



### BUFFER MODULE

- Buffering with electrolytic capacitors instead of lead acid batteries
- Buffering of 24V loads
- Minimum hold-up time 0.2s at 20A, longer hold-up time at lower loads
- Clear status indication by status LED and signaling terminals
- Quick-connect spring-clamp terminals
- 3 Years warranty

### PRODUCT DESCRIPTION

The UF20 buffer module is a supplementary device for regulated DC 24V power supplies, which can be used for various purposes:

- Deliver DC-power to bridge failures of the DC voltage supply system.
- Extend the hold-up time after loss of the AC power.
- Deliver extra short-term peak current above the current rating of the power supply.

It utilizes service-free electrolytic capacitors for storing the energy which allows usage even at ambient temperatures up to +70°C.

The buffer module does not require any control wiring. It can be added in parallel to the load circuit at any given point.

Buffer modules can be connected in parallel to increase the output capacity or the hold-up time.

### SHORT-FORM DATA

Supply voltage	DC 24V -20%/+25%	19.2-30Vdc
Required voltage to charge capacitors	typ. 23Vdc	
Threshold voltage for buffer mode	22.5V / $V_{IN}-1V$	Selectable
Buffer voltage	22.5V / $V_{IN}-1V$	Selectable
Buffer current	20A	
Charging time	typ. 25s typ. 18s	For initial charging For recharging shortly after a buffer event
Current consumption	typ. 80mA max. 600mA	Stand-by mode During charging
Power dissipation	1.9W	Stand-by mode
Buffer time	min. 200ms min. 430ms typ. 310ms typ. 670ms typ. 43s	At 22.5V, 20A At 22.5V, 10A At 22.5V, 20A At 22.5V, 10A At 22.5V, 0.1A
Temperature range	-25°C to +70°C	Operational
Dimensions	64x124x102mm	WxHxD
Weight	740g	

### ORDER NUMBERS

Buffer Module	UF20.241	
Accessory	ZM1.WALL	Panel/ wall-mount bracket
	ZM14.SIDE	Side-mount bracket

### MAIN APPROVALS

For details and the complete approval list, see chapter 22.



UL 508



UL 60950-1

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Some parts of this unit are patent by PULS (US patent No 091662,063, Des. 424,529, ...).

### TERMINOLOGY AND ABBREVIATIONS

Power supply mode	Describes a condition where the supply voltage is in the rated supply voltage range and the supplying power supply can deliver a sufficient amount of current for the buffer module and the load. The mode can also be called "Normal mode".
Buffer mode	Describes a condition where the input voltage is below the transfer threshold level, the unit is running on capacitors (buffering) and the output is loaded within the allowed limits. The mode can also be called "Capacitor mode".
Inhibit mode	Describes a condition where buffering is disabled on purpose (e.g. for service actions).
t.b.d.	To be defined, value or description will follow later.
DC 24V	A figure displayed with the AC or DC before the value represents a nominal voltage with standard tolerances included. E.g.: DC 12V describes a 12V battery disregarding whether it is full (13.7V) or flat (10V).
24Vdc	A figure with the unit (Vdc) at the end is a momentary figure without any additional tolerances included.
may	A key word indicating flexibility of choice with no implied preference.
shall	A key word indicating a mandatory requirement.
should	A key word indicating flexibility of choice with a strongly preferred implementation.

## 1. INTENDED USE

This device is designed for installation in an enclosure and is intended for commercial use, such as in industrial control, process control, monitoring and measurement equipment or the like. Do not use this device in equipment where malfunction may cause severe personal injury or threaten human life.

## 2. INSTALLATION INSTRUCTION



Das verhängte Bild kann nicht angezeigt werden.  
Möglicherweise wurde die Datei verschoben,  
umbenannt oder gelöscht. Überprüfen Sie den  
Dateipfad und die Schreibweise.

Risk of electrical shock, fire, personal injury or death.

- Turn power off before working on the device and protect against inadvertent re-powering.
- Do not open, modify or repair the device.
- Use caution to prevent any foreign objects from entering into the housing.
- Do not use in wet locations or in areas where moisture or condensation can be expected.
- Do not touch during power-on, and immediately after power-off. Hot surface may cause burns.

Obey the following installation instructions:

This device may only be installed and put into operation by qualified personnel.

This device does not contain serviceable parts. The tripping of an internal fuse is caused by an internal defect.

If damage or malfunction should occur during installation or operation, immediately turn power off and send unit to the factory for inspection.

Install the device in an enclosure providing protection against electrical, mechanical and fire hazards.

Install the device onto a DIN

rail according to EN 60715 with the power terminals on the top of the unit.

The device can be powered from a regulated power supply or a similar DC source. The voltage between the supply voltage terminals and the PE terminal must not exceed 60Vdc continuously.

The device must be powered from a PELV or SELV source or an "Isolated Secondary Circuit" in order to maintain a SELV or PELV level.

Use an appropriately sized 24V power supply, which can deliver the additional internal current consumption, required to charge the capacitors.

Check for correct supply voltage polarity. The device will not operate when the voltage is reversed.

Make sure that the wiring is correct by following all local and national codes. Use appropriate copper cables that are designed for a minimum operating temperature of +60°C for ambient temperatures up to +45°C, +75°C for ambient temperatures up to +60°C and +90°C for ambient temperatures up to +70°C. Ensure that all strands of a stranded wire enter the terminal connection.

The device is designed for pollution degree 2 areas in controlled environments. No condensation or frost is allowed. The enclosure of the device provides a degree of protection of IP20.

The device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid!

Keep the following minimum installation clearances: 40mm on top, 20mm on the bottom, 0mm left and right side.

The device is designed for altitudes up to 6000m.

The maximum surrounding air temperature is +70°C. The operational temperature is the same as the ambient or surrounding air temperature and is defined 2cm below the device.

The device is designed to operate in areas between 5% and 95% relative humidity.

For EMI reasons, signal lines (ready, active and inhibit) must be shorter than 30m

### 3. FUNCTIONAL DESCRIPTION

#### Working principle

When the power supply provides sufficient voltage, the buffer module stores energy in the integrated electrolytic capacitors. In case of a voltage dip or loss, this energy is released to the DC bus in a regulated process.

#### Bridges mains faults without interruption

Statistic show that 80% of all mains fault lasts less than 0.2s. These mains faults are completely bridged by the buffer unit. This increases the reliability of the system as a whole.

#### Extended hold-up time

Once mains power fails or is switched off, the buffer unit will continue to provide the load current for a defined period of time. Process data can be saved and processes can be terminated before the DC power switches off. Controlled restarts are subsequently possible.

#### Easy to handle, expandable and maintenance-free

The buffer module does not require any control wiring. It can be added parallel to the load circuit at any given point. Buffer modules can be connected in parallel to increase the output ampacity or the hold-up time.

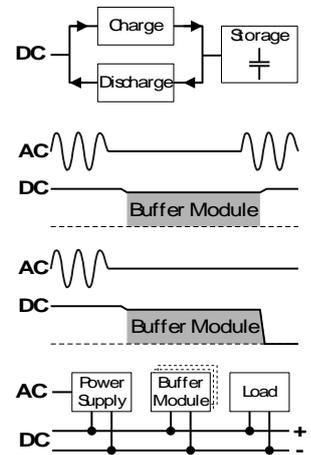


Fig. 3-1 Typical wiring diagram

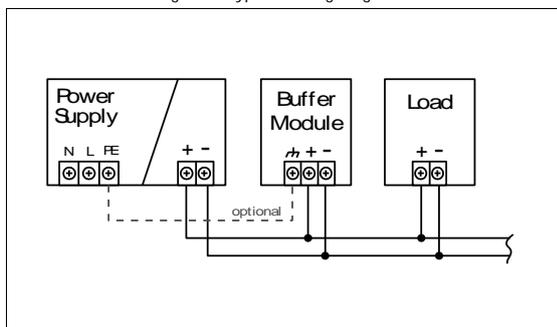
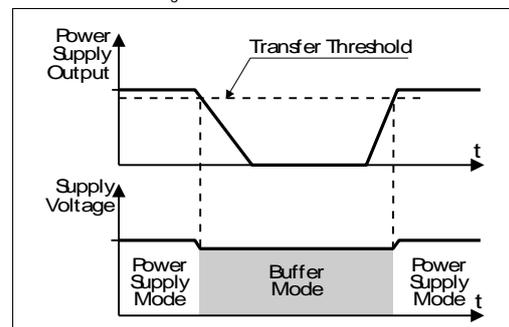


Fig. 3-2 Transfer behavior



### 4. ELECTRICAL RATINGS

Supply voltage	nom.	DC 24V <sup>-20%/+25%</sup>	
Supply voltage range <sup>1)</sup>		19.2 - 30Vdc	
Normal operating voltage range <sup>2)</sup>	typ.	23 – 30Vdc	
Transfer voltage for switching into buffer mode	typ.	22.5Vdc	Back-up threshold jumper set to "22.5V fixed"
	typ.	V <sub>IN</sub> – 1V	Back-up threshold jumper set to "V <sub>IN</sub> – 1V" See also chapter 5.
Transfer voltage for switching from buffer mode into power supply mode	typ.	22.5Vdc	Back-up threshold jumper set to "22.5V fixed"
	typ.	V <sub>BUFFER</sub> + 1V	Back-up threshold jumper set to "V <sub>IN</sub> – 1V" See also chapter 5.
Buffer voltage	typ.	Same as the transfer voltage for switching into buffer mode.	
Ripple and noise voltage	max.	200mVpp	Generated by the buffer module. Defined at 20Hz to 20MHz, 50Ohm
		The ripple and noise voltage is defined by the power supply.	
Current consumption	typ.	80mA	When capacitor is fully charged
	min.	400mA	During charging of the capacitors
	max.	600mA	During charging of the capacitors
Power dissipation	typ.	1.9W	When capacitor is fully charged
Buffer current	min.	20A	
Buffer current overload behavior		Electronically limited, buffering stops and capacitor gets discharged below 17V. See Fig. 4-2.	
Allowed voltage between supply voltage and chassis ground	max.	60Vdc or 42.4Vac	Continuous, IEC 62477-1
Capacitive and inductive loads		No limitation	

- 1) Supply Voltage Range:  
At voltages within the input voltage range, control functions such as LEDs, monitoring features, relay contacts, etc. are functioning normally. Within the input voltage range the unit can either be in power supply mode or in buffer mode.
- 2) Normal Operating Voltage Range:  
The normal operating voltage range describes the supply voltage, which supports the full functionality of the buffer module (including charging) but without entering the buffer mode.

Fig. 4-1 Selection of an appropriate power supply

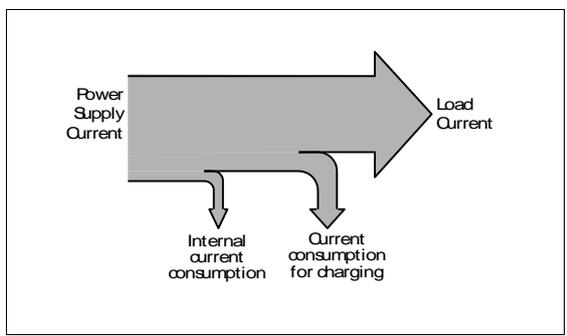
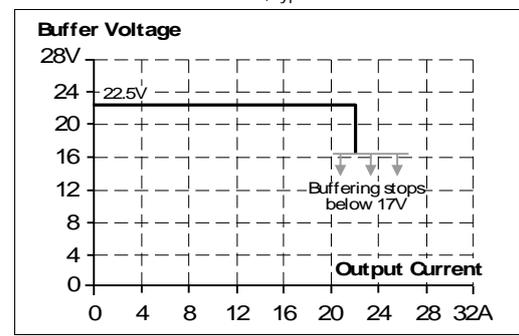


Fig. 4-2 Output characteristic in buffer mode, 22.5V fixed mode, typ.



### 5. SELECTION OF THE BACK-UP THRESHOLD VOLTAGE

The buffer behavior can be selected with the back-up jumper selector between "Fixed Mode" and "Variable Mode".

Fixed Mode: (Jumper in position „2-3“ or „22.5V fixed“)

If the supply output voltage falls below 22.5V, buffering starts and the supply voltage will be kept at this level.

This adjustment is recommended:

- when power supplies other than the DIMENSION Q-series are used
- with back-feeding loads
- when the buffer module is placed close to the load or
- whenever in doubt.

Variable Mode: (Jumper in position „1-2“ or „ $V_{IN} - 1V$ “)

Buffering starts if the supply voltage decreases by more than 1V. Buffering ends when supply voltage increases by more than 1V

Voltage changes slower than 0.54V/s will be ignored if the voltage is above 22.5V. Below 22.5V buffering starts immediately.

This adjustment is recommended for any application where 22.5V is too low for the application or when the buffer module is placed close to the power supply.

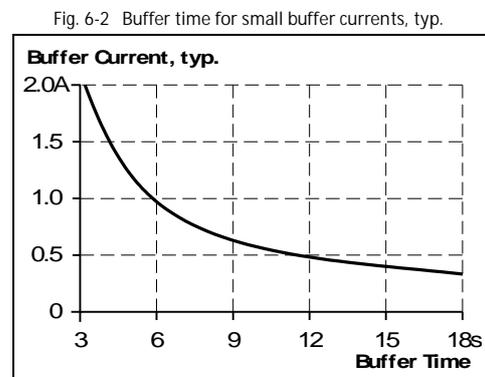
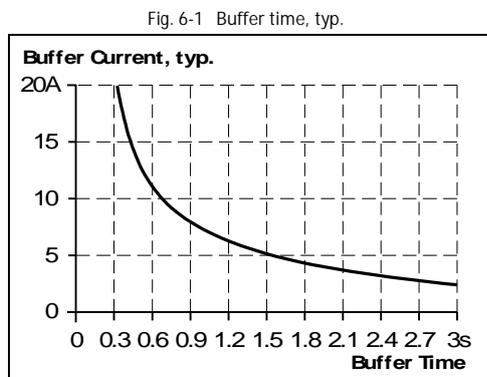
The factory setting is fixed mode, A missing jumper means also fixed mode.

### 6. BUFFER TIME

The buffer time (sometimes also called autonomy time) is the maximum period of time for which the capacitor can maintain the required output current. The buffer time mainly depends on the output current in buffer mode.

To increase the buffer time any given number of buffer modules can be connected in parallel.

Buffer time	min.	200ms	At 22.5V, 20A
	min.	430ms	At 22.5V, 10A
	typ.	310ms	At 22.5V, 20A
	typ.	670ms	At 22.5V, 10A
	typ.	43s	At 22.5V, 0.1A



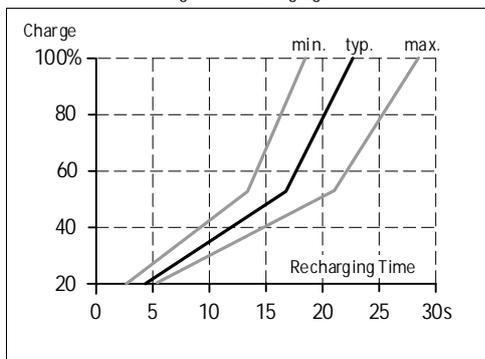
### 7. CHARGING TIME

Charging of the internal capacitors is indicated by the status LED, which is flashing with a slow frequency (1.25Hz).

Charging time	typ.	25s	Initial charging <sup>1)</sup>
	min.	20s	Initial charging <sup>1)</sup>
	max.	30s	Initial charging <sup>1)</sup>
	typ.	23s	Recharging <sup>2)</sup>
	min.	18s	Recharging <sup>2)</sup>
	max.	28s	Recharging <sup>2)</sup>

- 1) Initial charging is the first charge after voltage is applied to the buffer module.
- 2) Recharging is the charging of the internal capacitors after voltage interruptions shorter than 2minutes.

Fig. 7-1 Recharging



### 8. OPERATING DIAGRAMS

Fig. 8-1 Operating diagram

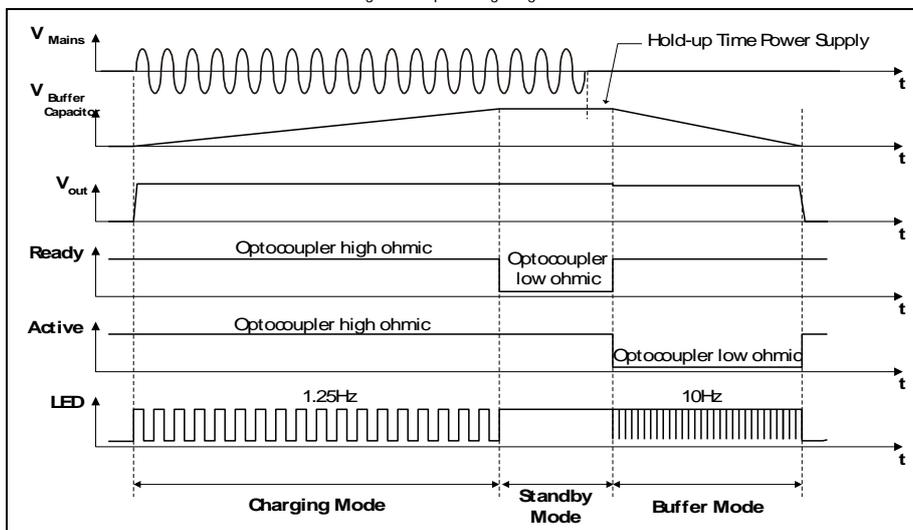
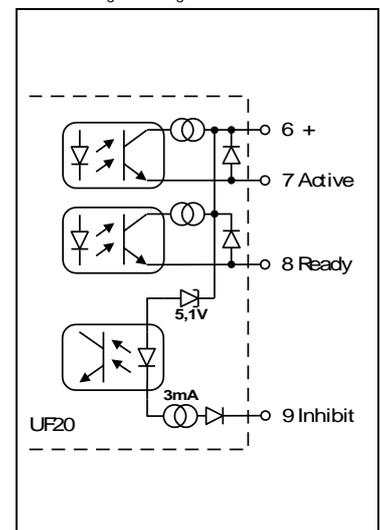


Fig. 8-2 Signal schematic



### 9. ACTIVE SIGNAL

The signal "Active" (pin 7) is an opto-coupler output which is low ohmic while buffer capacitors are discharged.  
Wiring scheme see Fig. 8-2, Fig. 26-1 and Fig. 26-2.

Signal voltage	max.	35Vdc	Voltage between pin 6 and 7
Signal current	max.	10mA	
Voltage drop across opto-coupler		0.9V / 3V	At 1mA / 5mA while opto-coupler is low ohmic
Leakage current	max.	50µA	While opto-coupler is high ohmic
Isolation voltage		See chapter 21.	

### 10. READY SIGNAL

The signal "Ready" (pin 8) is an opto-coupler output which is low ohmic when buffer capacitors are fully charged.  
Wiring scheme see Fig. 8-2, Fig. 26-1 and Fig. 26-2.

Signal voltage	max.	35Vdc	Voltage between pin 6 and 8
Signal current	max.	10mA	
Voltage drop across opto-coupler		0.9V / 3V	At 1mA / 5mA while opto-coupler is low ohmic
Leakage current	max.	50µA	While opto-coupler is high ohmic
Isolation voltage		See chapter 21.	

### 11. INHIBIT INPUT

Buffering can be disabled or interrupted with the inhibit input (pin 9). Therefore, pin 6 should be connected to the positive pole of the terminal voltage or to the external control voltage and pin 9 must be connected to the corresponding negative pole.

Inhibiting the unit also discharges the internal capacitors. Charging of the capacitor is not possible when the buffer module is in inhibit mode.

Wiring scheme see Fig. 8-2, Fig. 26-1 and Fig. 26-2.

Signal voltage	max.	35Vdc (between pin 6 and pin 9)	
Signal current	max.	4mA, current limited	
Inhibit mode		The unit does not buffer (or stops buffering) if the voltage between pin 6 and pin 9 is higher than 10V. Below 6V buffering will function again.	
Isolation voltage		See chapter 21.	

### 12. EFFICIENCY AND POWER LOSSES

Efficiency	typ.	>99%	Power supply mode, 20A output current, capacitors fully charged
Power losses	typ.	1.9W	Power supply mode, 0A output current, capacitors fully charged

### 13. LIFETIME EXPECTANCY AND MTBF

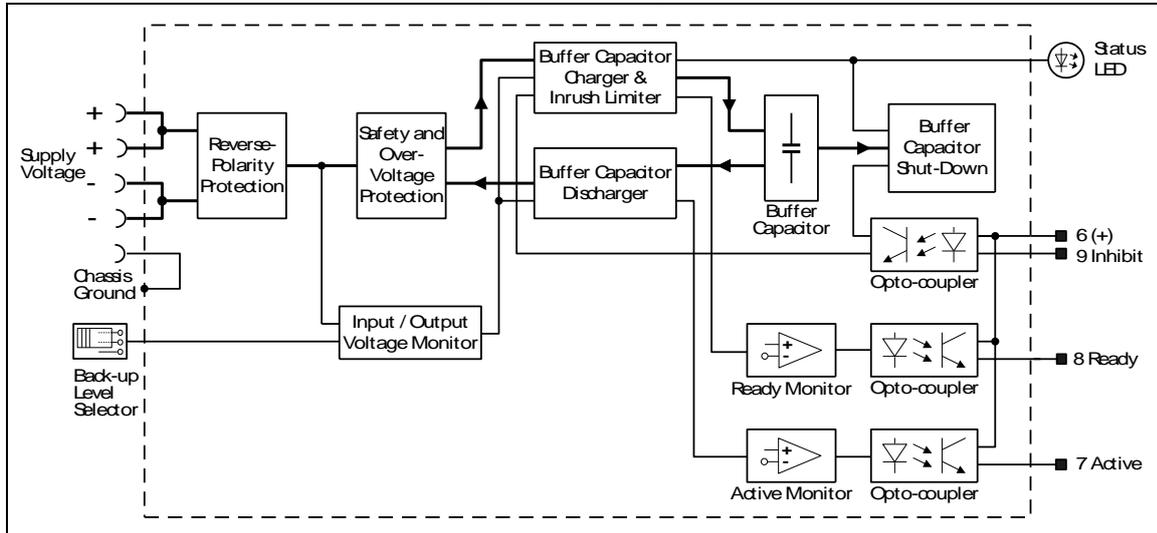
Calculated lifetime expectancy <sup>*)</sup>	166 000h <sup>*)</sup>	Stand-by mode, 40°C
	469 000h <sup>*)</sup>	Stand-by mode, 25°C
MTBF <sup>**) SN 29500, IEC 61709</sup>	2 327 000h	Stand-by mode, 40°C
	4 219 000h	Stand-by mode, 25°C
MTBF <sup>**) MIL HDBK 217F</sup>	398 000h	Stand-by mode, 40°C, Ground Benign GB40
	624 000h	Stand-by mode, 25°C Ground Benign GB25
	132 000h	Stand-by mode, 40°C, Ground Fixed GF40
	195 000h	Stand-by mode, 25°C Ground Fixed GF25

\*) The calculated lifetime expectancy shown in the table indicates the minimum operating hours (service life) and is determined by the lifetime expectancy of the built-in electrolytic capacitors. Lifetime expectancy is specified in operational hours and is calculated according to the capacitor's manufacturer specification. The manufacturer of the electrolytic capacitors only guarantees a maximum life of up to 15 years (131 400h). Any number exceeding this value is a calculated theoretical lifetime which can be used to compare devices.

\*\*) MTBF stands for Mean Time Between Failure, which is calculated according to statistical device failures, and indicates reliability of a device. It is the statistical representation of the likelihood of a unit to fail and does not necessarily represent the life of a product.  
The MTBF figure is a statistical representation of the likelihood of a device to fail. A MTBF figure of e.g. 1 000 000h means that statistically one unit will fail every 100 hours if 10 000 units are installed in the field. However, it cannot be determined if the failed unit has been running for 50 000h or only for 100h.

### 14. FUNCTIONAL DIAGRAM

Fig. 14-1 Functional diagram



### 15. TERMINALS AND WIRING

The terminals are IP20 finger safe constructed and suitable for field and factory wiring.

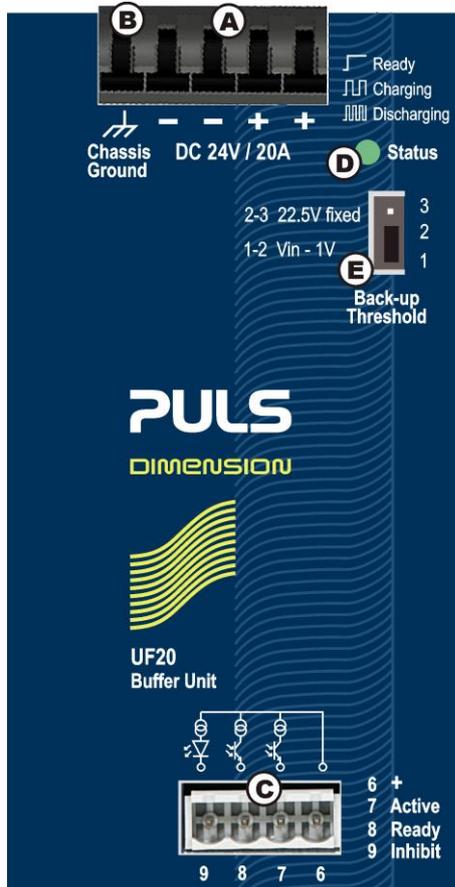
	Supply voltage, chassis ground	Signals
Type	Quick-connect spring-clamp terminals	Pluggable screw terminals
Solid wire	max. 6mm <sup>2</sup>	max. 2.5mm <sup>2</sup>
Stranded wire	max. 4mm <sup>2</sup>	max. 2.5mm <sup>2</sup>
American Wire Gauge	max. AWG 20-10	AWG 22-14
max. wire diameter	max. 2.8mm (including ferrules)	2.25mm (including ferrules)
Wire stripping length	typ. 10mm	6mm
Tightening torque	Not applicable	0.4Nm
Screwdriver	Not applicable	3mm slotted

**Instructions:**

- Use appropriate copper cables that are designed for minimum operating temperatures of:
  - +60°C for ambient up to +45°C and
  - +75°C for ambient up to +60°C and
  - +90°C for ambient up to +70°C minimum.
- Follow national installation codes and installation regulations!
- Ensure that all strands of a stranded wire enter the terminal connection!
- Unused terminal compartments should be securely tightened or closed.
- Ferrules are allowed.

### 16. FRONT SIDE AND USER ELEMENTS

Fig. 16-1 Front side



- A** Supply Voltage Terminals  
Quick-connect spring-clamp terminals, two per polarity  
+ Positive supply voltage terminal  
- Negative (return) supply voltage terminal
- B** Chassis Ground Terminal  
Quick-connect spring-clamp terminals  
Connection of the chassis to ground (earth) is optional and only required for a view specific applications.
- C** Signal Connector  
4-pole plug connector with screw terminal comprises the following signals:
  - "Active" signal, for details see chapter 9.
  - "Ready" signal, for details see chapter 10
  - "Inhibit" input, for details see chapter 11
- D** Status LED  
This green LED indicates that the following information:
  - OFF: Capacitors are discharged or supply voltage is below 22V.
  - ON: Capacitors are fully charged
  - Slow flashing (1.25Hz): Capacitors are getting charged.
  - Fast flashing (10Hz): Capacitors are getting discharged.
- E** Back-up Threshold Jumper  
Option 1: Fixed mode (Jumper in position 2-3)  
The unit switches to buffer mode as soon as the voltage falls below 22.5V.  
Option 2: Variable mode (Jumper in position 1-2)  
Unit switches to buffer mode when input voltage decreases by 1V. Voltage changes slower than 0.54V/s will be ignored if the voltage is above 22.5V. Below 22.5V buffering starts immediately.  
For more details see chapter 5.

### 17. EMC

The buffer module is suitable for applications in industrial environment as well as in residential, commercial and light industry environment.

EMC Immunity for all operating modes According to generic standards: EN 61000-6-1 and EN 61000-6-2

Electrostatic discharge	EN 61000-4-2	Contact discharge *) Air discharge *)	8kV 15kV	Criterion A Criterion A
Electromagnetic RF field	EN 61000-4-3	80MHz-2.7GHz	10V/m	Criterion A
Fast transients (Burst)	EN 61000-4-4	Input lines Output lines Signals lines pin 6, 7, 8, 9 **)	2kV 2kV 2kV	Criterion A Criterion A Criterion A
Surge voltage on supply voltage terminals	EN 61000-4-5	+ → - + / - → chassis ground	0.5kV 1kV	Criterion A Criterion A
Surge voltage on inhibit input, active signal and ready signal	EN 61000-4-5	Not applicable since length of signal wire specified shorter than 30m.		
Conducted disturbance	EN 61000-4-6	0.15-80MHz	10V	Criterion A

\*) Chassis ground connection earthed (grounded)

\*\*) Tested with coupling clamp

Criteria:

A: Buffer module shows normal operation behavior within the defined limits.

EMC Emission for standby- and charging mode According to generic standards: EN 61000-6-3 and EN 61000-6-4

Conducted emission, supply voltage	IEC/CISPR 16-1-2, IEC/CISPR 16-2-1	Limits for DC power ports acc. EN 61000-6-3 fulfilled
Radiated emission	EN 55011, EN 55032	Class B

This device complies with FCC Part 15 rules.

Operation is subjected to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Switching Frequency	The buffer module has two converters with variable frequencies included.	
	6 to 610kHz	Charging converter at 24V input (is only active during charging) The frequency depends on the state of charge of the capacitors
	10 to 70kHz	Buffer converter at buffering at 22.5V The frequency depends on the output current. The values are between 10% and 100% of the nominal buffer current

### 18. ENVIRONMENT

Operational temperature *)	-25°C to +70°C	
Storage temperature	-40 to +70°C	For storage and transportation
Humidity **)	5 to 95% r.H.	IEC 60068-2-30
Vibration sinusoidal	2-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2 hours / axis	IEC 60068-2-6
Vibration random	0.5m <sup>2</sup> (s <sup>3</sup> ) 2 hours / axis	IEC 60068-2-64
Shock	30g 6ms, 20g 11ms 3 bumps / direction, 18 bumps in total	IEC 60068-2-27
Altitude	0 to 6000m	Approvals apply only up to 2000m
Over-voltage category	III	IEC 62103, EN 62477-1
	II	IEC 62103, EN 62477-1, above 2000m altitude
Degree of pollution	2	IEC 62103, EN 62477-1, not conductive

\*) Operational temperature is the same as the ambient or surrounding temperature and is defined as the air temperature 2cm below the unit.

\*\*) Do not energize while condensation is present

### 19. PROTECTION FEATURES

Electrical protection	Electronically protected against overload, no-load and short-circuits	
Over-voltage protection in buffer mode	typ. 32Vdc max. 35Vdc	In case of an internal buffer module defect, a redundant circuit limits the maximum output voltage. Buffering stops and automatically attempts to restart.
Degree of protection	IP 20	EN/IEC 60529
Penetration protection	> 3.5mm	E.g. screws, small parts
Reverse polarity protection	Yes	max. -35V
Input overvoltage protection	Yes	max. 35V, no harm or defect of the unit
Internal input fuse	Not included	

### 20. SAFETY FEATURES

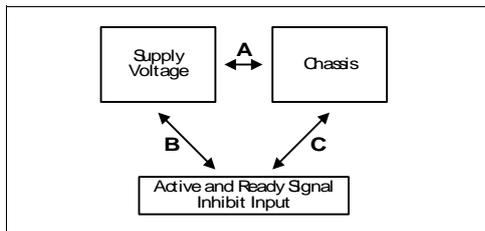
Class of protection	No classification according to IEC 61140 or IEC 60950-1 possible	Install the buffer module according to Class III rules
Isolation resistance	> 500MΩ	Supply voltage to signal port
	> 500MΩ	Supply voltage to housing
	> 500MΩ	Signal port to housing
Chassis ground terminal resistance	< 0.10Ω	Between housing and chassis ground terminal

### 21. DIELECTRIC STRENGTH

The signal port (active and ready signal and inhibit input) is floating and separated from the supply voltage.

Type and factory tests are conducted by the manufacturer. Field tests may be conducted in the field using the appropriate test equipment which applies the voltage with a slow ramp (2s up and 2s down). Connect all poles of the power port terminals together as well as all poles of the signal port before conducting the test. When testing, set the cut-off current settings to the value in the table below. The following isolation tests were performed:

Fig. 21-1 Dielectric strength



		A	B	C
Type test	60s	500Vac	500Vac	500Vac
Factory test	5s	500Vac	500Vac	500Vac
Field test	5s	500Vac	500Vac	500Vac
Cut-off current setting		> 1mA	> 1mA	> 1mA

### 22. APPROVED, FULFILLED OR TESTED STANDARDS

UL 508



UL Certificate  
Listed equipment for category NMTR - Industrial Control Equipment  
Applicable for US and Canada  
E-File: E198865

IEC 60950-1



CB Scheme Certificate  
General safety requirements for Information Technology Equipment (ITE)

UL 60950-1



UL Certificate  
Recognized component for category QQQQ - Information Technology Equipment (ITE)  
Applicable for US and Canada  
E-File: E137006

IEC 60068-2-60



Manufacturer's Declaration (Online Document)  
Environmental Tests, Flowing Mixed Gas Corrosion Test  
Test Ke - Method 4  
H2S: 10ppb  
NO2: 200ppb  
Cl2: 10ppb  
SO2: 200ppb  
Test Duration: 3 weeks, which simulates a service life of a 10 years.

ISA-71.04 G3



Manufacturer's Declaration (Online Document)  
Airborne Contaminants Corrosion Test  
Severity Level: G3 Harsh  
H2S: 100ppb  
NOx: 1250ppb  
Cl2: 20ppb  
SO2: 300ppb  
Test Duration: 3 weeks, which simulates a service life 10 years

VDMA 24364



Paint Wetting Impairment Substances Test (or LABS-Test)  
Tested for Zone 2 and test class C1 according to VDMA 24364-C1-L/W for solvents and water-based paints

### 23. REGULATORY PRODUCT COMPLIANCE

EU Declaration of Conformity



The CE mark indicates conformance with the  
- EMC directive  
- RoHS directive

REACH Regulation (EU)



Manufacturer's Declaration  
EU regulation regarding the Registration, Evaluation, Authorisation and  
Restriction of Chemicals (REACH) fulfilled.  
EU Regulation (EC) 1907/2006.

WEEE Regulation



Manufacturer's Declaration  
EU Regulation on Waste Electrical and Electronic Equipment  
Registered as business to business (B2B) products.  
EU Regulation 2012/19/EU

KC



KC Korean Certification  
Korean - Registration of Broadcasting and Communication Equipment  
Registered under Clause3, Article 58-2 of Radio Waves Act.  
Registration No. R-R-PUG-UF20\_241.

UKCA



UKCA Declaration of Conformity  
Trade conformity assessment for England, Scotland and Wales  
The UKCA mark indicates conformity with the UK Statutory  
Instruments  
2016 No.1091,  
2012 No.3032

EAC



EAC Certificate  
EAC EurAsian Conformity - Registration Russia, Kazakhstan and Belarus  
8504408200, 8504409000

### 24. PHYSICAL DIMENSIONS AND WEIGHT

Width	64mm
Height	124mm
Depth	102mm The DIN rail depth must be added to the unit depth to calculate the total required installation depth.
Weight	740g
DIN rail	Use 35mm DIN rails according to EN 60715 or EN 50022 with a height of 7.5 or 15mm.
Housing material	Body: Aluminium alloy Cover: Zinc-plated steel
Installation clearances	See chapter 2

Fig. 24-1 Front view

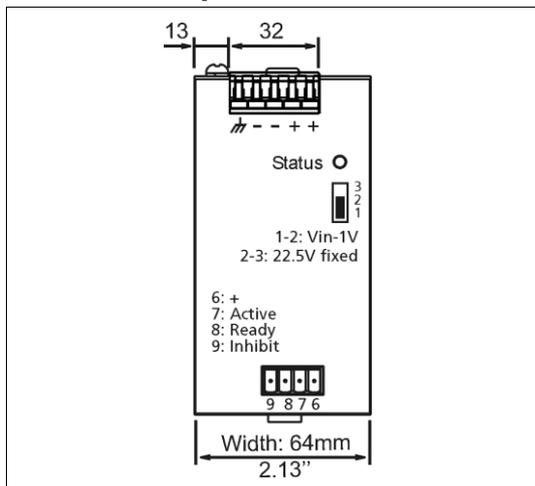
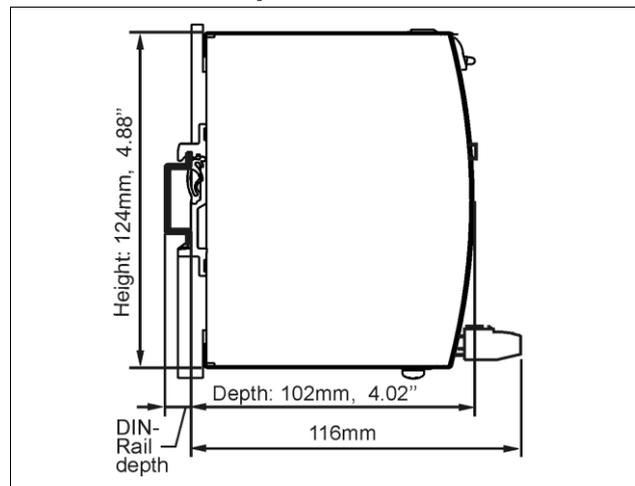


Fig. 24-2 Side view



### 25. ACCESSORIES

#### 25.1. ZM1.WALL - WALL MOUNTING BRACKET



This bracket is used to mount the buffer module on a wall without utilizing a DIN rail.

The two aluminum brackets and the black plastic slider of the unit have to be detached, so that the steel brackets can be mounted.

Fig. 25-1 Wall mounting

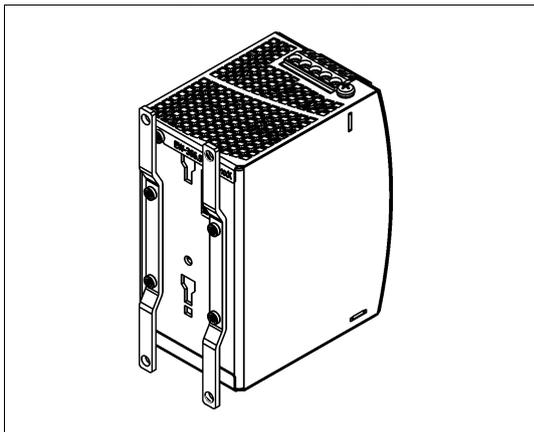
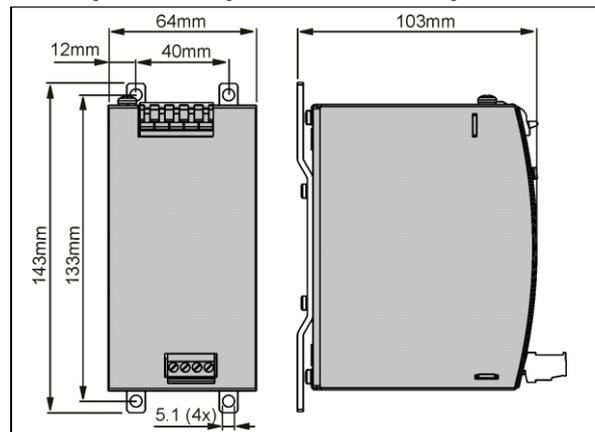


Fig. 25-2 Mounting Dimensions - Wall mounting bracket



### 25.2. ZM14.SIDE - SIDE MOUNTING BRACKET



This bracket is used to mount the buffer module sideways with or without utilizing a DIN rail.

The two aluminum brackets and the black plastic slider of the unit have to be detached, so that the steel brackets can be mounted.

For sideways DIN rail mounting, the removed aluminum brackets and the black plastic slider need to be mounted on the steel bracket.

Fig. 25-3  
Side mounting without DIN rail brackets

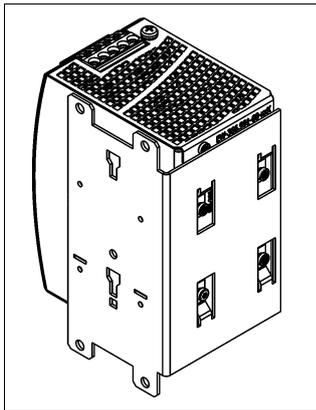


Fig. 25-4  
Side mounting with DIN rail brackets

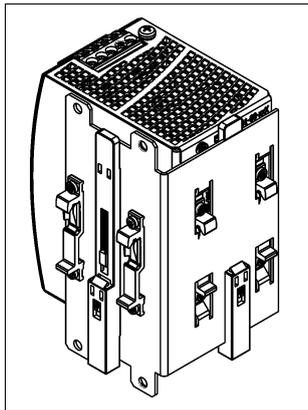
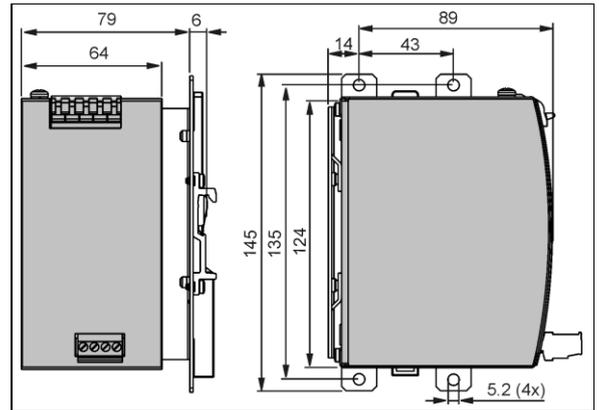


Fig. 25-5  
Mounting Dimensions  
Side mounting bracket



### 26. WIRING DIAGRAMS

Fig. 26-1 General wiring diagram

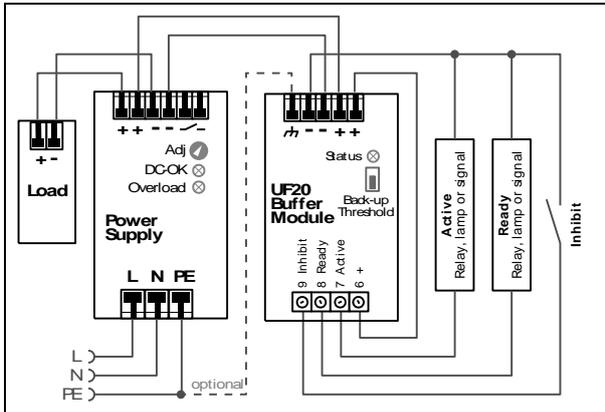


Fig. 26-2 Signals supplied from an external voltage source

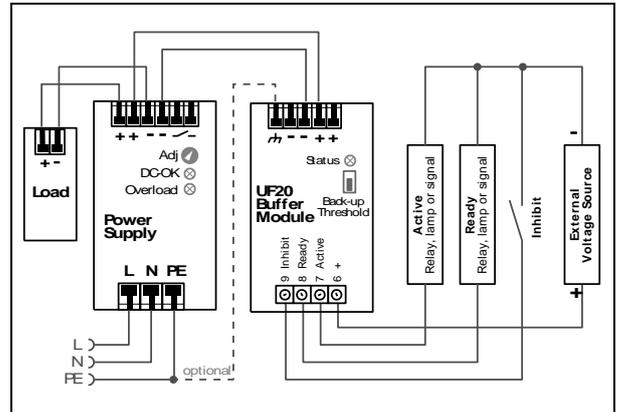


Fig. 26-3 Paralleling of buffer modules

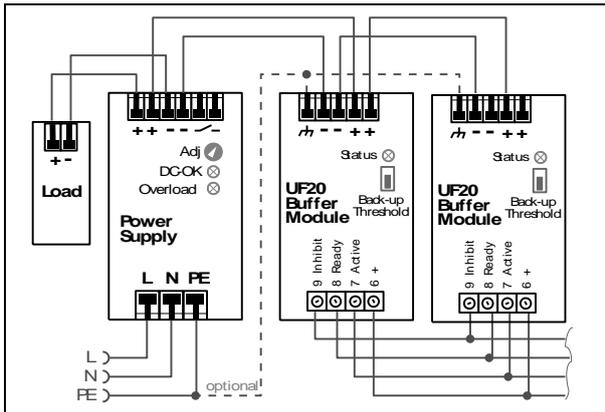


Fig. 26-4 Decoupling of buffered branches

