

ELV[®] Electronics

Highlights

2004

FOLLOW THE WEATHERMAN



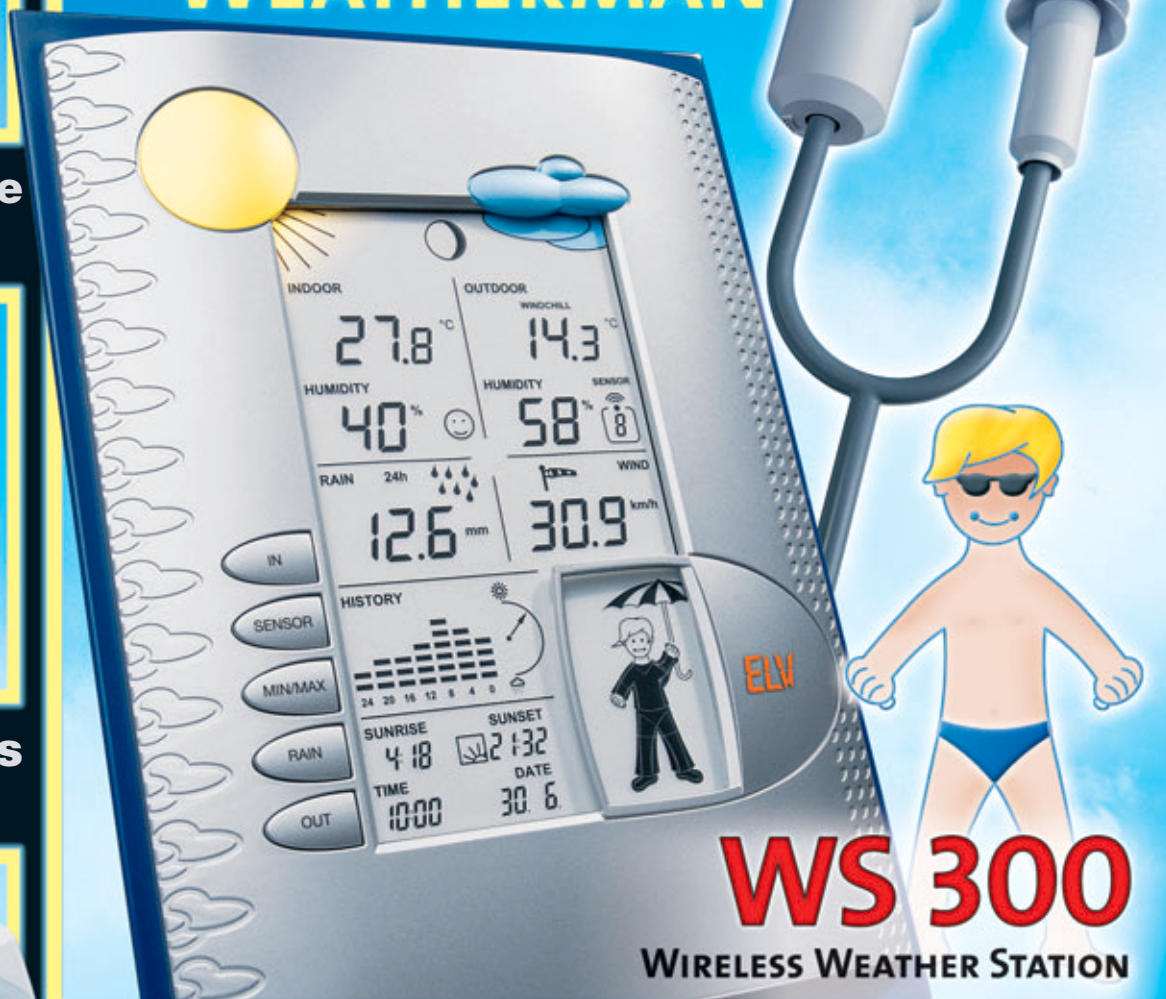
Home appliance



Alarm systems



Charging center



Competence in Electronics

www.elv.com



WS 300 Radio Weather Station



Willy presents you with the weather

Unique concept – fantastic price

The weather forecast was made yesterday – now here comes Willy. Elegant design, innovative sensor technology, and the weather forecast presented by Willy the weatherman – these are just a few of the features of the new radio weather station from ELV.

The attractively designed weather station can be completely set up and ready to use in just minutes.

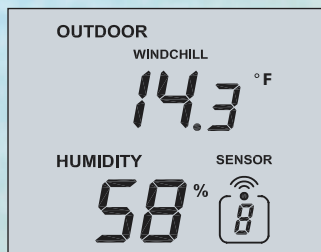
It displays not only the weather data but also calculates the weather forecast for your immediate area and registers wind speeds as well as rainfall. It also provides you with other interesting information, such as the current phase of the moon, sunrise and sunset times, weather trends, room climate and more.

To find out quickly what the weather is going to be like, all you have to do is take a look at what kind of clothes Willy is wearing. Whether swim suit or scarf and umbrella, Willy has over 50 variations for dressing appropriately for the weather just outside your door. As soon as it begins to rain and the sensor detects it, Willy informs you by appearing with an opened umbrella – you don't even have to look outside to know.

The large well-organised LCD, super flat and housed in the elegant silver-blue base station, shows you all of the important weather data in diagrammatic and numeric formats when in normal mode. Other functions are easily accessed using only five buttons.

Greatly contributing to the accuracy of the weather data is the new KS 300 radio combi-sensor (see the page opposite for a detailed description). It is fitted onto a mast that can be placed in the ground and works similarly to professional devices used in industrial applications. For example the outdoor temperature is measured in the same way as done by professional meteorologists: 2 m high and protected from sunlight.

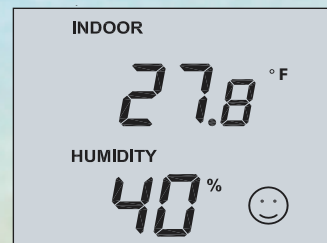
In addition, the combi-sensor can be set up any place up to a distance of 100 m of the base station without having to lay cables or drill holes. Up to 8 additional locations can be used to place the ASH 2200 sensors to measure the temperature and relative humidity and have the data sent wirelessly via radio to the weather station using low disturbance 868 MHz technology.



Outdoor temperature and outdoor humidity

You can select the temperatures and relative humidities of one to nine wireless outdoor sensors (one KS 300 combi-sensor, eight ASH 2200 outdoor sensors). The first outdoor sensor is in the combi-sensor.

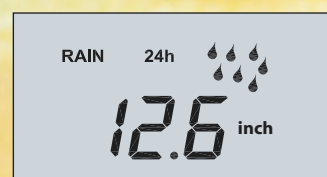
- Display of:
- Outdoor temperature, alternatively dew point or windchill temperature (skin-sensed temperature)
 - Outdoor humidity
 - Display of the currently displayed sensor



Indoor temperature and indoor humidity

Both sensors are already built into the housing of the weather station. No external sensors are necessary.

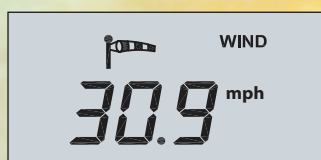
- Display of:
- Indoor temperature, or alternately dew point display
 - Indoor humidity
 - Comfort indicator for room climate



Rainfall

The rainfall volumeter is a component of the combi-sensor and transmits its data via radio technology to the weather station.

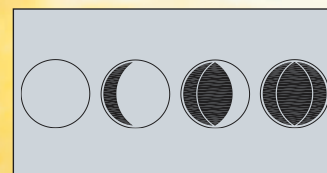
- Display of:
- Rainfall in mm, l/m² or inch; the last hour, the last 24 hours, or total can be selected
 - Display of the rain beginning



Wind speed

The wind speed gauge is also a component of the combi-sensor. It can be set up using the mobile mast without being influenced by buildings, trees etc. It too transmits data by radio to the weather station.

- Display of:
- Wind speed in km/hr., m/s, mph
 - Windsock icon (light, moderate, strong)



Moon phase display

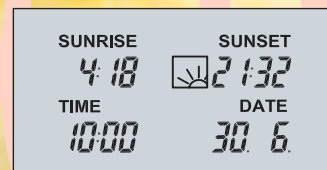
Display of the current moon phase in four stages: New moon, first quarter, last quarter, full moon



Air pressure history, air pressure trend

For following weather development and the weather forecast.

- Display of:
- Air pressure history in the last 24 hrs.
 - Air pressure trend display: rising steeply, rising, no change, dropping, steeply dropping
 - Selectable display of indoor or outdoor temperature or air pressure



Sunrise, sunset, time & date

Based on exact positioning (longitude & latitude), sunrise and sunset times are very precisely displayed for every town in Germany.

- Display of:
- Sunrise and sunset
 - Time & date

WS 300

including KS 300 radio sensor and batteries

Order no.: 17-561-96

Weather forecast

The weather forecast is indicated by the "clothing status" of Weather Willy and by the weather icons (sun, clouds, rain) at the top of the display.



www.willy.elv.com

KS 300 – combi-sensor with Q4-1 technology

To eliminate nearly all measurement errors, the temperature and humidity sensor was designed to be similar to often used professional measuring systems (e.g. on motorway bridges and at mountain measuring stations): Ribbed housing with air inlets ensures that the device is well protected and is supplied with uniform air flow while shielding the sensors from direct sunlight and inadmissible warming.

The rotary head (on ball bearings) of the anemometer enables measurement of the wind speed regardless of the direction, even when the wind is minimal.

Setting up the rainfall measuring system at the same height as the other sensors offers enormous advantages over ground placement. Soiling due to leaves and dust is avoided, the danger of unintentional damage is reduced significantly, and measurement in the above-ground current is more accurate.

Conventional weather stations require a certain period of time to gather data after a minimum amount of rain has fallen before a rain indicator appears on the display. During moderate rainfall this can last some 20 minutes.

In contrast, the KS 300 combi-sensor with Q4-1 technology is equipped with a new electronic system that immediately activates the display's rain icon as soon as the first drops fall – Willy opens his umbrella and the rain indicators appear immediately on the display.

Cleaning the rainfall measurement system is done in a flash. In no time at all the funnel can be removed and cleaned.

Especially advantageous is the ease with which the new combi-sensor can be set up in a different location at any time. You never have to damage your outer walls by drilling holes or climb up to dangerous heights to install equipment. The combi-sensor is completely pre-assembled and internally cabled (safe and protected). The approx. 2 m high weatherproof steel mast is simply assembled and inserted about 50 cm into the ground wherever you want to place it.

With a suitable clip (not included in the product package) it can also be mounted on a balcony or similar location.



Changing the three required Mignon batteries (supplied in the product package) is fast and easy without needing to disassemble the sensor or use any tools. Battery life is approx. 3 years.

ASH 220 sensor for outdoor temperature and humidity

Battery operated (2 x Mignon) for use in dark and low-light locations

Temperature:

Measurement range: -19.9 – +79.9 °C

• Resolution: 0.1 °C

• Accuracy: ±1 °C

Humidity:

Range: 20.0 to 99.9 % RH,

Resolution: 0.1 % RH,

Accuracy: ±8 %

Air pressure: Range:

300 - 1,200 hPa, Resolution: 1 hPa,

Accuracy: ±1 hPa

Order no.: 17-429-93



New KS 300 combi-sensor

Weather Willy

Display examples:

Cap, laughing face:

Temp. < 10 °C, no rain

Wind-blown scarf:

Wind > 10 km/hr., temp.: < 14 °C

Wind-blown hair, T-shirt,

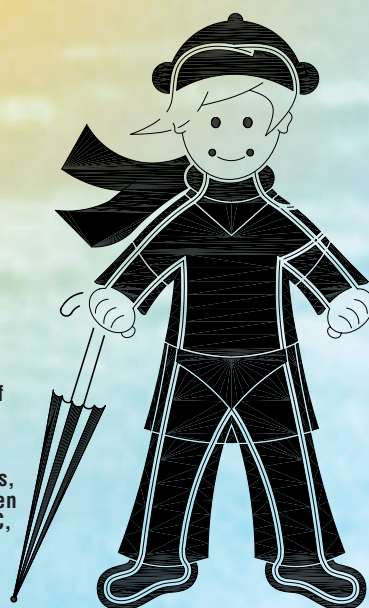
Shorts, sunglasses:

Wind, temp. > 22 °C and < 25 °C, low probability of rain

Crying face, long trousers, shoes, sweater, jacket, scarf, cap, open umbrella: Temp. < 10 °C and > 0 °C, rain ("mucky weather")

Closed umbrella:

High probability of rain



Features of the WS 300 at a glance:

Radio transmission: 868 MHz radio transmission linking all sensors

Temperature: Up to 9 sensors can be connected, two temperature values are shown concurrently, 1 indoor and 1 selectable outdoor temperature, resolution 0.1 °C (°F), accuracy ±0.8 °C (±1.4 °F); display unit: °C or °F, dew point (indoors) and windchill display (indoors/outdoors), comfort zone indicator for indoor display

Relative humidity: Up to 9 sensors can be connected, two humidity values are shown concurrently, resolution 1 %, accuracy ±5 %

Air pressure trend: Display using five arrows (rising, rising steeply, dropping, steeply dropping, no change)

Air pressure history: Display using bar chart, up to 24-hour tracking

Rainfall: Range 0 to 999 mm (0 to 99.9 inch), display total since last reset, last 24 hrs. or 1 hr., display in mm, l/m² or inch, resolution < 0.3 mm

Wind speed: Display selectable as km/hr, m/s or mph, resolution 0.1 km/hr., wind sock icon for light, moderate and strong wind

Sunrise and sunset: Selectable display of individual locations

Moon phase: Display of the current moon phase in four stages

Time & date: Quartz clock

Weather forecast: With weather icons: sunny, fair, cloudy, rainy, and Willy's choice of clothing

Extensive memory options: Min./max. values with time & date

Independent of mains power supply: Base station, 4 Mignon batteries; sensor, 3 Mignon batteries, battery life > 3 years (station and sensor)

Housing dimensions (W x H x D): 160 x 220 x 35 mm (stand excluded)



New components in the modular FS20 wireless control system for home appliances

Wireless control module for flush installation

The new FS20 SU, FS20 DU and FS20 S4U components for flush installation provide fantastic opportunities with which to combine your existing electrical installations, including the switch series used, with the mobile world of radio controlled FS systems. Easily installed in standard flush sockets or lamp bases, they enable the switching of ceiling lighting and other appliances to be radio controlled. The advantage is that the flush modules are concealed and can, therefore, be retrofitted to any installation without being conspicuous.

Features

- Simple installation in existing sockets and outlets
- Compact design for direct installation in appliances (e.g. lamps)
- Existing wall switches serve as transmitters for additional switching and dimming functions
- Switch functionality is fully retained
- Dimming function available where previously only switching was possible. The dimmer is equipped with several operating modes: three timers are available in addition to the normal switching and dimming functions. Switch-off timer (e.g. for staircase lighting), slow-on and slow-off timers, each for 1 sec. to 4.5 h.

FS20 S4U

2/4 channel flush transmitter

The alternative to surface radio controlled switches, control through 2 or 4 standard installation switches. Controls all FS20 receivers

Order No.: 17-562-10

FS20 radio control system

The complete range of all the FS20 switching and control components are in the leaflet „Highlights 2003“ on Page 5.

Range up to 100 m
868 MHz

Concealed radio control installation

FS20 DU

Radio controlled dimmer for flush installation

Easy switching and dimming
Load range: 230 V/25-120 VA (max. 180 VA) with good heat dissipation

Order No.: 17-562-04

Only 32 mm depth

FS20 SU

Radio switch for flush installation

Radio control switch for easily concealed installation. For loads up to 16 A (230 VAC).

With switch-off timer (1 sec. to 4.5 hrs.)

Order No.: 17-562-07

FS20 STR - Wireless Heating/Cooling Control

Time and temperature controlled heating, cooling, ventilating - wireless!



Whether for radiant heater, air conditioner or ventilator, the FS20 STR can switch all these units on and off automatically via radio control as soon as the temperature exceeds or drops below a value you have set.

This ensures you provide the right temperature for your plants or pets automatically, even when you are not at home. A simple command enables you to switch as many FS20 system receivers you require synchronously. In addition, the FS20 STR is provided with timer functions with which up to 4 switching times can be programmed separately for each single day of the week.

Further features

- Pleasant temperature is the entire room as a result of temperature compilation by the control unit – away from heating or cooling units
- Holiday/Party functions for temporary temperature changes, with automatic return to the initial program
- Particularly simple operation via menu control and scrolling wheel
- Warning message when the battery is running down (2 x round cells). Service life of battery approx. 2 years.
- Key input lock to prevent inadvertent adjustment
- Automatic summer/winter time adjustment
- Controls all wireless switches in the FS20 system, e.g. FS20 ST/SA/AS4 etc.

Range up to 100 m

868 MHz technology

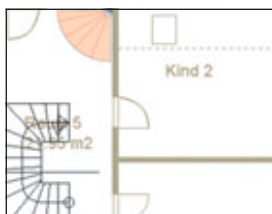
Temperature range 6°C - 30°C

Switching hysteresis ± 0.2 to 2°C



Order No.: 17-562-16

FS20 PIRI Radio controlled motion detector



The FS20 PIRI can control all receivers in the FS20 wireless control system, including the dimmers.



FS20 radio control system

The complete range of all the FS20 switching and control components are in the leaflet „Highlights 2003“ on Page 5.

Switch on light or music automatically as soon as you enter a room.

The FS20 PIRI provides numerous possibilities to switch a whole range of units on and off via the FS20 receivers.

Features

- Fully wireless installation, radio switching command transmission
- Complete area monitoring through corner installation and blind spot protection
- 2-channel radio controlled motion detector (for indoors)
- Channels can be programmed fully independently (brightness threshold switching direction, filter time, switch-on duration for receiver, lamp brightness)
- Immediately operational through numerous pre-programmed settings
- Mobile deployment due to battery operation. Service life of batteries with typical use: up to 2 years!

FS20 PIRI

Order No.: 17-562-13

Technical data:

- Sensor properties can be adjusted – range up to 8 m, aperture angle 90°
- Battery operation: 3 x Mignon, AA (not part of delivery)
- Radio range up to 100 m (free field)



FHT 80 b single room controller – no mains power or cables needed System-capable and with additional radio door/window alarms

Pleasantly warm + energy-saving

This new type of radio controlled heating radiator thermostat system offers several advantages as compared to conventional thermostats. An individually adaptable weekly program enables heating radiators to be regulated in every room in a house according to personal requirements and needs.

Features

- Max. heating comfort – min. energy consumption
- Thermostat separate from actuating drive, therefore, no measured value falsification (measures in room, not on heater!)
- No mains power or cables -> simple installation
- Controls up to 8 wireless heater thermostats

- Individually programmable day/week programs with clear menu structures
- Simple operation, pre-programmed
- Thermostat can be removed from wall holder via snap-in lock
- Modern design with large display, easy input/query functions using the central scrolling wheel
- High level of efficiency through automatic reduction of the heating temperature in rooms when opening a window or door (e.g. patio doors)
- Up to 4 radio controlled door/window alarms per room, additional or existing contacts can be connected
- Selection for single room regulation or integration in the FHZ 1000 bidirectional, central radio control system



Electronic, radio controlled actuating drive

The system operated by battery power and radio controlled transmission. Therefore, there is absolutely no cable or power connection necessary. Replacing the old valve head with a new actuating drive is incredibly easy and can be completed by people without any specific technical training in just a few operations (no need to drain the water from the radiators). The adapter supplied ensures it is suitable for all common radiator valves.

Status indication per digital display



Automatic temperature reduction on opening a window

Please note:

The system cannot be operated with floor heating.

Further features:

- Individually programmable day and night programs – separately for each weekday
- Holiday/Party function for temporary temperature changes
- Weekly timescale protection function prevents the valve blocking
- Frost protection function
- Key input lock to prevent inadvertent adjustment
- Automatic summer/winter time adjustment

Radio controlled door/window detectors FHT 8 TF

The magnetic contact can be mounted to the right or left of the alarm. It is also possible to connect an external switch (e.g. additional magnetic contact) and to use its contact instead of an additional one. Each change of status is signaled to the room controller.



Set offer:

1 FHT 80b, 1 actuating drive, 1 FHT 8 TF, batteries
Order No.: 17-545-65

Additional door/window alarms

FHT 80 TF incl. batteries
Order No.: 17-557-08

Noise level meter



The microprocessor controlled SPM 100 has a norm-compliant time and frequency weighting filter, making it suitable for most tasks requiring noise metering technology.

The SPM 100 is able to monitor and display noise level in three ranges between 30 dB and 125 dB (130 dB impulse) and also provides an auto range function.

The dynamic scope of each metering range is 50 dB with 0.1 dB resolution. In addition to the digital display, there is a twenty-step analogue bar display with 2.5 dB resolution for each graduation mark.

The frequency evaluation can be selected based on filter curve A or C. Time constants available for evaluating time are fast (F), slow (S) and impulse (I). A "max. hold" function causes the peak measured noise level to be continuously displayed. Special features include an analogue output and a serial interface. The device can be used as a front-end via the analogue output, and metered values can be transferred to a PC using the serial interface and further processed. Thanks to microprocessor control and a large LCD, operation of the device is intuitive and easy. The device is completely operated using an 8-key membrane keyboard.

Order no.: 17-493-47

Technical data: SPM 100

Measurement range: 30 dB – 125 dB (130 dB impulse)
 Metering ranges: 30 dB – 70 dB, 50 dB – 100 dB, 80 dB – 130 dB
 Accuracy: ± 1 dB
 Resolution: 0.1 dB, 2.5 dB for bar display
 Weighting filter: A, C
 Time constants: slow, fast, impulse
 Voltage supply: 9 V monobloc battery
 Dimensions (W x H x D): 71 x 170 x 28 mm
 • Analogue output (AC, DC) • RS-232 interface
 • Auto range function • Auto power off (can be deactivated)



RIM 1000

Battery resistance measuring device

When considering the quality of rechargeable batteries and regular batteries, capacity is not the only issue. To ensure that the voltage does not fail when supplying power, it is very important that the internal resistance of a voltage source is as low as possible. This crucial information for determining battery quality can be measured with the RIM 1000 in just a few seconds.

Together with the nominal capacity, the internal resistance is one of the most important technical specifications

of a battery. Especially in high-voltage applications a power drop becomes negatively apparent in the internal resistance, and the ageing of a battery is most noticeable in the increase of internal resistance. The RIM 1000 can determine the internal resistance of single batteries or battery packs in just a few seconds; discharge current impulses up to 20 A ensure realistic testing conditions. 4-wire measuring logs the measurement values, and spring-action test prods ensure good battery contact.

Order no.: 17-523-38

Internal resistance: 0.1 mΩ - 9.999 Ω
 Battery voltage: 0 - 30 V
 Discharge voltage impulse: 1 A - 20 A
 Voltage supply: 9 V monobloc battery
 Dimensions (W x H x D): 71 x 172 x 28 mm

Super fast charging up to 8 A – RLG 7008 Reflex Charger

The patented reflex charging process is of particular advantage when batteries have to be fully recharged in the shortest time possible and ready for use again. The RLG 7001 provides a charging rate of up to 4 C with a max. charging current of 8 A. Automatic protection functions prevent damage to batteries when charging.



Recharging is in four stages:

- **Soft start** with continuous charging impulse emission.
- **Fast charging** with maximum charging impulse width and ability to recognise when charging is completed (analysis of the charging voltage rate increase). Now the battery already has more than 95 % of its energy capacity and, if required quickly, it can be removed for use.
- **Transition charging:** Two hours of

impulse charging using 10 % of the max. charging current. This tops up the battery charge to 100 % energy capacity.

- **Maintenance charging:** After transition charging, the charge controller switches to maintenance charge mode with C/40 current impulses. This continually offsets charge loss due to battery-initiated discharged. The battery can remain connected to the charging device in this mode for an indefinite period of time.

Status LEDs and the LCD keep you informed of the charge and battery status. The device can charge single batteries as well as a series of up to 16. The charging current can be set between 80 mA and 8 A in 100 incremental steps. Overcharge batteries is prevented by several end-of-charge criteria, including a safety timer and automatic charge rate reduction when internal resistance is too high. This means that previously damaged batteries can again be charged without any problem.

NEW: Now with 8 ampere!

No memory effect with NiCd batteries

Extremely short charge times

Order no.: 17-499-18

Technical data: RLG 7008

Charging process: Reflex charging process with ICS charge controller
 Charge outputs: 1
 Number of batteries: 1 - 16
 Charging current: 80 mA - 8 A, in 100 steps
 Displays: backlight
 LCD and status LEDs
 Features: automatic reduction of charging rate if internal resistance is too high
 Dims. (W x H x D): 272x92x150 mm

TAC 100

Transponder access control system



Sabotage-proof due to strict separation of the control system and the operation unit. Multi-access options using transponder and code.

Access-control system for contact-free door opening by means of a transponder.

With the splash-water protected outdoor unit with built-in time and date display, you have the choice of opening your door without touching it by using the transponder only, you can enter a number code at the unit, or for enhanced security you can use a combination of transponder and code. This can be done with up to 15 transponders, each of whose access rights can be programmed for specific time windows.

The system not only makes it possible to open doors conveniently with a transponder but also adds to the functionality of the doorbell unit. Thus the duration of the bell tone after the button has been pressed can be programmed (0.5 - 99 sec.); this is an aid for people who are hard of hearing, it is useful if there is a high level environmental noise, and it prevents rapid and repeated ringing.

The door opening function is programmable:

- **Easy switching function for setting door opener activation (0.5 sec to 99.5 sec)**
- **Long-term activation, long-term deactivation**
- **Toggle when there is transponder "contact"**
- **Easy installation**

Connection of the outdoor terminal to the indoor unit without additional wiring. The existing 2-wire doorbell wiring can be used. Your existing doorbell remains intact.

- **High level of access security**

Individual programming of access rights. Encrypt-

ed data transmission. Sabotage-proof placement of the evaluation electronics in the indoor unit.

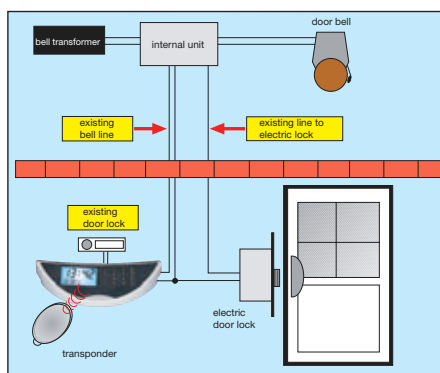
High level of protection against transponder copying. Barring function if lost.

• Universal

A diversity of uses, for example: offices, tool cabinets, rooms with data technology, art collections, machine access controls, wine cellars, jewelry showcases.

Complete set (1 outer unit, 1 inside unit, 1 transponder)

Order no.: 17-392-09



VMS 100 video motion switch



The VMS 100 can be connected to any normal surveillance camera and triggers an alarm as soon as the picture content within the adjustable frame of the camera picture changes.

The VMS 100 evaluates the incoming camera image for movement in front of the camera; movement causes changes in brightness fluctuations and thereby triggers a visual/acoustic alarm or is relayed as an alarm to a circuit output. By defining a specific image frame, certain image fields that are not to be monitored can be masked. The alarm evaluation (alarm can be switched off) is performed either by internal visual-acoustic alarming or by a relay circuit output.

Order no.: 17-539-94

Technical data: VMS 100

Voltage supply: 12 – 15 V/DC
Current consumption: max. 110 mA
Inputs: 1 x BNC/75 Ω
Outputs: 2 x BNC/75 Ω
Circuit output: relay max. 40 V/1.25 A
dims. (housing): 167 x 87 x 28 mm

USB processor power supply PPS 7330 0 - 30 V/0 - 3 A

The PPS 7330 provides the direct voltages most often used in electronics laboratories in the range of 0 V to 30 V with a current carrying capacity of up to 3 A. Exceptional operational convenience is achieved by means of processor control and nominal value specification with an incremental encoder. This microprocessor-controlled device makes it possible to save and make use of up to 8 user-defined nominal value specifications for current and voltage so that often required settings are immediately available at the touch of a button.

Analogue-digital nominal value specification

Setting the nominal value with an incremental encoder combines the easy operability of an analogue potentiometer setting with the precision of a digital nominal value specification. The resolution of the incremental encoder is adjustable so that, for example, when specifying the voltage, increments between 10 mV and 10 V are possible per click stop. Current and voltage are shown in a 4-digit, 7-segment LED display.

Standby function

A standby function lets you toggle the output on and off by pressing a button; the switch status is indicated by a two-colour LED.

PC interface

The PPS 7330 can be optionally equipped with a USB port to enable communication with a PC. Using the supplied PC



software, current and voltage settings can also be controlled via a PC. Further, it is possible to specify current and voltage values in the 10-second grid and have them automatically activated.

Regulated ventilator, protective circuitry

To dissipate waste heat, the power unit has a cooling block ventilating unit whose ventilator speed is electronically regulated based on the output stage temperature.

Several protection circuits prevent damage to the power unit: it is permanently short-circuit proof and has circuitry to prevent overheating.

PPS 7330 with USB interface
Order no.: 17-538-64

Technical data: PPS 7330

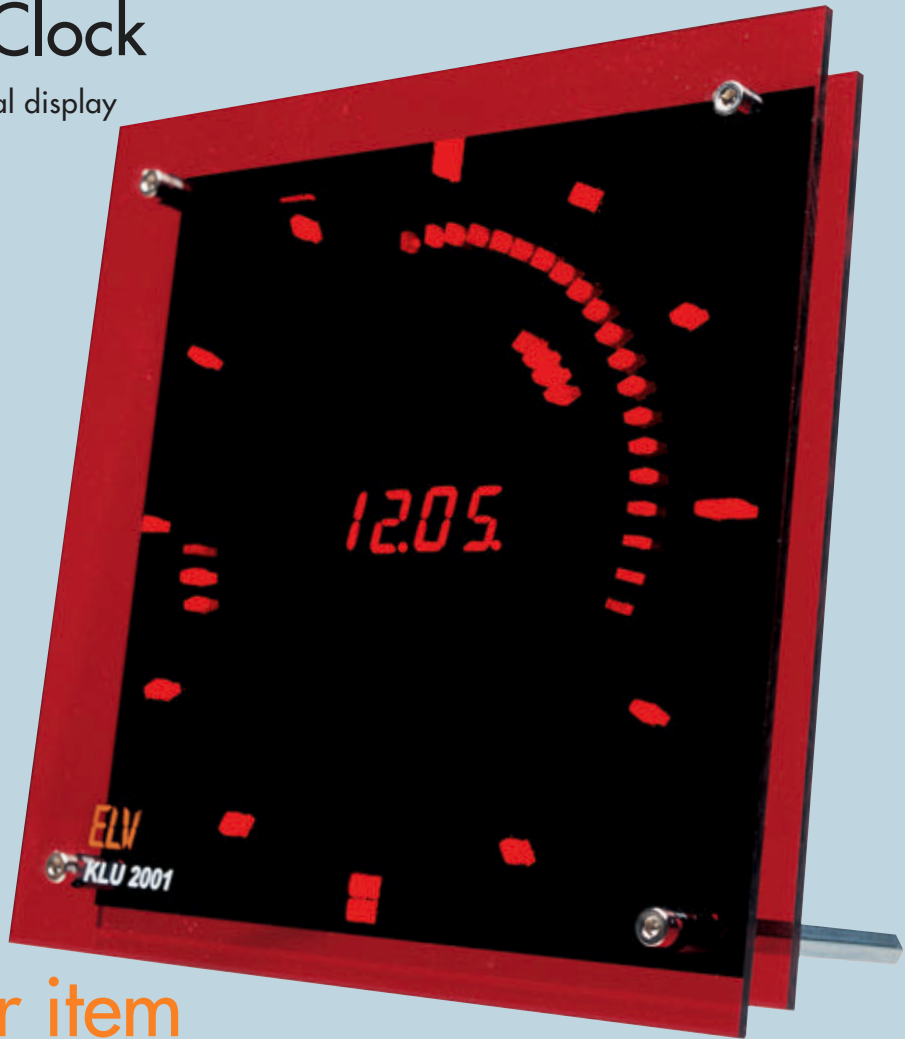
Output voltage range: 0 V to 30 V
Output current range: 0 A to 3 A
Humming and noise
Voltage constant: 2 mV_{eff}
Current constant: 0.01 % of U
Internal resistance
Voltage constant: 0.01 Ω
Current constant: 20 kΩ
Display of current: 4-digit, resolution 1 mA
Display of voltage: 4-digit, resolution 10 mV
Other: .. electronic temperature safeguarding, electronic ventilator regulation, permanently short circuit proof
Mains voltage: 230 V/50 Hz / 0.4 A
Weight: 3,000 g
Dimensions (W x H x D): 350 x 110 x 210 mm



- Competence in Electronics

ELV LED Clock

with analogue/digital display



Designer item

This modernly designed clock continues the tradition of the classical ELV LED clocks that have attained near cult status. The quartz- or DCF-controlled time display of hours, minutes and seconds is made possible by 2 LED circles with more than 130 red light-emitting diodes. The date is digitally displayed in the centre at the same time.

The arrangement of the light diodes produces a figure similar to a clock hand. The hour hand in particular is portrayed accurately and smoothly as in a normal analogue clock.

The "dial" is formed by the continually illuminated LEDs in the outer circle, which displays in 5-minute intervals and re-

inforces the impression of a conventional analogue clock dial.

A red, semi-transparent cover increases the contrast of the LEDs and directs attention to the processor-controlled technology of the clock.

Can be used as a wall clock or a table clock. Voltage is supplied by a plug-in power unit.

Dimensions: 194 x 194 x 35 mm. Available as a quartz or a DCF-controlled clock.

Order no.: 17-478-12

• Design • Research and Development • Production

For more information please contact:

ELV Elektronik AG

Sales department

Postbox 1000 • D-26787 Leer (Germany)

Tel: +49 491 6008 445 • Fax: +49 491 6008 123

e-mail: sales@elv.com • Website: www.elv.com

ELV Electronics Ltd.

Room A8 & A10, 16/F, Kailey Ind. Centre, No. 12, Fung Yip Street, Chaiwan, Hong Kong

Tel: +852 2367 0322 • Fax: +852 2367 0822

e-mail: elv@elv.com.hk • Website: www.elv.com