

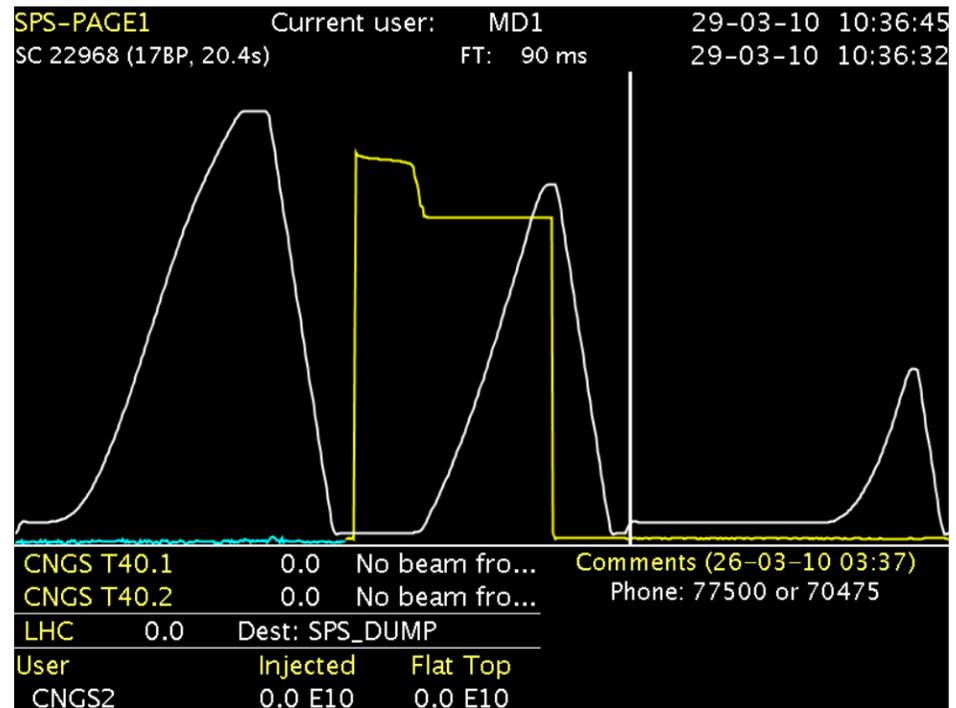
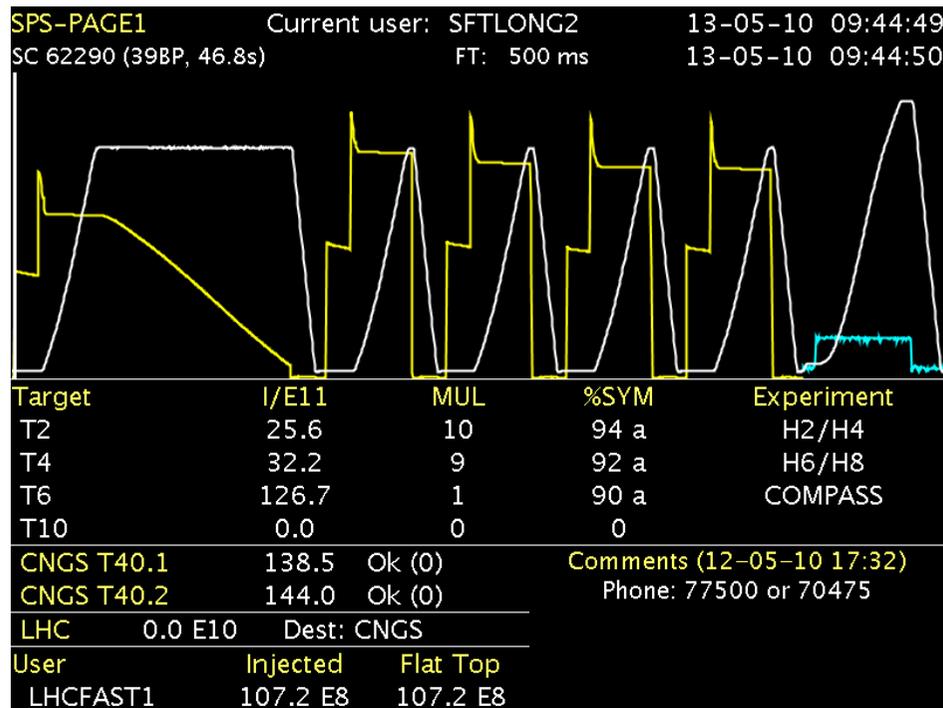
Manual: SPS Page-1

How to read the SPS Page-1

The SPS Page 1 can be found in four ways:

- On the CERN cable television network (CATV)
The CATV network is available around various places at CERN: the experimental barracks, control rooms, offices, restaurants etc.).
- As a JAVA application on a computer connected to the technical network.
- On the CERN Beams website: [SPS Page-1 link](#)
- Via a network video stream (availability subject to local network setup).
- On the CERN main internet webpage (<http://user.web.cern.ch/user/AcceleratorServices/Machines/Machines.html>)

At typical SPS Page-1 could look like the following snapshots:



SPS Page-1: The two curves

Overlaid with the alphanumeric information there are two curves. One represents the magnet cycle, the other the instantaneous intensity in the machine. A moving vertical line shows the present time within the cycle.

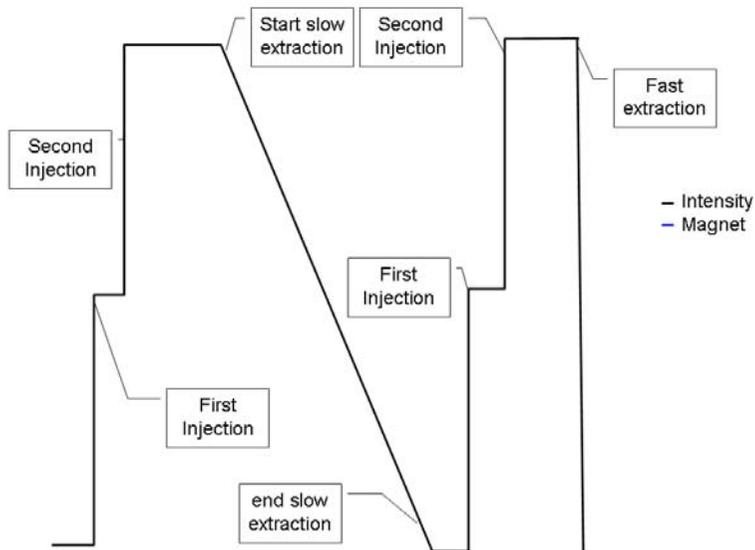
The white curve indicates the magnetic pulse in which we've defined four stages:

- Flat bottom : Particles are injected in the SPS with low energy;
- Ramp up : Particles are accelerated)
- Flat top : in this stage the particles are extracted)
- Ramp down : remaining particles at the end of the Flat Top are dumped and the SPS magnetic cycle returns to the Flat bottom)

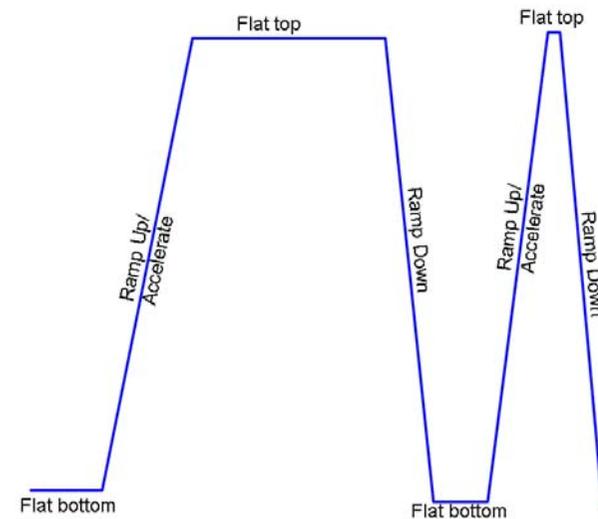
The Yellow or Purple curves are indicating the intensity of particles in the SPS machine. Yellow and purple are used to indicate a scale:

- Yellow: High intensity beam measured with BCT3 (Beam Current Transformer)
- Purple: Low intensity beam measured with BCT4

All these signals do not have absolute scales. This depends on the cycle been played and on the SPS operator.



Particle Intensity



Magnetic Pulse

SPS Page-1: What do the text indicators on the SPS Page-1 mean? (1-2)

Indicator	What does it mean or indicate?
Current user	Indicates which cycle is currently running in the SPS
SC(xxBP, xx,xs)	Super Cycle: Indicates the total amount of Super Cycles (this value resets it self to 0 every 65000 SC's). In between the brackets you'll find the total amount of Basic Periods (BP) and the total length of the Super Cycle in seconds. 1 BP= 1x1.2 seconds (E.g. 28 BP= 28x 1.2 = 33.6 seconds.)
I/E11	Intensity: The number of protons sent towards the primary target in units of 10 ¹¹ protons per spill. The desired intensity per target is defined by the SPS coordinator and indicated on the SPS schedule.
MUL	Multiplicity: The ratio between the numbers of charged particles detected upstream of the target (= Intensity) and by a detector downstream of the target. This ratio depends on the length of the target, on the acceptance of the downstream detector and on calibration factors for the monitors. A multiplicity of ~ 1 implies that the beam misses the target. Mostly long targets are used and typical multiplicities should be between 10 and 20.
%SYM	Symmetry: The steering on the primary targets is done by the SPS operations team. Good steering implies symmetry better than 80% including the 'a' The position of the beam at the target is monitored by a system of split foils, called TBIU, inside the target box. From the relative difference between left and right and between top and bottom, symmetries are calculated for the horizontal (SH) and vertical (SV) steering, respectively. The overall symmetry is shown in percent. For targets T2, T4, T6 the definition of symmetry has been generalized to include the angular steering in the symmetry. The angular steering is included in the symmetry only if an 'a' is shown in front of the symmetry. If the 'a' does not appear, the simple type of symmetry (without angle) is provided. More information about the Symmetry you can find in page: SPS Page-1 Symmetry
Experiment	Indicates which experiment is using the indicated target
User	Indication of the user
Injected	Intensity of beam in the SPS after the First Injection

SPS Page-1: What do the text indicators on the SPS Page-1 mean? (2-2)

Indicator	What does it mean or indicate?
Flat Top	Intensity of beam in the SPS at the Flat TOP (400GeV)
Target	Target indication: the SPS North area fixed target physics is having 4 targets: T2 - North Area target for beam lines H2 and H4 of the SPS North Experimental Area T4 - North Area target for beam lines H6, H8 and P4 of the SPS North Experimental Area T6 - North Area target for beam lines P6 and M2 of the SPS North Experimental Area T10 - North Area target for beam line K12 of the SPS North Experimental Area T40 - CNGS Target which is shown as T40.1 and T40.2 to separate the two extractions (50ms difference between the two extractions).
Comments	SPS operator comments about the status of the SPS