



Application Manual

WOUND HEALING

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1. GETTING STARTED

- This manual is intended to help user for the use of Aptiva.
- The information contained herein is to be considered exclusively as suggestions for the treatment of diseases listed below.
- Lorenz Lifetech does not guarantee the therapeutic outcome resulting from the suggestions in this manual, so the therapeutic indications are responsibility of the medical doctor.
- Lorenz Lifetech also recommend the user to verify the consistency of the diagnosis with the specific applicative protocol.
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Recognition of trademarks

- Other product names mentioned herein are the property of their respective owners.

2. APPLICATION PROTOCOLS

The software Aptiva is composed by a series of application protocols divided in:

- **Area of treatment**
 - **Area of Pathology**
 - **Specific pathology diagnosed**



In your Aptiva model may not be present all application protocols listed below.

It is recommended to pay attention to the documents delivered with the equipment in order to identify application protocols inside .

3. EXCLUSION CRITERIA

The following category of patients are excluded from use of FREMS™:

- **Patients with diagnosed malignancy.**
- **Patients with pacemakers, defibrillator or neurostimulator.**
- **Pregnant women.**
- **Patients with known events of convulsion-epilepsy**



4. APPLICATION RULES

- A. **Disposable electrodes, to be chosen according to different and appropriate adhesiveness, must be applied on a portion of healthy tissue, cleansing and not purulent, to ensure good contact between the skin and the electrode. Always check that the contact gel is not dehydrated.**

- B. **Each Treatment sheet shows the directions for the specific treatment of the disease in question, with suggestion of electrodes positioning and the duration of the application cycle.** The illustrations of electrode application are indicative and it's possible to adapt according to the need. In case of inflammation or contracture, e.g., it the red and black electrode application scheme must be maintained but it's possible to move the entire scheme in order to bring the red electrode on the painful area.

- C. Each cycle can be constituted by a minimum of 5 sessions, with a frequency that can vary (two per day, a treatment per day and / or on alternate days).

- D. The application of FREMS™ require a proximal of red electrode (+) (ie closer to the "spinal nerves"), while a distal positioning of black electrode (-), along the course of the nerve (however follow the description of the specific application protocol). **The electrodes should not be placed on prominence bones.**

- E. In case it is necessary to increase the number of sessions, especially if it is a small portion of tissue, it is not advisable to place the electrodes always on the same points, in order to avoid a possible sensitization of skin.

- F. Before starting the procedure, you must verify and ensure that the cables not used are perfectly isolated from each other (the red and black clips must not be in contact with each other).

- G. **To ensure the effectiveness of therapy, it's necessary to regulate the amplitude of the stimulation signal (voltage regulation via remote control) and reach a consistent perception by the patient, without causing muscle fasciculation or pain.** In case patient has a reduced sensitivity (i.e. peripheral neuropathy and similar), the intensity of the stimulation must be stopped from the first muscle fasciculation. In case of absent perception, it is necessary to observe the treated area and check the status of the tissue below the electrode at the end of treatment. A slight reddening of the skin is a sign of correct application.
- H. In case the treatment requires the use of more than one stimulation channel, the general rule is as follows: the impulse runs from channel 1 to channel 4 (where they are present) and is therefore necessary to place the channel 1 proximally with respect to subsequent, up to 4.
- I. In case the application is performed on multiple symmetric zones (i.e. legs, arms), the channel must be placed in a symmetrical way. Example: Output of channel 1 on the course of the tibial right and left leg.
- J. The intensity of the signal generated by each channel could be regulated manually by the operator by the key on the display 'SELECT CHANNEL' and using the remote control or the keys '+ SIZE' and 'WIDTH-', according to point G .

GENERAL RULES IN WOUND HEALING

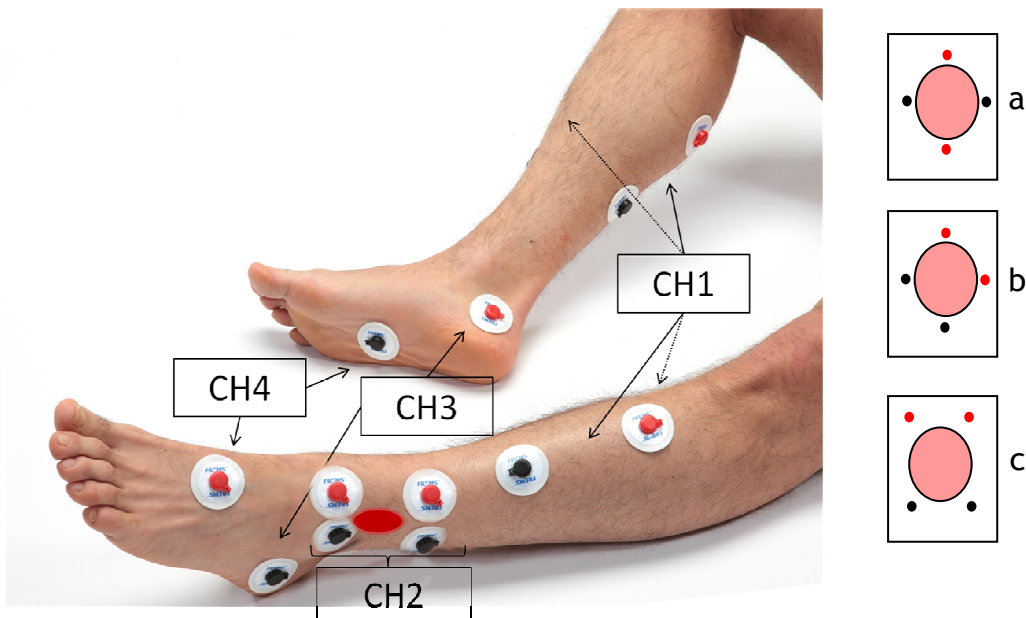
- A. For vascular treatments in general, the electrodes must be placed peripherally to the treatment area.
- B. In case of treatments of restricted area, it is appropriate to apply the electrodes in different position (i.e. rotate the electrodes maintaining the same application scheme) and observing carefully that the tissue below the electrode is intact and clean.

5. WOUND HEALING TREATMENT

5.1 TRAUMATIC ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



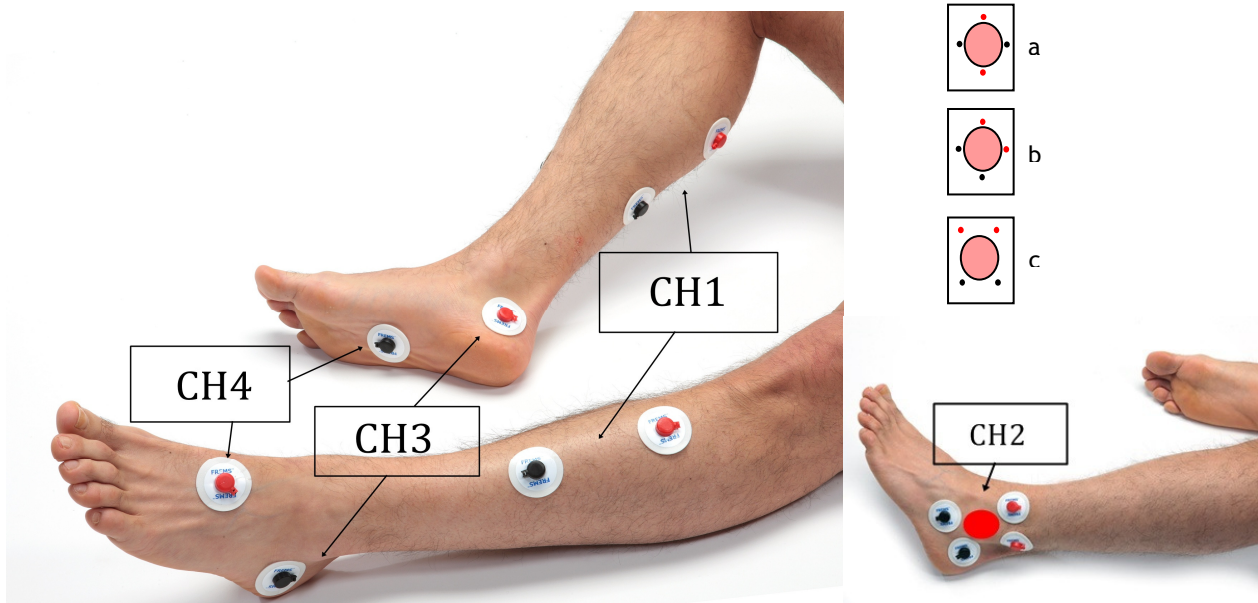
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	31
Total time session (min)	31

5.2 NEUROISCHEMIC ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



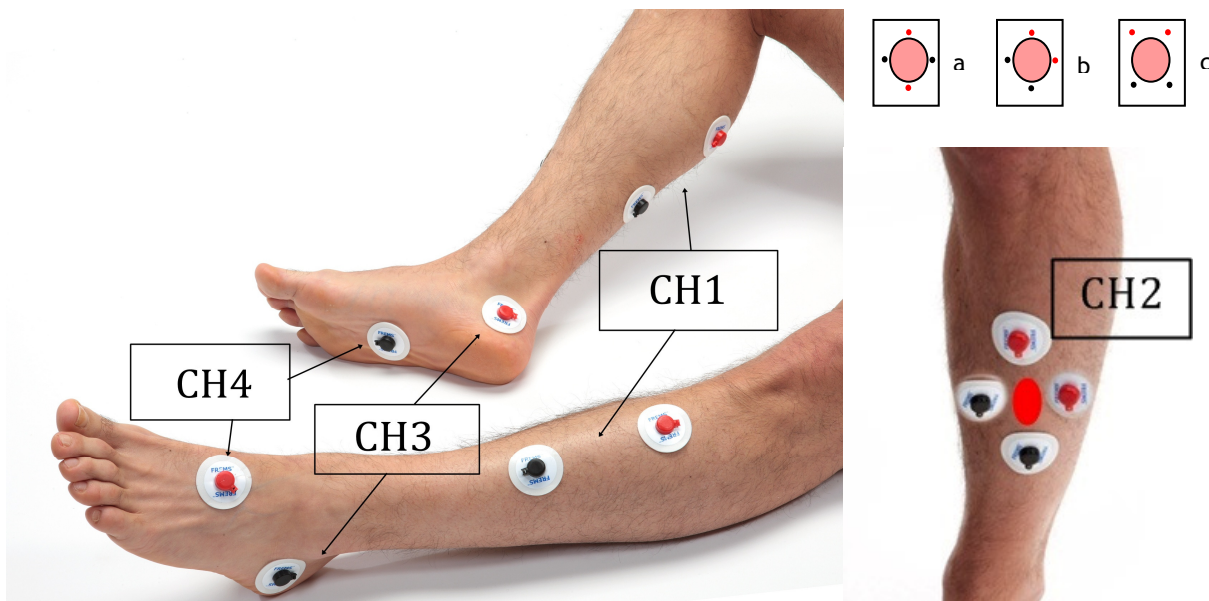
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	20
Phase 2 (min)	10
Total time session (min)	30

5.3 ARTERIAL ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



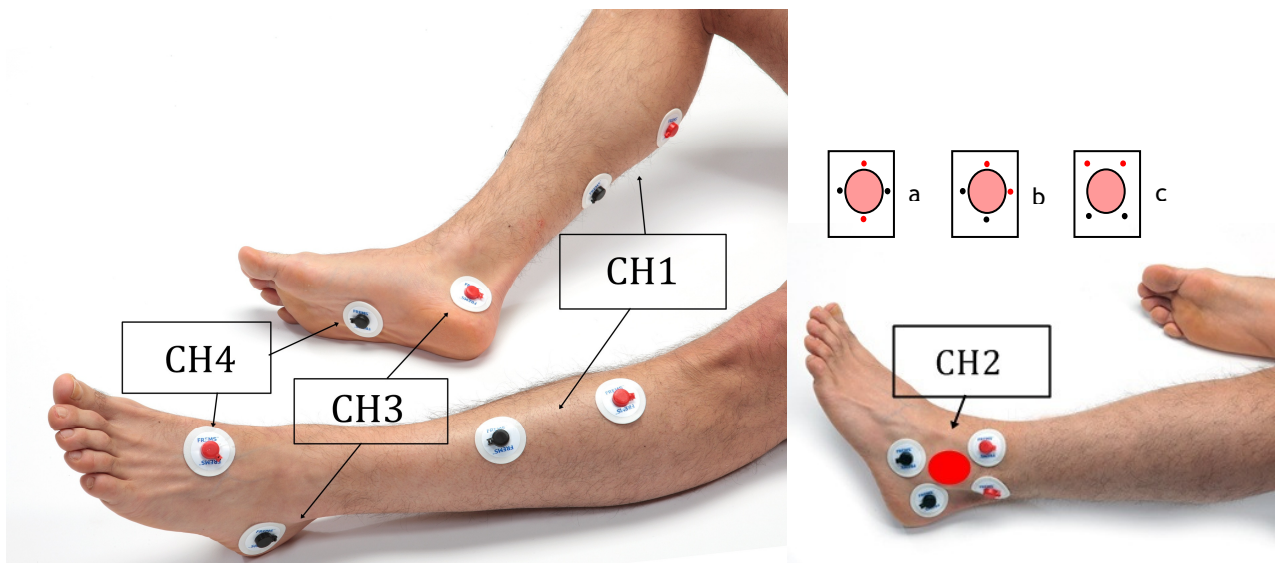
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	25
Phase 2 (min)	10
Total time session (min)	35

5.4 VENOUS ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



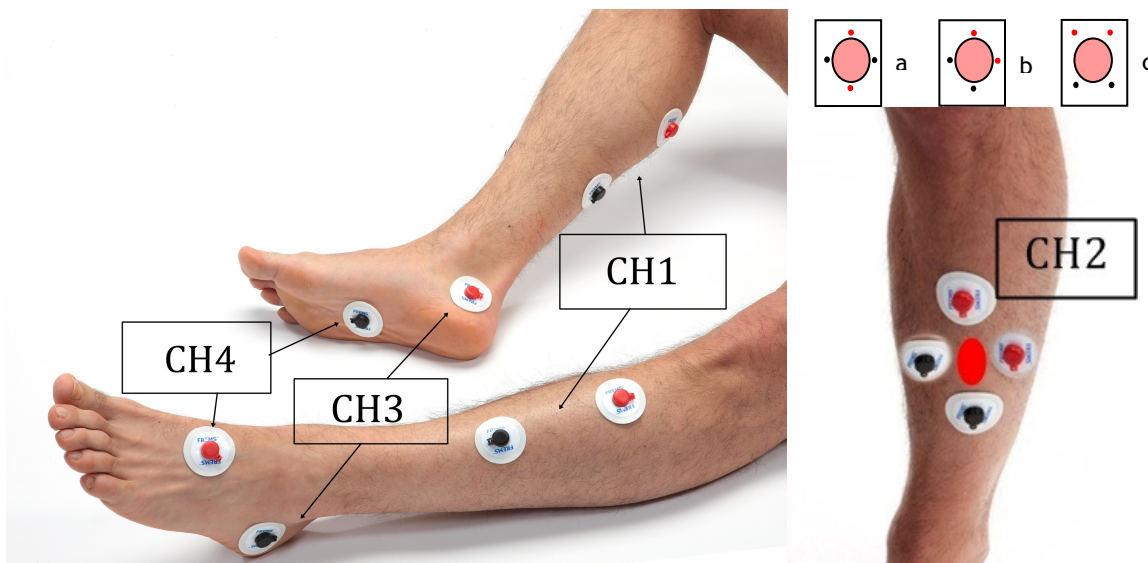
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	30
Phase 2 (min)	10
Total time session (min)	40

5.5 MIXED ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



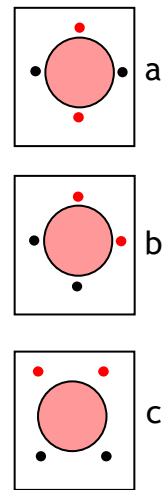
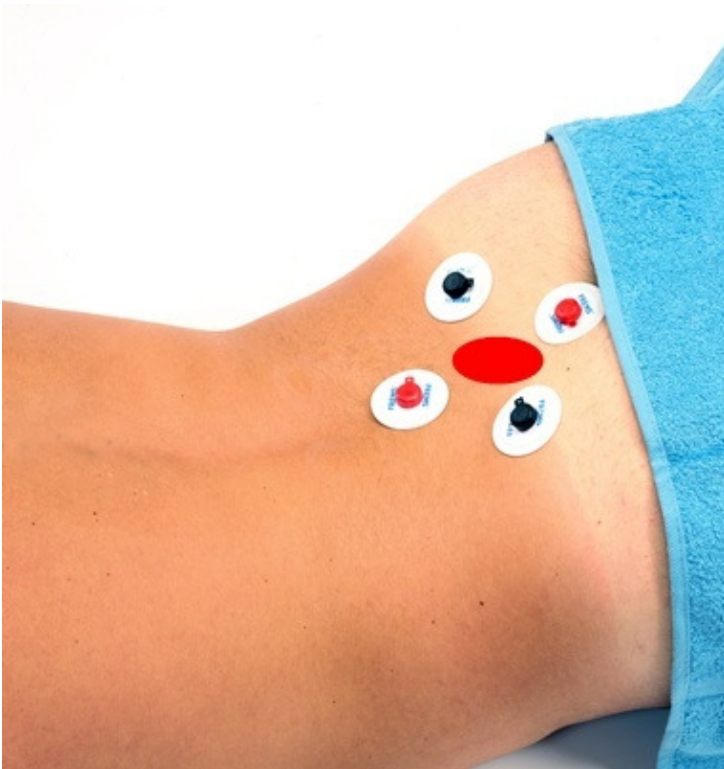
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	25
Phase 2 (min)	10
Total time session (min)	35

5.6 PRESSION ULCER

ELECTRODES POSITIONING

Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.



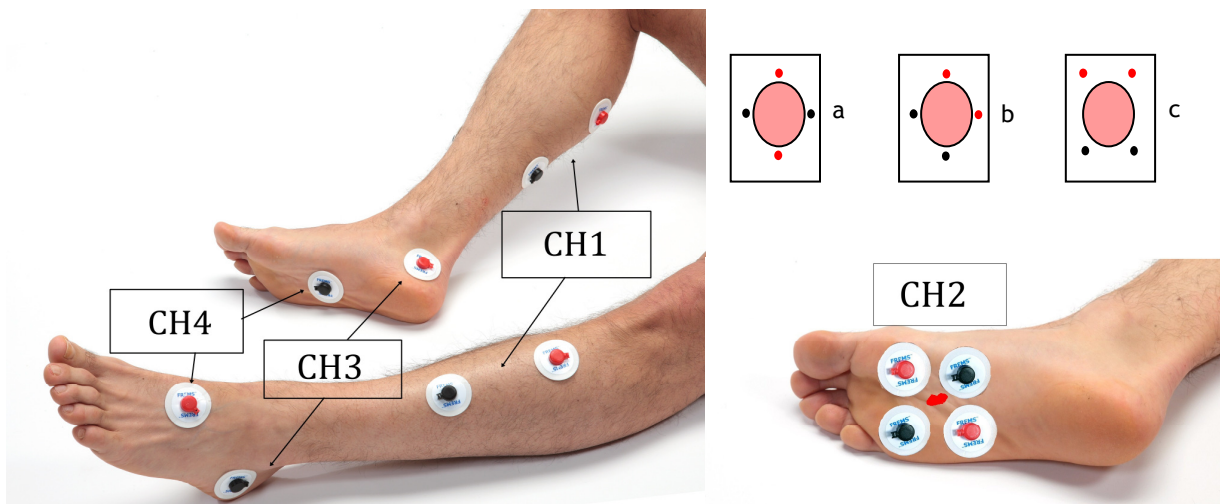
ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	15
Phase 2 (min)	10
Total time session (min)	25

5.7 NEUROPATHIC ULCER

ELECTRODES POSITIONING

CHANNEL 1	Apply one pair of electrodes on the calf and another one on the tibial muscle, positioning the red electrode on the muscle and the black electrode on the tendon-muscle insertion. Follow the same scheme on the other leg.
CHANNEL 2	Apply two pairs of electrodes around the ulcer, on a part of healthy and clean skin, following one of the schemes shown in figures a, b, c.
CHANNEL 3	Apply one pair of electrodes below each malleolus, placing the red electrode on the internal side of the ankle. Follow the same scheme on the other ankle.
CHANNEL 4	Apply one pair of electrodes on each foot, placing the red electrode on the upper side and the black one on the sole. Follow the same scheme on the other foot.



ESTIMATED TIME FOR EACH SESSION

SESSION	single
Phase 1 (min)	25
Phase 2 (min)	10
Total time session (min)	35