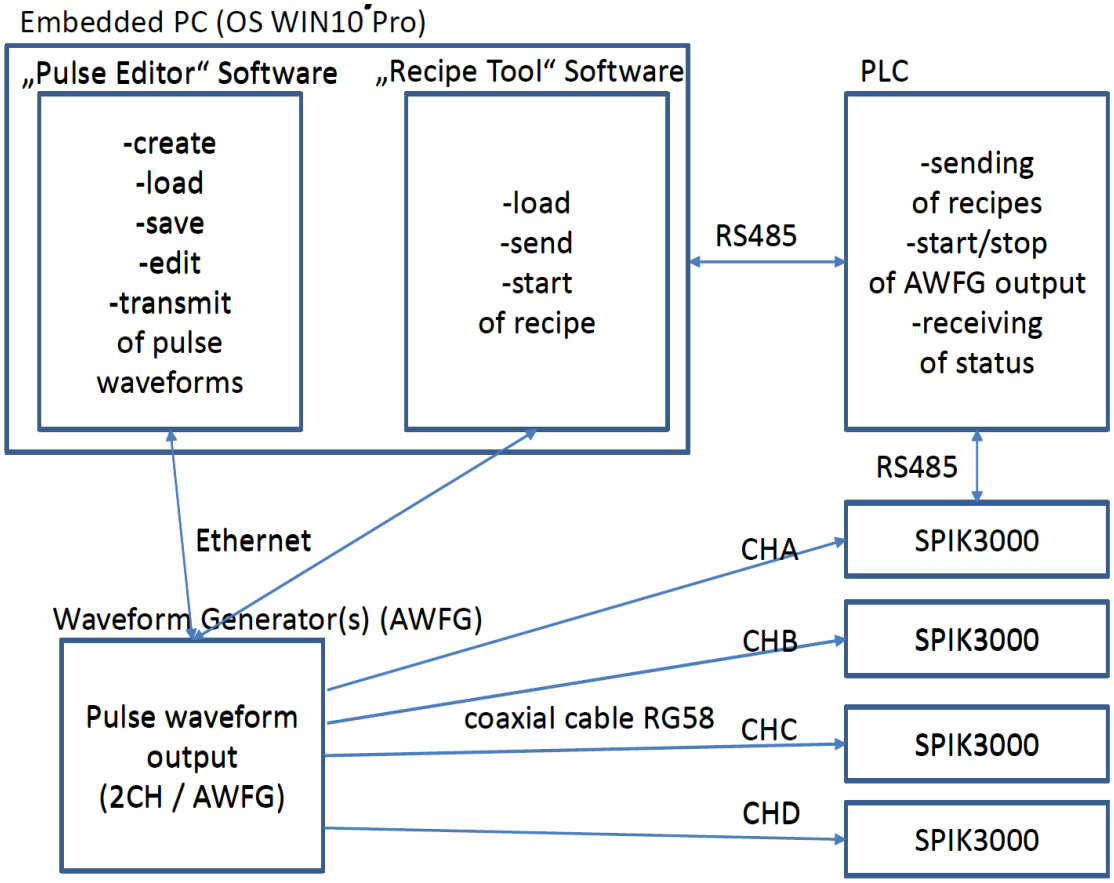
Process Synchronisation

SYNC-2 / SYNC-4 / SYNC-6 / SYNC-8

Model	SYNC-2	SYNC-4	SYNC-6	SYNC-8
Signal Generator				
Number of Signal Generators	1	2	3	4
Channel / Signal Generator	2			
Number of Channels	2	4	6	8
Bandwith	20 MHz			
Waveform length	1MSa per channel			
max. wfm period	100ms (1.6 s with optional memory upgrade)			
Output Isolation	Connector shells for channel output(s), Sync, and Mod In are connected together but isolated from the instrument's chassis. Maximum allowable voltage on isolated connector shells is ±42 Vpk			
Output impedance (nom)	50 Ω			
Amplitude	10VPP			
Computer interfaces				
LXI- C (rev1.3)	10/100Base-T Ethernet (Sockets & VXI-11 protocol)			
Graphical display	4.3" Color TFT WQVGA (480x272) with LED backlight			
Mechanical				
Size / SigGen	212.8mm W x 88.3mm H x 272.3mm D 2U x 1/2 rack width			
Weight (nom) / SigGen	3.3 kg (7.2 lbs)			
Environmental				
Storage temperature	-40˚C to 70˚C			
Warm-up time	1 hour			

Operating environment	EN61010, polution degree 2; indoor locations
Operating temperature	0˚C to 55˚C
Operating humidity	5% to 80% RH, non-condensing
Operating altitude	up to 3000 meters
Regulatory	
Safety	Complies with European Low Voltage Directive and carries the CE-marking. Conforms to UL 61010-1, CSA C22.2 61010-1, and IEC 61010-1:2001
EMC	Complies with European EMC Directive for test and measurement products. - IEC/EN 61326-1 - CISPR Pub 11 Group 1, class A - AS/NZS CISPR 11 - ICES/NMB-001 Complies with Australian standard and carries C-Tick mark This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme a la norme NMB-001 du Canada
Line power	
Voltage	100 V - 240 V 50/60 Hz -5%, +10%
Power consumption (typ) / SigGen	< 45 W, < 130 VA
Embedded PC	
CPU	Intel® Core™ i3-6100U DC 2,3 GHz
RAM	2 x DDR4 (8GB)
SSD	120 GB 2.5" SATA-6G SSD, Wide Temp
Grafics	1 x VGA, 1 x DVI-D
USB	4 x USB 3.0, 1 x USB 2.0
Seriell (UART)	6 x RS-232/422/485
Ethernet	1 x Intel® I219LM GLAN, 1 x Intel® I210AT GLAN
Expansion Slot	1 x PCIe (max. 210 mm)
OS	Microsoft® Windows® 10 Pro 64bit
Operating temperature	0˚C to 55˚C
Storage temperature	-40˚C to 70˚C
Size	254,5 x 220 x 72 mm
Weight (nom)	3.2 kg (7.05 lbs)
Line power	
Voltage	9 bis 48 V DC
Power consumption (typ)	60W

System Overview



Software

Two pieces of Software enable the control of the hardware. The Software is written for Windows x86/x64 Operating Systems (WinXp/Win7/Win10).

Pulse Editor

Application which enables the creation, loading, saving, editing, viewing and transmission of pulse sequences. This software will run on normal workstations (Windows 10).

These pulse sequences can be created for up to 6 channels (A, B, C, D, E, F, G, H). Channel A is generally assumed to be the "master" and the remaining channels, hereinafter referred to as "slaves", are defined relative to this channel.

The aim for the pulse sequences created will be up to three arbitrary waveform generator (s) (AWFG) from the Keysight 33500B series. A transfer via Ethernet interface to the device or an export in a format that is readable by the device is part of the application. The exported files are also the basic dataset for the Recipe tool.

Recipe Tool

The Recipe Tool is an additional software which connects to a PLC via a UART (RS485) interface and receives commands.
The application loads pulse configurations exported from the “pulse editor” software from a selectable directory.

After initialization of the application, it waits for commands from the PLC which is expected in the form of the index of the pulse pattern to be written to AWFG.

Starting and stopping the pulse output of the AWFG is done via a serial command from the PLC to the recipe tool.

Hardware

Embedded PC

The recipe tool application will run on an industrial PC in a small form factor. This will communicate with the PLC using a UART interface (RS485). The PC will have a suitable interface for communication with the pulse output hardware (AWFG).

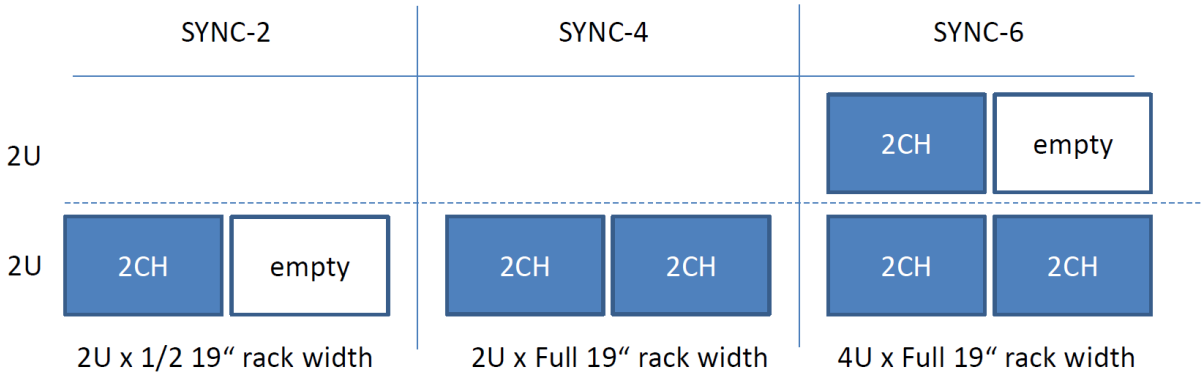
Mounting

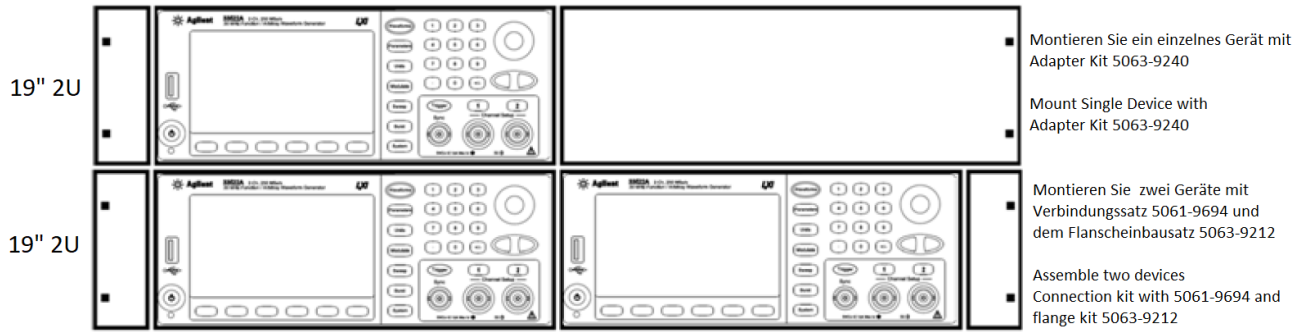
Din Rail mounting.

Signal Generator(s) (AWFG)

AWFGs from the Keysight 33500B series are used to output the pulses, whereby an AWFG can have a maximum of two channels. To implement two/four / six channel systems, several AWFGs are operated synchronized.

Mounting





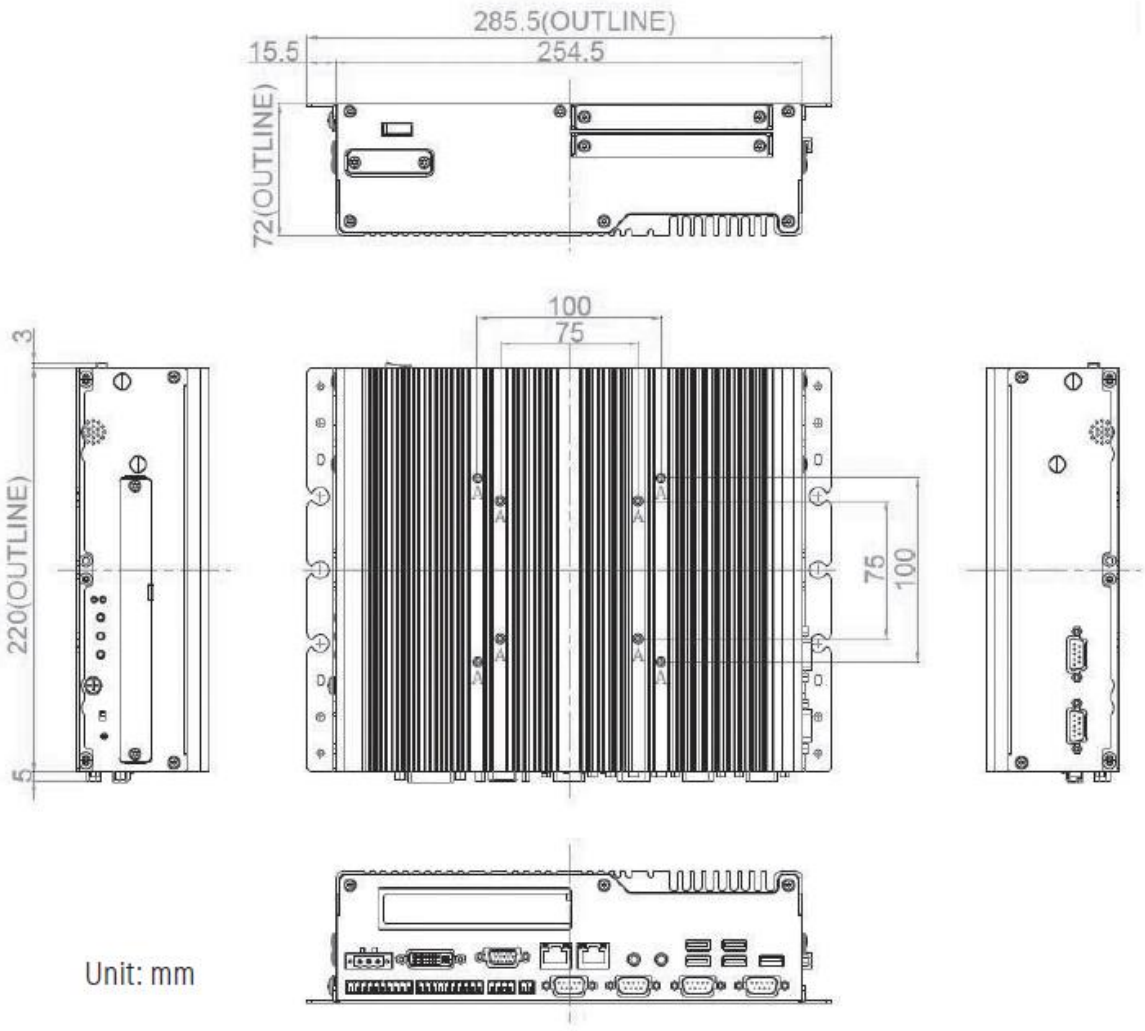


Figure 1: Embedded PC

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