

### Generally

Unipower DSU d382 is a display/programming unit for the universal measuring/control unit APM382. The DSU has no measuring circuit and cannot be used without the APM382.

The d382 is meant as a supplement for the APM382 if it is required to have the power measurements and the control status displayed or if programming of the APM382 needs to be done from the front of the control panel without the otherwise necessary connection to a PC.

When using an APM382 together with a DSU d382 no high voltage is present in the front of the control panel, so in this way possible future requirements are already met.



### Features

#### Programming/Display

Setting up the d382 (APM382) is done using three keys on the front; The 'Mode'-key is used to select one of the variables/parameters and the arrow keys are used to change the value of the selected parameter. Pressing the 'Reset'-key returns to displaying kW%.

Per default the parameters are protected against programming. To unlock this protection, select 'Locked' and change 'On' to 'Off' using the arrow keys. Now all parameters are open for change. If no key has been activated for 1 minute the Lock is reactivated.

When a parameter is changed the new value is send to the APM382 after pressing the 'Mode'-key or automatically returning to displaying kW% again. To make sure that this new value is transferred and received correctly, the d382 asks for a confirmation and displays 'E r r' if the parameter is not as expected. So if no error appears in the display the user may be sure that the parameter has been programmed correctly.

If no connection to the APM382 is present, the display will show '----'.

#### Indicators

A number of LED's indicate to the user the status of the APM382:

- Ts Lit when Ts is active.
- Tr Lit together with the limit for which Tr is active.
- Limit 1 Lit when Tr for limit 1 is active. Blinking during alarm.
- Limit 2 Lit when Tr for limit 2 is active. Blinking during alarm.
- dP/dt Blinking when a dP/dt alarm has occurred.
- dU/dt Lit when dU/dt is detected (Indicates fluctuating mains)
- Output1 Lit when output 1 is on, otherwise not lit
- Output2 Lit when output 2 is on, otherwise not lit

#### Peak detectors

After expiration of Ts the peak detectors are set to the actual measurement. From this point on the peak detectors are updated every 20ms. The value of the two peaks - max and min may be displayed in the kW% display mode using the arrow keys:

- Key Up Display the max peak.
- Key Down Display the min peak.

### Technical Specifications

#### Mechanical

Housing:	Noryl
Mounting:	Panel mounting
	Cut-out: 68 x 68 mm
IP class:	IP54
Temp.:	-15 to +50 °C
Weight:	150g (d382-DAQ 170g)
Dimens.:	D 70 x W 72 x H 72 mm

#### Electrical

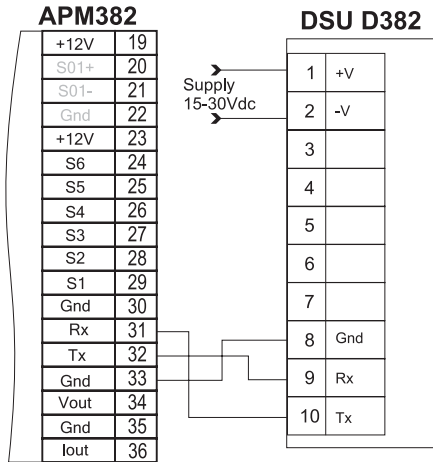
Supply:	15 - 30 Vdc
Consumption:	<1VA
Serial output:	RS232C
	9.6 kbaud -> APM382
	57.6 kbaud -> PC (DAQ)
Storage:	1 mill. measurements (DAQ)
CE mark:	EN61326-1

# DSU d382

## Parameters

The majority of the settings are found and altered in a parameter list. To access this list use the 'Mode'-key to light up the 'Parameter' LED resulting in the display showing 'P00'. Use the arrow keys to select the desired parameter number (see list below) and press 'Mode'. Now the current value of the parameter is displayed and may be altered with the arrow keys. Remember to unlock the programming protection. To send the new value to the APM382 press the 'Mode'-key and the unit returns to the parameter list. If required select a new parameter as described or return to showing kW% by pressing the 'Reset'-key.

### Typical connection



## Parameter list

Nr.	Parameter	Description	Range
	Locked	Software lock to prevent accidental change of parameters	On, Off
	Ts	Start timer	0.00 - 999.9 s
	Tr(1)	Respons timer for limit 1	0.00 - 999.9 s
	Tr(2)	Respons timer for limit 2	0.00 - 999.9 s
	Setpoint 1	Setpoint for limit 1	5 - 99 %
	Setpoint 2	Setpoint for limit 2	5 - 99 %
	Setpoint dP/dt	Setpoint for dP/dt limit (if enabled)	2 - 50 %
	Setpoint dU/dt	Setpoint for dU/dt (if dP/dt is enabled)	Off, 1 - 20%
1	Limit 1	Type of limit for limit 1	Off, 1=Min, 2=Max
2	Limit 2	Type of limit for limit 2	Off, 1=Min, 2=Max
3	Limit dP/dt	Type of limit for dP/dt	Off, 1=+, 2=±dP/dt
4	Auto reset(1)	Auto Reset for limit 1	On, Off
5	Auto reset(2)	Auto Reset for limit 2	On, Off
6	Hysteresis(1)	Hysteresis for limit 1 (If Auto reset is enabled)	2 - 50 %
7	Hysteresis(2)	Hysteresis for limit 2 (If Auto reset is enabled)	2 - 50 %
8	Auto Shut Down	If On - No alarm is given when motor is shut down	On, Off
9	P1Max	Upper range for zoom function	25 - 100 %
10	P1Min	Lower range for zoom function	0 - 75 %
11	Output polarity	Polarity of the two digital outputs (alarm outputs)	n.in, inv
12	lout	Analogue output	0-20mA, 4-20mA
13	lout polarity	Polarity of the analogue output	normal, inverted
14	Filter	Selected digital filter on lout	Off, 3s, 6s, 10s
15	Timers range	Range of the start- and respons timers	100s, 1000s

## Extended version - DSU d382-DAQ

The DSU d382-DAQ is an extended version of the d382 with a built-in Data Acquisition facility. All features of the d382 is also present in the d382-DAQ. This part of the data sheet deals with the additions necessary for acquiring data.

### Data Acquisition

Acquiring data may be done manually, automatically with a trigger function or permanently. If activated manually (P16) the data acquisition is not reactivated after a power down of the d382-daq. To achieve this the Restart DAQ - parameter (P20) must be enabled. The trigger may be set as a min- or a max-limit (P18) in which case the data acquisition is started if the measurement drops below the trigger level or exceeds the trigger level respectively. The trigger level is also programmable (P19). The rate at which the measurements are sampled may be set from 20ms to 1 second (P17) - see table. When the memory is full, the oldest measurements will be erased and replaced by the current measurements.

An LED indicates to the user the status of the data acquisition. The 'Aux' is lit when the data acquisition is active and blinking if the trigger is enabled but the acquisition not yet active.

### Transferring Data

The acquired data may be transferred to a PC with the Unipower Data Acquisition software UniDAQ. Please visit our website [www.unipower.dk](http://www.unipower.dk) for download of the software and manual. Connecting the d382-DAQ to a PC is done with a standard straight RS232 cable (SUBD-9 male/female). The d382-DAQ is set up to communicate with the PC via parameter P21, which must be set to 'PC'. If the display shows '----' only this parameter may be altered.

## Parameter list

Nr.	Parameter	Description	Range
16	Start DAQ	Activate DAQ manually	On, Off
17	Sample rate	Sample rate for data acquisition	20, 50, 100, 200 500, 1000ms
18	Trigger	Trigger function for DAQ	Off, 1=Min, 2=Max
19	Trigger level	Level for trigger (Max or Min)	5 - 99 %
20	Restart DAQ	Restarts DAQ after power off	No, Yes
21	Connect to PC	Switch communication speed	PC, Unit
22	Erase Flash	Erase all data in the flash memory	Data, Del

### Typical connection

