate. Aesthetics and comfort are therefore, of paramount importance. To serve this L & T has a comprehensive Building Automation Solution.

L&T offers comprehensive Building Automation Solution that provides centralized remote monitoring and control solution of all building facilities including heat ventilation and air-conditioning, electricity, lighting, plumbing, water supply and drainage, Security, fire and environmental control systems.

We improve efficiencies by utilizing a centralized management system to monitor and control a buildings' energy demand and consumption. Seamless monitoring of all these systems ensures occupant comfort, lowers energy use, and allows off-site building control from anywhere in the world. Many of the projects we design provide energy savings which transforms into Green Building Certification.



Powai Switchgear Factory, Mumbai

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# L&T - Building Electricals & Automation



## Integrated Building Management System

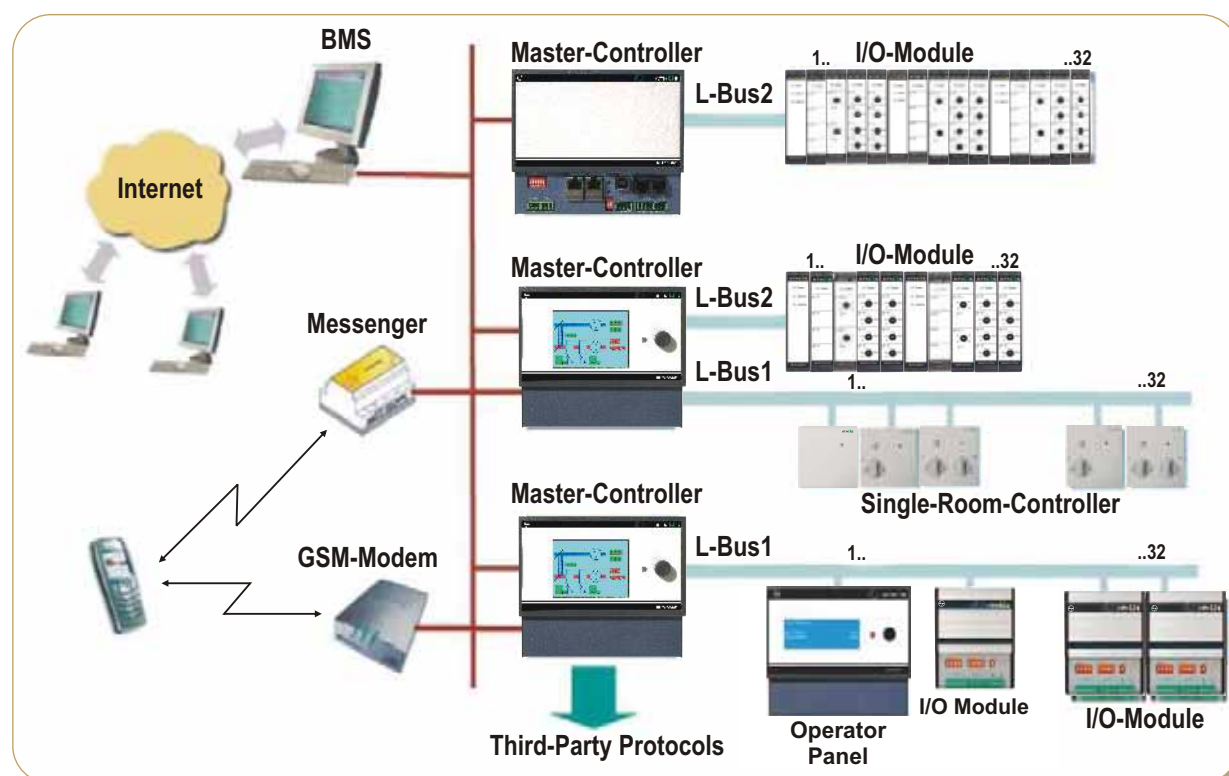
- ① ATMIS - Building Management System
- ② POWERMAN - Energy Monitoring System
- ③ PERITV - Video Surveillance System
- ④ LOGIN - Access control System
- ⑤ Fire Alarm System
- ⑥ TELETASK - Home Automation System



## ATMOS Building Management System

ATMOS - powered by LTAB™ (L&T's Architecture for Building Automation) is a state of the art building management system that reliably controls installations of all categories and complexities. It is a microprocessor based control system which measures, co-ordinates, evaluates and monitors thousands of digital and analog input / output signals in the building.

### ATMOS System Architecture



## ATMOS D-Series Controllers

### Master-Controller (with integrated colour graphical LCD display)

Cat. No. BSRC720DM

ATMOS BSRC720DM is a freely programmable Master Controller with an integrated coloured graphical display of 3,5", resolution 320\*240 Pixel, Navigation via knob (turn and push), DIN-rail or panel door mounting.

The Master Controller is powered by 32 Bit-Micro processor with real time operation system, 8 MB SD-RAM, 4 MB Flash Memory and a slot for SD – Memory Card for controller data and program backup

- 2 x RS232 Interface: Used for connection to PC, analog/gsm messenger, modem and printer as well as for the connection of already implemented protocols
- 2 x RS485 Interface: Used alternatively to Ethernet for communication within the Multi-Master Network with up to 63 further Master Controller as well as for the connection of already implemented protocols
- 2 x Ethernet Interfaces (In/Out with integrated Hub-Functionality) for the Peer to-Peer communication based on Ethernet for the connection of Master Controller within the Multi-Master-Network
- 1 x L-Bus1-connection with selectable speed for the connection of up to 64 Slave-Modules BSRC C
- 1 x L-Bus2-connection with selectable speed for the connection of up to 32 I/O-Modules BSRC D
- 1 x USB Interface (Slave) for program downloads
- The already implemented protocols like ASCII, Modbus RTU Master/Slave, M-Bus, Wilo-Bus, Grundfos-Bus and BSRC-C-protocol can be combined with the integrated Interfaces (RS232/RS485)
- UL listed, approved to European EMC standards CENELEC EN 50 082-1 and EN 55 011
- Power supply 24 VAC/DC +/- 10 %
- Power consumption 5 W
- IP Protection IP 20 acc. to DIN 40050
- Dimensions w x h x d, 160 x 136 x 35 mm, Weight - 270 g



Cat. No. BSRC720D-W

Identical to BSRC720DM, but

- with an integrated Web server for the visualization and operation of plant data and alarms via Intranet or Internet with a standard web browser. The HTML pages are designed comfortably and efficiently with the RCO-tool.



## Master-Controller (without display)

Cat. No. BSRC700DM

ATMOS BSRC700DM is a freely programmable Master Controller. The device is suitable for operation within a network. The Master Controllers can be connected together via Ethernet or the BSRC-bus (RS 485) to a redundant Multi-Master-Network (Peer-to-Peer Communication).

- 32 Bit-Micro processor with real time operation system
- 8 MB SD-RAM, 4 MB Flash Memory and a slot for SD Memory Card for controller data and program backup
- 2 x RS232 Interface: Used for the connection to PC, analog/gsm messenger, modem and printer as well as for the connection of the already implemented protocols
- 2 x RS485 Interface: Used alternatively to Ethernet for communication within the Multi-Master Network with up to 63 further Master Controller as well as for the connection of already implemented protocols
- 2 x Ethernet Interfaces (In/Out with integrated Hub-Functionality) for the Peer-to-Peer communication based on Ethernet for the connection of Master Controller within the Multi-Master-Network
- 1 x L-Bus1-connection with selectable speed for the connection of up to 64 Slave-Modules BSRC C
- 1 x L-Bus2-connection with selectable speed for the connection of up to 32 I/O-Modules BSRC D
- 1 x USB Interface (Slave) for program downloads
- The already implemented protocols like ASCII, Modbus RTU Master/Slave, M-Bus, Wilo-Bus, Grundfos-Bus and BSRC-C-protocol can be combined with the integrated Interfaces (RS232/RS485).
- UL listed, approved to European EMC standards CENELEC EN 50 082-1 and EN 55 011
- Power supply 24 VAC/DC +/- 10 %
- Power consumption 5 W
- IP Protection IP 20 acc. to DIN 40050
- Dimensions in mm – 160(W) x 136 (H) x 35(D), Weight - 270 g

Cat. No. BSRC700D-W

Identical to BSRC720DM, but

- with an integrated Web server for the visualization and operation of plant data and alarms via Intranet or Internet with a standard web browser. The HTML pages are designed comfortably and efficiently with the RCO-tool.





## Smart Network Controller

Cat No: BSRC 500 DM

L&T ATMOS 500 DM – Smart Modular freely programmable Controller with inbuilt I/O's super wise the environment within the building to keep comfort for building owners. With the boards installed, the building's devices can all be managed from central location by a PC, and a custom application can also be developed as necessary to coordinate between the devices. This kind of implementation

is very cost effective in terms of modularity, functionality and reliability.

- 32 Bit-Micro processor with real time operation system
- 8 MB SD-RAM, 4 MB Flash Memory and slot for SD-Memory Card for internal and external data and program memory storage
- In-built 22 I/O points are available and can be expanded upto 50 I/O points through expander module\*
- 1 x RS232 Interface: Used for the connection to pc, analog/GSM-messenger, modem and printer as well as for the connection of the already implemented protocols
- 1 x RS485 Interface: For the connection of the already implemented protocols as well as for the communication to the BSRC C Master network
- 1 x RS485 Interface: For connection to a text oriented display
- 1 x Ethernet Interfaces for the peer-to-peer communication based on Ethernet for connection of Master Controller within the Multi-Master-Network and the connection to the BMS-Software
- The already implemented protocols like ASCII, Modbus RTU Master/Slave, M-Bus, Wilo, Grundfos, BSRC, Energets REN and BACnet can be combined with the integrated Interfaces (Ethernet, RS232, RS485)
- Approved to European EMC standards CENELEC EN 50 082-1 and EN 55 011 ; CE-Approval.DIN-rail mounting
- Power supply 24 VAC/DC +/- 10 %
- IP Protection IP 20 acc. to DIN 40050
- Dimensions in mm – 156 (W) x 86 (H) x 61 (D)

Cat. No. BSRC500DM-W

Identical to BSRC500DM, but

- with an integrated Web server for the visualization and operation of plant data and alarms via Intranet or Internet with a standard web browser. The HTML pages are designed comfortably and efficiently with the RCO-tool.

\*expander module

Cat No. BSRC514DE

Digital Input-8 points: Digital Output-6 points





## ATMOS D-Series I/O Modules

The Input/Output Modules series can be operated in combination with a D-series Master Controller and is suitable for operation in the BSRC network. Up to 32 I/O modules can be connected to one Master Controller via the L-bus. The control, optimizing and monitoring functions are programmed within the Master Controller. The series adheres to European EMC standards CENELEC EN50 082-1 and EN 55 011 CE approval.

### Universal Input Module

Cat. No. BSRC110DS

The slave module BSRC110DS measures digital and different analog values of the technical plant.

#### Features

- 8 universal inputs
- Plug-in terminals
- For DIN-rail or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 120 g
- Power consumption - 2.8 W



### Digital Input Module

Cat. No. BSRC120DS

The slave module BSRC120DS measures digital as well as counting values of the technical plant.

#### Features

- 8 digital inputs
- Plug-in terminals
- For DIN-rail or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 120 g
- Power consumption – 1.6 W



### Analog Output Module (without manual override)

Cat. No. BSRC210DS

The Slave Module BSRC 210 D-S supplies analog output signals (0 – 10 V DC) to the technical plant.

#### Features

- 4 Analog outputs
- Plug in terminals
- For DIN-rail or Panel Door Mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.4 W



### Analog Output Module (with manual override ability)

Cat. No. BSRC211DS

The Slave Module BSRC 211 D-S supplies analog output signals (0 – 10 V DC) to the technical plant.

#### Features

- 4 Analog outputs with manual override ability
- Plug in terminals
- For DIN-rail or Panel Door Mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.4 W



## Digital Output Module (without manual override)

Cat. No. BSRC220DS

The slave module BSRC220DS provides digital output signals (230 V, 4 A) to the technical plant.

### Features

- 4 digital outputs
- Plug-in terminals
- For DIN-rail- or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.9 W



## Digital Output Module (with manual override ability)

Cat. No. BSRC221DS

The slave module BSRC221DS provides digital output signals (230 V, 4 A) to the technical plant.

### Features

- 4 digital outputs with manual override ability
- Plug-in terminals
- For DIN-rail- or panel door mounting
- Dimensions in mmm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.9 W

## Tri-state Output Module (without manual override)

Cat. No. BSRC230DS

The slave module BSRC230DS provides tri-state output signals (230 V, 4 A) to the technical plant.

### Features

- 2 Tri-state outputs
- Plug-in terminals
- For DIN-rail- or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.9 W



## Tri-state Output Module (with manual override ability)

Cat. No. BSRC231DS

The slave module BSRC231DS provides tri-state output signals (230 V, 4 A) to the technical plant.

### Features

- 2 Tri-state outputs with manual override ability
- Plug-in terminals
- For DIN-rail- or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 170 g
- Power consumption – 2.9 W



## Power-Module

Cat. No. BSRC300DP

BSRC300DP is a Power Module. The module ensures the power supply of up to 32 I/O modules.

### Features

- Plug-in terminals
- For DIN-rail- or panel door mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 130 g
- Power consumption – 1.7 W

## Power-Bridge-Module

Cat. No. BSRC302DP

BSRC302DP is a Power Bridge Module. The module ensures the power supply of up to 32 I/O modules. The L-bus supply is galvanically separated.

### Features

- Galvanically separated L-bus
- Plug-in terminals
- For DIN-rail- or panel mounting
- Dimensions in mm - 22.5 (W) X 97 (H) X 125 (D), Weight 130 g
- Power consumption – 1.7 W

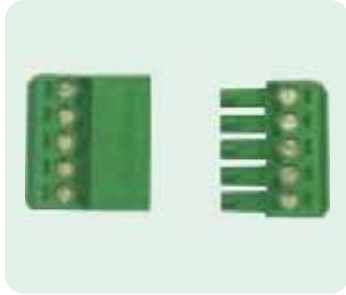


## ATMOS D series Accessories

### T-Bus-Connector

Cat. No. BSRC000DT

T-Bus Connector with 5 pins for the bus and power supply of the input/output modules.  
Pre-mounted on DIN rail for simple assembly of the I/O Modules.



### T-Bus-connection terminals

Cat. No. BSRC000DK

T-Bus-connection terminals with 5 pins for the bus and power supply between the master and the I/O Modules as well as for the change of the DIN rail row.

### SD-Memory Card

Cat. No. BSRC000DC

SD-Memory Card with 1 GB for data and program memory suitable for the Master-Controller BSRC 7..D-M series and smart controller BSRC 5..D-M series



### Operator panel for RCO 16C-M and RCO 7...

Cat. No. BSRC640D-S

Text oriented Operator Panel for the building automation system Controlesta RCO. The display is arranged in 6 lines by 30 characters. A two colored LED can be used for alarm indication. Panel door mounting, operating voltage supplied by master or 24 VAC/DC +/- 10 %, power consumption: 2,0 VA, IP Protection: IP20. ABS-housing W x H x D: 160 x 136 x 35 mm.

### Messenger with analog modem

Cat. No. BSSTM042M04

The messenger allows to send data to D1, D2, Eplus, Fax, etc. and can be directly connected to an RCO 16C-M serial port. The same alarm message can be sent in a chain to up to 5 receivers. 40 such message chains can be edited. Each message can be up to 160 characters long (fax up to 255). Analog modem integrated. Operating voltage: 12...24 VDC +/-20%, size: 110x125x60 mm.





## Messenger with GSM modem

Cat. No. BSSTM042G04

The messenger allows to send data to D1, D2, Eplus, Fax, etc. and can be directly connected to an RCO 16C-M serial port. The same alarm message can be sent in a chain to up to 5 receivers. 40 such message chains can be edited. Each message can be up to 160 characters long (fax up to 255). GSM modem integrated. Operating voltage: 12...24 VDC +/-20%, size: 110x125x 60 mm.

## Antenna for messenger with GSM modem

Cat. No. BSSTM042A

Magnetic stem antenna for GSM mode, 3 DB, cable 2,5m with FME female connector for connection to STM042G04.



## RS232 Cable

Cat. No. BSRC50C-P

Cable to connect a RCO 5..D., RCO 7..D., RCO 16C-M, or RCO Compact to a PC



Cat. No. BSRC50C-M

Cable to connect a RCO 5..D., RCO 7...D., RCO 16C-M, or RCO Compact to a Modem



# ATMOS

## Building Management Application BSRC-view

Web-based Building Management Software designed on the modern Microsoft Net-Framework Technology. The software is used to operate, monitor and control HVAC systems, mechanical systems, electrical systems, water management , security, fire alarm, etc. in buildings for the Building automation system BSRC. Integrated Engineering-tool for on- and offline programming, freely configurable, animated visualisations for graphical operation, alarm and messenger management. Access management for user and user groups, event logs, historical- and online trends. Operating systems: MS Windows XP prof. / Vista business

Consisting of:

- Manual
- CD-ROM
- USB Dongle



### Cat. Nos.

Software license for 300 applets	BSRC-view 300
Software license for 1000 applets	BSRC-view 1000
Software license for 2500 applets	BSRC-view 2500
Software license for 5000 applets	BSRC-view 5000
Software license for 9999 applets	BSRC-view 9999

Dealer Version as working environment for project and application development (projects / pages / widgets, etc.).

BSRC-view DV

The number of data points is not limited. A pop-up window appears regularly and has to be acknowledged.



## Engineering Software BSRC-tool

Cat. No. BSRC-tool

The BSRC- tool serves the efficient and economic programming of BSRC D series controller. It supports the engineering process starting from the plant configuration via the programming (text or graphical) until the commissioning and documentation.

## ATMOS Single Room Controllers

### Single room controller

As a solo or in the orchestra, the ATMOS BSRC Compact controller is able to operate on stand alone basis as well as in the Atmos network. This heating and ventilation controller works exclusively with preprogrammed applications. The Compact controllers from L&T set milestones in user-friendliness and simplicity. With the help of a knob and a few clicks, one can simply select one of the pre-programmed applications for various heating and ventilation control needs. All parameters are set automatically with the selection of an application.

- Simple installation and commissioning
- Compact design reduces panel size
- Ideal replacement for old analogue controllers
- Stand alone or network operation
- Alarm signal over modem



### Single Room Controller

Cat. No. BSRC100A02

Single room controller for stand alone operation or in the ATMOS network.

- Integrated room sensor
- Green LED indicating operation mode  
(LED on=occupied /flashing=frost, LED off =plant off)
- Digital input for window contact
- Digital input for presence contact
- Output heating valve on/off or 0 to 10 VDC selectable by jumper
- Output cooling valve on/off or 0 to 10 VDC selectable by jumper
- Output fan 0 to 10 VDC
- Operating voltage 24 VAC



Cat. No. BSRC120A02

Identical to BSRCER100A02, except with setpoint adjuster and presence button.



Cat. No. BSRC140A02

Identical to BSRC100A02, except with setpoint adjuster presence button and ventilator step switch (Auto, 0, I, II, III) and output for ventilator.



## Wireless Radio - Solar – Modules

Cat. No. BSFFB810A02

Battery-less radio room sensor for temperature control in connection with the receiving interfaces SRC-x and control systems ATMOS BSRC. Detection of measuring values via the ATMOS control system. Integrated temperature sensor, rotary knob for setpoint adjustment, rotary knob for fan speed adjustment, presence key. With integrated solar energy storage.

### Features

- Thermoplastic housing
- Screw connection
- Simple mounting
- Baseplate for wall mounting
- FFR800A02 with integrated Modbus RTU protocol
- **CE**-Conformity:89/336/EEG Electromagnetic compatibility
- R&TTE 1999/5/EC radio and telecommunications terminal equipment
- Directive



## Set point Adjusters with Room-Temperature Sensors

Cat. No. BSFFB820A02

Setpoint adjuster for wall mounting, room temperature sensor 0 to 40°C, internal solar energy storage, running reserve min. 14 h. PVC housing W x H x D: 84,5 x 84,5 x 25 mm. Enclosure protection IP 20.



## Set point Adjusters with Room-Temp. Sensors and Presence Button

Cat. No. BSFFB830A02

Setpoint adjuster for wall mounting, room temperature sensor 0 to 40 °C, internal solar energy storage, running reserve min. 14 h. PVC housing W x H x D: 84,5 x 84,5 x 25 mm. Enclosure protection IP 20.

## Set point Adjusters with Room-Temperature Sensors, Presence Key and Ventilator Step Switch

Cat. No. BSFFB840A02

Setpoint adjuster for wall mounting, presence button and ventilator step switch "Auto, 0, I, II, III", room temperature sensor 0 to 40 °C, internal solar energy storage, running reserve min. 14 h. PVC housing W x H x D: 84,5 x 84,5 x 25 mm. Enclosure protection IP 20.



## RF Sensor

For the first time, the building control technique is experiencing a comprehensive product line of RF sensors and receivers making it possible to build up wireless and maintenance free sensors within buildings. By integrating innovative, solar powered RF-transmission technique in our sensors, the devices operate without batteries. Due to this wireless maintenance free operation, the sensors perform efficiently in any ambience. Presently, various RF devices for temperature control and set point adjustments are available.

## ATMOS Fan Coil Controller

Cat. No. BSFCUP3S

Fan Coil Controller with integrated Modbus protocol for connection to ATMOS System. Available with wall and flush mounted room control units (BSRWD116A02 /BSRFD116A02). The BSFCUP3S is pre programmed to save valued time on field programming.

### Features

- All-In-One system for Fan Coil applications
- Main Input 230 VAC
- Applications with jumper selection
- 2-pipe systems
- 4-pipe systems
- no valves system
- Proportional outputs (0-10V or 2-10V) for Cooling and Heating valves
- Auto-change over sensor (mode is set based on temperature of the incoming water flow, ideal for 2-pipe systems)
- Discharge sensor- option (2-pipe systems)
- 3 speed output- 230 VAC, 3 Amp each- with Auto Speed function
- Indoor coil sensor for Heat (soft-start)
- Surface and flush mount thermostats- option
- Fault input dry contact, voltage-free, for occupancy sensor, window contact or fault input
- Occupancy sensor- option with 12 VDC supply



## Fan Coil Controller with BACnet protocol

Cat. No. FCU-P-3B

Fan Coil Controller with integrated BACnet protocol (MSTP) for the connection to in 2-pipe and 4-pipe systems and Auto change over function. Connectable to wall-/flush mounted room units (RWD/RFD...).

Output heating valve 0 (2) ... 10 VDC

Output cooling valve 0 (2) ... 10 VDC

Output Fan 3 x 230 VAC, 3A

Binary Input, voltage free for occupancy sensor, window contact or fault indication. Occupancy sensor – Option with 12 VDC supply. Power supply 230 VAC, W x H x D 205 x 60 x 93mm



## Room Unit with mounted display wall

Cat. No. BSRWD116A02

Room unit with built-in temperature sensor and LCD display with

- Set point indication and adjustment
- Mode (cool, heat, cool/heat, fan only) selection and indication
- Fan speed selection and indication

## Room Unit with Display flush mounted

Cat. No. BSRFD116A02

Room unit with built-in temperature sensor and LCD display with

- Set point indication and adjustment
- Mode (cool, heat, cool/heat, fan only) selection and indication
- Fan speed selection and indication





## BMS Peripherals

A control loop consists not only of the DDC hardware and software but also numerous field devices. Besides the DDC hardware, L&T offers an entire family of technically co-ordinated and economically optimized sensors, setpoint adjusters, damper actuators and control valves for the control of environment. L&T reassures its commitment in HVAC control, by providing a complete range of HVAC products. Apart from the peripherals mentioned below there are a wide variety of system components available with L&T.



### Sensors

- Temperature Sensor for Air & Water
- Absolute Pressure Sensors
- Differential Pressure Transmitter for Air & Water
- Temperature & RH Sensors
- Cable Temperature Sensors
- CO2 Sensors
- IAQ Sensors
- CO Sensors
- Humidity Sensors
- Air Velocity Sensors & Temperature Transmitters
- Gas Sensors
- Level Transmitters
- PH Sensors with Indicators

### Switches

- Differential Pressure Switches for Air & water
- Flow Switch for Air & Water
- Level Switches

### Set Point Adjusters

- Room Remote Control
- Room Remote Control for device Bus
- Set Point Adjuster
- Set Point Adjuster for control panel

### Other Measuring Peripherals

- PH Analysers
- Water Hardness Analysers
- Float Switch
- VOC Sensors
- Current Transducers
- Voltage Transducers
- Frequency Transducers

### Meters

- Flow Meters
- BTU Meters

### Valves & Actuators

- Motorized 2 way & 3 Way Valve with Actuators
- Damper Actuators
- Damper Actuator Spring Return
- Ball Valve
- Butterfly Valves
- 3 way Mixing Valves
- 2 Way Mixing Valves

### Accessories

- Thermo well

## Temperature Sensor - Air

Cat No: BSGTE200/500 Series

Air Temperature Sensor for Wall mount, Duct Mount application with PT 1000/NTC series, 2 wire terminals.

Probe Length - 50mm to 450 mm



## Temperature Sensor – Water (Immersion type)

Cat No: BSGTE200/500 Series

Used for measuring the temperature of water in the pipeline (Immersion Type).

Immersion Depth 100 mm & 200 mm, with PT / NTC Series, 2 Wire Terminals

## Absolute Pressure Sensor – Air

Cat No: BSGDPLP2 Series

The LP2 Low Pressure Transducer can be used to measure positive, negative or differential pressure in the ranges of 200 TO 2000Pa.

Jumper selectable 2 wire current and 3 wire voltage outputs standard.

Output Signal - 4 - 20 mA (2-wire), 0 - 5 Vdc or 0 - 10 Vdc (3-wire)

Probe Length – 100 mm to 250 mm



## Differential Pressure Sensor - Air

Cat No: BSGDPLP2 Series

The LP2 Low Pressure Transducer can be used to measure positive, negative or differential pressure in the ranges of 200 TO 2000Pa.

Jumper selectable 2 wire current and 3 wire voltage outputs standard.

Output Signal - 4 - 20 mA (2-wire), 0 - 5 VDC or 0 - 10 VDC (3-wire)

Probe Length – 100 mm to 250 mm



## Differential Pressure Sensor - Water

Cat No: BSGLP2 Series

The pressure transmitter is designed with dual sensors that enable it to accept high differential pressure ranges.

The transmitters can accept ranges from 0 – 10 bar.

## Temperature & RH Sensors

Cat No: BSJHF Series

The Temperature & RH Sensors is designed to measure temperature range from – 40 deg C to = 60 deg C, RH from 0 to 100%, with wall / duct mount applications.



## Cable Temperature Sensors

Cat No: BSFTT10 / 30 Series

The cable temperature sensors is 2 wire cast thermo cable of type PT / NTC Series with cable length ranges from 2 mtrs to 5 mtrs. Protection - IP 40 and IP 65.

## Carbon Dioxide Sensors

Cat No: BSGCDD1A Series

State of the art, Infrared and maintenance-free carbon dioxide transmitter for installation in the climate zone or in the ventilation duct. Measures carbon dioxide concentration in the ambient air up to 2000 ppm and transforms the data into an analogue output.

OUT1 linear conversion range - 0 to 10 VDC for 0 – 2 000 ppm.

OUT2 linear conversion range - 2 to 10 VDC, or 4 - 20 mA for 0 - 2000 ppm.



## IAQ Sensors

Cat No: BSGAIR300 Series

Environmental, industrial and commercial indoor Air Quality detector is available with both space and duct mount versions.

- True Air Quality Monitor
- Microprocessor based controller
- Integral sensitivity adjustment
- No calibration required



## CO Sensors

Cat No: BSGCMD5B Series

Maintenance free carbon monoxide sensor for installation in the climate zone. Measures carbon monoxide concentration in the ambient air up to 300 ppm and transforms the data into an analog output of 4 – 20 mA.

## Humidity Sensors (Duct Application)

Cat No: BSGRH200 Series

Monitor Humidity level in percentage inside duct.



## Humidity Sensors (Room Application)

Cat No: BSGRH100 Series

The RH series of humidity transducers are designed for use in environmental monitoring and control systems where high performance and stability are demanded.

Humidity range – 0 to 100%



## Air Velocity Sensors

Cat No: BSGESF352

The transducer registers the airflow speed according to a thermal principle based on the fact that the cooling action of air increases with airspeed. The action is measured and converted to 4 - 20 mA or 0 - 10 V signal corresponding to air flow speeds from 0 - 8 m/s (0 - 1575 ft/min) or 0 - 16 m/s (0 - 3150 ft/min).

## Level Transmitters

Cat No: BSMLCLT Series

The level transmitter is of RF admittance / capacitance 3 wire level transmitter model with non-insulated or Teflon insulated probes for sensing.



## Differential Pressure Switch – Air

Cat No: BSG83MIK Series

Differential Pressure Switch contains diaphragm, calibration knob and snap acting SPDT switch with set point indication.

Maximum Operating Pressure – 10 KPa



## Differential Pressure Switch – Water

Cat No: BSGWPSD-FD Series

Differential Pressure Switch for liquids – Solution for monitoring the liquids pressure.

Operating Pressure range – 0.2 to 12 bar



## Flow Switch – Air

Cat No: BSSFs Series

Paddle type flow switch, operates as an SPDT switch. Simple and rugged construction. Can be used for monitoring flows in horizontal and vertical ducts with upward air flow.

Maximum operating pressure – 10 bar

## Flow Switch – Water

Cat No: BSSFs Series

Paddle type flow switch, operates as an SPDT switch. Simple and rugged construction, suitable for non-corrosive fluids.

The switch can be used for monitoring flows in horizontal and vertical pipelines with upward air flow.

Maximum Service Pressure – 10 bar



## Level Switch

Cat No: BSMLVMT Series

Top mounted level switch works on permanent magnet reed switch, which floats between stoppers for Low and High level indication.



## Current Transducers

Cat No: BSRICTE15

Used where a sine-wave AC current is to be converted into a DC signal proportional to the measured value (load-independent current).

## Voltage Transducers

Cat No: BSRIVTE15

Used where a sine-wave AC voltage is to be converted into a DC signal proportional to the measured value (load-independent voltage).



## BTU Meters

Cat No: BSSTUF280T Series

Consist of an ultrasonic flow sensor, a pair of PT1000 temperature sensors and a BTU unit. BTU measurement using state of the art ultrasonic flow measurement technology and does not have any moving parts that can wear out, thus, literally requires no maintenance.

Meter Size: From 15 mm to 700 mm

Mounting – Insertion Type, Clamp On, etc

## Damper Actuator Non Spring Return Type

Cat No: BSBLMU / SMU Series

Actuators are suitable for the motorisation of all controlling elements in HVAC general air and water solutions.

Following are the ranges:

1	5 Nm ON/OFF Type 230 VAC
2	5 Nm ON/OFF 230 VAC, 1 Auxiliary switch
3	5 Nm Modulating 0-10 VDC with 230VAC
4	5 Nm ON/OFF Type 24 VAC
5	5 Nm ON/OFF Type 24 VAC with Auxiliary switch
6	5 Nm Modulating 0-10 VDC with 24VAC
7	10Nm ON/OFF Type 230 VAC
8	10Nm ON/OFF 230 VAC with Auxiliary switch
9	10Nm Modulating 0-10 VDC type 230VAC
10	10 Nm ON/OFF Type 24 VAC
11	10 Nm ON/OFF 24 VAC with Auxiliary switch
12	10 Nm Modulating 0-10 VDC with 24VAC
13	20Nm ON/OFF Type 230 VAC
14	20 Nm ON/OFF 230 VAC Auxiliary switch
15	20Nm Modulating 0-10 VDC type 230VAC
16	20 Nm ON/OFF Type 24 VAC
17	20 Nm ON/OFF 24 VAC Auxiliary switch
18	20 Nm Modulating 0-10 VDC with 24VAC
19	40Nm ON/OFF Type 230 VAC
20	40 Nm ON/OFF Type 24 VAC
21	40 Nm Modulating 0-10 VDC with 24VAC



## Damper Actuator Spring Return Type

Cat No: BSB TF / LF / AF Series

1	2 Nm ON/OFF Type 230 VAC
2	2 Nm ON/OFF 230 VAC Auxiliary switch
3	2 Nm ON/OFF Type 24 VAC
4	2 Nm ON/OFF 24 VAC with Auxiliary switch
5	4 Nm ON/OFF Type 230 VAC
6	4 Nm ON/OFF 230 VAC Auxiliary switch
7	4 Nm ON/OFF Type 24 VAC
8	4 Nm ON/OFF 24 VAC with Auxiliary switch
9	10 Nm ON/OFF Type 24 ...240 VAC or 24 ...110 VDC
10	10 Nm ON/OFF Type 24 ...240 VAC or 24 ...110 VDC with 2 in-built Auxiliary switch
13	15 Nm ON/OFF Type 230 VAC
14	15 Nm ON/OFF 230 VAC with Auxiliary switch
15	15 Nm ON/OFF Type 24 VAC
16	15 Nm ON/OFF 24 VAC with Auxiliary switch



## 2 Way & 3 Way Valve with Modulating Actuators

1	2Way Valve Mod Actuator(24 VAC,0-10V)15mm
2	2Way Valve Mod Actuator(24 VAC,0-10V)20mm
3	2Way Valve Mod Actuator(24 VAC,0-10V)25mm
4	2Way Valve Mod Actuator(24 VAC,0-10V)32mm
5	2Way Valve Mod Actuator(24 VAC,0-10V)40mm
6	2Way Valve Mod Actuator(24 VAC,0-10V)50mm
7	2Way Valve Mod Actuator(24 VAC,0-10V)65mm
8	2Way Valve Mod Actuator(24 VAC,0-10V)80mm
9	2Way Valve Mod Actuator(24 VAC,0-10V)100mm
10	2Way Valve Mod Actuator(24 VAC,0-10V)125mm
11	2Way Valve Mod Actuator(24 VAC,0-10V)150mm

1	3Way Valve Mod Actuator(24 VAC,0-10V)15mm
2	3Way Valve Mod Actuator(24 VAC,0-10V)20mm
3	3Way Valve Mod Actuator(24 VAC,0-10V)25mm
4	3Way Valve Mod Actuator(24 VAC,0-10V)32mm
5	3Way Valve Mod Actuator(24 VAC,0-10V)40mm
6	3Way Valve Mod Actuator(24 VAC,0-10V)50mm
5	3Way Valve Mod Actuator(24 VAC,0-10V)40mm
6	3Way Valve Mod Actuator(24 VAC,0-10V)50mm
5	3Way Valve Mod Actuator(24 VAC,0-10V)40mm
6	3Way Valve Mod Actuator(24 VAC,0-10V)50mm
7	3Way Valve Mod Actuator(24 VAC,0-10V)65mm

## Motorized Valve with Actuator

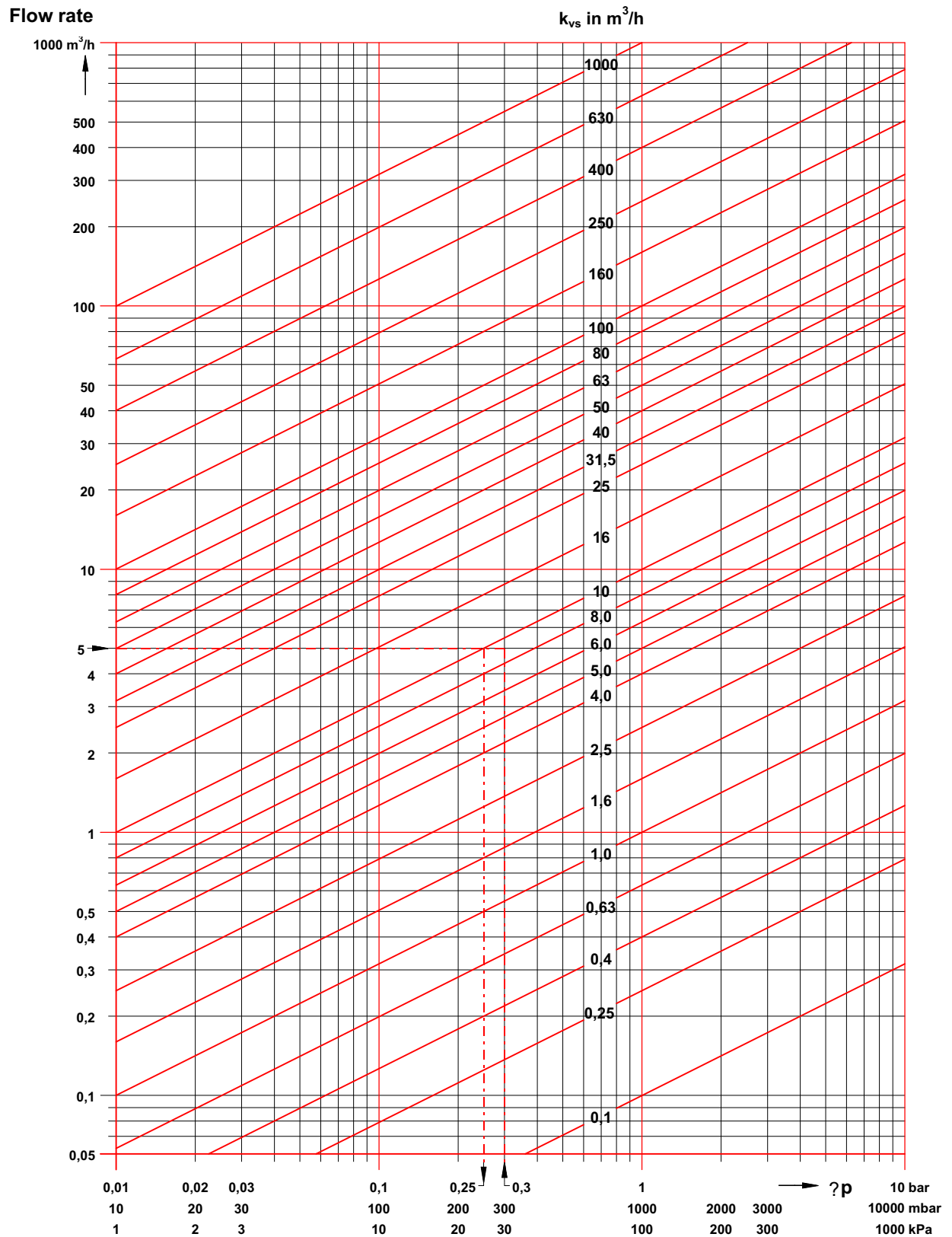
Cat No: BSBLMU / SMU Series

Actuators are suitable for the motorisation of all controlling elements in HVAC general air and water solutions.

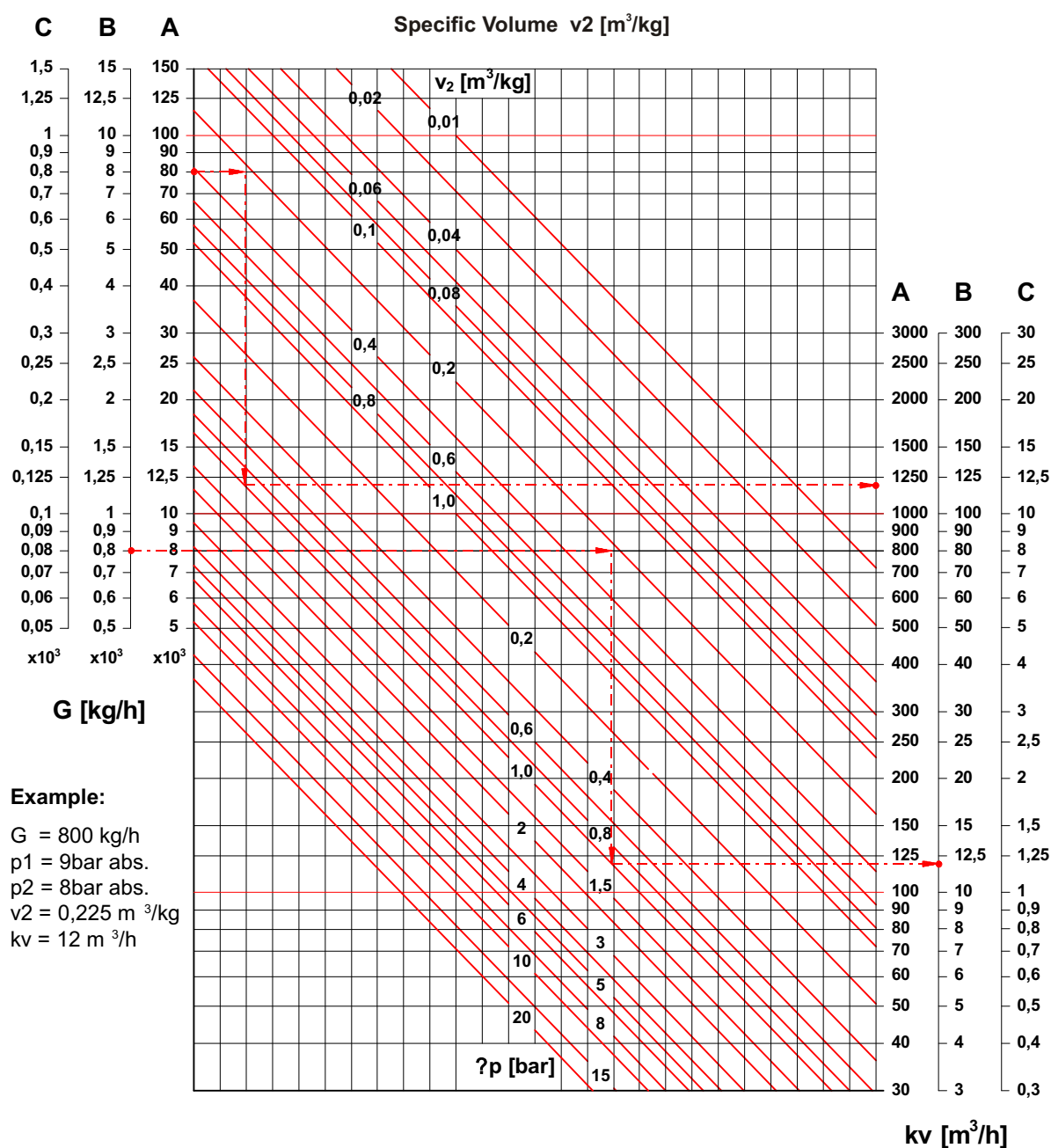
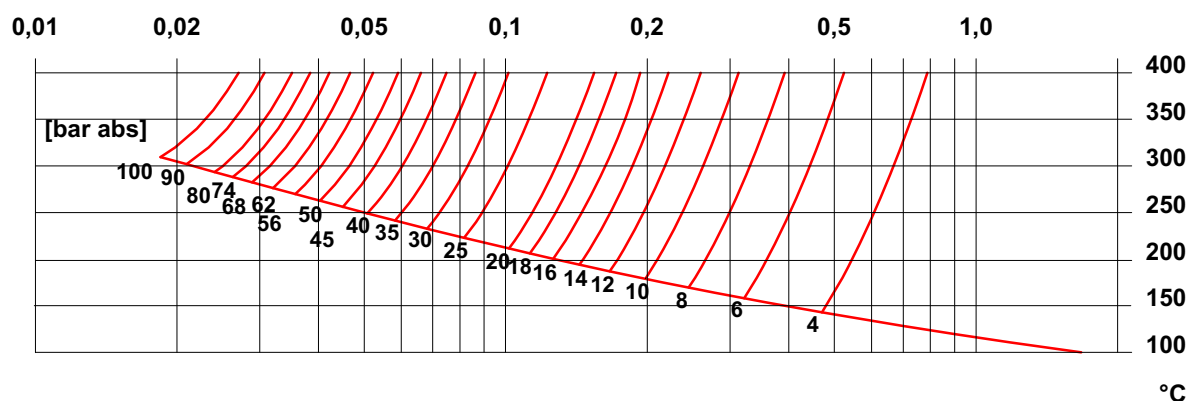
Following are the ranges:

1	Motorised Valve Actuator(230 VAC)50 mm
2	Motorised Valve Actuator(230 VAC)65 mm
3	Motorised Valve Actuator(230 VAC)80 mm
4	Motorised Valve Actuator(230 VAC)100 mm
5	Motorised Valve Actuator(230 VAC)125 mm
6	Motorised Valve Actuator(230 VAC)150 mm
7	Motorised Valve Actuator(230 VAC)200 mm
8	Motorised Valve Actuator(230 VAC)250 mm
9	Motorised Valve Actuator(230 VAC)300 mm
10	Motorised Valve Actuator(230 VAC)350 mm
11	Motorised Valve Actuator(230 VAC)400 mm
12	Motorised Valve Actuator(230 VAC)450 mm
13	Motorised Valve Actuator(230 VAC)500 mm

# Determine the k-Value of Water







## Notes

## Notes

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