
SWISS TIMING Service catalogue

FIS Cross Country World Cup 2021/22

1. Equipment

Timing System Cross Country

- 4 start time displays
 - 6 start gates (sprint)
 - 1 electronic start gun (eGUN) for Sprint Finals and Mass Start Races
 - 1 start gate (single start)
 - Timing equipment for below mentioned intermediate times and pre-timings
- Following features are available for each intermediate timing point
- transponder-based timing system
 - transmission electronics unit
 - Intercom speaker connection

The setup is as follows

- | | |
|---|---|
| Individual races | <ul style="list-style-type: none">• 4 intermediate timing points and 4 pre-timing points• 1 finish timing point incl. pre-timing point |
| Mass start / relay | <ul style="list-style-type: none">• 8 intermediate timing points• 1 finish timing point |
| Sprint Qualification /
Sprint Finals | <ul style="list-style-type: none">• 1 intermediate timing point or 1 speed measurement |

- 220 pairs of active transponders
- Double light beams and two independently and parallel working timing units for the finish time record
- HD video replay system for the finish
- 2 photo finish cameras (resolution: 1/1000sec)
- Online interface to the data distributor

Data Service Cross Country

- Data distributor
- Online interfaces to timing system, scoreboard, TV graphics system and commentator information system
- Real time interface to live results of the FIS homepage (XML interface)
- Results PC with laser printer to produce all lists required by the FIS (in English)
- Video wall control PC
 - displays the result of an athlete including current ranking and time behind the leading athlete
 - Start list and total results lists
- Draw software incl. notebook
- HD Replay system with notebook to record the TV program and start camera as well as finish camera simultaneously
- FIS Jury Tool to add jury decisions in the OVR / data system

SWISS TIMING Service catalogue

FIS World Cup Cross Country 2021/22

HD/SD TV Graphics System

For the production of online TV graphics for the world feed (in English)

- Start lists, intermediate and final results
- FIS World Cup ranking, special results (i.e. different scoring)
- Intermediate times, time behind and rankings at intermediate timing points
- Current athlete in comparison to reference athlete
- Other languages upon request
- Track profiles (if FIS provides necessary data files)
- GPS Information if additionally requested by FIS

Media Information System (MIS) with 16 terminals

(Tour de Ski additional 10 MIS)

Following information is displayed:

- General competition information (delays, rescheduling, cancellations)
- Start lists, intermediate results, final results
- World Cup standings, biographies
- Historical data of current season
- Intermediate times, time behind and rankings at intermediate timing points
- GPS Information if additionally requested by FIS

Locations:

- 1 terminal at the Competition Management / Jury
- 1 terminal for the announcer
- 2 terminals at the OB van location
- 3 terminals at the finish / coaches area
- 9 terminals for commentators (Tour des Ski about 10 additional (MIS))

All MIS terminals are assigned only to above locations. Please contact us if you wish to use them at different locations.

2. Staff

- Up to 8 sports experts for Cross Country World Cup

3. Obligations of the organizer

The organizer shall provide the following:

Board, Lodging, Transport, Accreditation

The accommodation of the FIS service team has to be arranged in the same hotel as the FIS Jury / Competition Management. Accommodation in a different hotel has to be confirmed by SWISS TIMING.

- Accommodation (single rooms, international standard) with full board for all staff members. If required, lunch has to be provided at the venue.
- Accommodation for a separate pre installation team (5 persons), if the FIS calendar (Tour de Ski) requires this (SWISS TIMING will inform the organizers on time)
- On site shuttle service for all staff members on request
- 3 parking permits close to SWISS TIMING working space in the Cross Country stadium

SWISS TIMING Service catalogue

FIS Cross Country World Cup 2021/22

Volunteers

4 volunteers are required for transport purposes, setup and dismantling and 15 volunteers are required to support the backup timing. Date and time of their availability will be submitted by SWISS TIMING prior to the event. If not informed otherwise, the following items need to be considered:

- Support by 4 volunteers for 3 hours each on the first installation day (2 days before the first race) and the dismantling day (about 1 hour after the last competitor).
- Up to 15 volunteers to support the timing. They should have some computer knowledge (1 starter, 2 for the transponder distribution, 2 for the transponder return,
- Manual backup
up to 10 for the manual backup – depending on the number of intermediate timing points)
no volunteers needed for Mass Start and Pursuit races

Skidoos/Equipment Transportation to the intermediates

- Daily provision of transportation (including driver or permission to drive) for the setup of the intermediate timing points on setup days and competitions days
- The transportation vehicle needs to be available at least 2 hours prior to the event start
- Permission to access the course on competition days in coordination with the FIS

Modem and telephone connection

The FIS World Cup organizer shall provide a separate and wired DSL connection (or LAN) in the data centre Cross Country and in the requested container. The internet (4 Mbit/s) needs to be available from the arrival day on.

In addition to that, an internet connection (4 Mbit/s) has to be available on the working table at the location of the team captain's meeting in order to be able to email start lists.

Radio Frequencies

The FIS World Cup organizer shall provide exclusive radio frequencies for the duration of the world cup event.

- For the competition week: valid permission for the use of wireless frequencies for on-site transmission -> tuning range (833 MHz - 928 MHz); requested frequency (874.0000, 879.0000); bandwidth (1 MHz); output power ERP (0.5W); antenna (2dBi); antenna over ground (2m); reason: collecting real time wind data; connection: ground - ground; number of devices: 10; Manufacturer: ANSolution ANY900 STIN
- For the competition week: valid permission for the use of radio frequencies: 160,090 MHz; 160,110 MHz; 160,130 MHz
- Following frequencies are used to do the transponder timing. The LOC needs to take care of an interference free use of these frequencies: 7kHz @125kHz, ERP <-30 (<0dBm/m @10m), Power <100 mW
- Following frequencies are used to do the transponder timing. The LOC needs to take care of an interference free use of these frequencies: 420 kHz @6.78MHz, <-30 (<0dBm/m @10m), Power <100 mW

SWISS TIMING Service catalogue

FIS World Cup Cross Country 2021/22

4. Technical Requirements

We advise the organizer to provide the required installations in conformity with international working safety standards. This includes access paths by stairs, climbing ropes, mountings etc.

The local organizer shall be responsible for the provision of the following:

Container

- Office container in the TV Compound on request, max. distance to the OB Van 20m
- Heated/air-conditioned and even with ground
- Minimum Dimensions: Length x Width x Height - 6m x 2.4m x 2.5m
- Main power supply (3x 220V, 16 A, separately fused); official technical power which is used by TV
- 6 meters of table working space and a minimum of 5 chairs

Location of the team captains meeting

- Working space of 2x1m including table and chair as well as power supply and internet (4Mbit/s)

Timing Centre Cross Country

- Main power supply (220V, 16 A, separately fused)
- Heated room (at least 9 x 3 m or standard office container 9 x 3 m) with three desks each of 4 x 1 m in order to place the timing equipment. Facility needs to have view to the finish
- Provision of 3x2 wire CAT.3 (up to 16MHz) or better. UTP (unshielded twisted pair) min. 10 twists/m (CAT3) or better ((CAT 5)~50 twists/m) diameter/ cross section: min. AWG 22, (0,6mm/0,34qmm) 55 Ohm/km or AWG 20 (0,8/0,5qmm) 34 Ohm/km
- Alternatively 3 pairs single mode fibre cable/ multimode fibre cable; the line needs to be operational upon arrival of the SWISS TIMING service team.
- For pre-timing and sprint qualification intermediates SIM cards with data balance could be provided instead of twisted cable connection – SWISS TIMING Project Management needs to be informed 2 weeks in advance

If no twisted cable is available to the above mentioned locations alternatively data transmission from pre-timing to the Timing room will be realized with LTE Cellphone network. Therefore the above mentioned SIM cards are needed Following service needs to be activated local mobile data SIM cards with gprs data transfer enabled (around 30Mbit/s Data transfer)
This solution is working under GPRS (*General Packet Radio Service*) the total amount of data wouldn't exceed 300MB.

Equipment storage room

- Power supply (220 V, 16 A, separately fused)
- Heated room (at least 8 x 3 m or standard Euro container)
- Close to the timing centre

Miscellaneous Requirements

- The organizer is responsible for the print distribution service.
- Provision of commentator cabins with power supply (220 V, 16 A)
- The organizer shall ensure that no cables such as high voltage current lines, power supply lines, telephone lines, TV cables, motors of rail-mounted cameras and transformers for TV lights, etc. are laid out or installed out within 7 meters of the finish line and other timing points

SWISS TIMING Service catalogue

FIS Cross Country World Cup 2021/22

- The finishing-line must not be made of metal or contain metal parts
- No TV antennas within 7m of the data centre and the finish line
- If the event is run in the evening, the finish line needs to be lighted appropriately (at least 1000 Lux)
- No loudspeakers should be installed in the immediate proximity of the timing centre
- Barrier or protection fence for timing equipment at the finish line/area; no finish area entrance at the finish line
- For events the timing equipment has to be shipped by flight, provision of 2 chain saws
- Provision of a 32" TV Screen in the Jury room – Screen needs to be equipped with a plug for HDMI or Display Port connection
- The organizer shall provide a separate power circuit (power supply (220V, 16A), at both sides of the finish, the mixed zone, Heat Selection area (Sprint) and start area *
- TV Screen (min. 42inch and HDMI Input) at the finish area for the Sprint Heat Selection; the organizer shall also provide power at this position to connect the TV Screen at these power line
- The following ports must be unblocked at the provided internet connection before arriving of the Team:
 - 1750 livewc.fisssi.com / live.fisssi.com live upload to FIS CC → INBOUND and OUTBOUND
 - 1643 live upload to FIS NC SJ → INBOUND and OUTBOUND
 - 1753 live upload to FIS NC CC → INBOUND and OUTBOUND
 - UPD 500 (IKE) Connection VPN → INBOUND and OUTBOUND
 - UDP 4500 (IPSEC) VPN encryption → INBOUND and OUTBOUND
 - 3306 db.fisssi.com connection to FIS Database → INBOUND and OUTBOUND
 - 11195 connection for MIS → INBOUND and OUTBOUND
 - 80 http / MIS → INBOUND and OUTBOUND
 - 443 https → INBOUND and OUTBOUND
 - 587 secured Mail → OUTBOUND
 - 143 secured Mail → INBOUND
 - UDP 1139 VPN → INBOUND and OUTBOUND

Do not provide IP range of 10.1.0.0 to 10.1.31.255 for internet connection

5. Host Broadcaster Requirements

The local organizer is requested to inform the Host broadcaster about:

- SWISS TIMING graphics working place is located in the SWISS TIMING container in the TV compound close to the OB van or in the timing room at the finish line
- Main power supply for the SWISS TIMING graphics (220V, 16 A, separately fused); same power circuit as the OB van
- Provision of a black burst signal from the OB van to the graphics location
- Provision of 8 HD BNC cables between OB Van and graphics location
- Provision of 1 HD BNC cables between OB Van and graphics location for Photo Finish picture
- Provision of a broadcast feed and the necessary camera pictures to the graphics location
- Installation of an Intercom connection between OB van and the graphics operator in the graphics location
- 3 BNC connections from the OB van required to the Jury room for recording and reviewing purposes of the FIS Jury (HD SDI program output + 2 additional cameras)
- Connection for Riedel Communication System
RIEDEL connection between OB Van and jury room (BNC or optical fiber connection) to connect the Jury with the FIS staff in the OB Van

SWISS TIMING Service catalogue

FIS World Cup Cross Country 2021/22

- undelayed HD SDI program including monitor shall be available in the Cross Country timing room
- Power grounding at rail cams to avoid problems as we had during the last seasons

6. Optional SWISS TIMING Services

Media Information System (MIS)

- Additional MIS terminals are available.
- Additional MIS terminals need to be ordered in writing 1 month prior to the event.
- If more than 10 MIS terminals are ordered, an additional SWISS TIMING technician is necessary.
- **Price:** upon request

World Wide (Internet) Media Information System (wwMIS)

- Additional SWISS TIMING wwMIS logins are available
- Additional wwMIS logins need to be ordered in writing 2 weeks prior to the event
- **Price:** upon request

Display Rental Service

SWISS TIMING provides an optional service for scoreboards of different sizes

- Full-colour LED video board
- **Price:** upon request

Intermediate Timing Points

- Additional intermediate timing points need to be ordered in writing 1 month prior to the event
- If more than 3 additional intermediate timing points are ordered, an additional SWISS TIMING technician is necessary.
- **Price:** upon request

Speed measurement

- Speed measurement points need to be ordered in writing 1 month prior to the event
- If more than 2 speed measurement points are ordered, an additional SWISS TIMING technician is necessary.
- **Price:** upon request

Additional TV graphics feeds

- Additional graphics systems need to be ordered in writing 1 month prior to the event, an additional SWISS TIMING technician is necessary.
- **Price:** upon request

Additional events (school or mass events etc.)

- SWISS TIMING can provide the service for any such events, if the scheduling of the World Cup Calendar allows
- Exact requirements, request for proposal and order have to be communicated to SWISS TIMING at least one month prior to the event.
- **Price:** upon request

7. Annex

Frequencies transponder technology
Drawings of finish setup and intermediate timing points
Graphics Room drawing
Setup overview, OC checklist